

WEIGHING THE COSTS OF OBESITY IN TENNESSEE



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STATE OF TENNESSEE

COMPTROLLER OF THE TREASURY

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March 1, 2006

The Honorable John S. Wilder
Speaker of the Senate
The Honorable Jimmy Naifeh
Speaker of the House of Representatives
and
Members of the General Assembly
State Capitol
Nashville, Tennessee 37243

Ladies and Gentlemen:

Transmitted herewith is a report by the Office of Research about obesity in Tennessee. The report examines the rise in obesity rates over the past three decades, the health risks and financial costs associated with the condition, and the contributing factors that have produced record levels of obesity in our state and nation. The report also provides recommendations for legislative and administrative consideration.

Sincerely,

John G. Morgan
Comptroller of the Treasury

WEIGHING THE COSTS OF OBESITY IN TENNESSEE



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EXECUTIVE SUMMARY

Adult obesity rates have surged over the past three decades, doubling from roughly 15 percent of Americans in the late 1970s to approximately 30 percent today. The increase among children and youth over the past 25 years is even more pronounced, *doubling* for children and *tripling* for adolescents.

In 1990, no state had an obesity rate over 14 percent. Thirteen years later, 35 states posted obesity rates over 20 percent. The swift rise in obesity has fueled heightened national attention and debate and spurred local, state, and federal policymakers into action. Obesity is an equal opportunity condition, found among all age, race, ethnic, gender, and income groups, although certain demographic groups are more likely to be obese, such as the poor, minorities, and Southerners.

Tennessee has not been immune from the rapid rise in obesity rates. In fact, several reports and indicators consistently rank Tennessee as one of the most obese states:

- Tennessee ranked fifth in the U.S. for the highest rate of adult obesity in 2004.
- State law has recognized Tennessee as a state with epidemic proportions of childhood obesity, one of the highest rates of pediatric obesity and childhood type II diabetes, and one of the highest rates of heart disease in the United States.

Tennessee's high rate of obesity incurs a high price. Direct medical costs associated with obesity in Tennessee totaled an estimated \$1.84 billion in 2003.¹ Approximately 50 percent of this \$1.84 billion was borne by Medicare and Medicaid, at \$433 million and \$488 million, respectively. The estimated annual costs of overweight and obesity for the nation as a whole totaled an estimated \$117 billion in 2000. The significant fiscal costs of obesity stem from its close association with several serious chronic diseases and numerous health conditions, including certain cancers, heart disease, stroke, diabetes, and degenerative osteoarthritis.

Multiple factors, some relatively simple and others quite complex, have produced today's record high rate of obesity. Like most Americans, Tennesseans are consuming more calories, failing to engage in adequate amounts of physical activity, and living in a society with historically low food prices and employment that is more sedentary than the agricultural-based work of past centuries.

Confronted with the obesity epidemic and its health and fiscal toll, the public, private, and nonprofit sectors have responded with a profusion of anti-obesity initiatives and wellness campaigns. In Tennessee, such programs have seen a significant increase in the past five years, operating in a variety of settings, from schools to workplaces to churches to local health departments.

The report concludes:

Tennessee lacks a comprehensive strategic plan, with clear, specific goals and objectives, to reduce obesity rates and evaluate progress. A consistent theme that emerged from Office of Research interviews with state, higher education, local health department, and nonprofit officials was that Tennessee lacks a strategic plan and cohesive vision for addressing obesity. A strategic plan could analyze the strengths and weaknesses of current approaches to obesity prevention and treatment and chart a course to reduce the state's high rate of overweight and obesity. Such a plan should solicit the input of relevant state and local officials, health care providers, school officials, the public health community, business and industry, and faith-based organizations.

¹ National Conference of State Legislatures, "The High Costs of Obesity," *State Legislatures*, April 2004, p. 6.

The lack of a strategic plan places Tennessee at a disadvantage when competing for funding from external sources. For example, although 28 states received basic implementation or capacity building grants for obesity programs in 2004 from the Centers for Disease Control and Prevention (CDC), Tennessee received no funding.² Senate Bill 2038 – the Child Nutrition and Wellness Act of 2005 - would require the state to develop a comprehensive long-range plan to address childhood obesity through a multi-agency effort with clear goals and responsibilities. Such a comprehensive long-range plan is also needed to address obesity among the whole population, both child and adult. (See pages 23-24.)

The absence of detailed and specific data on obesity yields an incomplete picture of obesity’s prevalence and severity throughout the state. Interviewees identified the lack of a coordinated system for collecting and obtaining body mass index (BMI) data across the state as the largest data gap in the state’s obesity research, complicating trend identification and hampering evaluation efforts and documentation of progress. BMI data for children can be found for students in those school systems opting to participate in the screenings authorized by Public Chapter 194 of 2005 or other programs, such as the Coordinated School Health Pilot Programs; however, a broader data set is needed for a more complete picture of obesity throughout the state.

With more detailed and specific data, policymakers could better diagnose the obesity problem in Tennessee and implement better informed and more effective solutions. Collection and analysis of data would permit evaluation of obesity programs’ performance and impact, reducing reliance on anecdotal information to support program effectiveness. (See page 24.)

Unlike some other states, Tennessee’s health and wellness incentives for state employees are underdeveloped. State employee health risk data in 2003 and 2004 show the top two health risks were a high body mass index and a low level of physical activity. Although caution should be used in generalizing this data to all state employees since participation in the health risk appraisal is voluntary, this analysis shows a high level of obesity among participating state employees over two consecutive years.

Research shows a correlation between obesity and higher absenteeism, higher disability rates, lower productivity rates, and higher health care costs. Insurance expenditures for state employees with a principal diagnosis of obesity totaled almost \$3 million in 2004; however, this total does not include expenditures for which obesity was only a *contributing* factor or pharmacy benefits, which would raise the total cost.

Although Tennessee offers employees some health and wellness programming and fitness club discounts, some other states offer employees monetary incentives to participate in health screenings and accomplish personal wellness goals. Tennessee employees might benefit from more closely integrating state employee wellness programs with the Division of Insurance Administration, creating more incentives for employees to participate in health risk appraisals and improve their health status. Although the Division of Insurance Administration contracts with an outside organization to provide employees with health risk appraisals, on-site screenings, and life style management and intervention follow-up, current staffing levels for the program consist of just two employees for the entire state.³ The FY2005-06 budget authorizes up to \$550,000 for the wellness program or other state employee insurance programs.⁴ (See pages 24-25.)

Physical education has declined over the past decade. In addition, the Department of Education no longer employs a state-level physical education consultant. The percentage of students that attend physical education class daily nationwide declined between 1991 and

² “F as in Fat: How Obesity Policies are Failing America,” pp. 53, 54.

³ Interview with Regina Ranish, Manager, State Employee Wellness Program, Department of Finance and Administration, August 25, 2005.

⁴ Public Acts, 2005, Chapter No. 503.

2003. According to a 2000 Centers for Disease Control and Prevention study, only six to eight percent of elementary, middle, and high schools provide daily physical education for the entire school year for students in all grades.

State and local health department, higher education, and nonprofit officials emphasize increasing children's physical activity in school as key to reducing childhood overweight. Tennessee requires physical education for students in grades K-8; however, the state does not require a specific number of minutes or days per week. Local education agencies determine the duration and frequency of physical education classes. Students in grades 9-12 must complete the Lifetime Wellness course as a condition for graduation. The Lifetime Wellness curriculum includes seven standards, including one for physical activity and fitness.⁵ Some school systems have additional physical education requirements.

In 2005, the General Assembly considered legislation requiring a minimum number of physical education minutes per week for K-8 students.⁶ According to the bill's fiscal note, its passage into law would have required school systems to hire additional physical education instructors, make facility improvements, and purchase additional equipment at a total cost in excess of \$60 million.

The Department of Education no longer employs a physical education consultant, leaving local education agencies without a state-level contact for communication, collaboration, consultation on best practices, and technical assistance in this area. Such a position could help local education agencies explore integrating physical activity with academic instruction, another avenue for increasing students' physical activity. (See pages 25-27.)

Tennessee's Coordinated School Health Programs articulate a comprehensive and proactive approach to student health, but reach only a small percentage of students.

Coordinated School Health Programs (CSHPs) support students' physical, social, and cognitive health and development. The nine key components of Tennessee's CSHPs include academic progress, health education, physical education, healthy school climate, staff wellness, school health services, mental health services, nutrition, and family and community involvement. The CDC recommends CSHPs as one of its key strategies to prevent obesity.

The General Assembly statutorily authorized the CSHPs in 2000. Annual state appropriations of \$1 million currently support 10 pilot sites around the state. Funding constraints, however, have limited further expansion. Other school systems have expressed interest in adopting the model, according to Department of Education officials, and several interviewees support the expansion of the model beyond the original 10 pilot sites. (See pages 27-28.)

Tennessee might benefit from exploring farm-to-school programs that provide students with fresh fruits and vegetables and open up new markets for state agricultural products.

Farm-to-school programs link public school demand for more nutritious cafeteria fare with the fruit and vegetable supply from area farms. Fresh fruits and vegetables are more nutritious than those that have been heavily processed, frozen, and canned and can make cafeteria offerings a more attractive meal option for students.

One barrier to the expansion of farm-to-school programs throughout the state is coordination of the harvest season with the traditional school calendar. Developing farm-to-school programs in Tennessee would require a thorough examination of the infrastructure and logistics of supplying schools with produce from local farms, and potential legal issues surrounding changes to the food procurement process. Despite these challenges, other states have experienced success with formal farm-to-school programs, including North Carolina. (See pages 28-29.)

⁵ Lifetime Wellness, Grades 9-12, Course Description, Tennessee Department of Education website, <http://tennessee.gov/education/ci/cipewellhiv/cilifetimewellness.html>, Accessed January 20, 2006.

⁶ Senate Bill 1231, 2005, 104th General Assembly.

Tennessee does not require school food service directors to obtain credentialing or certification in nutrition. School food service directors are responsible for multiple duties beyond assessing the nutritional content of school meals, including food procurement, logistics, compliance with governmental rules and regulations, personnel, and finance/budgeting. According to state officials, the nutritional content of school meals occupies a relatively small percentage of their daily activities.

In 2005, the Kentucky General Assembly passed legislation requiring school food service directors or those otherwise responsible for meal planning in each school district to either obtain credentialing as a “school food service and nutrition specialist” or a specific level of certification by the American School Food Service Association by June 2008. To maintain the credential or certification, the legislation requires eight hours of mandated continuing education be directly related to applied nutrition and healthy meal planning and preparation.⁷ (See pages 29-30.)

Recommendations

Legislative Recommendations (See pages 31-32.)

- The General Assembly may wish to appropriate funding to expand the number of Coordinated School Health Program sites.
- The General Assembly may wish to require more physical activity in schools.
- The General Assembly may wish to require school food service directors obtain credentialing or certification in nutrition.

Administrative Recommendations (See pages 32-34.)

- The Governor’s Council on Physical Fitness and Health should develop a strategic plan to prevent and reduce overweight and obesity in Tennessee.⁸
- The Department of Health should pursue efforts to increase the quantity and quality of obesity data throughout the state.
- The State Employee Wellness Program should enhance current incentives and develop new programs for state employees seeking to lose weight or maintain a healthy weight.
- The Department of Education should create a physical education consultant position at the state level.
- The Departments of Education and Agriculture should explore the expansion and formalization of farm-to-school programs in Tennessee.

See pages 37-45 for responses from the Departments of Agriculture, Finance and Administration (Division of Insurance), Education, and Health.

⁷ Kentucky Revised Statutes, 158.852, Section (2) (a) and (c), Effective June 20, 2005.

⁸ Note: The Comptroller of the Treasury or the Comptroller’s designee is a statutorily required member of the Governor’s Council on Physical Fitness and Health. TCA § 4-40-101.

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INTRODUCTION

Tennessee consistently ranks as one of the most obese states in America according to several reports and indicators:

- Tennessee ranked fifth in the U.S. for the highest rate of adult obesity in 2004.¹
- State law has recognized Tennessee as a state with epidemic proportions of childhood obesity, one of the highest rates of pediatric obesity and childhood type II diabetes, and one of the highest rates of heart disease in the United States.²

Obesity rates have risen precipitously over the past two decades, both in Tennessee and across the nation. In 1990, no state had an obesity rate over 14 percent. Thirteen years later, obesity rates were over 20 percent in 35 states. The reasons behind this substantial growth rate are numerous and complex. Like most Americans, Tennesseans are consuming more calories, failing to engage in adequate amounts of physical activity, and living in a society with historically low food prices and employment that is more sedentary than the agricultural-based work of past centuries.

High obesity rates come with a high human and fiscal cost. Obesity is closely associated with several serious chronic diseases and numerous health conditions, including some cancers, heart disease, stroke, diabetes, and degenerative osteoarthritis. Direct medical costs associated with obesity in Tennessee totaled an estimated \$1.84 billion in 2003, with Medicaid expenditures comprising \$488 million of that total.³

Confronted with obesity's rise, its health complications, and high fiscal toll, the public, private, and nonprofit sectors have responded with a profusion of anti-obesity initiatives and wellness campaigns. In Tennessee, such programs have seen a significant increase in the past five years, operating in a variety of settings, from schools to workplaces to churches to local health departments.

Methodology

Information, conclusions, and recommendations in this report are based on:

- Interviews with appropriate officials from the following entities:
 - Members of the General Assembly
 - Department of Health
 - Department of Education
 - State Board of Education
 - Department of Human Services
 - Department of Finance and Administration (State Employee Wellness Program)
 - Tennessee Healthy Weight Network
 - University of Tennessee Extension
 - University of Tennessee Department of Nutrition
 - Vanderbilt Center for Evidence-Based Medicine
 - Regional and county health departments
 - Local education agencies
 - Health care providers and nonprofit organizations

¹ Trust for America's Health, "F as in Fat: How Obesity Policies are Failing in America," 2005, p. 14.

² Public Acts, 2004, Chapter No. 708.

³ National Conference of State Legislatures, "The High Costs of Obesity," *State Legislatures*, April 2004, p. 6.

- A review of relevant state law, administrative rules and regulations, and policies in Tennessee, especially the State Board of Education’s Physical Activity Policy, and other states;
- Attendance at public health conferences and Tennessee legislative hearings addressing childhood and adult obesity;
- A review of academic literature and research reports on obesity and related issues, including publications from the Centers for Disease Control and Prevention, the National Conference of State Legislatures, and the National Bureau of Economic Research; and
- A review of monographs, newspapers, magazines, periodicals, television, radio, and other media broadcasts on the rise and ramifications of overweight and obesity.

BACKGROUND

Numerous reports from public health officials, academic researchers, and the mass media have chronicled and continue to analyze and report on the growth in obesity rates, contributing factors, and the consequences and implications, from premature mortality to health care costs and even to military preparedness. A sampling of recent studies, the remarks of public health officials, and actions taken by public health authorities attest to the seriousness of this issue:

- A 2005 *New England Journal of Medicine* article analyzing the effect of obesity on longevity concludes the steady rise in life expectancy over the past two centuries may soon come to an end, with today’s generation facing shorter and less healthy lives than their parents.⁴
- “This is an epidemic (obesity) in the United States the likes of which we have not had before in chronic disease.” [Obesity-related health costs by 2020 will make] “HIV look, economically, like a bad case of the flu.” – William Dietz, Centers for Disease Control and Prevention (CDC) director of nutrition and physical activity.⁵
- “Our preparedness as a nation depends on our health as individuals . . . The military needs healthy recruits.” – U.S. Surgeon General Richard Carmona.⁶
- In an historical first, the CDC dispatched a public health team into West Virginia to study that state’s outbreak of obesity using skills and techniques similar to those used in analyzing the outbreak of an infectious disease.⁷
- “This is a real epidemic. We haven’t seen anything quite like it. This is unprecedented in its speed and how sustained the growth rates have been.” – Dr. James Marks, comments made at the Council of State Governments’ Trends Summit on Obesity.⁸

Adult obesity rates have doubled over the past three decades, with more than 60 million, or about 30 percent of, adults aged 20 and over now classified as obese.⁹ Conservative estimates place the number of adults that are *either overweight or obese* at 65 percent.¹⁰ Historical trend data

⁴ S. Jay Olshansky et al., “A Potential Decline in Life Expectancy in the United States in the 21st Century,” *New England Journal of Medicine*, Vol. 352, Number 11, March 17, 2005, pp. 1138, 1140.

⁵ Sharron Dalton, *Our Overweight Children: What Parents, Schools, and Communities Can do to Control the Fatness Epidemic*, Berkeley, University of California Press, 2004, p. 3.

⁶ *Ibid.*, p. 4.

⁷ Gina Kolata, “C.D.C. Investigates Outbreak of Obesity,” *The New York Times*, June 3, 2005.

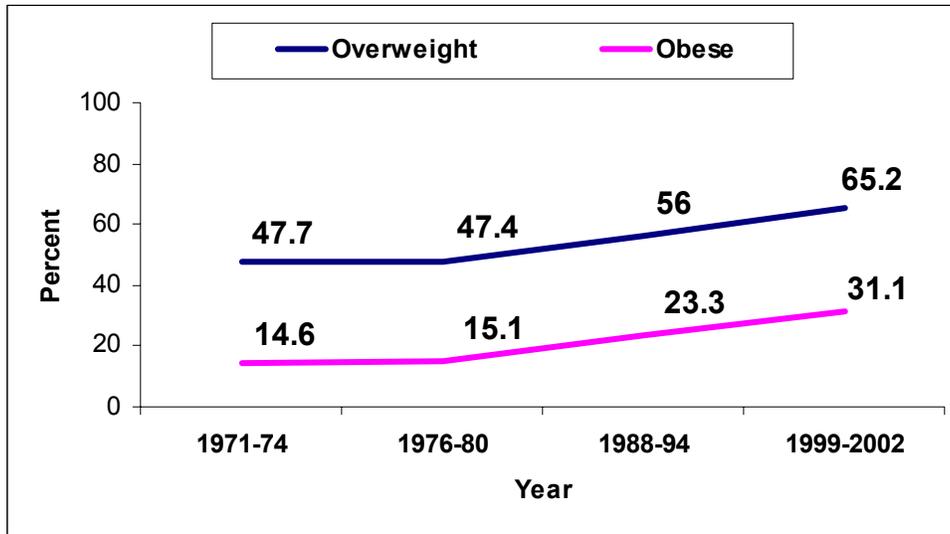
⁸ Tim Anderson, “CSG Summit Focuses on Innovative Policies to Combat Obesity,” *Stateline*, The Midwestern Office of the Council of State Governments, Vol. 14, No. 8, August 2005, p. 3.

⁹ National Center for Health Statistics, “Figure 2: Age-adjusted prevalence of overweight and obesity among US adults, age 20-74 years,” Prevalence of Overweight and Obesity Among Adults: United States, 1999-2002; Centers for Disease Control and Prevention, “Overweight and Obesity: Home,” <http://www.cdc.gov/nccdphp/dnpa/obesity/>, Accessed January 23, 2006.

¹⁰ Centers for Disease Control and Prevention, “Public Health Strategies for Preventing and Controlling Overweight and Obesity in School and Worksite Settings: A Report on Recommendations of the Task Force on Community Preventive Services,” October 7, 2005.

show obesity rates between 1960 and 1980 increased only slightly, followed by a marked rise over the subsequent three decades up to today.¹¹

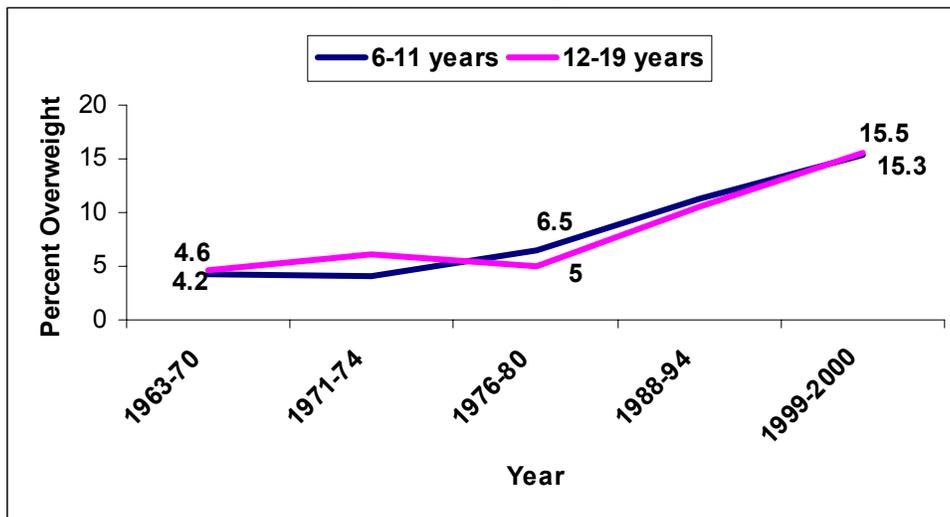
Exhibit 1: Trends in Overweight and Obese Adults, 1971-2002



Source: US Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Health Statistics, "Health, United States, 2004," pp. 241, 242. Note: Figures are for Adults, 20-74 years.

For children and youth, the increase in overweight is even more pronounced, *doubling* for children and *tripling* for adolescents over the past 25 years.¹²

Exhibit 2: Rise in Overweight Status Among Children and Youth, 1963-2000



Source: Nemours Health and Prevention Services, "Quick Facts on Childhood Overweight," June 2005.

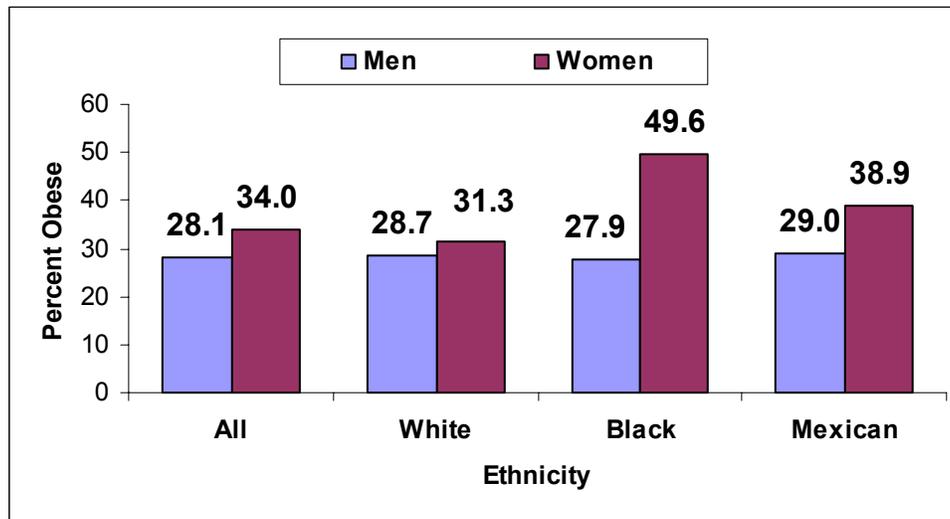
¹¹ Jayachandran N. Variyam, "The Price is Right: Economics and the Rise in Obesity," *Amber Waves*, US Department of Agriculture, Economic Research Service, February 2005.

¹² Amy Winterfeld, "Treating Obesity," National Conference of State Legislatures Legisbrief, Vol. 13, No. 32, August/September 2005.

Obesity is on the rise among almost all age, race, ethnic, gender, and income groups.¹³ However, despite its wide demographic breadth, certain population groups are more likely to be obese:

- Obesity rates are highest among low-income Americans; however, recent research shows an increase in obesity rates among those with an annual income above \$60,000.¹⁴
- Obesity rates are highest in the South, lowest in Western states like Colorado and Utah.¹⁵
- Obesity rates are generally higher among women of low socioeconomic status and African American and Hispanic women.¹⁶
- Obesity rates are on the rise among older Americans. Data show overweight and obesity among adults aged 60 or older is high, with 74.1 percent of males and 68.1 percent of females in this age range overweight or obese.¹⁷

Exhibit 3: Adult Obesity by Sex and Ethnicity, 1999-2000



Source: US Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Health Statistics, "Health, United States, 2004," p. 37. Note: Figures are for Adults, 20-74 years.

¹³ Jayachandran N. Variyam, "Patterns of Caloric Intake and Body Mass Index Among U.S. Adults," *Food Review*, US Department of Agriculture, Economic Research Service, Vol. 25, Issue 3, January 2003, p. 16; American Heart Association, "Obesity Spreading Out to All Income Levels," Meeting Report, May 2, 2005.

¹⁴ American Heart Association, "Obesity Spreading Out to All Income Levels," Meeting Report, May 2, 2005.

¹⁵ Cathy Newman, "Why Are We So Fat?" *National Geographic*, Vol. 206, No. 2, August 2004, p. 50.

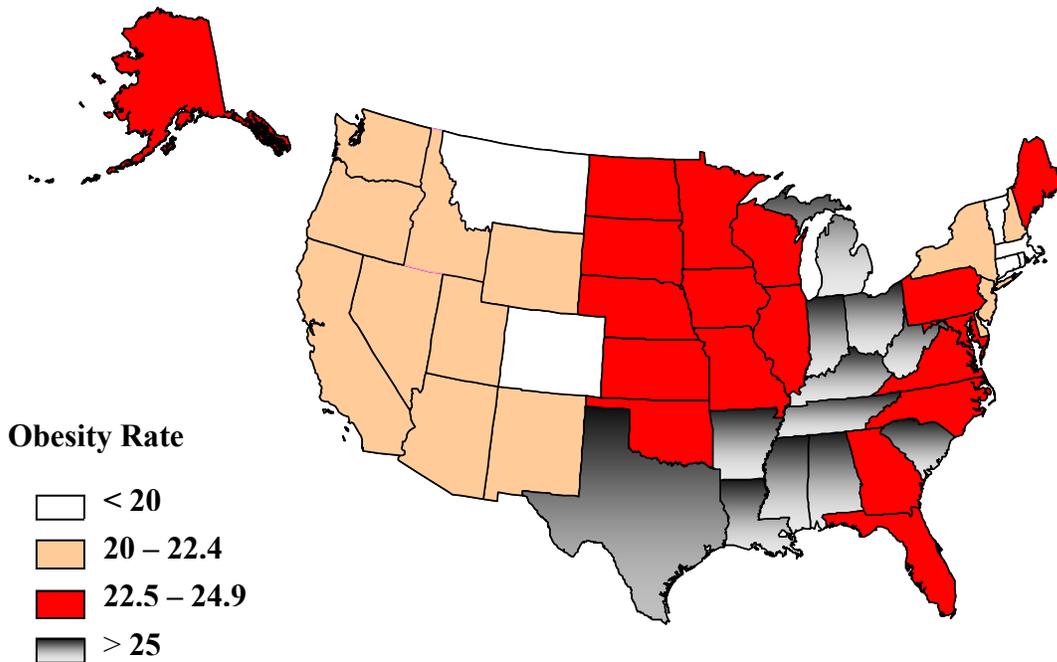
¹⁶ Healthy People 2010 website, "Leading Health Indicators," http://www.healthypeople.gov/document/html/uih/uih_4.htm, Accessed January 12, 2006.

¹⁷ Arkansas Geriatric Education Center, "Nutrition and Aging XVIII: Obesity in Older Adults," *AGEC Vision*, Vol. 5, No. 1, October 2003.

Obesity in Tennessee

Tennessee has not been immune from the rapid rise in obesity rates. Tennessee ranked fifth in the U.S. for the highest rate of adult obesity in 2004.

Exhibit 4: Obesity Rates by State, 2004



Source: "A Heavy Nation: Percentage of Adults in Each State Who Were Obese in 2004," *New York Times*, http://graphics8.nytimes.com/images/2005/08/24/health/24obese_graphic_lg.gif, Accessed August 24, 2005, based on data from the Trust for America's Health; Centers for Disease Control and Prevention.

An examination of state legislation in Tennessee over the past five years shows a variety of bills targeting some aspect of obesity, from encouraging BMI assessments for students to requiring health insurers to provide coverage for bariatric surgery.¹⁸ The following exhibit provides a sample of recent legislation and its current status.

¹⁸ Note: Bariatric, or weight loss, surgery, describes surgical procedures performed specifically for the purpose of attempting to induce appetite control, weight loss, and long-term dietary modification. Definition from Vanderbilt Center for Surgical Weight Loss website, <http://www.mc.vanderbilt.edu/root/vumc.php?site=bariatric&doc=4265>, Accessed January 13, 2006.

Exhibit 5: Review of Obesity-Related Legislation in Tennessee, 2002-2005

Bill Number	Year	Purpose	Status
HB367	2002	Requires Department of Health or its designee to collect and analyze data on the treatment of obesity. Research shall only occur if the Department of Health receives funding from individuals, private organizations, foundations, and/or governmental units other than the state of Tennessee.	Passed (Public Chapter 658)
HB2246	2004	Requires health insurers to offer bariatric surgery coverage for clinically severe obesity.	Failed
HB2947	2004	Prohibits selling food and beverages from vending machines in elementary, middle, and high schools.	Failed
SB2379	2004	Grants food manufacturers, distributors, sellers, and marketers immunity from liability in civil suits regarding weight gain, obesity, or related health conditions.	Passed (Public Chapter 570)
HB2783	2004	Requires State Board of Education to promulgate rules governing minimum nutritional standards for food items sold or offered for sale to pupils in grades pre-K-8.	Passed (Public Chapter 708)
HB445	2005	Authorizes LEAs to complete student BMI assessments.	Passed (Public Chapter 194)
SB1231	2005	Requires LEAs to create student health advisory councils; urges schools to target 150 minutes of physical education each week for K-8 students; requires Department of Education to provide physical education academic content standards and to create and fill director of physical education position.	Senate: Passed House: Taken off notice
SB2038	2005	Requires Commissioner of Health to appoint child nutrition and wellness council with assistance from Tennessee Healthy Weight Network; creates Office of Child Nutrition and Wellness in Department of Health.	Senate: Passed House: Taken off notice
HB785	2005	Authorizes Department of Transportation to establish and administer a Safe Routes to School Program. Such programs encourage increased walking and biking to school by increasing pedestrian safety.	Pending
SB1802	2005	Requires State Board of Education to submit report disclosing revenue generated from competitive food and beverage contracts in elementary and secondary schools.	Senate: Failed to pass Education Committee House: Pending

Source: Tennessee General Assembly, <http://www.legislature.state.tn.us>; Centers for Disease Control and Prevention State Legislative Information, <http://apps.nccd.cdc.gov/DNPALeg/>

In April 2004, the Department of Health began a new health initiative – Better Health: It’s About Time! – to increase public awareness of the importance of a healthy lifestyle, encourage personal responsibility by targeting lifestyle (obesity, cardiovascular disease, and diabetes) and lifestart (infant mortality, adolescent pregnancy, and inadequate prenatal care) components, and

eliminate racial and ethnic disparities in these areas.¹⁹ The state also recently joined with Vanderbilt Children's Hospital and Nashville Metropolitan Government to increase awareness of childhood overweight and improve child health.²⁰ Furthermore, the National Governors Association has created a six-governor committee, the Healthy America Task Force, to improve public awareness of the need to live healthier lives; Governor Bredesen is a member.²¹

On the local level, all four major metropolitan areas of Tennessee and several smaller counties, either individually or in conjunction with other local governments, have begun or are planning healthy weight and wellness initiatives that address obesity.

Memphis: The Healthy Memphis Common Table, a 501(c)(3) consortium/network of public, private, and nonprofit agencies and organizations working to improve health in the Mid-South region has set a goal of reversing the growth of obesity and diabetes in the Mid-South by 2008.²²

West Tennessee: The Delta Rural Health Initiative is a collaborative effort of health care and social service providers in seven rural West Tennessee counties.²³ The initiative began implementation in the summer of 2004, and targets several chronic diseases (heart disease, diabetes, stroke, and cancer) and their associated risk factors such as obesity, poor nutrition, and lack of exercise. Initiative programming includes chronic disease management and school-based nutrition, walking, and worksite wellness programs.

Nashville: Established in late 2002, Healthy Nashville 2010 is a health status and quality of life improvement initiative. Healthy Nashville 2010 is guided by a leadership council comprised of local and state government officials and representatives from the nonprofit, higher education, and private sectors. Following an assessment of area health indicator data and community perceptions, the leadership council identified obesity, overweight, and physical activity as Nashville's top health priority. Healthy Nashville 2010's Healthy Nashville STEPS program aims to increase the number of steps Nashvillians take on a daily basis and decrease daily caloric intake by 100 calories until participants reach a healthy weight and an adequate level of physical activity.²⁴

Chattanooga: Recognizing obesity as a growing health epidemic across the community, state, and nation, Hamilton County Government, the area Regional Health Council, and the Chattanooga-Hamilton County Health Department developed Step ONE: Optimize with Nutrition and Exercise, a community wellness initiative. According to the program's 2004 report, residents of Hamilton County spent an estimated \$88 million on obesity-related health care costs in 2003. The administrative structure of Step ONE includes a steering committee and nutrition and fitness advisory boards. Workgroups in six areas (home/family, neighborhood, faith-based institutions, schools, worksites, and health care

¹⁹ Tennessee Department of Health – News Releases, "Governor Makes Wake Up Call for Tennessee, Better Health: It's About Time!" Nashville, April 5, 2004.

²⁰ "Healthy Kids 2025 – An Employer Sponsored Health Initiative," *Working Well Newsletter*, State Employee Wellness Program, August 2005.

²¹ National Governors Association News Release, "Nation's Governors Set Sights on Healthy America," September 23, 2005.

²² Healthy Memphis Common Table website, Initiatives, <http://www.healthymemphis.org/Initiatives.426.0.html#142>, Accessed January 13, 2006.

²³ Note: The Delta Rural Health Initiative covers 19 counties throughout the Mississippi Delta. Seven of these counties are in Tennessee (Dyer, Fayette, Haywood, Henderson, Lake, McNairy, and Weakley). Interview with and program description materials received from Pam Burnett, Coordinator of the Delta Rural Health Initiative, Le Bonheur Children's Medical Center - Jackson, July 27, 2005.

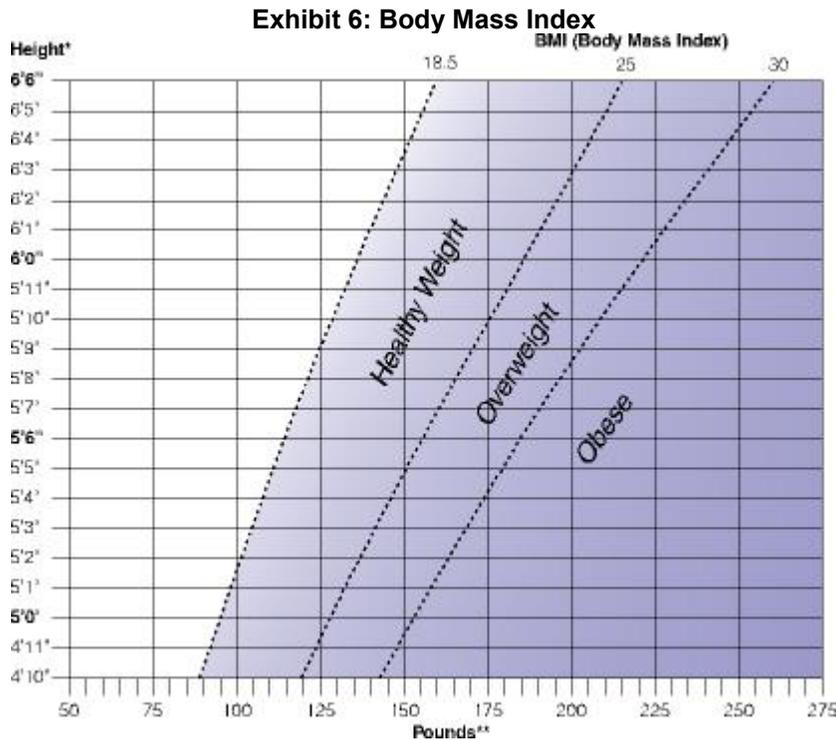
²⁴ 'Healthy Nashville 2010: 2005 Progress Report', <http://healthweb.nashville.org/HealthyN2010/HN2010ProgressReport2005.pdf>, Accessed January 13, 2006.

providers and related resources) have proposed more than 140 specific recommendations to promote better nutrition and more physical activity.²⁵

Knoxville: In May 2004, the Knox County Health Department and East Tennessee Regional Health Office declared obesity the number one area public health problem and announced the creation of the East Tennessee 2 Step initiative. After convening a Healthy Weight Summit and soliciting input from the community, program coordinators released their recommendations for achieving a healthy weight in East Tennessee in January 2005. These recommendations include specific nutrition and physical activity strategies tailored for schools, worksites, the health care system, and communities.²⁶

Obesity Defined

Obesity is defined as *an abnormally high proportion of body fat*; overweight is *an excess amount of body weight compared to set standards that include muscle, bone, fat, and water*.²⁷ The most commonly used medical measure of overweight and obesity is the body mass index, or BMI. Health agencies, epidemiologists, and medical professionals use the BMI to classify individuals as overweight and obese.



Source: Weight-control Information Network, "Understanding Adult Obesity," National Institute of Diabetes and Digestive and Kidney Diseases, October 2001. Note: To determine your BMI, plot the intersection of your weight and height.

²⁵ Hamilton County Government, Regional Health Council, and Chattanooga-Hamilton County Health Department, "Healthy Eating and Physical Activity: A Community Approach, Step 1, Hamilton County's Plan for Reducing Obesity," November 2004, pp. 1, 23, and 37.

²⁶ Knox County Health Department, East Tennessee Regional Health Office, "East Tennessee 2 Step, Achieving Healthy Weight in Tennessee, Recommendations for Schools, Worksites, Healthcare Systems, and Communities," January 2005, pp. 3, 5, 46, 50-51.

²⁷ Weight-control Information Network, "Statistics Related to Overweight and Obesity," An information service of the National Institute of Diabetes and Digestive and Kidney Diseases, <http://win.niddk.nih.gov/statistics/index.htm>, Accessed January 13, 2006.

A person's body mass index score categorizes them as either underweight, normal weight, overweight, or obese. A BMI below 18.5 qualifies as underweight, which can also be associated with poor health. The normal weight range falls between a BMI of 18.5 and 24.9. Individuals with a BMI of 25 up to 29.9 are classified as overweight. A BMI of 30 or above qualifies as obese.

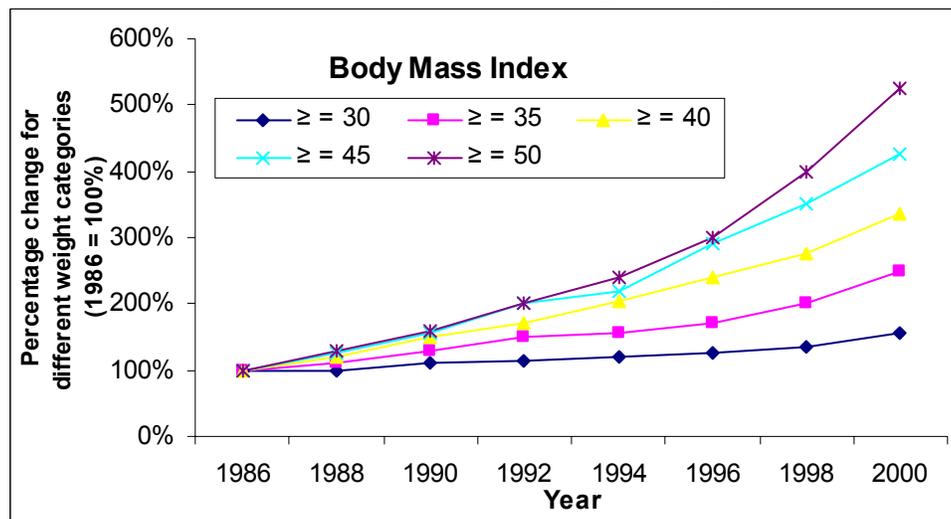
Exhibit 7: BMI Cut-Off Points

Body Mass Index	Classification
<18.5	Underweight
18.5 – 24.9	Healthy Weight
25 – 29.9	Overweight
30 – 39.9	Obese
≥40	Morbid, or Extreme, Obesity

Source: Kate Fitch, Bruce Pyenson, Steven Abbs, and Margaret Liang, "Obesity: A Big Problem Getting Bigger," Milliman Consultants and Actuaries, 2004, p. 2.

Health officials refer to those with a BMI of 40 or above, which correlates to 100 pounds above one's ideal body weight, as morbidly obese. A typical morbidly obese man is 5 feet 10 inches tall and weighs 300 pounds.²⁸ Super morbid obesity refers to those with a BMI of 50 or above. In conjunction with the rise in obesity's prevalence, its severity has increased as well, and at an even more rapid pace. Recent research indicates that between 1986 and 2000, the percentage of people with a BMI of 40 or above quadrupled, and those with a BMI of 50 or above quintupled, while the number of obese adults doubled over the same time period.²⁹

Exhibit 8: Increase in Obesity Severity



Source: Roland Sturm and Darius Lakdawalla, "Swollen Waistlines, Swollen Costs: Obesity Worsens Disabilities and Weighs on Health Budgets," RAND Review, Spring 2004.

Although used by the medical profession for a quick estimate of weight status, and by public health officials and researchers for analyzing and researching population trends, the BMI has limitations. Because it measures weight and height without accounting for body composition, the index may overstate obesity in individuals with a high level of lean muscle (e.g., bodybuilders) and understate obesity in elderly individuals with a low ratio of lean muscle to fat. Physicians urge caution in relying on the BMI as the sole basis for diagnosing obesity in an individual without

²⁸ RAND website, "Clinically Severe Obesity On the Rise in the US," <http://www.rand.org/health/healthpubs/obese.html>, Accessed January 13, 2006.

²⁹ Roland Sturm and Darius Lakdawalla, "Swollen Waistlines, Swollen Costs: Obesity Worsens Disabilities and Weighs on Health Budgets," RAND Review, Spring 2004.

conducting other assessments, such as a waist circumference measurement. Precise measurement of body fat requires special expertise and equipment, usually involving underwater weighing or a specific x-ray test.³⁰

BMI for children

To obtain a valid BMI for children, the BMI calculation must be adjusted to account for children's growth processes, physical development, gender, and age. This age-adjusted calculation, referred to as a BMI-for-age, plots a child's height and weight on a growth chart to determine if he or she is within the range of their expected weight. Children with a BMI-for-age between the 85th and 94th percentile for all children are classified as "at risk for overweight." Those above the 95th percentile are classified as "overweight." Health officials avoid using the term "obese" to classify children with a BMI-for-age above the 95th percentile to reduce the stigma associated with the obesity label.

Several states, including Tennessee, have begun performing BMI-for-age screenings on school children. Propelled by a state study revealing 40 percent of school children were either overweight or at risk for overweight, in 2003 Arkansas passed legislation requiring schools to conduct BMI-for-age screenings on all students and provide this information on report cards.³¹ Pennsylvania will begin phasing in the screening process during the 2005-06 school year and is scheduled to cover all students by the 2007-08 school year.³² The stigma associated with overweight and obesity places significant responsibility on school personnel to maintain high standards of confidentiality and privacy in conducting such screenings and safeguard BMI records.³³

Inspired by Arkansas's efforts and a tradition of public health in the Cookeville community, Putnam County Schools has commenced screening all students for BMI and blood pressure. With close to 9,000 students voluntarily screened in 2004, results showed the percentage of children at risk for overweight or overweight was above the national average, with high blood pressure found in over 300 students.

Putnam County officials also report the number of students with diabetes has tripled over the past three years.³⁴ Based on these results, officials have made policy changes to improve student health, including the removal of sodas from vending machines and expanding the number of schools served by school health teams. In 2005, the General Assembly considered mandating BMI screenings for all public school students, ultimately passing Public Chapter 194 of 2005, which authorizes, but does not require, local education agencies to perform a BMI-for-age on school children.³⁵ School systems that choose to participate in the program must meet certain staffing, training, and reporting requirements.

³⁰ National Institute of Diabetes and Digestive and Kidney Diseases, "Understanding Adult Obesity," US Department of Health and Human Services, National Institutes of Health, October 2001.

³¹ Arkansas Center for Health Improvement, "Current Initiatives: BMI Initiative," http://www.achi.net/BMI_Info/bmi.asp, Accessed January 13, 2006.

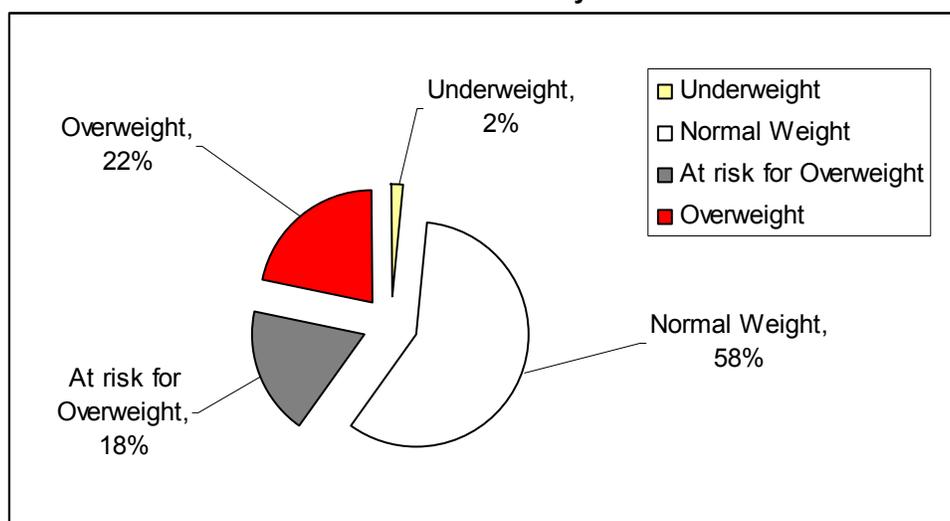
³² Pennsylvania Rural Health News, "Pennsylvania Schools Required to Record BMI of Students," Fall 2004, p. 7.

³³ Testimony of Howell Wechsler, Acting Director, Division of Adolescent and School Health, Centers for Disease Control and Prevention, to the Committee on Energy and Commerce Subcommittee on Oversight and Investigations, U.S. House of Representatives, June 16, 2004; Pennsylvania Department of Health, "Procedures for the Growth Screening Program for Pennsylvania's School-Age Population," June 16, 2004, p. 3.

³⁴ Charles Womack and Nancy Judd, "The Putnam County BMI Initiative," Presentation at the Tennessee Public Health Association Conference, September 15, 2005.

³⁵ Public Acts, 2005, Chapter No. 194.

Exhibit 9: Putnam County BMI Data



Source: Charles Womack and Nancy Judd, "The Putnam County BMI Initiative," Presentation at the Tennessee Public Health Association Conference, September 15, 2005. Note: Figures are rounded.

Public Opinion on Obesity

Recognition of obesity as a serious public health issue has skyrocketed over the past five years. For example, from October to December 1999, a sample of U.S. magazines and newspapers contained fewer than 50 press articles covering the obesity issue. From October to December 2002, a review of the same sample of magazines and newspapers yielded more than 1,200 articles.³⁶ Results from recent public opinion polls and surveys show a substantial majority of the public considers obesity a serious national problem, though public perception of the reasons behind the rise in obesity rates shows less uniformity.

- A majority of Tennesseans, at 79 percent, considered obesity a major national problem according to a 2003 survey. Forty-one percent believed the fast food industry was responsible for the obesity problem; a slight majority (53 percent) opposed vending machines in elementary and secondary schools, and a majority (78 percent) opposed a special tax on snack foods.³⁷
- A recent Princeton and Harvard population survey found 86 percent of national respondents believe obesity is a serious health issue.³⁸
- A 2003 Harvard poll found Americans are ambivalent about the role society and government should play in fighting obesity.³⁹

The Cost of Obesity

Obesity exacts a high price from individuals, the nation's health care system, and the public purse. Ultimately, the cost of obesity is borne by society as a whole through higher health care premiums and higher taxes. The estimated annual costs, both direct and indirect, of overweight

³⁶ Richard Carmona, United States Surgeon General, Remarks at American Enterprise Institute Obesity Conference, June 10, 2003, <http://www.surgeongeneral.gov/news/speeches/obesity061003.htm>, Accessed January 24, 2006.

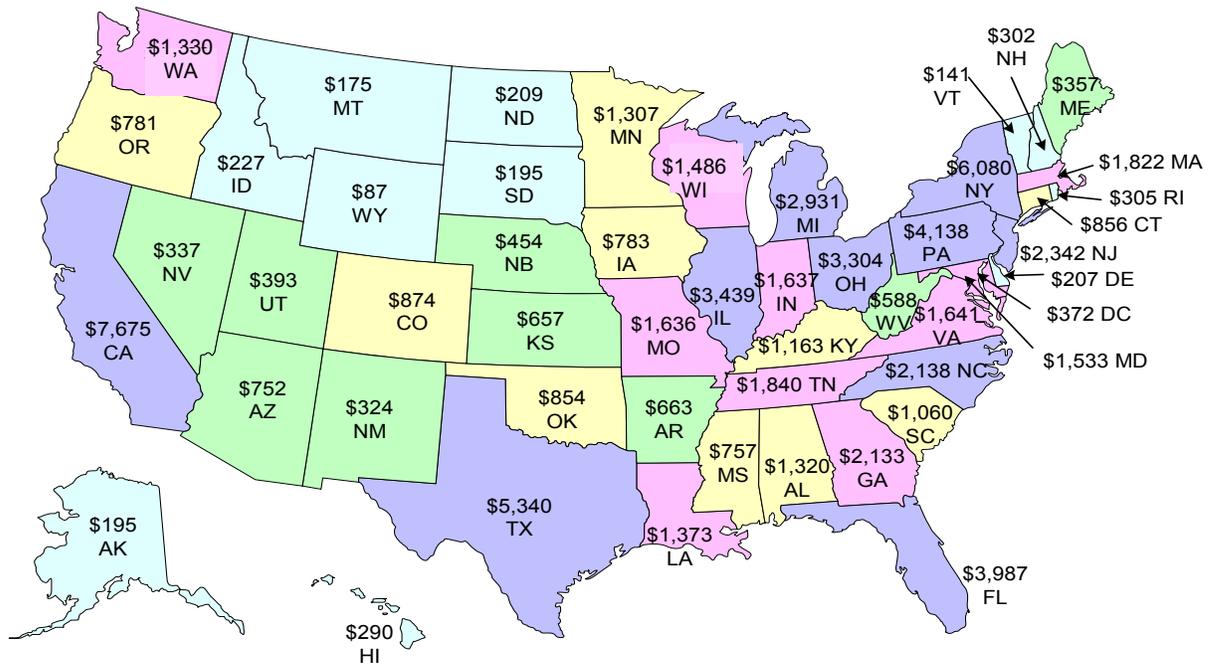
³⁷ The Middle Tennessee State University Survey Group, "Summary of Social Findings," Fall 2003.

³⁸ Kelly D. Brownell and Katherine Battle Horgen, *Food Fight: The Inside Story of the Food Industry, America's Obesity Crisis, and What We Can do About It*, Contemporary Books, New York, 2004, p. 285.

³⁹ Francine R. Kaufman, *Diabesity: The Obesity-Diabetes Epidemic that Threatens America – And What We Must do to Stop It*, New York, Bantam Books, 2005, p. 212.

and obesity totaled \$117 billion in 2000.⁴⁰ Direct medical cost estimates vary by state, ranging from \$87 million to \$7.7 billion; estimated obesity-attributable direct medical costs in Tennessee totaled \$1.84 billion in 2003.⁴¹

Exhibit 10: Estimated 2003 Adult Obesity-Attributable Medical Costs (Dollars in Millions)



Source: National Conference of State Legislatures, "The High Costs of Obesity," *State Legislatures*, April 2004.

An estimated 9.1 percent of total U.S. medical expenditures were attributable to overweight and obesity in 1998.⁴² An Emory University study found the growth in obesity rates and obesity spending relative to people of normal weight made up 27 percent of the growth in inflation-adjusted per capita health spending between 1987 and 2001.⁴³

Obesity boosts health care expenditures in part through increased costs for medical services and drugs. One study found health care costs were 36 percent higher for overweight individuals and medication costs were 77 percent higher compared to the general population.⁴⁴ Lifetime medical costs for chronic diseases such as hypertension, diabetes, stroke, and heart disease among moderately obese people are \$10,000 higher when compared with a normal weight person suffering from similar conditions.⁴⁵ Aside from driving up health care costs through pharmacy benefits, surgical procedures, and treatment costs, obesity has required several middle

⁴⁰ Office of the Surgeon General, "The Surgeon General's Call to Action to Prevent and Decrease Overweight and Obesity," U.S. Department of Health and Human Services, Public Health Service, 2001, p. 10.

⁴¹ National Conference of State Legislatures, "The High Costs of Obesity," *State Legislatures*, April 2004, p. 6.

⁴² Centers for Disease Control and Prevention, "Overweight and Obesity: Economic Consequences," September 28, 2005.

⁴³ Kenneth E. Thorpe, Curtis S. Florence, David H. Howard, and Peter Joski, "The Impact of Obesity on Rising Medical Spending," *Health Affairs*, October 20, 2004, Abstract.

⁴⁴ Michael P. Fierro, "The Obesity Epidemic – How States Can Trim the 'Fat'," National Governors Association Center for Best Practices, June 13, 2002, p. 4.

⁴⁵ US Department of Health and Human Services, "Preventing Obesity and Chronic Diseases Through Good Nutrition and Physical Activity," no date.

Tennessee hospitals to invest thousands of dollars in modifying existing or purchasing new equipment, including specially designed ambulances for obese patients.⁴⁶

Public health officials estimate fiscal costs will escalate along with the increase in obesity severity and prevalence. Vanderbilt's Center for Evidence-Based Medicine projects obesity-related direct medical costs will total \$318 million in Nashville by 2009.⁴⁷ CDC officials predict hundreds of billions of dollars in obesity-related health costs by 2020.⁴⁸ Another report estimates obesity-related health care spending among 50 to 69-year-olds will rise 50 percent by 2020.⁴⁹

Obesity's fiscal pressure on the health care system also contributes to the cost of publicly funded health care. The National Governors Association notes the "staggering" effect of obesity on state Medicaid budgets and the economy.⁵⁰

Some states are examining obesity among Medicaid beneficiaries as one of the program's underlying cost drivers. Members of Missouri's Medicaid Reform Commission have debated assessing obese Medicaid beneficiaries with financial penalties to encourage weight loss and reduce health care costs.⁵¹

Florida has studied creating "enhanced benefits accounts" for Medicaid recipients who attempt to live healthier lives.⁵² In Tennessee, TennCare has announced it will partner with Weight Watchers to provide weight loss services to substantially overweight enrollees.

"Obesity and weight are very personal issues, and all Americans need to take steps to achieve a healthy weight. However, both public and private health insurers spread costs and risks across large populations, so personal choices have societal effects."

- Council of State Governments, "Beyond Cost Containment: State Policies that Support Health Care Solutions for Obesity," no date.

Employer Response

Employers are increasingly modifying their health insurance coverage plans to add or enhance health and wellness components in response to increased awareness of the impact of obesity on employee health and productivity. A 2003 survey of employer-sponsored health plans found 58 percent of employers provided at least one such program.⁵³ Despite this rise in the number of health and wellness programs, some employers remain reluctant to commit to these programs for fear they will fail to recoup their investment from short-term employees. This effect may be especially pronounced in those employment sectors subject to high turnover, such as retail.⁵⁴ Recent research from Vanderbilt University found minimal programmatic activity among employers in Nashville, the result of a lack of awareness of the problem of obesity and intervention strategies, an assumption that the issue is one of personal choice, and a reluctance to invest in programs without clear evidence of the expected return on investment.⁵⁵

Analyses of weight management program results show generally positive outcomes, especially for the morbidly obese. One meta-analysis of 136 studies found morbidly obese patients in weight management programs lost a substantial amount of weight and saw a reduction in common

⁴⁶ Claudia Pinto, "Expensive Equipment Needed to Care for Those as Big as 1,600 Pounds," *The Tennessean*, August 28, 2005.

⁴⁷ Paul Keckley, Executive Director, Vanderbilt Center for Evidence-Based Medicine, "Community-Based Obesity Programs: A Strategic Perspective" Powerpoint presentation.

⁴⁸ Dalton, 2004, p. 3.

⁴⁹ Gordian Health Solutions, "Managing the Obesity Problem: A Case Study with Measurable Results," 2004.

⁵⁰ Michael P. Fierro, "The Obesity Epidemic – How States Can Trim the 'Fat'," National Governors Association Center for Best Practices, June 13, 2002, p. 4.

⁵¹ Tim Hoover, "Too Fat? Medicaid Might be Withheld," *The Kansas City Star*, October 27, 2005.

⁵² Thomas W. Arnold, Florida Deputy Secretary for Medicaid, "Florida's Medicaid Reform" Presentation, September 26, 2005.

⁵³ Charlotte Huff, "Tricky Diagnosis: Do Programs Save Money?," *Workforce Management*, January 2005, p. 49.

⁵⁴ Charlotte Huff, "Swallowing the Cost of Obesity Treatment," *Workforce Management*, January 2005.

⁵⁵ Paul Keckley, Executive Director, Vanderbilt Center for Evidence-Based Medicine, "Community-Based Obesity Programs: A Strategic Perspective" Powerpoint presentation.

obesity-related health complications like sleep apnea, diabetes, and high blood pressure. Most significantly, 75 percent of those with diabetes ultimately reversed the condition through their weight loss.⁵⁶ An evaluation of Caesars Entertainment's employee weight loss campaign found 12 employees discontinued their use of diabetes medications, which cost approximately \$13,000 per employee in the prior year.⁵⁷

Exhibit 11: Spotlight on Worksite Wellness Programs: Gordian Health Solutions

One example of a large company's worksite wellness program can be found in Nashville. Gordian Health Solutions, a health and wellness benefit management company, contracts with a variety of corporations, including the Hospital Corporation of America (HCA), to implement lifestyle improvement and disease management programs. For its HCA contract, Gordian diagnosed employee health status through risk analysis surveys with employees, identifying obesity as a key cost driver behind the frequency and cost of HCA's health insurance claims.

Gordian then developed incentives to encourage program participation and completion, including a cash payment of \$116 to employees who completed the program and a reduction in pharmacy copayments. Financial analysis of the year following program implementation found a \$734,221 reduction in medical claim expenses for the participating groups, for a return on investment ratio of 2.76:1.⁵⁸ Gordian has identified some of the characteristics shared by effective weight loss programs. Effective programs incorporate "one-on-one individually tailored programs that educate, motivate, support, and guide a participant, step-by-step, to reach an attainable, sustainable goal."⁵⁹

Another health insurance company, Blue Cross Blue Shield of North Carolina, adopted a weight management program based on their analysis of medical costs and claims showing a cost differential of \$83 million between treating obese and overweight employees and their normal weight counterparts. The program provides employees with four annual doctor visits to address issues of obesity, dietitian counseling, and a coverage component less common among wellness programs: pharmacotherapy and bariatric surgery.⁶⁰

Associated Health Risks

By complicating surgical procedures, aggravating existing diseases and ailments, and increasing the risk level for a host of medical conditions and premature mortality, obesity takes a substantial toll on individual health. Its adverse impact on health operates on a continuum; the more obese one becomes, the higher the risk for health complications.

"To lengthen thy life, lessen thy meals."

- Benjamin Franklin, as quoted by Michael Fumento, *The Fat of the Land: Our Health Crisis and How Overweight Americans Can Help Themselves*, Penguin Books, New York, 1997, p. 1.

Examining the medical conditions, diseases, and complications associated with obesity clearly shows the pervasive negative effects of excess weight on the entire body. Obesity is a risk factor for or cause of the following:

- multiple cancers (kidney, breast, colon, endometrial, gallbladder)⁶¹

⁵⁶ Charlotte Huff, "Swallowing the Cost of Obesity Treatment," *Workforce Management*, January 2005.

⁵⁷ Kaufman, p. 250

⁵⁸ Gordian Health Solutions, "Managing the Obesity Problem: A Case Study with Measurable Results," 2004.

⁵⁹ Ibid.

⁶⁰ Note: Bariatric, or weight loss, surgery, describes surgical procedures performed specifically for the purpose of attempting to induce appetite control, weight loss, and long-term dietary modification. Definition from Vanderbilt Center for Surgical Weight Loss website, <http://www.mc.vanderbilt.edu/root/vumc.php?site=bariatric&doc=4265>, Accessed January 13, 2006.

⁶¹ National Cancer Institute, "Obesity and Cancer," US National Institutes of Health, updated March 25, 2004, <http://www.cancer.gov/newscenter/obesity1/print?page=&keyword=>, Accessed January 13, 2006.

- diabetes and related complications (blindness, kidney failure, amputation)
- impaired glucose tolerance⁶²
- cardiovascular disease
- hypertension
- stroke
- birth defects (spina bifida, anencephaly)⁶³
- premature death
- asthma and impaired air flow, decreased lung capacity
- sleep apnea
- degenerative osteoarthritis and joint stress (spine, hip, knee, etc.)⁶⁴
- increased surgical risk and complications
- fertility problems (decreased sperm count and abnormal menstruation)
- sexual dysfunction (linked to diabetes)⁶⁵
- adverse perinatal outcomes
- increased likelihood of depression, suicidal thoughts, and suicide attempts⁶⁶
- psychological difficulties due to social stigmatization⁶⁷
- acanthosis nigricans (dark skin disorder linked to obesity)
- hirsutism (excess body and facial hair)
- stress incontinence (urine leakage caused by weak pelvic floor muscles)⁶⁸

“Obesity affects everything in your body so it causes deterioration, whether it’s metabolic deterioration such as diabetes, vascular deterioration such as stroke and heart attack, or mechanical deterioration (musculoskeletal problems).”

- Dr. Christine Ren, Director of the Surgical Weight Loss Program at New York University Medical Center, as quoted by Amanda Gardner, “Rising Disability in the Young Tied to Obesity,” Health on the Net Foundation, January 8, 2004.

Obesity is a major risk factor for the chronic diseases topping the list of the leading causes of death in the United States - heart disease (1st), cancer (2nd), stroke (3rd), and diabetes (6th).⁶⁹ These health problems are closely linked to obesity and form a synergy of negative health effects. The United States Surgeon General has stated at least 33 percent of all cancers are caused by poor nutrition, inactivity, and being overweight.⁷⁰ The number of adults with diabetes has increased in tandem with obesity’s rise, increasing from 4.9 percent in 1990 to 8.7 percent in 2002.⁷¹

In addition, because overweight children are more likely to become obese adults, the cumulative lifetime health impact can be substantial, especially if one or both parents are obese. Overweight adolescents have a 70 percent chance of becoming overweight or obese adults. If one or both parents are obese, this rises to 80 percent.⁷² One University of Alabama Birmingham study found

⁶² TCA § 68-1-2001 – 2003.

⁶³ Michael Fumento, *The Fat of the Land: Our Health Crisis and How Overweight Americans Can Help Themselves*, Penguin Books, New York, 1997, p. 15.

⁶⁴ Newman, pp. 54-55.

⁶⁵ Kaufman, p. 115.

⁶⁶ R.M. Puhl and K.D. Brownell, “Psychosocial Origins of Obesity Stigma: Toward Changing a Powerful and Pervasive Bias,” *Obesity Reviews*, 4, 2003, p. 215.

⁶⁷ Office of the Surgeon General, “The Surgeon General’s Call to Action to Prevent and Decrease Overweight and Obesity,” U.S. Department of Health and Human Services, Public Health Service, 2001, p. 9.

⁶⁸ Michigan Department of Community Health, “An Epidemic of Overweight and Obesity in Michigan’s African American Women,” A Report of the Healthy Lifestyles Initiative,” December 2002, p. 2.

⁶⁹ Amy Winterfeld, Program Principal, Health Program, National Conference of State Legislatures, “State Actions on Childhood Overweight and Obesity – Update for 2005,” Powerpoint presentation.

⁷⁰ Richard Carmona, United States Surgeon General, Remarks at American Enterprise Institute Obesity Conference, June 10, 2003, <http://www.surgeongeneral.gov/news/speeches/obesity061003.htm>, Accessed January 24, 2006.

⁷¹ Kaufman, p. 13.

⁷² Office of the Surgeon General, “The Surgeon General’s Call to Action to Prevent and Decrease Overweight and Obesity, Overweight in Children and Adolescents,” U.S. Department of Health and Human Services, Public Health Service, 2001.

a very overweight 20-year-old may expect to live 13 fewer years than a comparable 20-year-old at a normal weight.⁷³

Although the core prescription of most obesity initiatives is to eat a healthier diet and engage in regular exercise, medical treatment for obesity, through drugs and surgery, has grown in popularity. Advances in knowledge of the genetic contributors of obesity have further “medicalized” obesity as a disease or medical condition. Two prescription drugs – sibutramine (Meridia) and orlistat (Xenical) – both specifically treat obesity, either through appetite suppression or reduced absorption of dietary fat.⁷⁴

Bariatric surgery

The number of bariatric, or weight loss, surgeries has surged over the last decade from an estimated 13,365 surgeries in 1998 to 102,794 in 2003.⁷⁵ The National Conference of State Legislatures states that bariatric surgery is the most effective treatment for the morbidly obese.⁷⁶ In addition, the National Institutes of Health recognized bariatric surgery as an acceptable treatment for obesity in carefully selected patients in 1991, and is scheduled to release results from its comprehensive study of bariatric surgery in 2008.⁷⁷ Although research supports bariatric surgery as an effective treatment option for the morbidly obese, the procedure is not without risk, with complications such as blood clots, pneumonia, infection, leakage from the reshaped intestinal tract, and, in a small percentage of cases, death.⁷⁸

In 2004, 44 states covered gastric bypass surgery under Medicaid, justifying their coverage by predicted savings in expected future health complications and death.⁷⁹ State employees can also qualify for bariatric surgery. In 2004, 127 gastric bypass procedures were performed on individuals covered by the State Plan; benefit expenditures were about \$2.5 million for those procedures. The State Plan has established specific criteria for the adjudication of claims for bariatric surgery including a certain Body Mass Index level, co-morbidity circumstances and documentation of recent, unsuccessful medical and dietary therapies to reduce the patient's weight. The criteria reflect guidelines developed by the National Institutes of Health.

⁷³ Lisa Tartamella, Elaine Herscher, and Chris Woolston, *Generation Extra Large: Rescuing Our Children from the Epidemic of Obesity*, Basic Books, New York, 2004. p. 10.

⁷⁴ Kaufman, p. 195.

⁷⁵ Radiological Society of North America website, “Understanding the Surgical Options for Obese Patients,” <http://www.rsna.org/Publications/rsnanews/dec05/obesitydec05.cfm>, Accessed January 13, 2006.

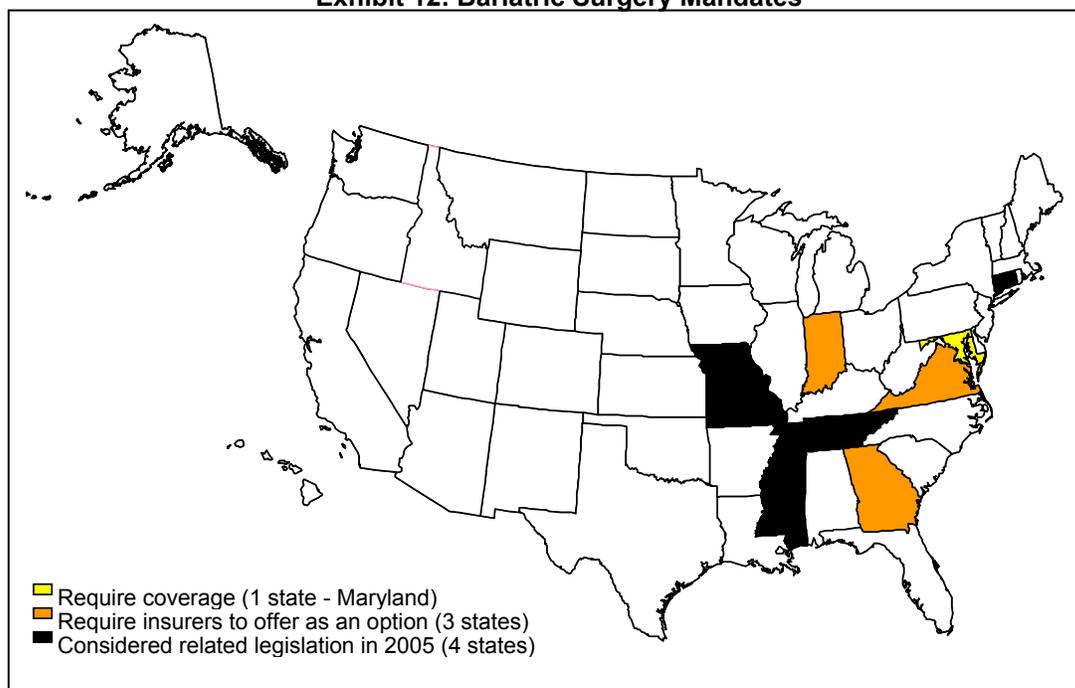
⁷⁶ Amy Winterfeld, “Treating Obesity,” National Conference of State Legislatures Legisbrief, Vol. 13, No. 32, August/September 2005.

⁷⁷ Kaufman, p. 196.

⁷⁸ Newman, p. 48.

⁷⁹ National Conference of State Legislatures, “States Use School-Based Programs to Battle Inactivity and Obesity,” *State Health Notes*, Vol. 26, No. 445, May 30, 2005, p. 2.

Exhibit 12: Bariatric Surgery Mandates



Source: Amy Winterfeld, "Treating Obesity," *National Conference of State Legislatures Legisbrief*, Vol. 13, No. 32, August/September 2005. Note: Georgia, Indiana, and Virginia also considered legislation in 2005 requiring coverage for the morbidly obese.

Obesity's Cause – Explaining Why?

The first law of thermodynamics – energy can neither be created or destroyed – is fundamental to understanding the reasons behind the current epidemic of obesity.⁸⁰ Energy (food) consumed by an individual is either used up as energy or stored on the body as excess fat. Obesity researchers and public health officials refer to this basic equation of energy consumed, or "calories in," and energy expended, or "calories out," as energy balance. An energy *imbalance* will shift a person's weight accordingly, either in favor of weight gain when more calories are consumed than expended, or in favor of weight loss when more calories are expended than consumed.

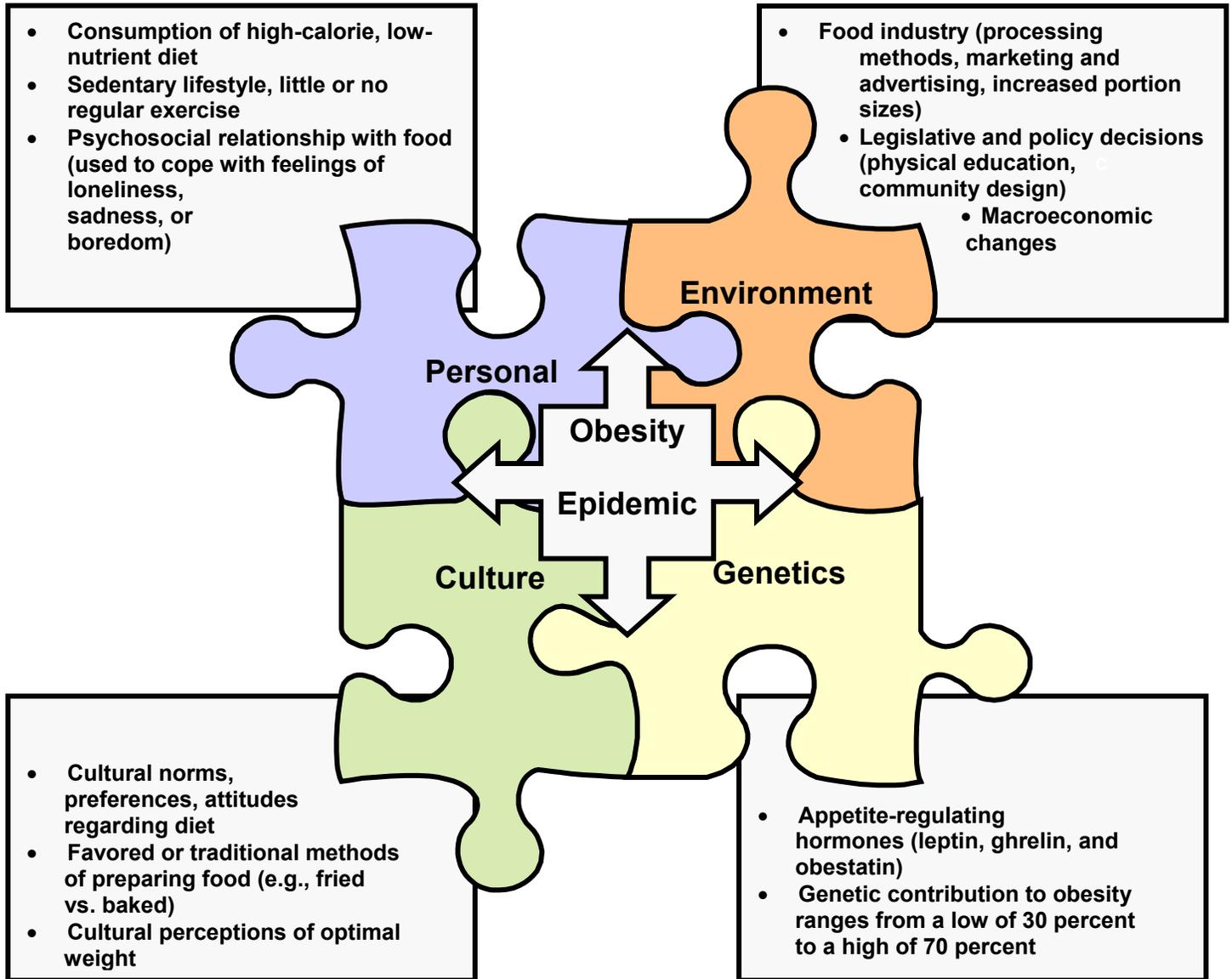
Given the energy balance concept and despite broad agreement on the significant rise in obesity, its association with a host of serious health complications, and the concomitant increase in health care costs, explaining why the energy balance equation has tilted so dramatically toward weight gain remains a subject of debate among policymakers, researchers, and the public. Are record high levels of obesity the result of a lack of willpower among the obese, the physical manifestation of some sort of personal failure or lack of willpower? To what extent is the environment (e.g., the food industry, public policy decisions, macroeconomic changes) culpable in the rise of obesity? Will targeting personal responsibility for health and/or environmental modifications prove only marginally effective solutions to a problem largely of genetic and metabolic origin?

Prescriptions for curing the nation's obesity problem are manifold, with recommendations often reflecting underlying assumptions about its cause. Multiple factors, some relatively simple and others quite complex, have interacted with each other to produce today's record high obesity

⁸⁰ Ruth Kava, American Council of Science and Health, Remarks at American Enterprise Institute Obesity Conference, June 10, 2003.

rates. As Exhibit 13 illustrates, these factors are interwoven and mutually reinforcing, interlocking like the pieces of a puzzle to produce an epidemic of obesity.

Exhibit 13: Explaining the Obesity Epidemic



Source: Tennessee Office of Research review of obesity research.

Obesity's multidimensional causes necessitate a solution that is similarly multidimensional in scope. The 2001 Surgeon General's report on overweight and obesity in America expounds upon the importance of a multidimensional effort for success in stemming the rise in obesity:

Successful efforts, however, must focus not only on individual behavioral change, but also on group influences, institutional and community influences, and public policy. Actions to reduce overweight and obesity will fail without this multidimensional approach. Individual behavioral change can occur only in a supportive environment with accessible and affordable healthy food choices and opportunities for regular physical activity. Furthermore, actions aimed exclusively

at individual behavioral change, while not considering social, cultural, economic, and environmental influences, are likely to reinforce attitudes of stigmatization against the overweight and obese.⁸¹

Exhibit 14: Spotlight on Environmental Factors: The Pima Indians

A convincing example of the environmental influence on obesity can be found among the Pima Indians in the Southwestern United States and Northern Mexico. Although sharing the same genetic heritage and makeup, there is a significant difference between the Pima in the United States, who have adopted the lifestyle and diet of modern America, and the Pima of Mexico's Sierra Madre Mountains, who maintain their millennia-old agricultural-based society. The Pima of Arizona have extremely high rates of obesity and suffer from a multitude of obesity-linked ailments, with an adult diabetes rate of 60 percent. The Pima of the Sierra Madre remain physically active by farming the land and consuming healthy diets of fruits and vegetables; they have very low rates of obesity and diabetes.⁸²

Nutrition Status and Trends (Calories In)

The typical American diet is high in calories and fat and low in nutrients.⁸³ Nutrition data show only a small minority of Americans meet nutrition requirements set by the federal government. Only about 25 percent of adults eat the recommended five or more servings of fruits and vegetables daily; for adolescents, the percentage dips below 25 percent.⁸⁴

Today's consumption trends favor weight gain:

- From 1971 to 2000, average caloric consumption increased by 168 calories a day for men; for women, the increase was 335 calories.⁸⁵
- Over the same approximate time frame (1970-2000), spending on fast food, which is generally higher in fat, sugar, salt, and caloric content than home-cooked meals, increased eighteenfold.⁸⁶
- The per capita consumption of soft drinks quadrupled over the past four decades. Consumption of soft drinks increased over the period between 1972 and 1992 from 27 gallons to 44 gallons annually.⁸⁷
- Compared with the consumption patterns of 20 years ago, the average American now consumes 30 more pounds of sugar on an annual basis.⁸⁸
- Today's increased portion sizes foster excess consumption – compared with the 1970s, supersize French fry and soda portions are two to five times larger today.⁸⁹

“Like most kids growing up in the South, I was raised to believe that the preferred way of cooking anything is to first batter it in cornmeal or flour and then fry the ever-loving nutrition out of it in a pan of gurgling hot grease.”

- Governor Mike Huckabee, *Quit Digging Your Grave with a Knife and Fork*, Center Street, New York, 2005, p. 5

⁸¹ Office of the Surgeon General, “The Surgeon General’s Call to Action to Prevent and Decrease Overweight and Obesity,” U.S. Department of Health and Human Services, Public Health Service, 2001, p. 16.

⁸² Antony Thomas, “Fat,” *Frontline*, Public Broadcasting Service, November 3, 1998.

⁸³ Michael P. Fierro, “The Obesity Epidemic – How States Can Trim the ‘Fat,’” National Governors Association Center for Best Practices, June 13, 2002, p. 3.

⁸⁴ Centers for Disease Control and Prevention, “Facts About Obesity in the United States,” no date.

⁸⁵ Kaufman, pp. 152-153.

⁸⁶ Brownell and Battle Horgen, p. 8.

⁸⁷ Eric Schlosser, *Fast Food Nation: The Dark Side of the All-American Meal*, Perennial, New York, 2002, p. 241; Michael P. Fierro, “The Obesity Epidemic – How States Can Trim the ‘Fat,’” National Governors Association Center for Best Practices, June 13, 2002, p. 3.

⁸⁸ Brownell and Battle Horgen, p. 29.

⁸⁹ Newman, pp. 58-59.

Poverty Status, Public Assistance, and Obesity

The higher rates of overweight and obesity among low-income individuals have prompted some researchers to examine the association between the nutritional content of public nutrition programs, such as Food Stamps, the National School Lunch Program (NSLP), and the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC), and obesity rates among program participants. Some researchers argue these programs contribute to the obesity problem by providing recipients with food items high in fat and caloric content and continuing to assume the nutritional problems of the poor stem from a deficit of calories.⁹⁰ Responding to these questions and arguments, USDA's Food and Nutrition Service convened an expert panel to analyze the scientific evidence linking these two variables. The panel concluded that existing research provides no evidence that program participation causes obesity for WIC and NSLP participants, but did identify some research indicating a degree of correlation, though not causation, with food stamps.

The difficulty in separating poverty status, which is correlated with obesity, from program participation status, which is primarily determined by insufficient income, impedes drawing any definitive conclusions. To what extent does poverty contribute to the obesity epidemic separate from public nutrition program participation? To what extent does public nutrition program participation contribute to obesity rates? To address these methodological problems, the panel's USDA report recognizes the need for improved research design and measurement to establish any clear causal connections.⁹¹ The federal government continues to fund research into the causal connections, if any, between obesity rates and food stamp participation.⁹²

“Fat adds taste and texture and palatability to food. We do seem to like the taste of fat. When we expose people to high-fat foods, they very frequently and regularly overeat. They consume far more energy than necessary, and we just don't get that same phenomenon when they're exposed to either high-carbohydrate or high-protein foods.”

- Susan Jebb, Obesity Specialist, as quoted by Antony Thomas, “Fat,” *Frontline*, Public Broadcasting Service, November 3, 1998.

Lack of Physical Activity (Calories Out)

The other side of the energy balance equation concerns physical activity and exercise. An essential component of any weight loss program, regular physical activity burns excess calories in addition to conferring many health benefits, such as improved cardiovascular health and enhanced psychological well-being. Regardless of whether one is overweight, improving one's physical fitness level can bestow health benefits. Overweight individuals who are fit have lower health risks compared to unfit people, even those who are thin.⁹³

Sedentariness has risen dramatically over the past 30 years, indicating more and more Americans are failing to engage in adequate amounts of physical activity. Forty percent of American adults report they are completely sedentary.⁹⁴ The lack of sidewalks and recreational greenspace has contributed to the rise in physical inactivity.⁹⁵ The physical environment can encourage and facilitate physical activity through community design, the presence and maintenance of sidewalks and walking trails, and adequately funded and well-managed recreation departments. Communities can enhance opportunities for exercise through the location and placement of community institutions, such as schools and supermarkets, and the integration

⁹⁰ Douglas J. Besharov, “We're Feeding the Poor as If They're Starving,” *The Washington Post*, December 8, 2002.

⁹¹ USDA, Food and Nutrition Service, Office of Analysis, Nutrition and Evaluation, “Obesity, Poverty, and Participation in Nutrition Assistance Programs: Summary,” February 2005.

⁹² Daina Pretzer, “Economics professor receives grant to research link between food stamps, obesity,” Middle Tennessee State University, *The Sidelines*, April 20, 2005.

⁹³ Brownell and Battle Horgen, pp. 73-74.

⁹⁴ Kaufman, p. 153.

⁹⁵ Michael P. Fierro, “The Obesity Epidemic – How States Can Trim the ‘Fat’,” National Governors Association Center for Best Practices, June 13, 2002, p. 3.

of more traditional community development planning goals, such as urban revitalization and arts promotion, with health goals.⁹⁶

The Robert Wood Johnson Foundation has invested \$70 million promoting smart growth and active communities through its healthy community design concept.⁹⁷ Nashville is one of the pilot sites, where the initiative promotes an active, healthy community and encourages community designs that facilitate the inclusion of physical activity into citizens' daily routines.⁹⁸ Under a contract with the Department of Health, Middle Tennessee State University is currently collecting data regarding programs, resources, physical environment features, and opportunities for an active healthy lifestyle for all 95 counties in Tennessee.

Genetic Contribution

Genetics and human biology represent another major determinant of weight and obesity. The field of genetics has experienced tremendous growth over the past two decades, reaching a major scientific milestone with the initial sequencing of the human genome. Over the past decade, geneticists and other researchers have invested more time into uncovering the influence of genes and biology on obesity.

A few quotes exemplify the complex interplay and relationship between nature (genetics) and nurture (the environment):

- Environmental factors may cause obesity, but only in the presence of genetic susceptibility.⁹⁹
- Genetics loads the gun and environment pulls the trigger.¹⁰⁰

“[T]here has been no real change in the gene pool during this period of increasing obesity. The root of the problem, rather, must lie in the powerful social and cultural forces that promote an energy-rich diet and a sedentary lifestyle.”

- Institute of Medicine, “Weighing the Options: Criteria for Evaluating Weight-Management Programs,” Washington, D.C: National Academy Press, 1995, p. 152.

Given the complexity of the body's system for regulating weight and the need for further long-term research into the genetic determinants of obesity, public health officials are emphasizing simple, immediate, and effective measures: healthy eating and physical activity. Although genes may physiologically predispose someone to gain and retain weight, the genetic makeup of Americans could not have undergone changes dramatic enough to explain the rapid increase of obesity in the population over such a short time period.¹⁰¹

Technological/Macroeconomic Changes

The field of economics also offers an explanation for the obesity epidemic: a decrease in the price of food and an increase in the price of physical activity. A 2005 USDA Economic Research Service article describes these changes:

The technological changes driving modern economic growth have raised household incomes, reduced the price of food, and increased the price of physical activity. The resulting increase in energy consumption and flattening of energy expenditure has tilted

⁹⁶ Leslie Robbins, “State Policies for Increasing Access to Healthy Foods,” National Conference of State Legislatures, *Healthy Community Design*, May 2005.

⁹⁷ Tartamella, Herscher, and Woolston, p. 130.

⁹⁸ Music City Moves website, <http://www.musiccitymoves.org/index.htm>, Accessed January 17, 2006.

⁹⁹ Robert Pool, “Fat: Fighting the Obesity Epidemic,” Oxford University Press, New York, 2001, p. 166.

¹⁰⁰ Dr. Judy Stern, as quoted by Ruth Kava, American Council of Science and Health, American Enterprise Institute Obesity Conference, June 10, 2003.

¹⁰¹ Institute of Medicine, “Weighing the Options: Criteria for Evaluating Weight-Management Programs,” Washington, D.C: National Academy Press, 1995, p. 152.

the weight equation in favor of a steady weight gain across all segments of American society.¹⁰²

The authors suggest employment in today's knowledge- and service-based economy is considerably more sedentary than the manufacturing- and agricultural-based economy of the past, meaning fewer calories are inadvertently burned off during the workday. Furthermore, real income levels have stagnated or declined for many Americans over the past three decades, an effect particularly pronounced among citizens of low socioeconomic status and low educational attainment, according to research from the National Bureau of Economic Research. Many families responded to these economic shifts by working more hours and/or adding another income to the household to maintain their standard of living, often by increasing women's labor market participation. This change was not without side effects. The increase in time devoted to employment reduced the time available for meal planning and preparation. The rising premium on free time, in turn, made convenience food a more attractive and, as food prices reached historically low levels, increasingly affordable option for time-pressed families with hectic schedules and long commutes.¹⁰³

“The most practical solution, for now, is not to fight the basic biology of the fat cell. It is to ‘eat less and exercise more.’ ”

- Dr. Eduardo Nillni, Brown University, as quoted by Anne Underwood and Jerry Adler, “What You Don't Know About Fat,” *Newsweek International Edition*, Accessed January 13, 2006.

¹⁰² Jayachandran N. Variyam, “The Price is Right: Economics and the Rise in Obesity,” *Amber Waves*, US Department of Agriculture, Economic Research Service, February 2005.

¹⁰³ Matt Nesvisky, “An Economic Analysis of Adult Obesity,” Non-Technical Summary, *National Bureau of Economic Research Digest*, February 2003.

ANALYSIS AND CONCLUSIONS

Tennessee lacks a comprehensive strategic plan, with clear, specific goals and objectives, to reduce obesity rates and evaluate progress. A consistent theme that emerged from Office of Research interviews with state, higher education, local health department, and nonprofit officials was that Tennessee lacks a strategic plan and cohesive vision for addressing obesity.¹⁰⁴ Absent a comprehensive plan for addressing obesity, efforts to reduce obesity rates in Tennessee will remain uncoordinated and piecemeal in nature. A strategic plan could analyze the strengths and weaknesses of current approaches to obesity prevention and treatment and chart a course to build on strengths, mitigate weaknesses, and ultimately reduce the state's high rate of overweight and obesity. Such a plan should solicit the input of relevant state and local officials, health care providers, school officials, the public health community, business and industry, and faith-based organizations.

Although the five-year strategic plans of the executive branch released in September 2004 include the Department of Health's goal to "raise public awareness about the importance of a healthy lifestyle (and) to encourage individuals to take personal responsibility for their health and well-being," a more concrete strategic plan for reducing obesity rates is needed.¹⁰⁵ Public health officials from Washington State credit the development and implementation of their state's Nutrition and Physical Activity Plan, which represented input from a variety of sectors, as a major springboard for statewide activities over the past two years.¹⁰⁶

The lack of a strategic plan also places Tennessee at a disadvantage when competing for funding from external sources. For example, although 28 states received basic implementation or capacity building grants for obesity programs in 2004 from the Centers for Disease Control and Prevention (CDC), Tennessee received no funding.¹⁰⁷ An official from the Department of Health indicates Tennessee's grant application was approved, but not ultimately funded, by the CDC.¹⁰⁸ CDC awards funding based on the quality of states' applications and other indicators, such as state infrastructure and capacity. In 2003, Tennessee also did not receive any CDC funding for basic implementation or capacity building activities. Several other southern states did receive funding, however, including Georgia, Florida, North Carolina, and South Carolina.¹⁰⁹ Creation and implementation of a comprehensive strategic plan would bolster the state's ability to secure competitive funding from the CDC and other sources.

The strategic plan might also address the compartmentalized nature of public health funding streams. Several interviewees observed that anti-obesity programs operate in isolation from one another, attributable in part to the compartmentalized and fragmented nature of public health funding. With funding streams dedicated, or "siloeed," to specific initiatives, agencies face limitations on their administrative flexibility to allocate funding for obesity efforts.¹¹⁰

Recently introduced legislation (Senate Bill 2038 – the Child Nutrition and Wellness Act of 2005) would require the state to develop a comprehensive long-range plan to address childhood obesity through a multi-agency effort with clear goals and responsibilities. Such a comprehensive long-

¹⁰⁴ See Appendix A.

¹⁰⁵ State of Tennessee, Agency Strategic Plans, Volume 1: Five-Year Strategic Plans, Executive Branch, September 2004, p. 74.

¹⁰⁶ Lauren Jenks, "Addressing Disparities in Obesity: A State Perspective," Powerpoint presentation at the National Academy for State Health Policy's 18th Annual Health Policy Conference, August 8, 2005, Slide 3.

¹⁰⁷ "F as in Fat: How Obesity Policies are Failing America," 2005, pp. 53-54.

¹⁰⁸ Telephone interview with Alisa Malone, Department of Health, August 17, 2005.

¹⁰⁹ Association of State and Territorial Health Officials, "State-by-State Prevalence of Adults Who Were Overweight or Obese in 2001 and State Program Funding 2003," March 2004.

¹¹⁰ Interviews with Carolyn Perry-Burst, Nutrition Services Program Manager, Community Health Planning and Initiatives, Knox County Health Department, July 20, 2005; Memphis - Shelby County Health Department and Healthy Memphis Common Table Officials, July 28, 2005.

range plan is also needed to address obesity among the population as a whole, both child and adult. The plan should include a few overarching goals guided by a vision of improved health and weight indicators in the future, perhaps in ten years. In addition, the strategic planning effort should set smaller, interim, formative goals to build momentum and periodically evaluate progress.

The absence of detailed and specific data on obesity yields an incomplete picture of obesity's prevalence and severity throughout the state. Interviewees identified the lack of a coordinated system for collecting and obtaining BMI data across the state as the largest data gap in the state's obesity research, complicating trend identification and documentation of progress.¹¹¹ BMI data for children can be found for students in those school systems opting to participate in the screenings authorized by Public Chapter 194 of 2005 or other programs, such as the Coordinated School Health Pilot Programs; however, a broader data set is needed for a more complete picture of obesity throughout the state.

With more detailed and specific data, policymakers could better diagnose the obesity problem in Tennessee and implement better informed and more effective solutions. Collection and analysis of data would permit evaluation of obesity programs' performance and impact, reducing the reliance on anecdotal support of program effectiveness. Interviewees also stressed a need for more specific statistics on Tennessee's obesity problem beyond the highly aggregated and self-reported data collected by the Centers for Disease Control and Prevention.

The lack of data collection also places the state at a competitive disadvantage when seeking grants from external funding sources. Improving data collection could strengthen grant applications and provide policymakers and grantors with a means to clearly evaluate the results of their investment in obesity prevention and treatment in Tennessee.¹¹²

Unlike some other states, Tennessee's health and wellness incentives for state employees are underdeveloped. The University of Michigan Health Management Research Center's analysis of 2004 health risk data on 2,922 Tennessee state employees found the following:

- The top two prioritized health risks were 1) a high body mass index and 2) a low level of physical activity equivalent to less than once a week.¹¹³
- 48.7 percent of participants had a body mass index greater than or equal to 27.5.
- 32.3 percent of participants were obese and 5.2 percent were morbidly obese.¹¹⁴

A review of comparable 2003 data also found the top two health risks were a high body mass index and low physical activity levels. Close to half of participants (48.2 percent) that year had a body mass index greater than or equal to 27.5.¹¹⁵ Caution should be used in generalizing this data to all state employees since participation in the health risk appraisal is voluntary; however, this analysis shows a high level of obesity among participating state employees over two consecutive years.

Research shows a correlation between higher absenteeism, higher disability rates, lower productivity rates, and obesity. Overweight and obese employees also incur significant health care costs. Insurance expenditures for state employees with a principal diagnosis code of obesity totaled almost \$3 million in 2004; however, the total insurance expenditures associated with

¹¹¹ Marian Levy, Associate Director, Health Promotion and Grants Management, Children's Foundation Research Center of Memphis, UT Department of Pediatrics, to Tennessee Healthy Weight Network Listserv, July 6, 2005; Interview with Stephanie Bailey, Director, Metro Public Health Department of Nashville/Davidson County, September 1, 2005.

¹¹² Interview with Peggy Lewis, Director, Tennessee Supplemental Nutrition Programs Director, Department of Health, August 24, 2005.

¹¹³ Note: Prioritized health risks are those risks which affect an individual's overall health and prospective medical cost utilization.

¹¹⁴ The University of Michigan Health Management Research Center, "State of Tennessee: Health Risk Appraisal, Summary Report," January 5, 2005, pp. 1,3,5, and 15.

¹¹⁵ The University of Michigan Health Management Research Center, "State of Tennessee: Health Risk Appraisal, Summary Report," January 12, 2004, pp. 1,3, and 5.

obesity are higher, as this figure does not include expenditures for which obesity was only a *contributing* factor or pharmacy benefits.¹¹⁶ The Tennessee Department of Health reports that employers who provide worksite wellness programs have reduced health care costs and employee absenteeism and turnover rates and improved worker productivity and performance.¹¹⁷

The State Employee Wellness Program, housed in the Department of Finance and Administration, offers employees health risk assessments, informational seminars that address diet and physical activity, a lifestyle management program, and a six-month weight loss program.¹¹⁸ Although Tennessee state employees are eligible for a discount on dues and initial membership fees at some participating fitness centers around the state, some other states offer their employees monetary incentives to participate in health screenings and accomplish personal wellness goals. State policymakers should consider additional opportunities to improve employee health. For example, employees might benefit from more closely integrating state employee wellness programs with the Division of Insurance Administration.

Policymakers should also consider enhancing current wellness incentives. Wellness incentives range from the “carrot” approach of subsidizing health club membership dues and associated fees to the “stick” approach of higher health insurance premiums for non-program participants.¹¹⁹ Some states offer employees monetary incentives to participate in health risk assessment screenings. Arkansas offers employees a \$20 a month discount on their health insurance premiums for participating in a health risk assessment.¹²⁰ South Dakota provides a \$50 cash incentive for its employees to undergo a health risk assessment. Employees may also receive \$100 for accomplishing one of their personal wellness goals set through the health risk assessment process. In addition, South Dakota reimburses its employees up to \$300 for purchasing exercise equipment or a fitness membership.¹²¹ One county government in Washington state has proposed a plan that would require insured employees and family members to undergo a health risk assessment and set personal wellness goals. The county will raise the deductibles and copayments of employees who do not participate in the program.¹²²

Although the Division of Insurance Administration contracts with an outside organization to provide employees with health risk appraisals, on-site screenings, and life style management and intervention follow-up, current staffing levels for the program consist of just two employees for the entire state.¹²³ The FY2005-06 budget authorizes up to \$550,000 for the wellness program or other state employee insurance programs.¹²⁴

Physical education has declined over the past decade. In addition, the Department of Education no longer employs a state-level physical education consultant. The percentage of students that attend physical education class daily nationwide declined between 1991 and 2003.¹²⁵ According to a 2000 Centers for Disease Control and Prevention study, only six to eight

¹¹⁶ Regina Ranish, Manager, State Employee Wellness Program, Department of Finance and Administration, “Summary of the 2005 Peel the Pounds program,” Email to the author, September 1, 2005.

¹¹⁷ “Tennessee Fitness,” Unpublished document received from Andrea Willis, Deputy Commissioner, Department of Health, August 3, 2005, pp. 4-5.

¹¹⁸ Note: The state employee wellness program is only available to state employees who are not employed by higher education institutions.

¹¹⁹ Penelope Lemov, “Wellness: Carrots and Sticks,” *Governing*, September 2005, p. 68.

¹²⁰ *Ibid.*

¹²¹ *Ibid.*

¹²² *Ibid.*

¹²³ Interview with Regina Ranish, Manager, State Employee Wellness Program, Department of Finance and Administration, August 25, 2005.

¹²⁴ Public Acts, 2005, Chapter No. 503.

¹²⁵ Centers for Disease Control and Prevention, “Participation in High School Physical Education --- United States, 1991—2003,” *Morbidity and Mortality Weekly Report*, 53 (36), September 17, 2004, <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5336a5.htm>, Accessed November 10, 2005.

percent of elementary, middle, and high schools provide daily physical education for the entire school year for students in all grades.¹²⁶

State and local health department, higher education, and nonprofit officials emphasize increasing children's physical activity as key to reducing childhood overweight. Tennessee requires physical education for students in grades K-8; however, the state does not require a specific number of minutes or days per week. Local education agencies determine the duration and frequency of physical education classes. Students in grades 9-12 must complete the Lifetime Wellness course as a condition for graduation. The Lifetime Wellness curriculum includes seven standards, including one for physical activity and fitness.¹²⁷ Some school systems have additional physical education requirements.

Several studies attest to the benefits of regular physical activity for school children, including academic benefits:

- The Council of State Governments indicates there is a growing body of evidence linking physical activity with improved academic performance;¹²⁸
- The President's Council on Physical Education and Sports indicates students who spend time in regular physical education, even if this results in less time spent in other subjects, perform as well or better in academic classes;¹²⁹ and
- The United States Department of Education notes that preliminary research indicates a direct link between physical activity and improved academic performance.¹³⁰

The National Association for Sport and Physical Education considers physical education programs with the following components essential to a high quality program:

- Instructional periods totaling 150 minutes per week (elementary school) and 225 minutes per week (middle and high school);
- A qualified physical education specialist providing a developmentally appropriate program;
- Adequate equipment and facilities; and
- Full inclusion of all students.¹³¹

In 2005, the General Assembly considered legislation requiring a minimum number of physical education minutes per week for K-8 students.¹³² According to the bill's fiscal note, its passage into law would have required school systems to hire additional physical education instructors, make facility improvements, and purchase additional equipment at a total cost in excess of \$60 million.

Integrating physical activity with academic instruction represents another avenue for increasing student activity separate from expanding the number of physical education classes. The State Board of Education Physical Activity Taskforce recommends the integration of physical activity into all curricular areas of the school program.¹³³ Michigan's Brain Breaks program is one example of this concept. The program integrates physical activity into elementary school academic subjects, such as math and science. Brain Breaks activities can also be incorporated

¹²⁶ Emily Cornell and Liam Goldrick, "Preventing Obesity in Youth through School-Based Efforts," National Governors Association Center for Best Practices, February 4, 2003, p. 3.

¹²⁷ Lifetime Wellness, Grades 9-12, Course Description, Tennessee Department of Education website, <http://tennessee.gov/education/ci/cipewellhiv/cilifetimewellness.html>, Accessed January 20, 2006.

¹²⁸ Council of State Governments, "Active Bodies, Active Minds: Getting Kids and Schools Active," Trends and Policy Solutions in Youth Obesity, no date, p. 1.

¹²⁹ Ibid; The President's Council on Physical Fitness and Sports, "Physical Activity Promotion and School Physical Education," *President's Council on Physical Fitness and Sports Research Digest*, September 1999, http://www.fitness.gov/digest_sep1999.htm, Accessed January 30, 2006.

¹³⁰ United States General Accounting Office, "School Lunch Program: Efforts Needed to Improve Nutrition and Encourage Healthy Eating," Report to Congressional Requesters, May 2003, p. 34.

¹³¹ National Association for Sport and Physical Education, "What Constitutes a Quality Physical Education Program?" <http://www.aahperd.org/naspe/template.cfm?template=qualityPePrograms.html>, Accessed January 12, 2006.

¹³² Senate Bill 1231, 2005, 104th General Assembly.

¹³³ Tennessee State Board of Education, Physical Activity Policy, August 18, 2005, Additional Recommendation No. 2.

into the daily school routine by engaging students in physical activity as they transition from one class to another.¹³⁴

Physical education provides students an opportunity to burn calories and expend excess energy accumulated during the school day in a constructive manner. Regular physical education can be particularly important for students from dangerous neighborhoods; parents may be concerned for children's safety in unsafe neighborhoods and restrict their ability to play outside.¹³⁵ Transportation barriers may also prevent some students from accessing other safe places to exercise, such as recreation and church centers.¹³⁶

Although the Department of Education previously employed a physical education consultant, this position no longer exists. The Health and Physical Education director's responsibilities included working on the school wellness curriculum, assisting school systems with professional development, and organizing conferences and workshops for physical education staff. The former Director of Health and Physical Education left that position in 2001, and the Department of Education has not filled the position.¹³⁷

The absence of this position leaves local education agencies without a state-level contact for communication, collaboration, consultation on best practices, and technical assistance in this area. A physical education consultant could help local education agencies increase the amount of physical activity students engage in daily. Such a position is arguably more important today because of the increase in childhood overweight and the extra attention and time schools must devote to meeting state and federal accountability requirements. In such a high-stakes testing environment, a formal class or period of physical education competes with academic instruction for time, attention, staff, and finite resources.

A physical education consultant could provide local education agencies with innovative and practical methods for incorporating more physical activity into the school day. School officials should explore creative methods of incorporating physical activity into the regular school day, particularly in systems where the addition of a formal physical education class is problematic.¹³⁸ In its 2005 physical activity policy, the State Board of Education recommends the Department of Education establish a state-level physical education consultant.¹³⁹

Tennessee's Coordinated School Health Programs articulate a comprehensive and proactive approach to student health, but reach only a small percentage of students. Coordinated School Health Programs (CSHPs) support students' physical, social, and cognitive health and development. The nine key components of Tennessee's CSHPs include academic progress, health education, physical education, healthy school climate, staff wellness, school health services, mental health services, nutrition, and family and community involvement. The General Assembly statutorily authorized the CSHPs in 2000. Annual state appropriations of \$1

¹³⁴ Council of State Governments, "Active Bodies, Active Minds: Getting Kids and Schools Active," Trends and Policy Solutions in Youth Obesity, no date, p. 3.

¹³⁵ Interview with Betty Greer, Nutrition Specialist, University of Tennessee Extension, July 20, 2005.

¹³⁶ Interview with Officials from Cherokee Health Systems, July 18, 2005.

¹³⁷ Connie Givens, Director of Coordinated School Health, Department of Education, "Fwd: Re: See attachment," Email to the author, January 10, 2006.

¹³⁸ Interview with Becky Barnes, Director, Chattanooga-Hamilton County Health Department, July 20, 2005.

¹³⁹ Tennessee State Board of Education, Physical Activity Policy, August 18, 2005, Additional Recommendation No. 6.

million currently support 10 pilot sites around the state.¹⁴⁰ The CDC recommends CSHPs as one of its key strategies to prevent obesity.¹⁴¹

CSHP officials have taken several steps to ensure student BMI data is both valid and reliable, using a standardized data collection protocol for screening students. Further, the Department of Education has partnered with East Tennessee State University for data analysis, data reporting, and technical assistance.¹⁴² Some programs have leveraged this data to their advantage, strengthening grant applications and drawing down funding from external sources. Stewart County's CSHP used its school health data to secure a \$200,000 federal grant to purchase physical education equipment and provide training.¹⁴³

One CSHP site, Monroe County, has targeted improving students' weight status using the BMI as a performance indicator. Over a three-year period, the school system reduced the percentage of students at risk for becoming overweight or who are overweight from 46.37 percent to 43.77 percent. CSHP officials credit specific actions taken by the system for this decrease, including:

- Changing school breakfast and lunch menus to emphasize more healthy fare;
- Incorporating school nutrition education through collaboration with the University of Tennessee Extension Service;
- Introducing healthy vending options, with particular consideration given to milk products in partnership with Mayfield Dairy and other milk industry associations; and
- Increasing physical education and activity during the school day.¹⁴⁴

The 2004 evaluation of CSHPs by East Tennessee State University found BMI reporting was "very complete and CDC protocols were used" at all CSHP pilot sites. The complete and standardized collection and reporting of BMI data revealed a trend of increases in the percentage of students at risk for being overweight or who are overweight.¹⁴⁵

Funding constraints, however, have limited further expansion. Other school systems have expressed interest in adopting the model, according to Department of Education officials, and several interviewees support the expansion of the model beyond the original 10 pilot sites.¹⁴⁶

Tennessee might benefit from exploring farm-to-school programs that provide students with fresh fruits and vegetables and open up new markets for state agricultural products. Farm-to-school programs link public school demand for more nutritious cafeteria fare with the fruit and vegetable supply from area farms. Fresh fruits and vegetables are more nutritious than those that have been heavily processed, frozen, and canned and can make cafeteria offerings a more attractive lunch option for students. Department of Education officials report a few school systems operate farm-to-school programs. For example, in Hawkins County, a partnership between the

¹⁴⁰ TCA § 49-1-1001 - 1006. Note: This annual \$1 million appropriation is not tied to the BEP or indexed for inflation. The pilot sites are listed as follows: Henry County, Loudon County, Macon County, Monroe County, Putnam County, Tipton County, Trenton and Gibson Special School Districts, Stewart County, Warren County, and Washington County. CSHP grants range from \$61,000 to \$94,000 per system. The amount each LEA is eligible to receive is subject to a local match. Connie Givens, Director of Coordinated School Health, Department of Education, "See attachment," Email to the author, January 9, 2006; Tennessee Department of Education, Office of School Health Programs, "Tennessee Coordinated School Health Condensed Evaluation Report," 2004, p. 8.

¹⁴¹ Centers for Disease Control and Prevention, "Healthy Youth! Key Strategies to Prevent Obesity," <http://www.cdc.gov/healthyyouth/keystrategies/index.htm>, Accessed January 17, 2006.

¹⁴² Interview with Connie Givens, Director of Coordinated School Health, Department of Education, June 23, 2005.

¹⁴³ Interview with Connie Givens, Director of Coordinated School Health, Department of Education, July 7, 2005.

¹⁴⁴ Connie Givens, Director of Coordinated School Health, Department of Education, "Re: Obesity report," Email to the author, June 29, 2005.

¹⁴⁵ Tennessee Department of Education, Office of School Health Programs, "Tennessee Coordinated School Health Condensed Evaluation Report: 2004," p. 21.

¹⁴⁶ Interview with Connie Givens, Director of Coordinated School Health, Department of Education, July 7, 2005; Betty Greer, Nutrition Specialist, Family and Consumer Sciences, University of Tennessee Extension, July 20, 2005.

school system and a local farm provides students with fresh strawberries.¹⁴⁷ However, such programs are informal and sometimes lack stability. For example, Haywood County's informal program was subject to quick termination following the retirement/relocation of the farmer that supplied the school with local produce.¹⁴⁸

One barrier to the expansion of farm-to-school programs throughout the state is coordination of the harvest season with the traditional school calendar.¹⁴⁹ The harvest season largely takes place during the summer months when students are traditionally out of school. However, the rising number of balanced/non-traditional calendar schools, which typically begin the year in late July or early August, might increase the overlap between the farm and school calendars. Developing farm-to-school programs in Tennessee will require a thorough examination of the infrastructure and logistics of supplying schools with produce from local farms. State officials should also analyze potential legal issues surrounding changing the school food procurement process to favor products produced, grown, or harvested in Tennessee.

Despite these challenges, other states have experienced success with formal farm-to-school programs. North Carolina formed its farm-to-school program in 1997, a collaboration between the Department of Defense and the North Carolina Department of Agriculture and Consumer Services. The North Carolina General Assembly encouraged school district participation in the program by providing 50 schools with grants of \$1,000 for their initial produce purchases. Approximately 60 school districts participated in the program in 2004, serving students watermelon, cantaloupe, apples, cabbage, broccoli, sweet potatoes, potatoes, and strawberries supplied by approximately 30 farmers.¹⁵⁰

The state of Arkansas recently began its first farm-to-school program in one elementary school, offering students a variety of locally grown produce, including watermelon, tomatoes, and squash.¹⁵¹ Some states have expanded the farm-to-school concept to other governmental institutions like prisons, hospitals, and worksites.

Tennessee does not require school food service directors to obtain credentialing or certification in nutrition. School food service directors are responsible for multiple duties beyond assessing the nutritional content of school meals, including food procurement, logistics, compliance with governmental rules and regulations, personnel, and finance/budgeting. According to state officials, the nutritional content of school meals occupies a relatively small percentage of their daily activities. Food service directors must also balance the nutritional content of school meals with concerns about the financial sustainability of their cafeteria program.

The Director of the School Nutrition Program indicates school officials expect school cafeteria operations to be self-sustaining financially; most school systems in Tennessee do not provide funding for school food services.¹⁵² A 2003 GAO report indicates school food authorities are under pressure to balance the school cafeteria budget, comply with governmental regulations, and satisfy student taste preferences.¹⁵³

¹⁴⁷ Connie Givens, Director of Coordinated School Health, Department of Education, "re: farm to school questions," Email to the author, June 30, 2005.

¹⁴⁸ Interview with Betty Perry, Food Service Director, Haywood County Schools, July 28, 2005.

¹⁴⁹ Interview with Connie Givens, Director of Coordinated School Health, Department of Education, July 7, 2005.

¹⁵⁰ Farm to School website, North Carolina Existing Programs, <http://www.farmtoschool.org/nc/programs.htm>, Accessed January 20, 2006.

¹⁵¹ Washington Elementary Principal Scrapbook, "Farm to School Program at Washington," Fayetteville Public Schools, Fayetteville Arkansas, http://schoolcenter.fayar.net/education/components/scrapbook/default.php?sectiondetailid=2277&sc_id=1128087372, Accessed January 23, 2006.

¹⁵² Interview with Sarah White, Director, School Nutrition Program, Department of Education, July 8, 2005.

¹⁵³ United States General Accounting Office, "School Lunch Program: Efforts Needed to Improve Nutrition and Encourage Healthy Eating," Report to Congressional Requesters, May 2003, p. 15.

In 2005, the Kentucky General Assembly passed legislation requiring school food service directors or those otherwise responsible for meal planning in each school district to either obtain credentialing as a “school food service and nutrition specialist” or a specific level of certification by the American School Food Service Association by June 2008. To maintain the credential or certification, the legislation requires eight hours of mandated continuing education be directly related to applied nutrition and healthy meal planning and preparation.¹⁵⁴

The Tennessee Dietetic Association’s Child Nutrition Task Force recommends school nutrition directors be registered dietitians, or that each school system contract with a registered dietitian for nutrition consultation. According to the association, less than 10 school systems in the state employ or contract with registered dietitians.¹⁵⁵

¹⁵⁴ Kentucky Revised Statutes, 158.852, Section (2) (a) and (c), Effective June 20, 2005.

¹⁵⁵ Nan Allison, Tennessee Dietetic Association, presentation to the Select Committee on Children and Youth, August 29, 2005.

RECOMMENDATIONS

LEGISLATIVE RECOMMENDATIONS:

The General Assembly may wish to appropriate funding to expand the number of Coordinated School Health Program sites. Coordinated School Health Programs (CSHPs) coordinate health services to support students' physical, social, and cognitive health and development. The nine key components of Tennessee's CSHPs include academic progress, health education, physical education, healthy school climate, staff wellness, school health services, mental health services, nutrition, and family and community involvement. The General Assembly statutorily authorized the program in 2000. Annual state appropriations of \$1 million currently support 10 pilot sites around the state. The CDC recommends CSHPs as one of its key strategies to prevent obesity.

CSHPs have focused on children who are overweight from their inception in Tennessee in 2000, collecting BMI data on students at various grade levels. Some CSHP sites have leveraged this data to secure funding from external sources and expand and enhance their programming. Expanding the number of CSHPs beyond 10 would extend the health benefits of the programs to more school systems and increase data collection statewide.

The General Assembly may wish to pass legislation requiring more physical activity in schools. Physical education has declined over the past 15 years, both nationally and in Tennessee. Tennessee's current requirements for physical education grant considerable latitude to local school systems, resulting in physical education offerings that vary by district. Tennessee requires physical education for students in grades K-8; however, the state does not require a specific number of minutes or days per week. Local education agencies determine the duration and frequency of physical education classes. Students in grades 9-12 must complete the Lifetime Wellness course as a condition for graduation. The Lifetime Wellness curriculum includes seven standards, including one for physical activity and fitness.¹⁵⁶ Some school systems have additional physical education requirements.

Physical education allows students to expend energy in a constructive manner. Regular physical education also provides students an outlet to burn excess calories and prevent weight gain or reduce weight. Emerging research also shows a link between student academic achievement and regular physical activity. The National Association for Sport and Physical Education considers physical education programs with the following components essential to a high quality program:

- Instructional periods totaling 150 minutes per week (elementary school grade level) and 225 minutes per week (middle and high school grade level);
- A qualified physical education specialist providing a developmentally appropriate program;
- Adequate equipment and facilities; and
- Full inclusion of all students.¹⁵⁷

Integrating physical activity with academic instruction represents another avenue for increasing student activity in lieu of expanding the number of physical education classes. Michigan's Brain Breaks program integrates physical activity into elementary school academic subjects and the daily school routine, such as when students transition from one class to another. Policymakers should seek the appropriate balance among mandating the duration and frequency of physical education classes, integrating physical activity into the school day, and funding physical education teachers, exercise equipment, and facilities.

¹⁵⁶ Lifetime Wellness, Grades 9-12, Course Description, Tennessee Department of Education website, <http://tennessee.gov/education/ci/cipewellhiv/cilifetimewellness.html>, Accessed January 20, 2006.

¹⁵⁷ National Association for Sport and Physical Education, "What Constitutes a Quality Physical Education Program?" <http://www.aahperd.org/naspe/template.cfm?template=qualityPePrograms.html>, Accessed January 12, 2006.

The General Assembly may wish to require that school food service directors obtain credentialing or certification in nutrition. School food service directors are responsible for multiple duties beyond assessing the nutritional content of school meals, including food procurement, logistics, compliance with governmental rules and regulations, personnel, and finance/budgeting. According to state officials, the nutritional content of school meals occupies a relatively small percentage of their daily activities.

In 2005, the Kentucky General Assembly passed legislation requiring school food service directors or those otherwise responsible for meal planning in each school district to either obtain credentialing as a “school food service and nutrition specialist” or a specific level of certification by the American School Food Service Association by June 2008. To maintain the credential or certification, the legislation requires eight hours of mandated continuing education be directly related to applied nutrition and healthy meal planning and preparation. Requiring school food service directors to possess a background in nutrition would increase healthy meal planning and preparation in Tennessee school cafeterias.

ADMINISTRATIVE RECOMMENDATIONS:

The Governor’s Council on Physical Fitness and Health should develop a strategic plan to prevent and reduce overweight and obesity in Tennessee.¹⁵⁸ The strategic plan should establish a comprehensive vision for reducing overweight and obesity in Tennessee and articulate specific goals, objectives, and strategies for realizing this vision. Such a plan should include a few overarching goals guided by a vision of improved health and weight indicators in the future, perhaps in 10 years. In addition, a strategic planning effort should set smaller, interim, formative goals to build momentum and periodically evaluate progress.

In creating and developing the strategic plan, the Governor’s Council should solicit participation and input from multiple stakeholders involved in the prevention and treatment of overweight and obesity, both public and private, including education officials, businesses, faith-based organizations, physicians and the medical community, relevant state and local agencies, departments, and commissions, and others. The final strategic plan should strive to build upon and incorporate existing successful programs at the local level, ensuring the completed effort reflects the diversity of programs throughout the state (e.g., rural, urban, suburban, grand divisions). Creation of a strategic plan that represents a community-based vision for addressing the obesity problem will provide funding sources and policymakers with evidence that the state’s approach to preventing and treating overweight and obesity is both comprehensive and inclusive.¹⁵⁹

Development and implementation of the strategic plan should emphasize enhancing communication among policymakers and advocates. Many interviewees stressed the importance of strong communication and collaboration among community organizations, agencies, and institutions for effective and sustainable efforts. Enhanced communication can also reduce duplicative efforts and ensure scarce resources are used in the most efficient manner possible.

The Department of Health should pursue efforts to increase the quantity and quality of obesity data throughout the state. Interviewees identified the lack of Tennessee-specific data that is valid, reliable, and comparable as a major barrier to identifying obesity trends, developing effective interventions, and evaluating progress in reducing overweight and obesity rates. The Department of Health could increase data collection using several different approaches, including:

¹⁵⁸ Note: The Comptroller of the Treasury or the Comptroller’s designee is a statutorily required member of the Governor’s Council on Physical Fitness and Health. TCA § 4-40-101.

¹⁵⁹ Paul Keckley, Executive Director, Vanderbilt Center for Evidence-Based Medicine, June 27, 2005.

- Working through county and regional health departments to conduct more county-level surveys to generate disaggregated data from areas of the state not covered by the Behavioral Risk Factor Surveillance System (BRFSS).
- Expanding the department's BMI tabulation and storage capacity. The Department of Health received authorization from Public Chapter 194 of 2005 to tabulate and store student BMI data collected by school systems. The Department of Health could expand their tabulation and storage capacity to include data from organizations, institutions, and initiatives around the state.¹⁶⁰ The Department of Health could collaborate with the Tennessee Healthy Weight Network and other relevant entities, such as institutions of higher education, to encourage and assist interested organizations in reporting relevant data to the Department of Health.

The State Employee Wellness Program should enhance current incentives and develop new programs for state employees seeking to lose weight or maintain a healthy weight.

Although Tennessee offers employees some health and wellness programming and fitness club discounts, some other states offer employees monetary incentives to participate in health screenings and accomplish personal wellness goals. In addition, numerous business and nonprofit organizations have implemented new or enhanced existing employee wellness benefits, programs, and initiatives in recent years.

The University of Michigan Health Management Research Center's analysis of 2003 and 2004 state employee health risk data found the top two prioritized health risks were a high body mass index and a low level of physical activity equivalent to less than once a week.¹⁶¹ Caution should be used in generalizing this data to all state employees since participation in the health risk appraisal is voluntary; however, this analysis shows a high level of obesity among participating state employees over two consecutive years.

Research shows a correlation between higher absenteeism, higher disability rates, lower productivity rates, and obesity. Overweight and obese employees also incur higher health care costs. Through the enhancement of existing incentives and/or creation of new programs targeting overweight and obesity prevention and treatment, the state could realize an improvement in the health status of its employees and a cost savings through the reduction in obesity and its direct (chronic disease, physical impairments) and indirect (employee productivity, absenteeism) consequences.

The Department of Education should create a physical education consultant position at the state level. The Department of Education has not employed a physical education consultant since 2001, leaving local education agencies without a state-level contact for communication, collaboration, consultation on best practices, and technical assistance in this area.

Such a position is arguably more important today because of the increasingly high percentage of children who are overweight and the rise of high-stakes testing and increased emphasis on academic achievement. A physical education consultant could provide local education agencies with innovative and practical methods for incorporating more physical activity into the school day in lieu of a formal physical education class or period. The State Board of Education recommends the Department of Education establish a physical education consultant in its 2005 physical activity policy.

The Departments of Education and Agriculture should explore the expansion and formalization of farm-to-school programs in Tennessee. Farm-to-school programs link public school demand for more nutritious and fresh cafeteria fare with the fruit and vegetable supply

¹⁶⁰ Public Acts, 2005, Chapter No. 194.

¹⁶¹ Note: Prioritized health risks are those risks which affect an individual's overall health and prospective medical cost utilization.

from area farms. Fresh fruits and vegetables retain more nutrients than those that have been heavily processed, frozen, and canned and can make school cafeteria offerings more attractive.

While a few school systems in Tennessee have established informal, small-scale farm-to-school operations, the concept's potential is as yet unrealized in Tennessee. Barriers to expansion include coordination of the harvest season and the traditional school calendar, infrastructure and logistics, price differences between local farms' produce and that of institutional food suppliers, and changes in the food procurement process. However, other states, including several southern states, report success with the concept. State officials should research the successes and challenges of farm-to-school programs in other states before expanding and formalizing similar programs in Tennessee.

The Department of Agriculture may also wish to examine possible expansion of the farm-to-school concept to other government institutions in consultation with the appropriate state agency, e.g., farm-to-hospital (Department of Health) and farm-to-prison (Department of Corrections).

APPENDIX A: PERSONS CONSULTED

General Assembly

Senator Diane Black
Senator Raymond Finney
Senator Rosalind Kurita

State Government

Richard Dobbs, Director of Food Stamp Policy, Tennessee Department of Human Services
Mary Jo Howland, Deputy Executive Director, Tennessee State Board of Education
Regina Ranish, Manager, State Employee Wellness Program, Tennessee Department of Finance and Administration

Tennessee Department of Education Officials

Connie Givens, Director of Coordinated School Health; Phyllis Hodges, Consultant, School Nutrition Program; Rita Scruggs, Consultant, School Nutrition Program; Rebecca Smith, Director of Administration and Field Operations, School Nutrition Program; Jerry Swaim, Director, Comprehensive School Health Education; Sarah White, Director, School Nutrition Program

Tennessee Department of Health Officials

Marguerite Lewis, Director of Health Statistics; Peggy Lewis, Director of Supplemental Nutrition Programs; Tom Spillman, Office of Policy, Planning and Assessment, Division of Health Statistics; Andrea Willis, Deputy Commissioner

Local Government

Stephanie Bailey, Director, Metro Public Health Department of Nashville/Davidson County
Becky Barnes, Director, Chattanooga-Hamilton County Health Department
Sonia Hardin, School Health Coordinator, Monroe County Schools
Betty Perry, Food Service Director, Haywood County Schools
Carolyn Perry-Burst, Nutrition Services Program Manager, Community Health Planning and Initiatives, Knox County Health Department

Private Sector and Higher Education

Nan Allison, Administrator, Tennessee Dietetic Association

American Heart Association Officials

Allison Combs, Youth Market Director; Nathan James, Director of Advocacy; Ashley Wrye, Communications Director

Teresa Bolton, Hope and Healing Director, Church Health Center

Pam Burnett, Coordinator of the Delta Rural Health Initiative, Le Bonheur Children's Medical Center - Jackson

Cherokee Health Systems Officials

Thomas Bishop, Behavioral Health Consultant; Kate Christian, Behavioral Health Consultant; Dennis Freeman, Chief Executive Officer; Joel Hornberger, Chief Operating Officer; Jeff Howard, Chief Financial Officer; Aleshia Lunsford, Pediatrician

Betty Greer, Nutrition Specialist, Family and Consumer Sciences, University of Tennessee Extension

Marion Hare, Pediatrician, University of Tennessee Medical Group

Patria Johnson, Program Manager, Memphis Healthy Churches

Paul Keckley, Executive Director, Vanderbilt Center for Evidence-Based Medicine

Marian Levy, Associate Director, Health Promotion and Grants Management, Children's Foundation Research Center of Memphis, University of Tennessee Department of Pediatrics

Cynthia Nunnally, Deputy Administrator, Population Based Services, Memphis - Shelby County Health Department

Hope Patterson, Grants Manager, Le Bonheur Children's Medical Center - Jackson

Tennessee on the Move Officials

Siri-Datar Khalsa, Executive Coordinator; Michael Zemel, Executive Director

Cristie Travis, Chief Executive Officer, Memphis Business Group on Health

Urban League of Greater Chattanooga Officials

Warren Logan, Jr., President/Chief Executive Officer; Sheryl Randolph, Vice President of Education

APPENDIX B: RESPONSE LETTER FROM COMMISSIONER OF AGRICULTURE



Tennessee Department of Agriculture
Ellington Agricultural Center, Box 40627, Nashville, Tennessee 37204
615-837-5100 / FAX: 615-837-5333

Ken Givens
Commissioner

Phil Bredesen
Governor

February 8, 2006

Ms. Ethel R. Detch, Director
Office of Research & Education Accountability
Comptroller of the Treasury
Suite 1700, James K. Polk Building
505 Deaderick St.
Nashville, TN 37243-0268

Dear Ms. Detch:

Thank you for the opportunity to review and comment on the draft Comptroller's Obesity Report.

I am pleased that the report contains a provision relative to farm-to-school programs as an opportunity to provide locally grown fresh fruits and vegetables for more nutritional fare in our schools while expanding market opportunities for farmers.

The Department of Agriculture encourages and whole-heartedly supports this recommendation, and is currently exploring farm-to-school opportunities. Specifically, in reference to page 40 of the report, we have met with Steve Hodges, executive director of Clinch-Powell Community Kitchens, who is working with area school systems in Northeast Tennessee, most notably Hancock and Hawkins counties, to provide locally grown fruits and vegetables to those school systems. This fully licensed kitchen is able to process fresh produce for value-added items such as jams, jellies, sauces and other products that have extended shelf life, therefore providing more options for local farmers to market their fresh produce. We are exploring how we can be helpful to Clinch-Powell Community Kitchens and are hopeful these efforts can be replicated across the state.

With Governor Bredesen's proposal for and the appropriation of \$5 million in the current budget for the Tennessee Agricultural Enhancement Program, we now have more tools available to us to encourage these types of marketing and processing opportunities. We plan to use a portion of these dollars to provide cost-share funds for the expansion of markets and processing facilities that could support farm-to-school programs.

Our department is also responsible for the distribution of more than 36 million pounds of USDA commodities worth \$28.7 million, a large portion of which goes to the school lunch program. Because of our experience in this area, we are able to lend additional support, resources and expertise to the Department of Education and school nutritionists.

Page 2, Detch Letter

Where appropriate, I hope you will consider noting our efforts to encourage farm-to-school program in the report. Again, thank you for the opportunity to review and comment on the report. Please let us know if we can provide further assistance.

Sincerely,

A handwritten signature in black ink that reads "Ken Givens". The signature is written in a cursive style with a long horizontal flourish extending to the right.

Ken Givens
Commissioner

**APPENDIX C: RESPONSE LETTER FROM DIRECTOR, DIVISION OF INSURANCE
ADMINISTRATION**



STATE OF TENNESSEE
DEPARTMENT OF FINANCE AND ADMINISTRATION
INSURANCE ADMINISTRATION
312 Eighth Avenue North
Suite 1300 William R. Snodgrass Tennessee Tower
Nashville, Tennessee 37243
Phone (615) 741-3590 or (800) 253-9981
FAX (615) 741-8196

Dave Goetz
COMMISSIONER

Richard Chapman
DIRECTOR

February 16, 2006

Ethel Detch, Director
Office of Research
Comptroller of the Treasurer
1700 James K. Polk Building
Nashville, TN 37243-0268

Dear Ms. Detch:

This is in reply to the opportunity to provide comments concerning the material presented in a report on obesity in Tennessee prepared by the Office of Research of the Comptroller's Office. We, in the Division of Insurance Administration and the State Wellness Program, have paid particular attention to the material you cited to us that deals specifically with the programs we sponsor. The purpose of this correspondence is to provide additional information that individuals reading the report may want to consider as they judge the activity sponsored by the state government as an employer.

There is an observation contained in the report that says that Wellness Program is executed by only two employees of the Division of Insurance Administration. While that is an accurate statement, the program has a contract with Harris Health Trends for the provision of health risk appraisals, conducting on-site screenings and follow-up with life style management and intervention for those individuals whose characteristics meet criteria for follow-up. We believe this is an effective application of resources to augment the staff and enables us to provide sophisticated activities at a predetermined cost. For 2004 and 2005, the Wellness Program delivered nearly 3,000 screenings and health risk appraisals each year to eligible state employees and intervention services to about 7 percent of the screening participants.

The Wellness Program administered by this Division is available to those individuals who are state employees not employed by higher education institutions. This is attributable to the fact that the program is supported by flexible benefit savings that are allocated each year in the General Appropriations Act. The current (FY2005-06) authorization is \$550,000. Other programs supported by reduced employer social security contributions, as authorized under the provisions of Section 8-25-501, Tennessee Code Annotated, are the state's 401(k) match, daycare expenditures and some other services available to general state employees. We are not aware of wellness programs sponsored by the University of Tennessee or the Board of Regents although we can speculate that there are wellness activities conducted on many of the higher education campuses as those institutions have facilities and onsite staff to offer those services and the employees are more concentrated than general state employees.

Ms. Detch
February 16, 2006
Page 2

For the past two years, the Wellness Program has sponsored a weight loss program called Peel the Pounds. It is available to all employees and has been conducted as a team activity. The Peel the Pounds program is intended to provide assistance to employees in developing an exercise regime and identifying lifelong eating habits which result in weight reduction. The Wellness Program produces a users manual to guide program participants and provide training for team leaders as well as providing continuing support to both the team leaders and program participants.

During its initial year, the State Employee Wellness Program delivered an onsite weight reduction effort with excellent results. Participating State of Tennessee employees lost a total of 9,517 pounds about 4.75 tons. The program began in January 2004 with nearly 2,500 participants and ended in June 2004 with 1,761 participants or 71 percent completing the program. Of participants completing the program 72 percent of the participants lost between 1 and 78 pounds. Of the group completing the activity 35 percent lost 5 percent or more of their total body weight; 13 percent lost at least 10 percent of their total body weight.

Between January and June 2005, employees participated in Peel the Pounds for a second time. They lost a total of 10,497 pounds or 5.5 tons. The average weight loss was 7 pounds per person. The 2005 offering began in January with 2,351 participants and ended in June with 1,512 participants or 64 percent completing the program. Of this group, 75 percent lost between 1 and 67 pounds. Twenty four percent of participants lost 5 to 9.9 percent of their total body weight and 8 percent lost 10 percent or more of their total body weight.

For 2006, the Wellness Program is sponsoring Winter Games, a similar activity built around the Winter Olympics theme. There are 2,750 employees signed up to participate in this program which began on February 15.

Additionally, we use some onsite state employees to assist with screenings and promote the program. Each year we train them for the specific tasks associated with the provision of screening services.

On a regular and continuing basis, the Wellness Program has been providing a Tip of the Week that is transmitted electronically to contacts in the various departments and agencies with the intention of providing wellness promotion information to state employees. On the first Monday of each month, we focus on children and on a different week, the tip covers topics for a nationally recognized association that has designated the month for promotional focus. On another week the tip normally deals with a safety issue.

We also develop and make available seminars onsite to employees that may involve topics of specific interest that can range from ergonomic design of a workplace to effective management of pharmaceutical drugs.

The Wellness Program contacts fitness centers throughout the state during the fall of each year to encourage them to offer discounts to state employees. The listing of fitness centers who offer discounts and the discounted fee are updated each January and made available on the Division of Insurance Administration's website.

Ms. Detch
February 16, 2006
Page 3

Finally, we provide newsletters to promote the self improvement activities and advise employees of the availability of health risk appraisals, screenings and seminars for their voluntary participation.

One item that has an impact on the ability of the state to deliver these services in an effective fashion is the fact that non-higher education employees are dispersed throughout the state. Consequently, we have focused on the development of programs that can be delivered electronically and have carefully targeted the location of workplace seminars and screening activity to ensure access over extended periods of time to employees. Additionally, some employees work in locations that operate 24 hours per day or involve fixed post assignments which limits the ability of those employees to participate in the wellness promotion activities.

Another topic addressed in this report is participation incentives. There are different forms of incentives that may influence participation in employer sponsored wellness programs. The first, and the simplest, is promotional items given to those individuals who participate in wellness activities. These items often include hats, t-shirts and other promotional mementos.

This report suggests that financial incentives, including reductions in monthly premium amounts, should be considered. While we agree that incentives may increase participation, there are several very practical aspects of an incentive program that should be considered. First, the screenings and health risk appraisals that would provide access to incentives are not available on a statewide basis. Even if they were, employees in some organizational units would find it difficult to participate, primarily because the location that operates 24 hours per day, seven days a week and on a fixed post arrangement. Secondly, one third of the workforce (higher education employees) are eligible for the State Plan but are not eligible to participate in the Wellness Program. Some higher education employees may participate in wellness activities on the individual campuses of the University of Tennessee and the State Board of Regents. The Division of Insurance Administration is not aware of those activities. The fact that some higher education employees likely participate in employer sponsored wellness activities may create a situation requiring the verification of the completion of activities or the attainment of certain goals. Finally, there is a limited amount of funding (\$550,000 appropriated for FY 2005-06) to support program activities or to be allocated for financial incentives. With the limited amount of funding, the Division has pursued a strategy that provides additional opportunities for employees to participate in the Wellness Program.

The current funding would likely not support financial incentives for one-time payments (bonuses) for completion of certain activities or attainment of specific goals. Putting this in perspective, providing a \$10 incentive for completion of an online health risk appraisal with a unit cost of \$3.90 (the current contractor's rate) and estimating that about half of the eligible employees would complete the appraisal results in an expenditure of about \$305,800. If ten percent of the individuals completing the health risk appraisal exhibited characteristics that would qualify them for a high risk intervention and that service was provided online, as well, the Wellness Program would expend an additional \$22,550.

An important consideration related to instituting a financial incentive for participation in wellness activities is the resulting levels of interest if the incentive is limited or discontinued in the future. Experience indicates that it is difficult to maintain program participation if the employer reduces or eliminates the financial incentives.

Ms. Detch
February 16, 2006
Page 4

While incentives may improve participation in the Wellness Program, the provision of incentives in the form of cash payments may require the obligation of a significant enough portion of the program's funding where the availability of services is actually reduced.

We appreciate the opportunity to provide these comments for your consideration. To the extent that you would like to consider modifying this review for inclusion in the final report, we would be glad to discuss proposed changes with you.

Sincerely,

A handwritten signature in black ink, appearing to read "Richard L. Chapman". The signature is fluid and cursive, with a long horizontal stroke at the end.

Richard L. Chapman
Director
Division of Insurance Administration

APPENDIX D: RESPONSE LETTER FROM COMMISSIONER OF EDUCATION



PHIL BREDESEN
GOVERNOR

STATE OF TENNESSEE
DEPARTMENT OF EDUCATION
6TH FLOOR, ANDREW JOHNSON TOWER
710 JAMES ROBERTSON PARKWAY
NASHVILLE, TN 37243-0375

LANA C. SEIVERS, Ed.D.
COMMISSIONER

February 17, 2006

Ms. Ethel R. Detch, Director
Offices of Research and Education Accountability
Comptroller of the Treasury
Suite 1700, James K. Polk Building
Nashville, Tennessee 37243-0266

Dear Ms. Detch:

Thank you for the opportunity to review and respond to the report your office recently compiled on obesity in Tennessee. The Department takes very seriously the physical wellbeing of Tennessee's children as well as their academic achievement, and while the obesity problem extends well beyond the schoolhouse door, we will study the feasibility of the report's administrative recommendations based on existing Departmental resources.

The following observations come as a result of a review of the report made by the appropriate Department staff:

- Every local education agency that participates in the National School Lunch Program (100% participation in Tennessee) shall be required to have a wellness policy in place by July 1, 2006. This policy must include minimum goals for nutrition education, physical activity, and other school-based activities that are designed to promote student wellness. The development of this policy must involve parents and community members and include measures for assessing implementation.
- Any discussion concerning the expansion of school age children's body mass index data collection should include the availability of community health officials' time, resources, and expertise to actually conduct BMI screenings. The Department does not support the expansion of this program if it evolves into an unfunded mandate for Tennessee Schools.

The Tennessee Department of Education stands ready to work with both state and local agencies, both public and private, to work toward a comprehensive, community based approach to solving this serious health problem.

Sincerely,

A handwritten signature in cursive script that reads "Lana C. Seivers".

Lana C. Seivers

APPENDIX E: RESPONSE LETTER FROM COMMISSIONER OF HEALTH



STATE OF TENNESSEE
DEPARTMENT OF HEALTH
CORDELL HULL BLDG.
425 5TH AVENUE NORTH
NASHVILLE TENNESSEE 37247

PHIL BREDESEN
GOVERNOR

KENNETH S. ROBINSON, M.D.
COMMISSIONER

February 7, 2006

Ms. Ethel Detch, Director
Office of Research
Comptroller of The Treasury
505 Deaderick Street, Suite 1700
Nashville, Tennessee 37243-0268

Dear Ms. Detch:

Thank you for the opportunity to respond to the Office's report on obesity in Tennessee. The report accurately characterizes the dramatically increased impact of obesity in America, and the protean approaches promoted, implemented and also potentially available in Tennessee to address our own state's rising prevalence of obesity.

We, in the Tennessee Department of Health, appreciate the attention to this problem that will be generated by this report, and offer the following comments on the report's conclusions and recommendations:

- Because the problem of obesity in America is a complex and cross-cutting one, the Department would welcome the opportunity to provide guidance and focus to the development of a comprehensive, multi-sectoral, multidisciplinary, multi-agency, long-range plan for addressing child and adult obesity in our state. The Department of Health has been successful in refocusing existing resources and promoting critical partnerships, and in obtaining both funded and in-kind, public and private support for obesity-related initiatives; but while providing appropriate leadership in addressing this health and healthcare crisis, Public Health alone, cannot stem the rising tide of obesity.
- The success of Tennessee's Coordinated School Health Program (CSHP) – executed by our Department in conjunction with the Department of Education - has been noted by the Centers for Disease Control and Prevention, allowing Tennessee to renew its CDC funding for a statewide School Health Coordinator, and, recently, to expand CSHP mini-grants to 10 additional counties. We would welcome and support the appropriation of additional funding to further expand this best practice model to more school systems in the state.
- If found to be fiscally feasible, the Department of Health would be supportive of legislative efforts to increase physical activity in Tennessee schools.

Ms. Ethel Detch
February 7, 2006
Page Two

- The Department agrees with the value of acquiring more detailed and specific data – specifically from the collection of Body Mass Index (BMI) data on *all* of Tennessee’s public school children, and recognizes the General Assembly’s initial, forward-thinking effort through TCA 49-6-14 to permissively allow and encourage local education agencies (LEAs) to conduct BMI assessments. With private funding, the Department is currently analyzing accumulated data from those LEAs and schools that have voluntarily conducted BMI screenings; data which already – preliminarily - is informing newly created partnerships between local health departments and school systems.
- The Department of Health has experienced critical success in its Worksite Wellness programs, with the sustained involvement of approximately 30% of our employees, using the added incentive of earned administrative leave for consistent, three-month compliance with nutritional and physical activity guidelines. The overwhelming effectiveness and popularity of this incentive, coupled with our employees’ documented physical benefits (weight loss, blood pressure reduction) and improved workplace morale, clearly positions The Department of Health in support of the recommendation for the enhancement of incentives currently offered through our State Employee Wellness Program.
- The availability and *consumption* of fresh fruits and vegetables is a valuable component of a comprehensive approach to reducing obesity. Through the Department of Health’s administration of both the U.S. Department of Agriculture’s Farmers’ Market Senior Citizens’ Food Program, and the Women Infants and Children Farmers’ Market Program, we have developed critical and encouraging experience in administering such programs, in opening new markets for state agricultural products, and in improving the nutritional practices of families in Tennessee. We would welcome exploration of the expansion of this concept to farm-to-school programs in Tennessee. The utility of these programs lies in linking access to produce with the actual dietary choices consumers make.
- The efficacy of the new rules and standards promulgated by the State Board of Education, pursuant to TCA 49-6-2307, clearly suggests the current capacity of LEAs to comply with and to implement healthy choices in the nutritional offerings in schools. The Department of Health would be supportive of efforts to extend the Board’s current nutritional standards regarding *a la carte* and school vending machines for grades K-8 to all grade levels

Finally, we do note - with appreciation – the extraordinary collaboration of the Departments of Education, Agriculture and Personnel, in efforts noted above; excellent support from the multiple other public and private entities, agencies, business groups, and organizations involved with our Department in the promotion of healthful lifestyles, better nutrition and increased physical activity; and the partnership of the Governor’s Council on Physical Fitness and Health, which is administratively associated with The Department of Health.

I applaud Governor Bredesen for being in the forefront; for taking a leadership role in the National Governors Association’s *Healthy America* initiative, and for his innovative approaches toward fostering functional partnerships and practical, clinical interventions to reduce obesity and the associated toll of obesity-related diabetes in our state.

Sincerely,


Kenneth S. Robinson, M.D.
Commissioner

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