



SPECIAL REPORT

# COUNTING COSTS AND CALORIES

Measuring the Cost of  
Obesity to Texas Employers

Susan Combs  
Texas Comptroller of Public Accounts

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# Obesity: A Crisis in Texas

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Susan Combs • Texas Comptroller of Public Accounts





March 23, 2007

A healthy work force is critical to our state's economy and its ability to compete globally. As Comptroller, I am committed to ensuring Texas has a healthy workforce and to reducing the burden of high health care costs on Texas' businesses.

This report, *Counting Costs and Calories*, illustrates just how severe the costs of obesity are for employers. In 2005, obesity cost Texas businesses an estimated \$3.3 billion. This includes the direct costs for health care and the related indirect costs of employee absenteeism, lost productivity and disability.

Employers have long been aware of the disastrous effects of smoking on employee health care costs. Media attention, research, legislation and public education efforts during the last decade have helped reverse this trend. According to the Centers for Disease Control, smoking in Texas has declined from 23.7 percent of the population in 1995 to 20.0 percent in 2005.

Unfortunately, the health risks, prevalence trends and costs for overweight and obese employees far exceed those for tobacco use.

Nearly two-thirds (64.1 percent) of adult Texans are overweight or obese. This prevalence is increasing at an alarming rate—rising 49.4 percent since 1990. Employers are enmeshed in this issue, and not by choice, because businesses bear the majority of the costs associated with obesity. If this trend continues unchecked, the cost to employers could reach \$15.8 billion by 2025.

I applaud the bold initiatives the Legislature is considering—more physical education in our public schools along with a physical health assessment that will serve to improve the health of our children, the work force of tomorrow. Already, almost all school districts have removed unhealthy foods with minimal nutritional value from cafeterias, and many districts are removing them from vending machines as well. These are steps in the right direction.

We also need to track more accurately overweight and obesity in children and adults through improved health claim data or medical records so we can appropriately target health education and accurately assess our progress in reducing the epidemic.

But to stem the tide of the obesity epidemic, all stakeholders—employers, parents, schools, the medical community and government—must work together to do whatever they can to encourage healthier lifestyles, reduce the prevalence of obesity and prevent healthy and overweight people from becoming obese. Ultimately, we must become a society focused on preventing obesity, rather than treating the diseases it causes.

Sincerely,



Susan Combs





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# Counting Costs And Calories

Introduction and  
Executive Summary

## Everything's Bigger in Texas

The phrase, "Everything's bigger in Texas," rings true when we consider the current state of Texans' health. **Nearly two-thirds (64.1 percent) of the state's adult population is overweight or obese.**

The majority of adult Texans, men and women alike, are overweight or obese. This is equally true for Whites, Blacks and Hispanic Texans, and for every category of income and educational attainment.

And obesity is on the rise. In 2005, there were nearly 3 million more obese adults in Texas than in 1990. Only 12.3 percent of Texas adults were obese in 1990; by 2005, that share had more than doubled, to 27.0 percent, well above the national average of 24.4 percent.

## The Co-Morbidities and Costs of Obesity

The bottom line: **Obesity cost Texas businesses an estimated \$3.3 billion in 2005.** This figure includes the cost of health care, absenteeism, decreased productivity and disability.

**Most of the cost of private health insurance is borne by America's employers.** Since 2001, their health insurance premiums have risen by an average of 68.2 percent. The national epidemic of obesity is a major factor in rising health care costs and skyrocketing health insurance premiums, as well as lost productivity and absenteeism among Texas' workforce.

Obesity generates more health care costs than either smoking or drinking. According to a 2002 study by Roland Sturm, a senior economist with RAND Corporation, obese people spend 36 percent more on health care services and 77 percent more on medications than their normally sized counterparts.<sup>1</sup> The same study reported that smokers spend 21 percent more on health care services and 28 percent more on medications than nonsmokers. The corresponding numbers are even lower for problem drinkers.

Being overweight or obese increases one's risk of acquiring costly, chronic illnesses, or co-morbidities, such as coronary heart disease, hypertension, stroke, congestive heart failure, high cholesterol, diabetes, osteoarthritis, gallbladder disease, asthma, sleep apnea and certain cancers. A prominent example of obesity's effects is diabetes.

Eighty-two percent of type 2 diabetics in the U.S. are either overweight or obese. Various medical studies have explained how being overweight puts added pressure on the body's ability to properly control blood sugar, and therefore makes diabetes more likely. In many of these cases, relatively small reductions in weight can delay or even reverse the effects of the diabetes.

The same is true with other obesity-related illnesses, as well as with obesity-related deaths. One study in the *New England Journal of Medicine*, for example, found that up to 20 percent of all cancer deaths are attributable to overweight and obesity.

Roland Sturm said it best:

Obesity has roughly the same association with chronic health conditions as does twenty years' aging; this greatly exceeds the associations of smoking or problem drinking. (2002)<sup>2</sup>

These diseases cost employers—directly in higher health care costs and indirectly through lost productivity when workers are out sick, disabled or simply not functioning up to standard.

## It Begins with Children

Sadly, the epidemic begins at an early age. In a Texas-specific study conducted from 2004 to 2005, researchers found that 42 percent of fourth graders were overweight or at-risk-of overweight, as were 39 percent of eighth graders and 36 percent of eleventh graders.

These children face lives filled with illness and limitations—and the prospect of early death. "If we don't get this epidemic in check, for the first time in a century children will be looking forward to a shorter life expectancy than their parents," said Dr. William J. Klish of Texas Children's Hospital, in a 2002 *Houston Chronicle* article.

And children of obese parents face the additional risk of losing their parents to the debilitating and often fatal diseases that obesity can cause.

By 2025, many of today's overweight children will be entering the work force as overweight or obese adults, at a considerable cost to their employers. If the prevalence of obesity continues rising as it did during the last decade, by 2025 **46.8 percent of Texas adults will be obese.**

If this trend continues, **obesity could cost Texas businesses \$15.8 billion annually by 2025.**

## Fixing the Problem

So what can be done to reverse the effects of the obesity epidemic and its associated costs to Texas employers?

Many private Texas employers already recognize the costs associated with workers who suffer from obesity and related illnesses. They realize something must be done to combat this problem.

The 2007 Texas Legislature has taken important steps to improve the lives of tomorrow's workforce by introducing legislation aimed at instituting more physical education in public schools. Almost all school districts have removed foods with minimal nutritional value from cafeterias, and many districts are removing them from vending machines as well.

And many Texas companies are shifting their health care focus from disease treatment to prevention, in an effort to reduce future health care costs for preventable diseases.

The most successful of these programs offer financial incentives to employees, such as lower health insurance deductibles

or company-paid gym fees, as well as other programs designed to encourage employees to choose healthy lifestyles.

Most such programs take from three to five years to show a return on investment, but those returns can be significant when they materialize.

Experts interviewed for this report agree that decreasing the prevalence of obesity, and thus slowing the rise in health care costs, will require a coordinated effort by the public sector, private enterprise and local communities. They must make a joint commitment to educate and to communicate the benefits of wellness activities and healthier behaviors.

Ultimately, of course, only the individual can be held accountable for the lifestyle choices he or she makes. But employers can promote wellness and provide their workers with incentives, knowledge and opportunities to make healthy choices in life.

## Endnotes

<sup>1</sup> Roland Sturm, "The Effects of Obesity, Smoking, and Drinking on Medical Problems and Costs," *Health Affairs* (March/April 2002).

<sup>2</sup> Roland Sturm, "The Effects of Obesity, Smoking, and Drinking on Medical Problems and Costs."



## Cashing in on Obesity

While the obesity crisis is costing governments, employers and health insurers more, some industries are thriving because of it.

According to the American Obesity Association (AOA), consumers nationwide spend \$30 billion per year trying to lose weight or prevent weight gain. This figure includes spending on diet sodas, diet foods, artificially sweetened products, appetite suppressants, diet books, videos and cassettes, medically supervised and commercial programs and fitness clubs.

Each year, about 45 million Americans—some 40 percent of women and 25 percent of men—attempt to lose weight. And another 55 percent of Americans are actively trying to maintain their current weight. Consumer spending on weight loss programs alone, such as Weight Watchers and Jenny Craig, has been estimated at \$1 billion to 2 billion per year nationally.

Dr. Michael O'Donnell, editor in chief and president of the *American Journal of Health Promotion*, estimates that corporate wellness programs will grow by 30 percent annually. In 2006, he estimated the size of the corporate wellness industry at \$550 million annually, in addition to an estimated \$380 million spent each year on corporate fitness centers. Consumers, he said, spend another \$17 billion each year on private health clubs.

A new line of products is being offered to people considered "plus- or supersized" from companies such as amplestuff.com and fatcities.com. There are plus-sized versions of common items such as fanny packs, umbrellas and hospital gowns. And there are other products to help supersized people cope with the limitations of daily living, such as leg lifters, sock installers and smaller steering wheels (which replace current steering wheels to allow more room for the driver). One company's sales motto is "make your world fit you."



“Employers are not *choosing* to become involved in waging the war on obesity—they are *already* involved. Employers today are paying a high price in health care costs, lost productivity and absenteeism due to disability and even death connected to obesity.”

LuAnn Heinen, Director, Institute on the Costs and Health Effects of Obesity, National Business Group on Health (2005)

# The Report



# A National Epidemic

## Overweight and Obese from Coast to Coast

The U.S. Centers for Disease Control and Prevention (CDC) define obesity through a calculation called the Body Mass Index (BMI), a calculation based on a person's weight and height that usually correlates closely to the amount of body fat. The CDC considers a person with a BMI of 25.0 to 29.9 to be overweight. Those with a BMI of 30 or more are considered obese.

According to the CDC's Behavioral Risk Factor Surveillance System (BRFSS), 24.4 percent of U.S. adults were obese in 2005 (most recent data available). Texas exceeded the national average, with 27.0 percent of its adults considered obese.

According to the CDC, 61.1 percent of all U.S. adults were overweight or obese in 2005. Texas again exceeded the national average, with 64.1 percent of its adults considered overweight or obese. Texas ranked tenth among states in its share of overweight or obese adults (**Exhibits 1 and 2**).<sup>1</sup>

## Prevalence: Percentage of Obese Texans, 1990-2005

During the past 15 years, the share of Texans at a normal weight declined rapidly, while the percentage of obese Texans increased. According to the CDC, 12.3 percent of adult Texans were obese in 1990, while 57.1 percent were at a normal weight. By 2005, 27.0 percent of Texans were obese and only 35.9 percent were at a normal weight. This equates to a *119.5 percent increase* in the percentage of adult Texans who were obese, and a 37.1 percent drop in the percentage of normal-weight adults (**Exhibit 3**).

In 2005, there were nearly 3 million more obese adults in Texas than in 1990. There were 1.5 million obese Texas adults in 1990, while in 2005 there were 4.5 million, nearly a *200 percent increase* over 15 years.



### What is BMI?

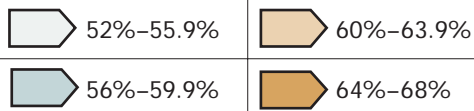
BMI is calculated by dividing a person's weight in kilograms by their height in meters squared. People can be categorized as being underweight, at a normal weight, overweight or obese depending on their BMI. For the purposes of this report, the underweight and normal weight categories are grouped together.

BMI is not always accurate because it is often calculated using self-reported figures for height and weight; participants tend to underestimate their weight and overestimate their height. It should be noted that BMI calculations themselves also have certain limitations; BMI does not take into account muscle mass, meaning that some people, particularly athletes, may be classified as overweight despite lacking significant amounts of body fat. Despite its limitations, BMI is the best tool available for weight categorization and is used by the CDC.

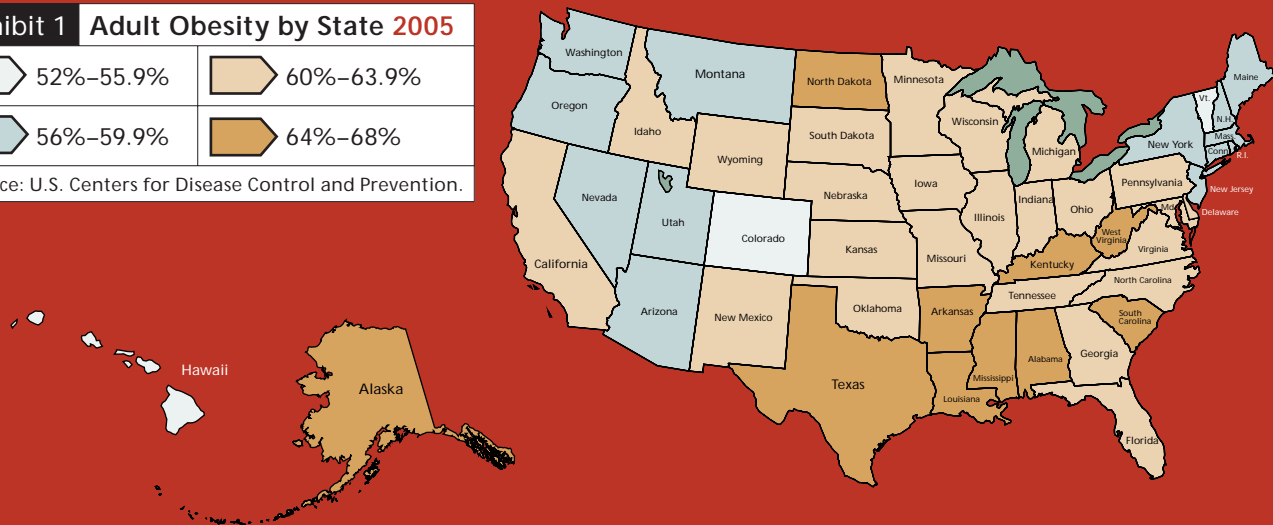
BMI Categories	
BMI	Weight Category
Less than 18.5	Underweight
18.5-24.9	Normal Weight
25.0-29.9	Overweight
30.0 or more	Obese

Source: U.S. Centers for Disease Control and Prevention.

### Exhibit 1 Adult Obesity by State 2005



Source: U.S. Centers for Disease Control and Prevention.



### Exhibit 2 2005 Nationwide Obesity and Overweight Ranking

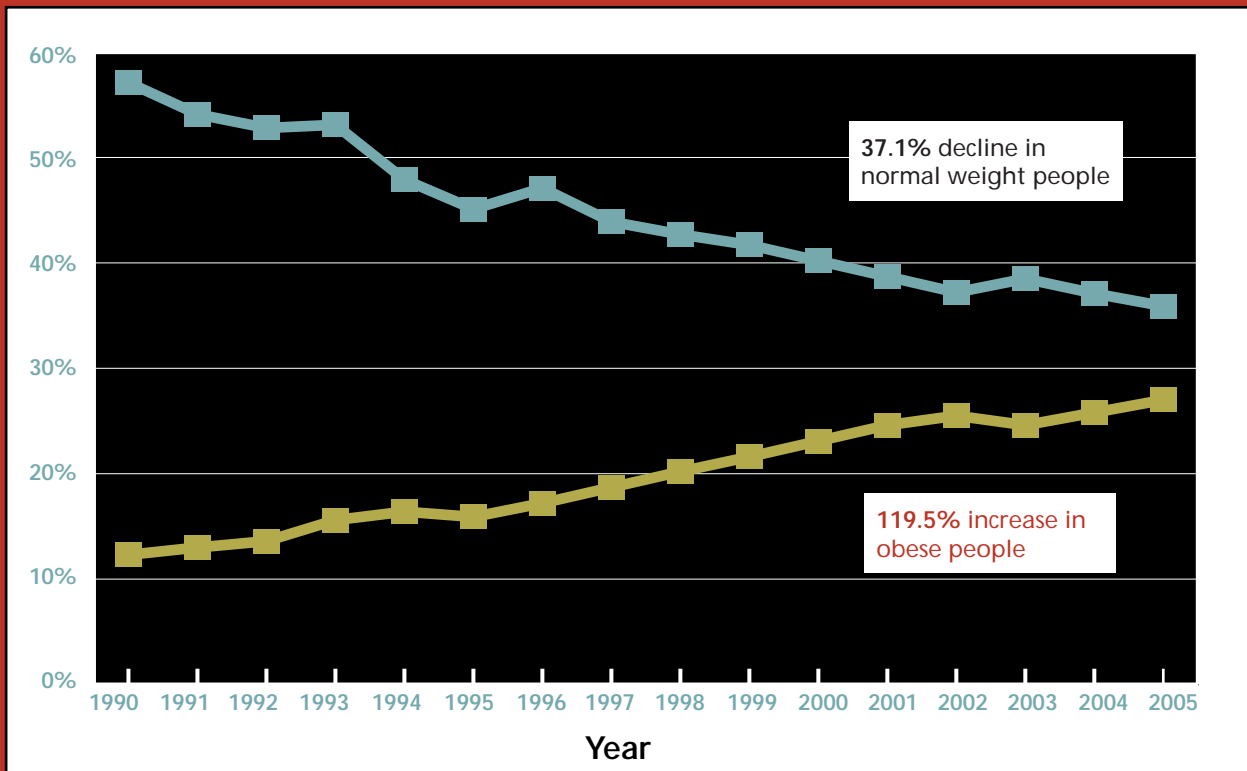
Rank	State	Percent Obese or Overweight	Percent Obese	Rank	State	Percent Obese or Overweight	Percent Obese
1	Mississippi	67.3	30.9	27	Virginia	61.2	25.1
2	West Virginia	65.4	30.6	28	Maryland	61.1	24.4
3	Kentucky	64.9	28.6	n/a	National Average	61.1	24.4
4	Arkansas	64.7	28.0	29	Minnesota	60.9	23.7
5	Louisiana	64.6	30.8	30	Illinois	60.8	25.1
6	South Carolina	64.6	29.1	31	Kansas	60.8	23.9
7	Alabama	64.5	28.9	32	Florida	60.7	22.8
8	Alaska	64.2	27.4	33	California	60.6	22.7
9	North Dakota	64.2	25.4	34	New Mexico	60.3	21.7
10	Texas	64.1	27.0	35	New Hampshire	59.9	23.1
11	Missouri	63.9	26.9	36	New York	59.8	22.2
12	Nebraska	63.2	26.0	37	Oregon	59.7	23.8
13	Oklahoma	62.9	26.8	38	Maine	59.6	22.7
14	Delaware	62.9	23.5	39	Washington	59.4	23.3
15	Georgia	62.9	26.5	40	New Jersey	59.2	22.1
16	South Dakota	62.8	25.5	41	Rhode Island	59.2	21.0
17	North Carolina	62.6	25.9	42	Nevada	58.8	21.2
18	Iowa	62.5	25.4	43	Connecticut	58.2	20.1
19	Michigan	62.5	26.2	44	Montana	57.5	21.3
20	Ohio	62.4	24.3	45	Arizona	56.2	21.1
21	Indiana	62.3	27.2	46	Utah	56.2	21.2
22	Tennessee	62.3	27.4	47	Massachusetts	56.1	20.7
23	Pennsylvania	61.9	25.3	48	Vermont	55.8	20.2
24	Wyoming	61.6	24.2	49	District of Columbia	55.0	21.7
25	Wisconsin	61.5	24.4	50	Colorado	54.5	17.8
26	Idaho	61.3	24.5	51	Hawaii	53.0	19.7

Source: U.S. Centers for Disease Control and Prevention.

### Exhibit 3 Obesity Prevalence Trends in Texas Adults 1990 to 2005

Obese Normal Weight

Sources: Texas Comptroller of Public Accounts and U.S. Centers for Disease Control and Prevention.



## Demographics

According to the CDC's 2005 BRFSS, 37.1 percent of adult Texans were overweight and another 27.0 percent of adult Texans were obese.<sup>2</sup> The demographic breakdowns behind these numbers further illustrate the prevalence of the obesity epidemic.

### Gender

Men are more likely to be overweight or obese than women. In 2005, 72.4 percent of Texas males were overweight or obese, compared to 55.6 percent of females (Exhibit 4).

### Age

In 2005, more than half (53.3 percent) of Texans aged 18 to 29 were overweight or obese. Those aged 30 to 44 were much more likely to be overweight or obese, with a prevalence of 67.3 percent. Those 45 to 64 were heavier still; 71.3 percent were overweight or obese (Exhibit 5).

### Ethnicity

Ethnicity matters, too. In 2005, white Texans were healthiest, and still 60.1 percent were overweight or obese. Seventy-one

percent of Hispanics were overweight or obese. Blacks were the most likely ethnic group to be overweight or obese, with 75.7 percent falling into one category or the other (Exhibit 6).

### Educational Level

The more educated you are, the less likely you are to be overweight or obese. In 2005, adult Texans with no high school diploma were the most likely to be overweight or obese, at 67.8 percent, followed by those with a high school diploma at 67.0 percent, those with some college education at 63.4 percent and college graduates at 59.9 percent (Exhibit 7).

### Income Level

Weight also varies slightly by income level. In 2005, 66.4 percent of adult Texans making \$25,000 per year or less were overweight or obese, as were 65.5 percent of those making between \$25,000 and \$49,999 and 63.9 percent of those making \$50,000 per year or more (Exhibit 8).

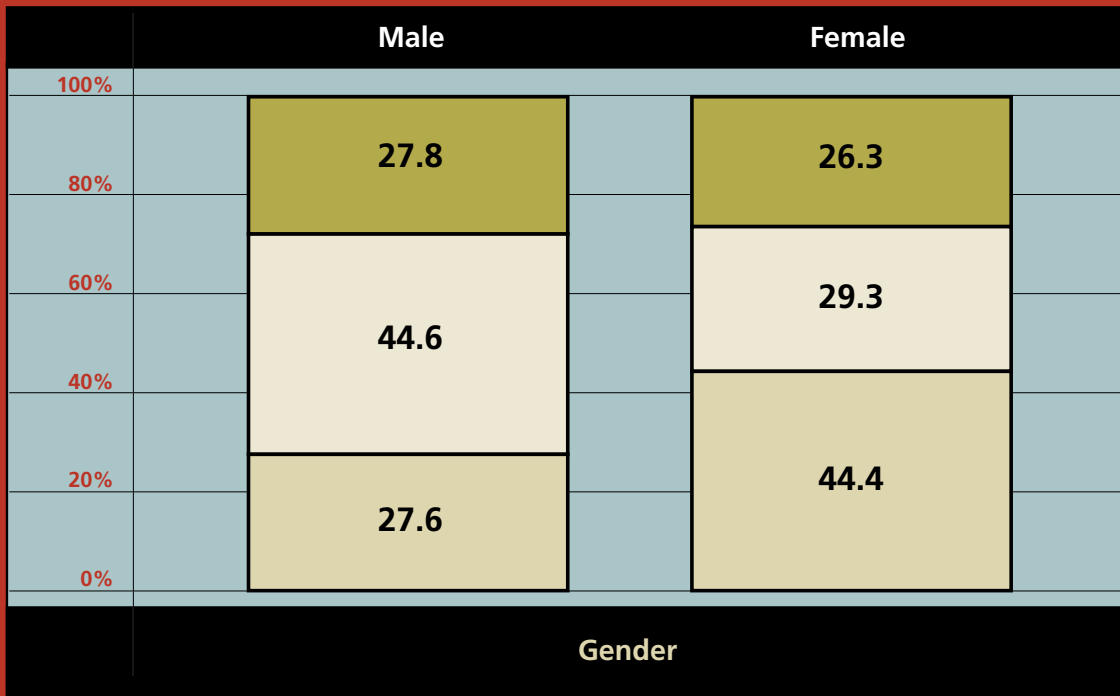
### Geography

Geographic location also plays a role in how much a Texan is likely to weigh. Certain regions in Texas have a much higher prevalence of obesity than others.




**Exhibit 4 Percent of Normal Weight, Overweight and Obese Adult Texans by Gender 2005**

 Obese
  Overweight
  Normal Weight

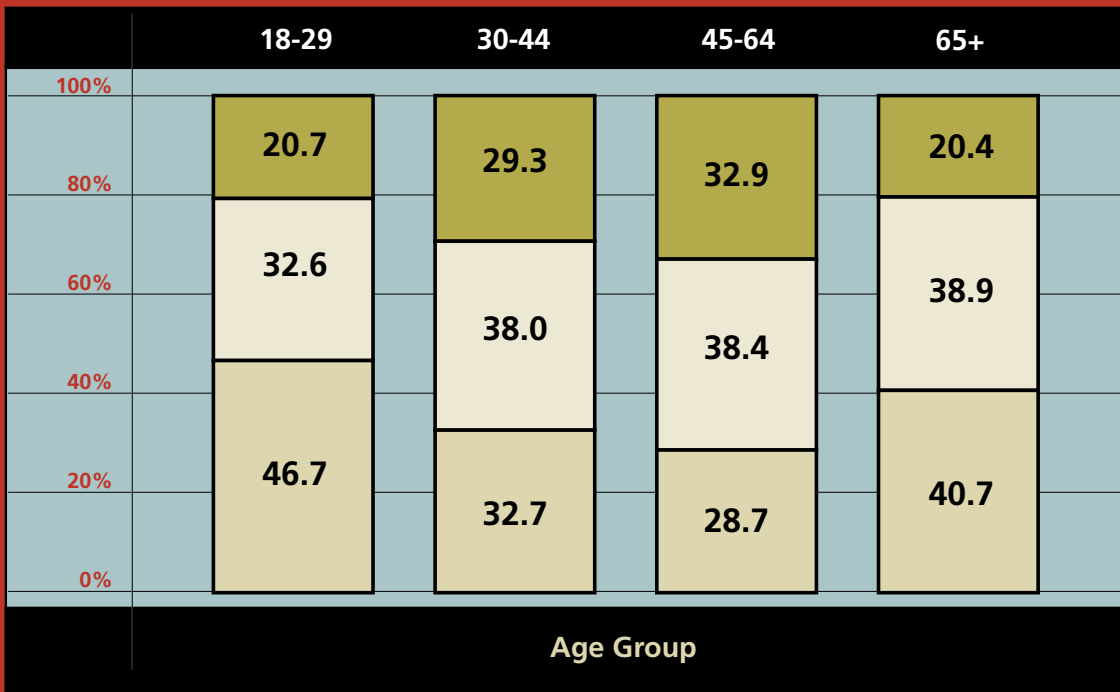
Sources: Texas Comptroller of Public Accounts and U.S. Centers for Disease Control and Prevention.



**Exhibit 5 Percent of Normal Weight, Overweight and Obese Texans, by Age 2005**

 Obese
  Overweight
  Normal Weight

Sources: Texas Comptroller of Public Accounts and U.S. Centers for Disease Control and Prevention.



**Exhibit 6** Percent of Normal Weight, Overweight and Obese Adult Texans, by Ethnicity 2005

 Obese
  Overweight
  Normal Weight

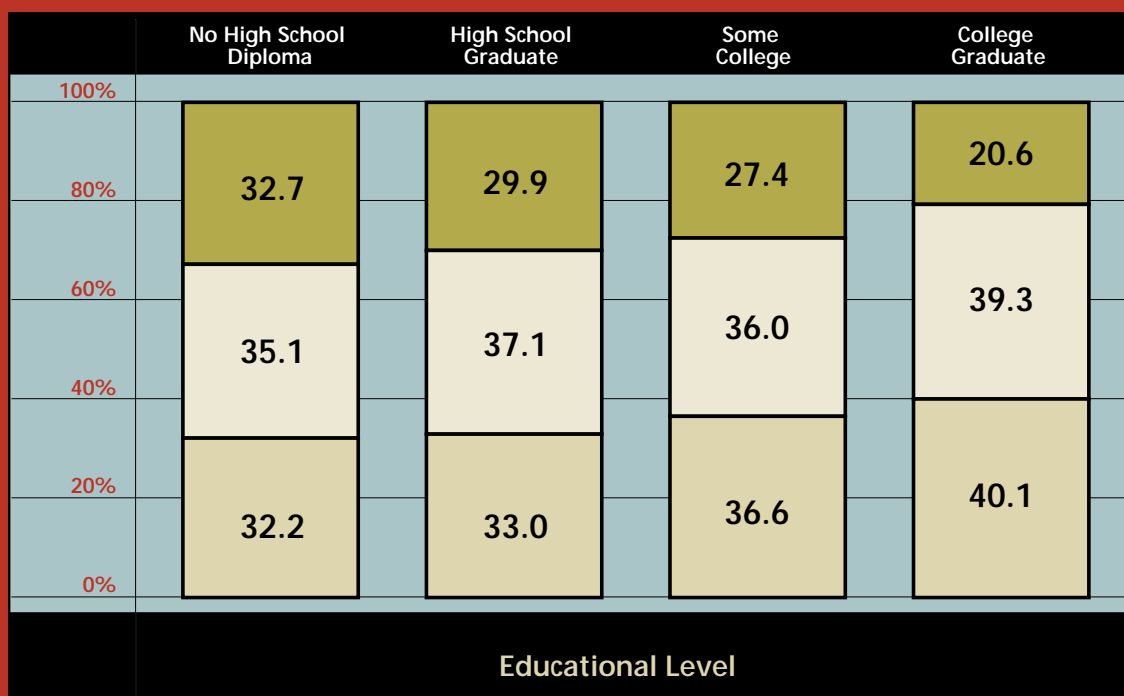
Sources: Texas Comptroller of Public Accounts and U.S. Centers for Disease Control and Prevention.




**Exhibit 7** Percent of Normal Weight, Overweight and Obese Adult Texans, by Educational Level 2005

 Obese
  Overweight
  Normal Weight

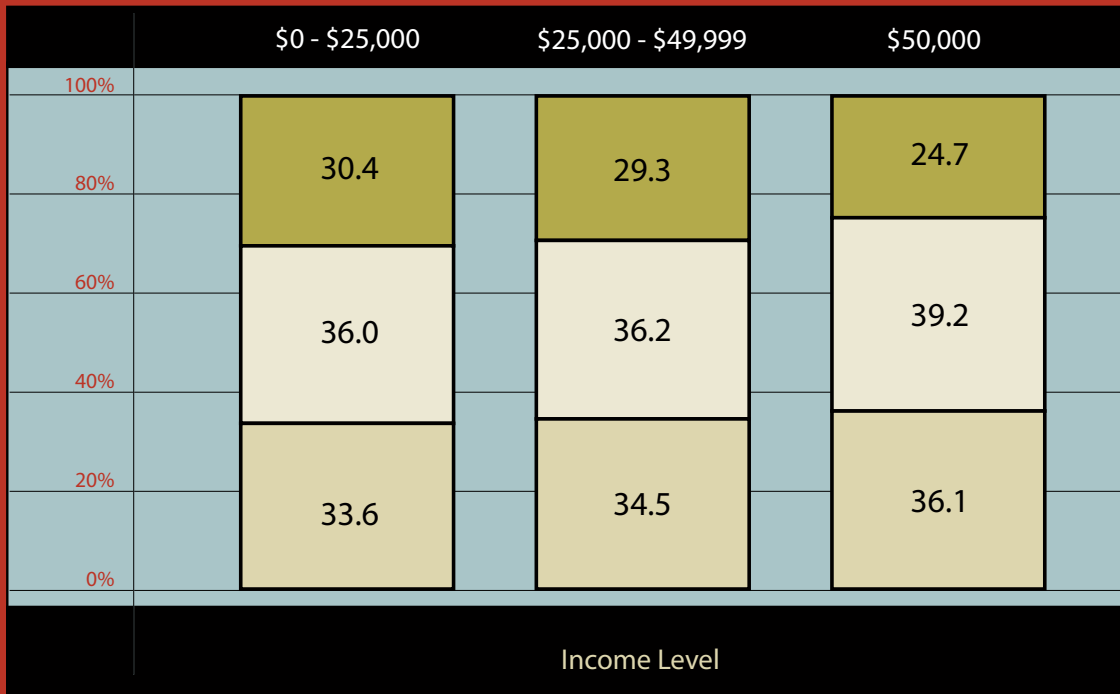
Sources: Texas Comptroller of Public Accounts and U.S. Centers for Disease Control and Prevention.



**Exhibit 8** Percent of Normal Weight, Overweight and Obese Adult Texans, by Income Level 2005

 Obese
  Overweight
  Normal Weight

Sources: Texas Comptroller of Public Accounts and U.S. Centers for Disease Control and Prevention.



In a 2007 ranking produced by *Men's Fitness* magazine, Texas had four out of the eight "fattest" cities in America—San Antonio (#2), Houston (#6), Dallas (#7) and El Paso (#8). The ranking was based on a variety of factors, including the availability of public recreational facilities and wellness programs, TV viewing habits, usage of gym memberships and traffic wait times.

### The Behavioral Risk Factor Surveillance System

The Behavioral Risk Factor Surveillance System (BRFSS) is an annual telephone survey conducted by the U.S. Centers for Disease Control and Prevention. It is used to track health conditions and risk behaviors throughout the United States. The survey has collected health data for all 50 states since 1986.



The Texas Department of State Health Services divides the state into a series of public health administrative regions. The West Texas and Upper Rio Grande regions (regions 9 and 10) and the Central Texas region (region 7) had the state's lowest obesity rates in 2005, at 22.8 percent for regions 9 and 10 and 23.4 percent for Central Texas. The Upper South Texas region (region 8) and Lower South Texas region (region 11), by contrast, had the highest rates of obesity, at 31.1 percent and 37.4 percent respectively (**Exhibit 9**).<sup>3</sup> In addition, 30.9 percent of adults in

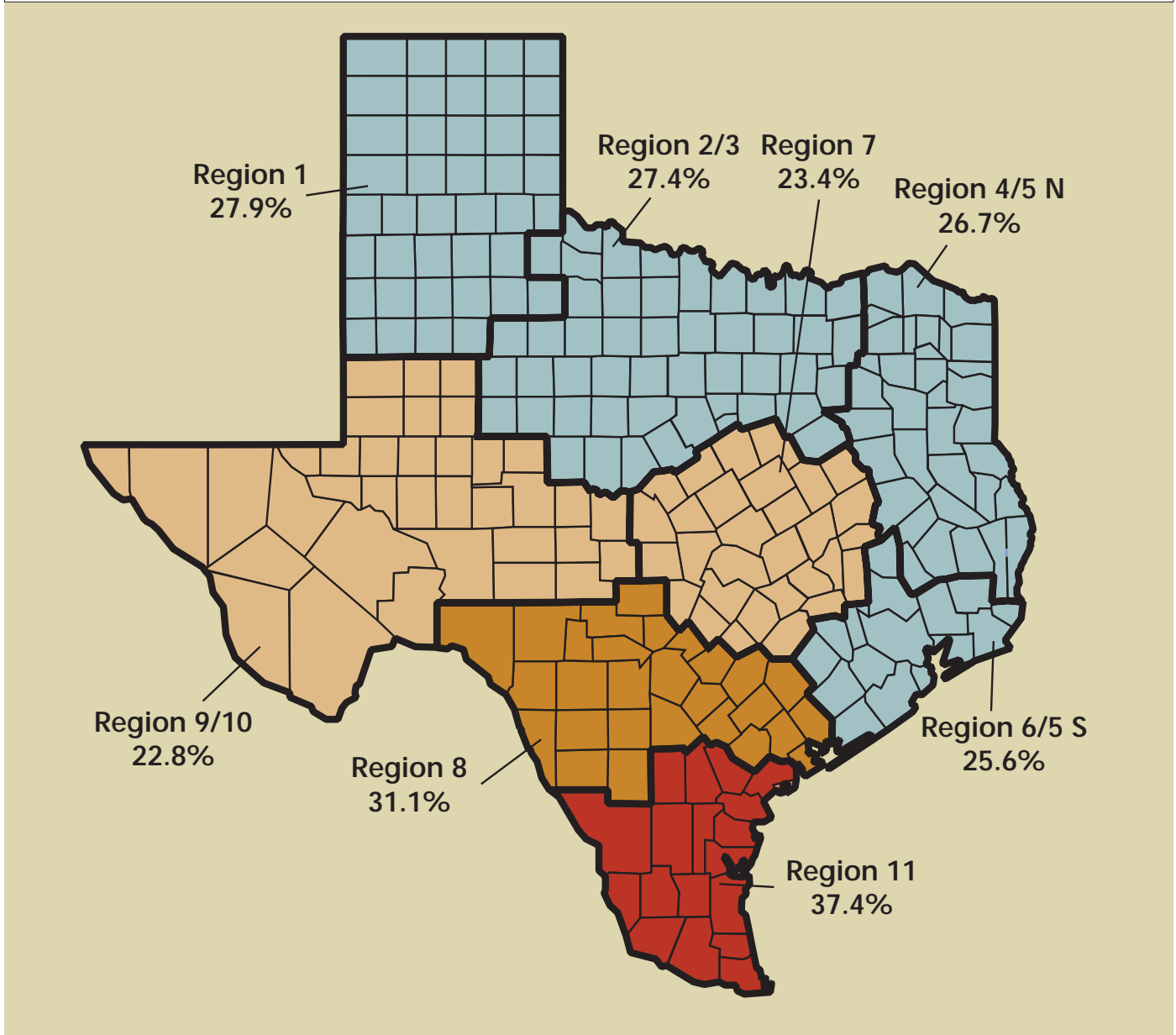
Texas' Border counties were obese in 2005, compared to just 26.8 percent of adults in other counties.<sup>4</sup>

Certain cities are particularly prone to obesity as well. The Austin-Round Rock metropolitan statistical area (MSA) was the state's "skinniest" in 2005, with 55.1 percent of its adults being overweight or obese (18.1 percent obese and 37.0 percent overweight). The San Antonio MSA, by contrast, had the highest prevalence, with 66.4 percent of its adults being overweight (37.2 percent) or obese (29.2 percent) (**Exhibit 10**).<sup>5</sup>

**Exhibit 9 Obesity in Texas Adults, by Public Health Administrative Region 2005**



Sources: Texas Comptroller of Public Accounts and U.S. Centers for Disease Control and Prevention



**Exhibit 10 Overweight and Obesity in Texas Adults, by Metropolitan Statistical Area 2005**

MSA	Overweight	Obese	Overweight and Obese
San Antonio	37.2	29.2	66.4
Houston–Sugar Land–Baytown	39.7	25.9	65.6
El Paso	39.1	23.4	62.5
Fort Worth–Arlington MD	37.0	24.3	61.3
Dallas–Plano–Irving MD	33.2	26.7	59.9
Austin–Round Rock	37.0	18.1	55.1

Sources: Texas Comptroller of Public Accounts and U.S. Centers for Disease Control and Prevention.



## Employment Information for Selected Metropolitan Areas:

### San Antonio (MSA)

Unemployment – 4.2 percent.

Total Employment increased by 26,000 jobs, or 3.3 percent.

Largest sector of the economy was educational and health services.

Largest percent increase in jobs was other services.

Five largest employers – H-E-B Grocery Company, USAA, Methodist Healthcare System, AT&T and Baptist Health System.

### Houston- Sugar Land-Baytown (MSA)

Unemployment – 4.3 percent.

Total Employment increased by 101,200 jobs, or 4.2 percent.

Largest sector of the economy was professional and business services.

Largest percent increase in jobs was other services.

Five largest employers – Wal-Mart Stores, Administaff, Continental Airlines, Exxon Mobile Corp. and Memorial Hermann Healthcare System.

### El Paso (MSA)

Unemployment – 6.3 percent.

Total Employment increased by 4,400 jobs, or 1.7 percent.

Largest sector of the economy was local government.

Largest percent increase in jobs was other services.

Five largest employers – Tenet Healthcare Corp., Sierra Providence Health Network, T&T Staff Management LP, Echosphere Corporation, National Center for Employment and El Paso Healthcare System, Ltd.

*Note: "Other Services" includes sectors such as: auto, computer, electronics and furniture repair, dry cleaning, dental services and barber shops.*

*Sources: Texas Workforce Commission and Texas Comptroller of Public Accounts.*

### Ft. Worth-Arlington (MD)

Unemployment – 4.5 percent.

Total Employment increased by 16,900 jobs, or 2.0 percent.

Largest sector of the economy was manufacturing.

Largest percent increase in jobs was other services.

Five largest employers – American Airlines, Inc., Lockheed Martin Aeronautics Co., Bell Helicopter-Textron, Inc., Chase Financial Services and Cook Children's Medical Center.

### Dallas-Plano-Irving (MD)

Unemployment – 4.3 percent.

Total Employment increased by 81,300 jobs, or 4.1 percent.

Largest sector of the economy was professional and business services.

Largest percent increase in jobs was leisure and hospitality.

Five largest employers – Wal-Mart Stores, Dallas Independent School District, Baylor Health Care System, SBC Communications and Verizon Communications.

### Austin-Round Rock (MSA)

Unemployment – 3.7 percent.

Total Employment increased by 34,700 jobs, or 4.9 percent.

Largest sector of the economy was professional and business services.

Largest percent increase in jobs was other services.

Five largest employers – Dell Computer Corporation, University of Texas at Austin, Austin Independent School District, federal government and City of Austin.

## Endnotes

<sup>1</sup> U.S. Centers for Disease Control and Prevention, "Weight Classifications Based on BMI," <http://apps.nccd.cdc.gov/brfss/list.asp?cat=DE&yr=2005&qkey=4409&state=AL> (Last visited February 9, 2007.)

<sup>2</sup> Texas Department of State Health Services, "Behavioral Risk Factor Surveillance System: Data Table Lookup," [http://www.dshs.state.tx.us/chs/brfss/query/brfss\\_form.shtm](http://www.dshs.state.tx.us/chs/brfss/query/brfss_form.shtm) (Last visited March 5, 2007.)

<sup>3</sup> Texas Department of State Health Services, "Behavioral Risk Factor Surveillance System: Data Table Lookup."

<sup>4</sup> Texas Department of State Health Services, "Behavioral Risk Factor Surveillance System: Data Table Lookup."

<sup>5</sup> Texas Department of State Health Services, "Behavioral Risk Factor Surveillance System: Data Table Lookup."

# Weighing The Costs

## Introduction

Businesses are seeing the adverse effects of the obesity epidemic on their bottom lines. The costs of employee obesity and obesity-related illnesses, including higher insurance costs and lost productivity, are growing and are avoidable.<sup>1</sup> Businesses feel a disproportionate effect from these increases because most Texas adults with private insurance (88.5 percent) receive coverage from their employers.<sup>2</sup>

Furthermore, Texas businesses are likely hit harder than those in other states due to the higher prevalence of obesity in the state. The share of Texas adults who were obese in 2005, 27.0 percent, was higher than the U.S. average of 24.4 percent.<sup>3</sup>

The Comptroller estimates the total costs to Texas businesses attributable to adult obesity and obesity-related illnesses to-

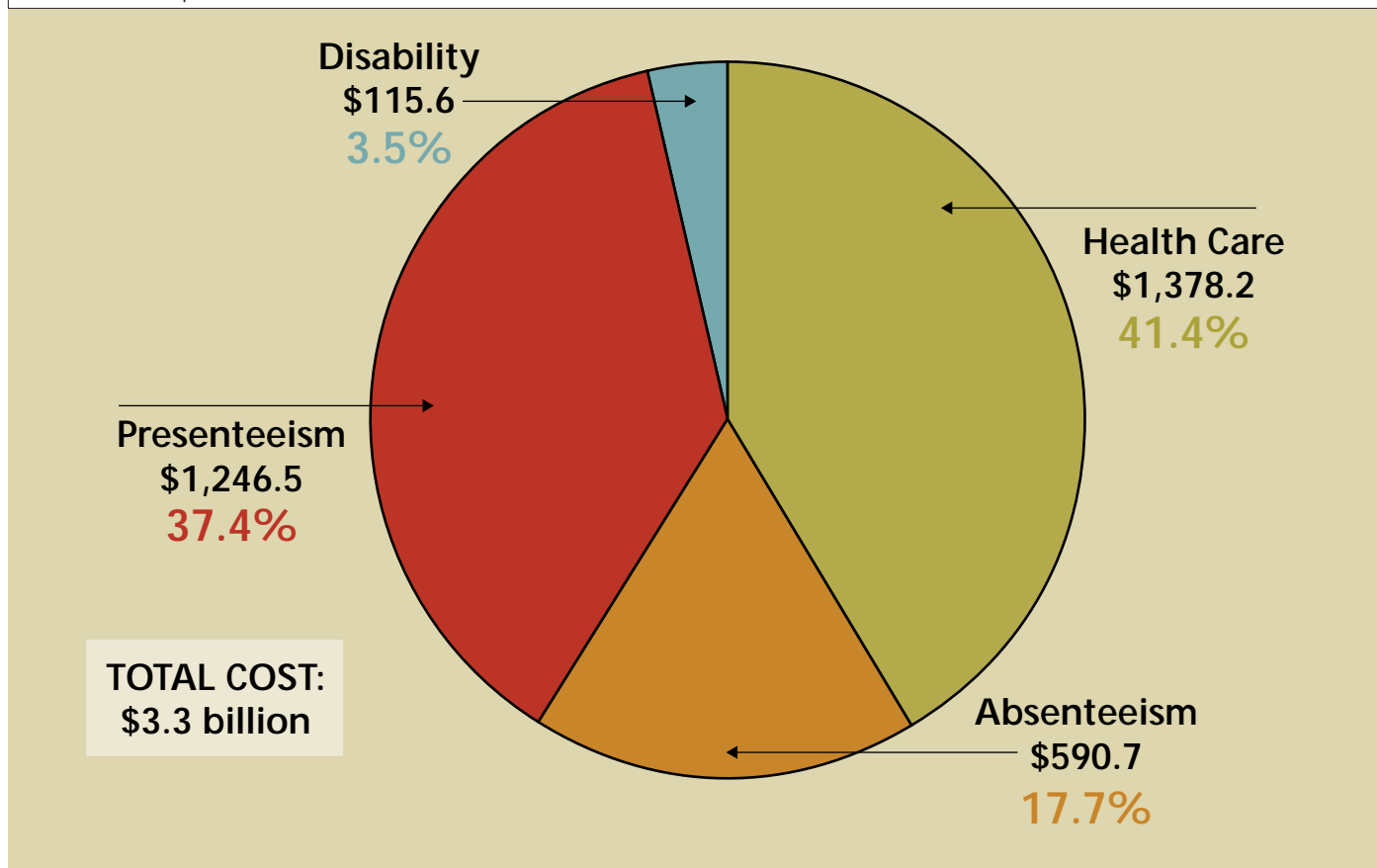
taled more than **\$3.3 billion** in 2005. Health care expenditures and decreased productivity at work (referred to as “presenteeism”) accounted for the majority of these costs (**Exhibit 11**). The Comptroller did not calculate costs associated with overweight adults, who accounted for another 37.1 percent of the Texas adult population in 2005.

## Health Care Costs

Total U.S. spending on health care reached nearly \$2 trillion in 2005, or \$6,697 per person (**Exhibit 12**). Total health care expenditures rose by 35.3 percent from 2001 to 2005. During the same period, spending by private insurers and consumers’ out-of-pocket expenses rose by 39.2 percent and 24.7 percent respectively.

**Exhibit 11** Distribution of Estimated Costs Attributed to Adult Obesity in Texas 2005 (in millions)

Note: Amounts may not total due to rounding.  
Source: Texas Comptroller of Public Accounts.



In 2005, health care expenditures accounted for 16 percent of the U.S. gross domestic product and 6 percent of household personal income.<sup>4</sup>

As health care spending increases, so does the cost to businesses and their employees, in the form of higher health insurance premiums and out-of-pocket expenses. In 2005, employers carried 74.4 percent of the cost of private health insurance in the U.S., with the remainder being paid by employees.<sup>5</sup>

The cost of health insurance is rising faster than both inflation and wages (**Exhibit 13**).<sup>6</sup> From 2001 to 2004, average health insurance premiums (based on a family of four) increased at double-digit rates. Premiums rose by 7.7 percent in the U.S. in 2006.

Again, businesses and their employees have been forced to absorb these increases.

**Exhibit 12 Growth in U.S. Health Care Spending 2001-2005 (in billions)**

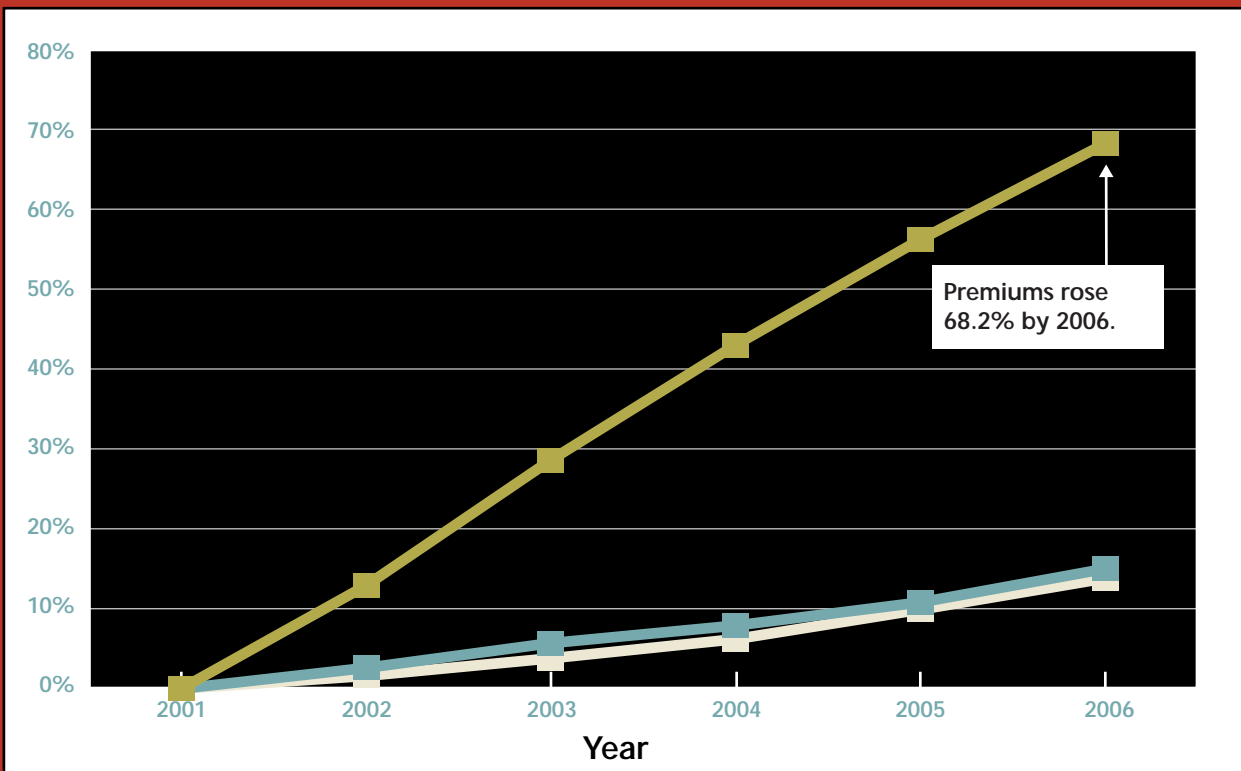
	2001	2002	2003	2004	2005
Total Health Care Expenditures	\$1,469.6	\$1,602.8	\$1,733.4	\$1,858.9	\$1,987.7
Private Insurance*	498.7	551.0	603.8	651.5	694.4
Out-of-Pocket Payments**	200.0	211.3	224.5	235.8	249.4
<b>Annual Percent Growth from Previous Year</b>					
Total Health Care Expenditures	-	9.1%	8.1%	7.2%	6.9%
Private Insurance	-	10.5%	9.6%	7.9%	6.6%
Out-of-Pocket Payments	-	5.7%	6.3%	5.0%	5.8%

\* Private health insurance premiums.  
 \*\* Direct spending by consumers. Includes copays and deductibles.  
 Note: Amounts may not total due to rounding.  
 Source: U.S. Centers for Medicare and Medicaid Services.

**Exhibit 13 Cumulative Increases in U.S. Health Insurance Premiums, Earnings and Inflation 2001-2006**



Note: Premium information not available for Texas.  
 Source: Kaiser Family Foundation.



About 59.2 percent of all U.S. adults had employment-based health insurance in 2005, compared to 53.4 percent of adult Texans.<sup>7</sup> The share of the population with employment-based health insurance, however, is falling, both in Texas and the U.S (Exhibit 14).

This pattern is likely due to rising costs. A 2006 survey of employer health benefits by the Kaiser Foundation reported that, among firms not offering health benefits, 86 percent cited high premiums as an important reason for not doing so.<sup>8</sup>

In 2006, the average annual premium for covered workers in the U.S. was \$4,242 for single coverage and \$11,480 for family coverage.<sup>9</sup>

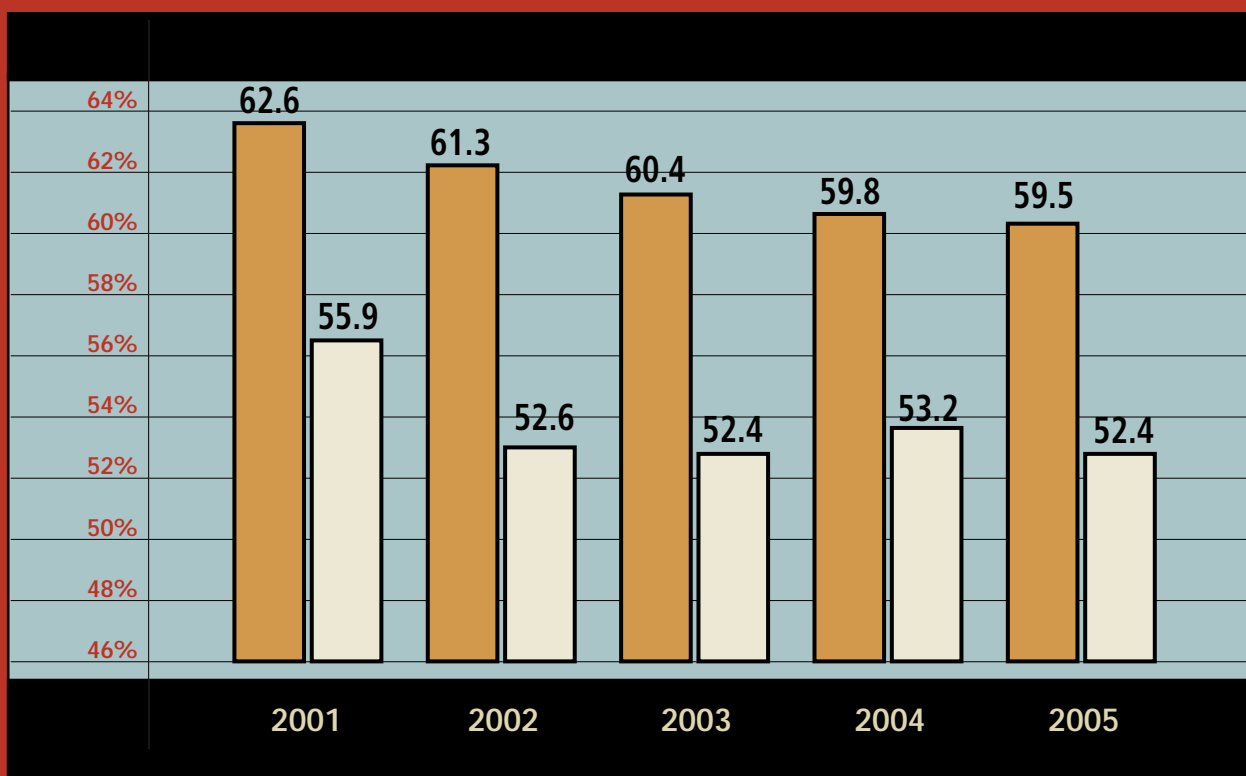
Texas employment-based insurance premiums rose by 29.3 percent from 2001 to 2004 (Exhibit 15).<sup>10</sup>

One 2005 study used uniform applicant and policy criteria to compare average health insurance premiums in the 50 largest American cities. Texas cities were among the most expensive. The average premium in Dallas for an individual policy was 171.1 percent higher than a comparable plan in Long

**Exhibit 14** Percent of Population with Employment-based Health Insurance 2001-2005

 U.S. Employment-Based
  Texas Employment-Based

Sources: U.S. Bureau of Labor Statistics and U.S. Bureau of the Census.



**Exhibit 15** Average Employment-based Health Insurance Premiums, Texas

Calendar Year	Average Premium	Annual Change	Cumulative Change
2001	\$2,924.55	-	-
2002	\$3,268.00	11.7%	11.7%
2003	\$3,400.00	4.0%	16.3%
2004	\$3,781.00	11.2%	29.3%

Note: Amounts may not total due to rounding.  
Source: U.S. Department of Health and Human Services.

Beach, California. Texas accounted for six of the most expensive 15 cities in the study.<sup>11</sup>

## Obesity Costs

Obesity and obesity-related illnesses are major contributors to the rise in insurance prices.

A 2002 study of U.S. adults aged 18 to 65 found that obesity increased health care spending by 36 percent and spending on medications by 77 percent. Obesity had a greater effect on costs than smoking or problem drinking.<sup>12</sup> And a 2003 study concluded that adult obesity accounted for 5.3 percent of total medical spending and 4.7 percent of medical spending by private insurers.<sup>13</sup>

Based on national health expenditure data, the Comptroller estimates that Texas' health care expenditures totaled \$114.2 billion in 2005, with private insurance for adults accounting for 25.7 percent of that amount, or \$29.3 billion. Applying the 4.7 percent figure noted above to this estimate results in adult obesity costing Texas businesses nearly \$1.4 billion in 2005 (Exhibit 16).<sup>14</sup>

Yet health care costs associated with obesity are only one element of expense. Again, obesity also results in indirect costs such as absenteeism, reduced performance at work ("presenteeism") and disability insurance costs (Exhibit 17). Workers' compensation may be a cost factor as well, although research indicates it is negligible.

## Absenteeism

Absenteeism, or missed workdays, varies by BMI and gender.

Research found no significant differences in the number of workdays missed among men who are normal weight, overweight and those with a BMI of 30 to 34.9 (Exhibit 18). Men whose BMI is 35 or greater, however, miss two more workdays each year. Women with a BMI of 30 to 34.9 miss 1.8 more days per year than do normal-weight women. Women with a BMI of 35 to 39.9 and 40 or more miss 3 days more and nearly a week more than normal-weight workers, respectively.<sup>15</sup>

A 2005 study of the U.S. full-time employed population estimated that 30 percent of total costs attributed to obesity are due to absenteeism and 70 percent to health care.<sup>16</sup> This

distribution of costs was applied to the Comptroller's estimate of health care costs of nearly \$1.4 billion. Therefore, the Comptroller estimates absenteeism due to obesity and obesity-related conditions cost Texas businesses \$590.7 million in 2005.

## Presenteeism

Presenteeism, or decreased productivity from employees at work, is another cost to business. Obesity and obesity-related illnesses have a negative effect on work functions such as performing certain tasks more slowly, repeating tasks or making mistakes. Many tasks that require physical activity cannot be accomplished because of illness or pain. Research varies on what proportion of the total costs comes from reduced productivity. Estimating such costs is difficult because there are no standard measures for productivity.<sup>17</sup>

A 2004 *Harvard Business Review* report found that decreased productivity at the financial services corporation Bank One accounted for 63 percent of its total illness-related costs, while medical costs and absenteeism represented 24 percent and 6 percent, respectively.<sup>18</sup> This study examined the distribution of all health care costs, not just those attributed to obesity.

Another study estimated 2003 national costs due to absenteeism and reduced productivity at \$42.3 billion or \$1,627 per obese worker, compared to \$1,201 per normal-weight worker. About two-thirds of the costs (\$28.7 billion) were associated with reduced productivity while at work, while the remaining 32.2 percent were attributed to absenteeism.<sup>19</sup>

This distribution of costs was applied to the Comptroller's estimate of absenteeism costs of \$590.7 million. Therefore, the Comptroller estimates lower work productivity due to obesity cost Texas businesses \$1.2 billion in 2005.

## Disability

While only limited research is available on the cost of disabilities attributed to obesity, the Bank One study cited above found that short- and long-term disability accounted for 7 percent of all costs due to employee illness. Again, this study examined all health care costs, not simply those due to obesity.

A 2003 study of six large U.S. employers estimated the share of their total health care costs attributable to short-

**Exhibit 16** Health Care Expenditures Attributed to Adult Obesity in Texas 2005 (in millions)

Estimate Elements	Estimated Expenditures
Total Health Care Expenditures	\$114,172.3
Percent Adult Private Insurance	25.7%
Adult Expenditures—Private Insurance	\$29,324.4
Share Attributed to Obesity	4.7%
Obesity Costs	\$1,378.2

Note: Amounts may not total due to rounding.  
Sources: Texas Comptroller of Public Accounts, U.S. Centers for Medicaid and Medicare Services and 2003 study by Eric A. Finkelstein, et al.

**Exhibit 17** Direct and Indirect Costs Attributed to Obesity

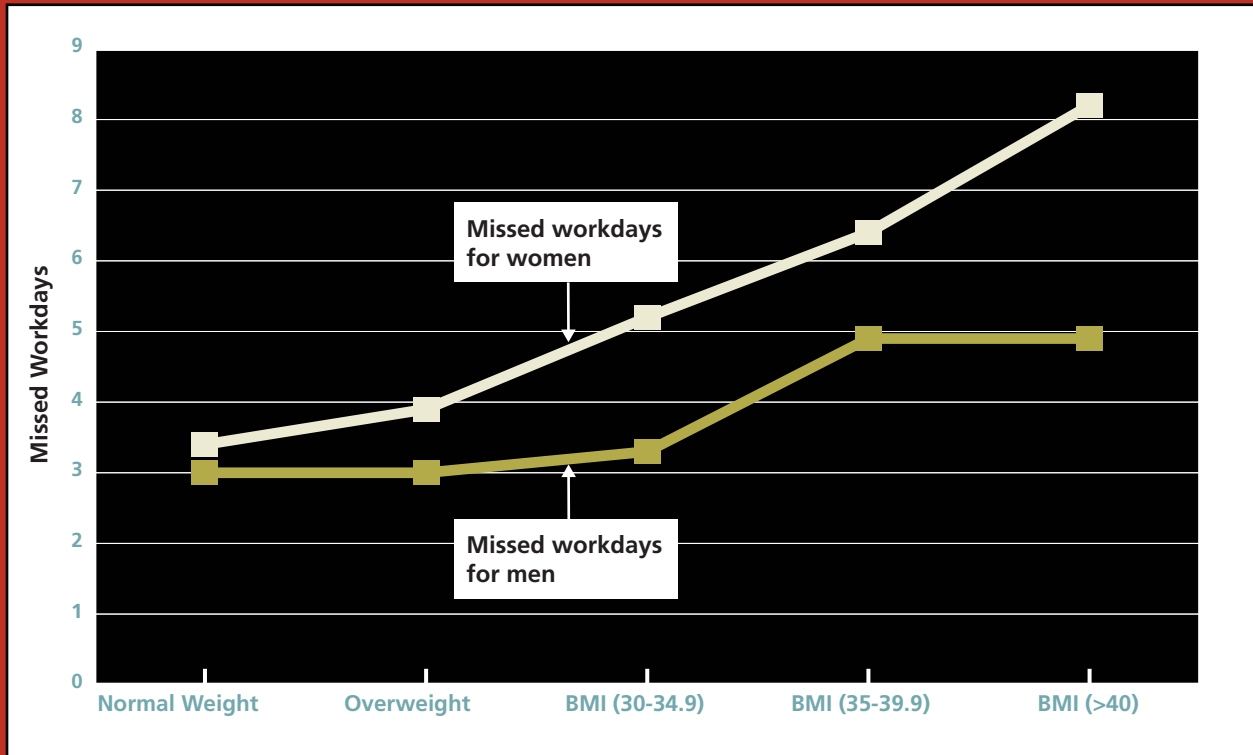
Cost Drivers	Definition
Health Care	Health care insurance premiums
Absenteeism	Time absent from work
Presenteeism	Reduced productivity while at work
Disability	Insurance to cover cost of injuries and disabling diseases

Source: Texas Comptroller of Public Accounts.

**Exhibit 18 Annual Missed Workdays for U.S. Full-Time Employees Due to Illness or Injury, by BMI 2001-2002**

Women Men

Note: Information not available for Texas.  
Source: 2003 study by Eric A. Finkelstein, et al.



**Exhibit 19 Six Large U.S. Employers Costs for Health Care and Short-Term Disability for Selected Illnesses, per Employee 1999**

	Total Costs	Health Care Costs	Percent of Total Costs	Short Term Disability Costs	Percent of Total Costs
Angina Pectoris	\$213.09	\$205.39	96.4%	\$7.70	3.6%
Essential Hypertension	\$99.71	\$91.44	91.7%	\$8.27	8.3%
Diabetes	\$79.39	\$74.76	94.2%	\$4.63	5.8%
Acute Myocardial Infarction	\$66.94	\$60.32	90.1%	\$6.62	9.9%
Severe Osteoarthritis	\$40.05	\$28.02	70.0%	\$12.03	30.0%
Osteoarthritis Maintenance	\$20.79	\$18.18	87.4%	\$2.61	12.6%
Colon and Rectum Cancer	\$31.31	\$30.50	97.4%	\$0.81	2.6%
<b>Total</b>	<b>\$551.28</b>	<b>\$508.61</b>	<b>92.3%</b>	<b>\$42.67</b>	<b>7.7%</b>

Note: Amounts may not total due to rounding.  
Source: Goetzel, R., et al.

**Exhibit 20** Costs to Business Attributable to Adult Obesity in Texas 2005 (in millions)

Areas of Costs	Estimated Costs	Percent
Health Care	\$1,378.2	41.4%
Absenteeism	\$590.7	17.7%
Presenteeism	\$1,246.5	37.4%
Disability	\$115.6	3.5%
Total Costs	\$3,331.1	100.0%

Note: Amounts may not total due to rounding.  
Source: Texas Comptroller of Public Accounts.



### What Obesity Costs all Taxpayers

Obesity affects Texas taxpayers through the funding of government-sponsored health plans, including those of cities, counties and the state and federal governments.

Future liabilities tied to these costs may affect other areas of government as well. A new Governmental Accounting Standards Board rule (GASB 45) will require accrual accounting of state and local retiree health plans. That is, they will have to report their total unfunded actuarial accrued liabilities for 30 years. This figure is likely to be in the billions and could affect the bond ratings of the governmental entities involved, resulting in higher costs to borrow money.

The federal Medicaid and Medicare programs also are affected by obesity. Obesity prevalence among the Medicare population is similar to those covered by private insurance, but it is higher in the Medicaid population.

An analysis of data from the 1998-2000 BRFSS found that, while 20 percent of the total U.S. adult population was obese, the adult Medicare and Medicaid populations

were 20.7 percent and 29.6 percent obese, respectively. During the same period, 22 percent of all Texas adults were obese, while 20.7 percent of the state's Medicare population and 35.8 percent of its Medicaid population were.<sup>21</sup>

Medicaid, then, has a more obese population, and Medicaid costs for obesity, as a percentage of all Medicaid costs, are greater than for Medicare recipients or the total population. The percentage of Texas' 2003 health care expenditures attributable to adult obesity in Medicaid (11.8 percent) was 73.5 percent higher than for Medicare (6.8 percent) and 93.4 percent greater than for the total population (6.1 percent) (Exhibit 21).

In all, about half of the health care costs attributable to obesity fell under Medicare and Medicaid in 2003. Medicare and Medicaid recipients in the U.S. accounted for 52.0 percent of all obesity health care costs; in Texas, they accounted for 44.7 percent of all obesity health care costs.<sup>22</sup>

**Exhibit 21**  
Estimated Adult Obesity-Attributable Medical Expenditures and Percentages  
2003 (in millions)

	Obesity-Related Total Medical Expenditures	Percent	Obesity-Related Medicare Expenditures	Percent	Obesity-Related Medicaid Expenditures	Percent
Texas	\$5,340	6.1%	\$1,209	6.8%	\$1,177	11.8%
U.S.	\$75,051	5.7%	\$17,701	6.8%	\$21,329	10.6%

Source: Finkelstein, et al.

term disabilities caused by a variety of physical and mental conditions.<sup>20</sup> **Exhibit 19** details disability costs attributable to diseases commonly associated with obesity.

In **Exhibit 19**, 7.7 percent of the costs are attributable to short-term disability.

This distribution of costs was applied to the Comptroller's estimate of health care costs of nearly \$1.4 billion. Therefore, the Comptroller estimates that short-term disabilities due to obesity cost Texas businesses \$115.6 million in 2005.

In all, then, the Comptroller estimates that adult obesity and related illnesses cost Texas' businesses and private insurers more than \$3.3 billion in 2005 (**Exhibit 20**). This figure includes direct and indirect costs for health care, absenteeism, presenteeism and disability.

This \$3.3 billion represents the costs to businesses and not to all adult Texans. The Texas Department of State Health Services June 2004 report, "The Burden of Overweight and Obesity in Texas, 2000-2040" estimates the costs attributed to both overweight and obesity for all adults in Texas not just those covered by private insurance by their employers.

**Appendix 1** contains more detail on the assumptions and calculations used to estimate these costs.

## Endnotes

- <sup>1</sup> Eric Finkelstein, Ian C. Fiebelkorn, and Guijing Wang, "The Costs of Obesity Among Full-time Employees," *American Journal of Health Promotion* (September/October 2005), p. 50; Judith Ricci and Elsbeth Chee, "Lost Productive Time Associated with Excess Weight in the U.S. Workforce," *Journal of Occupational and Environmental Medicine* (December 2005), pp. 1,227-1,234; and Vincent C. Arena, Krishna R. Padiyar, Wayne N. Burton, Joseph J. Schwerha, "The Impact of Body Mass Index on Short-Term Disability in the Workplace," *Journal of Occupational and Environmental Medicine* (November 2006), pp. 1118-1119.
- <sup>2</sup> U.S. Census Bureau, Current Population Survey, "2006 Annual Social and Economic Supplement, Table HI05, Health Insurance Coverage Status and Type of Coverage by State and Age for All People: 2005," [http://pubdb3.census.gov/macro/032006/health/h05\\_000.htm](http://pubdb3.census.gov/macro/032006/health/h05_000.htm) (Last visited March 5, 2007.)
- <sup>3</sup> Texas Department of State Health Services, "Behavioral Risk Factor Surveillance System: Data Table Lookup," [http://www.dshs.state.tx.us/chs/brfss/query/brfss\\_form.shtm](http://www.dshs.state.tx.us/chs/brfss/query/brfss_form.shtm) (Last visited March 5, 2007.)
- <sup>4</sup> U.S. Centers for Medicare and Medicaid Services, "National Health Expenditure Data Web Tables," [http://www.cms.hhs.gov/NationalHealthExpendData/02\\_NationalHealthAccountsHistorical.asp#TopOfPage](http://www.cms.hhs.gov/NationalHealthExpendData/02_NationalHealthAccountsHistorical.asp#TopOfPage). (Last visited March 5, 2007.)
- <sup>5</sup> U.S. Centers for Medicare and Medicaid Services, "National Health Expenditure Data Web Tables," (Last visited March 5, 2007); and National Institutes of Health, U.S. National Library of Medicine, "Growth in U.S. Health Care Spending Slows," [http://www.nlm.nih.gov/medlineplus/news/fullstory\\_43636.html](http://www.nlm.nih.gov/medlineplus/news/fullstory_43636.html) (Last visited March 5, 2007.)
- <sup>6</sup> Kaiser Family Foundation, *Employer Health Benefits 2006 Annual Survey* (Menlo Park, California, 2006), p. 19.
- <sup>7</sup> U.S. Census Bureau, Current Population Survey, "2006 Annual Social and Economic Supplement, Table HI05, Health Insurance Coverage Status and Type of Coverage by State and Age for All People: 2005."

- <sup>8</sup> Kaiser Family Foundation, *Employer Health Benefits 2006 Annual Survey*, p. 37.
- <sup>9</sup> Kaiser Family Foundation, *Employer Health Benefits 2006 Annual Survey*, p. 26.
- <sup>10</sup> U.S. Department of Health and Human Services, "Medical Expenditure Panel Survey, Table II.C.1(2004): Average Total Single Premium (in Dollars) per Enrolled Employee at Private-Sector Establishments that Offer Health Insurance, by Firm Size and State: United States, 2004," [http://www.meps.ahrq.gov/mepsweb/data\\_stats/summ\\_tables/insr/state/series\\_2/2004/tiic1.htm](http://www.meps.ahrq.gov/mepsweb/data_stats/summ_tables/insr/state/series_2/2004/tiic1.htm) (Last visited March 5, 2007); U.S. Department of Health and Human Services, "Medical Expenditure Panel Survey, Table II.C.1(2003)," [http://www.meps.ahrq.gov/mepsweb/data\\_stats/summ\\_tables/insr/state/series\\_2/2003/tiic1.htm](http://www.meps.ahrq.gov/mepsweb/data_stats/summ_tables/insr/state/series_2/2003/tiic1.htm) (Last visited March 5, 2007); U.S. Department of Health and Human Services, "Medical Expenditure Panel Survey, Table II.C.1(2002)," [http://www.meps.ahrq.gov/mepsweb/data\\_stats/summ\\_tables/insr/state/series\\_2/2002/tiic1.htm](http://www.meps.ahrq.gov/mepsweb/data_stats/summ_tables/insr/state/series_2/2002/tiic1.htm) (Last visited March 5, 2007); and U.S. Department of Health and Human Services, "Medical Expenditure Panel Survey, Table II.C.1(2001)," [http://www.meps.ahrq.gov/mepsweb/data\\_stats/summ\\_tables/insr/state/series\\_2/2001/tiic1.htm](http://www.meps.ahrq.gov/mepsweb/data_stats/summ_tables/insr/state/series_2/2001/tiic1.htm) (Last visited March 5, 2007.)
- <sup>11</sup> eHealthInsurance, *The Most Affordable Cities for Individuals to Buy Health Insurance*, (Mountain View, California, June 28, 2005), p. 7.
- <sup>12</sup> Roland Sturm, "The Effects of Obesity, Smoking, and Drinking on Medical Problems and Costs," *Health Affairs* (March/April 2002).
- <sup>13</sup> Eric Finkelstein, Ian C. Fiebelkorn, and Guijing Wang, "National Medical Spending Attributable to Overweight and Obesity: How Much, and Who's Paying?" *Health Affairs-Web Exclusive* (May 14, 2003), p. 248.
- <sup>14</sup> Both the obesity-related fraction (4.7 percent) and the health care expenditures used in the calculation for costs are based on private insurance costs, not specifically business costs. As stated earlier in the chapter, 88.5 percent of adults with private insurance in Texas are covered through their employer. This does not mean, however, that 88.5 percent of the costs of private insurance is paid through employer-based plans. That figure is unknown. The Comptroller did take into account that a smaller percentage of adult Texans have employment-based insurance (when compared to all payers of insurance) than the U.S. average.
- <sup>15</sup> Finkelstein, "The Costs of Obesity Among Full-time Employees," p. 48.
- <sup>16</sup> Finkelstein, "The Costs of Obesity Among Full-time Employees," pp. 45-51.
- <sup>17</sup> National Institute for Health Care Management Foundation, *Accelerating the Adoption of Preventive Health Services: Proceedings from a Conference* (Washington D.C., 2003), p. 17.
- <sup>18</sup> Paul Hemp, "Presenteeism: At Work – But Out of It," *Harvard Business Review* (October 2004), p. 51.
- <sup>19</sup> Judith Ricci and Elsbeth Chee, "Lost Productive Time Associated with Excess Weight in the U.S. Workforce," *Journal of Occupational and Environmental Medicine* (December 2005), pp. 1227-1234.
- <sup>20</sup> Ron Z. Goetzel, Kevin Hawkins, Ronald J. Ozminkowski, Shaohung Wang, "The Health and Productivity Cost Burden of the 'Top 10' Physical and Mental Health Conditions Affecting Six Large U.S. Employers in 1999," *Journal of Occupational and Environmental Medicine* (January 2003), p. 5.
- <sup>21</sup> Eric A. Finkelstein, Ian C. Fiebelkorn, and Guijing Wang, "State-Level Estimates of Annual Medical Expenditures Attributable to Obesity," *Obesity Research* (January 2004), pp. 22-24.
- <sup>22</sup> Finkelstein, "State-Level Estimates of Annual Medical Expenditures Attributable to Obesity," pp. 18-24.



## National Employee Health and Fitness Day

The National Association for Health and Fitness was established in 1977 by staff from the President's Council on Physical Fitness. In partnership with the Network of State and Governor's Councils, the association sponsors an annual employee health and fitness day each May. Visit [www.physicalfitness.org](http://www.physicalfitness.org) for more information.

## Weight Loss Supplements

Consumers spent \$4.7 billion on weight-loss supplements nationwide in 2000, according to the Consumer Health Care Products Association.

# Fighting Obesity

Many companies have begun offering their employees at-work wellness programs to improve workers' health while controlling health care costs. Many chronic diseases, such as diabetes, heart disease and arthritis, are tied to lifestyle practices. And employees who have, or are at a high risk for, such diseases invariably incur higher insurance costs and productivity losses.<sup>1</sup>

Companies that invest in health promotion programs see results in lower insurance costs, reduced absenteeism and increased employee job satisfaction.<sup>2</sup> A 2002 Hewitt Associates survey reported that 81 percent of U.S. companies had adopted wellness programs to improve employee health, and 76 percent had disease management programs<sup>3</sup> (**Exhibit 22**).

Health promotion programs, including education and wellness programs, encourage employees to improve their lifestyles. They educate employees on healthy habits and help

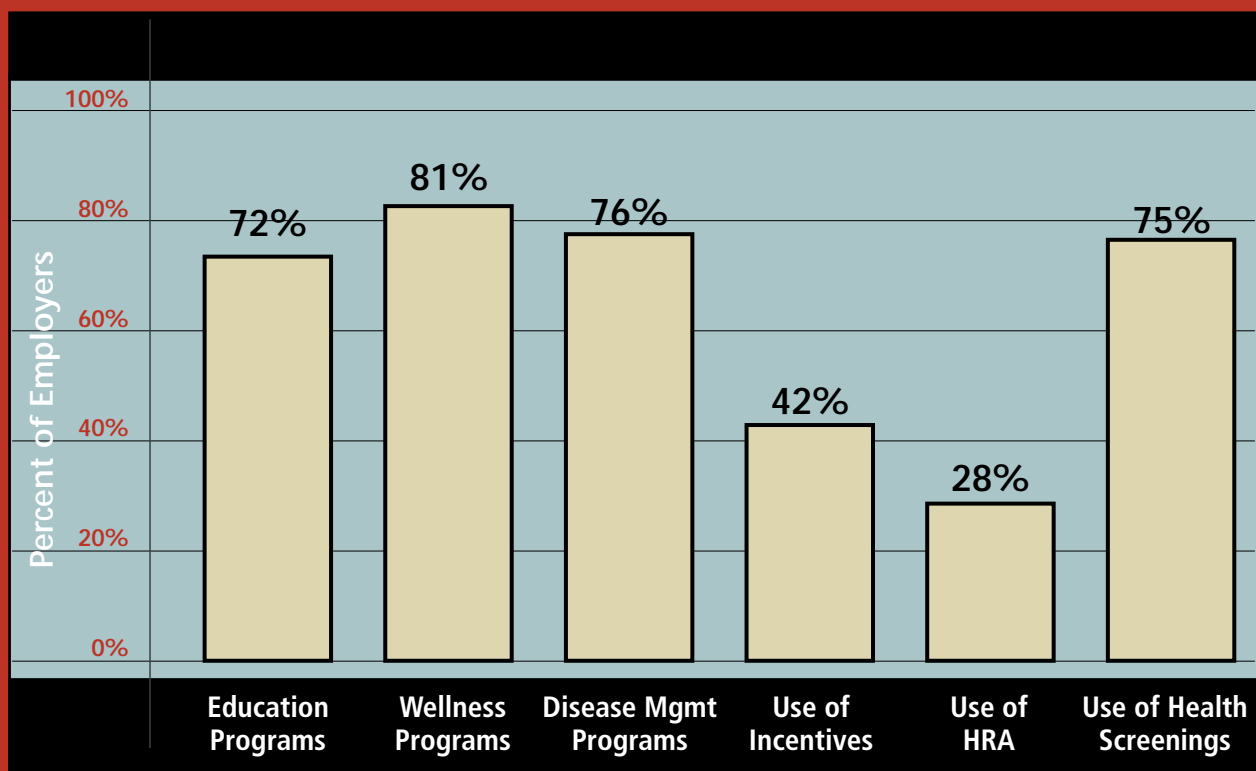
to create healthy workplace environments. Such programs include nutrition and weight management classes, health risk appraisals and counseling with health coaches. A health risk appraisal (HRA) identifies high health risk employees by checking risk factors such as blood pressure, weight and blood cholesterol. With this information, the company can provide health education programs tailored to individual employees.<sup>4</sup>

Disease management is a process that reduces health care costs and improves the quality of life enjoyed by individuals with chronic disease conditions, by treating or minimizing the effects of the disease. Such programs help employees who are being treated for a chronic disease manage their conditions.

Most disease management programs involve patients with a nursing professional who educates them on how to manage their conditions. These programs encourage patients to follow their doctors' orders and keep to their plan of care. Disease

**Exhibit 22** U.S. Businesses Health Promotion Programs

Source: 2002 Hewitt Associates survey.



management programs help prevent complications and keep the patient healthier, longer.

## Health Promotion Programs in Texas

### USAA

*San Antonio-based financial services company; 22,000 U.S. employees, 9,500 Texas employees*

In 2006, USAA won the C. Everett Koop National Health Award, which recognizes excellence in health risk reduction and cost reduction programs.<sup>5</sup> USAA's "Take Care of Your Health" program addresses a variety of health issues through more than 20 different workplace initiatives. These include:

- On-site health clinics, fitness centers and personal trainers
- Smoking cessation and weight management programs
- Healthy food choices available in the cafeterias and vending machines

In 2005, 68.5 percent of the company's employees participated in at least one of these wellness programs. USAA relies on a coordinated internal communications effort to spread anecdotes about successful employees to encourage participation.

To measure the savings produced by these programs, USAA aggressively tracks employee population level health data. Dr. Peter Wald, Vice President and Enterprise Medical Director at USAA, stresses that a company should see its wellness programs as a worthwhile but long-term investment and should not expect a return on the investment for three to five years. While USAA has not determined savings for all of its programs, they have reduced workplace absences and produced an estimated three-year savings of more than \$105 million.<sup>6</sup>

### General Motors

*World's largest vehicle manufacturer; 192,000 U.S. employees, 3,000 Texas employees*

General Motors' *LifeSteps* health promotion program began 12 years ago and today covers 1 million current and retired employees and their dependents.

The program uses health educators and online and mailed HRAs to help employees make better lifestyle choices.<sup>7</sup> HRA results are mailed back to participants with customized information and advice.

LifeSteps has produced annual insurance savings of \$42 per participant and an estimated \$2 to \$3 return per dollar on the company's investment in the form of increased productivity and reduced absenteeism.<sup>8</sup> Interestingly, a 2004 University of Michigan study sampled 23,490 GM employees grouped into normal weight, overweight and obese categories. The study demonstrated the importance of physical activity in a wellness program, as moderately active (exercising one to two times/week) and very active (exercising three or more times/week) employees paid \$250 less in annual health care costs than sedentary employees (those who do not exercise) across all weight categories. For the obese subpopulation, the difference was \$450.<sup>9</sup>

### H-E-B

*Largest independent grocery store in Texas; 65,000 Texas employees*

The "Healthy at H-E-B" wellness initiative targets unhealthy lifestyle behaviors of employees. Each voluntary participant receives a financial incentive for completing an HRA. H-E-B's programs are focused on disease prevention rather than treatment, although it also includes a disease management service. Forty-four percent of the grocer's employees participated in the first year; by the fourth year, 79 percent were on board.

Healthy at H-E-B costs were absorbed by the company's existing benefit plan budget.

H-E-B's health care costs were rising by 25 percent annually before the program began, but increased by just 2.9 percent in 2006, and actually fell by 3.7 percent in 2005.<sup>10</sup>

### Dell

*Computer systems company; 18,000 Texas employees*

Dell has a comprehensive health and wellness program, "Well at Dell." Employees choose and build their own health plans; participate in on-site wellness programs such as healthy pregnancy and lifestyle coaching; and have access to disease management programs. Dell also has a 24-hour health hotline that is answered by a registered nurse.

Since Well at Dell began in 2004, program participants have experienced reduced cost increases, primarily due to reduced inpatient admissions.<sup>11</sup>

## Savings and Returns on Investment

When planning a health promotion program, companies may calculate the return on investment (ROI) for the programs before deciding if it is a good investment. Evidence suggests that comprehensive and adequately funded health promotion and disease prevention programs provide a payback on investment. These studies show that ROI is achieved through healthier workers, reduced insurance costs and less absenteeism.<sup>12</sup>

A 2001 article in the *American Journal of Health Promotion* which reviewed 72 previous studies on this topic, concluded that each dollar spent on health promotion programs generated an average savings of \$3.48 on health care and reduced absenteeism costs by \$5.82. In all, the programs produced an average ROI of \$4.30 per dollar spent.<sup>13</sup>

A 1999 case study of Citibank's wellness and disease management program found that the company realized a ROI within two years of between \$4.56 and \$4.73 per dollar spent on the program.<sup>14</sup>

Still another 1999 analysis of health promotion programs found ROI estimates ranged from \$1.40 to \$13.00 in savings per dollars spent.<sup>15</sup>

Wellness programs typically do not experience savings for three to five years after implementation. An investment for wellness, then, is in some sense a leap of faith. But an increasing body of evidence suggests that the investment is well worth making.

One large Texas retailer interviewed for this report estimated its costs for health care over the next five years. The company found that annual increases in health care premiums, if they continued at their current rate for five more years, would wipe out the company's entire profit. They then analyzed the most expensive diseases in their employee population and found that nearly all of them were caused by unhealthy lifestyle choices, such as eating habits, smoking and a lack of physical exercise.

This company has invested in wellness programs targeted at all lifestyle choices that affect health care costs, and reduced its annual increase in health care premiums to below the national average.

A successful program can be beneficial even if only a small number of employees participate. An analysis showed that a health promotion program could break even if participation succeeded in shifting just 1 percent of employees from "high-risk" to "low-risk" status.<sup>16</sup>

The Citibank study cited above reported that 51 percent of eligible employees completed an HRA and only 5 percent completed a follow-up intervention, but the program still yielded an ROI of \$4.56 per dollar invested.<sup>17</sup> ROI can increase dramatically as more people participate.<sup>18</sup>

Small investments in healthier lifestyles can make a tremendous difference. A study by Dee Edington, director of the Health Management Research Center of the University of Michigan, showed the relationship between HRA scores and prospective medical claims costs over a two-year period. For each one-point improvement in an employee's HRA, Edington predicts individual claims costs will fall by \$56.<sup>19</sup>

Edington's research also showed the importance of promoting wellness among the healthy population, not just the current high-cost employees. Companies don't save as much money by lowering risks as they do by preventing them in the first place.

Edington found that costs for an employee who moves into a high-risk category for disease increase by \$350 per year; costs for an employee who moves into a low-risk category fall by less than \$150 per year. In other words, the increase in costs that occurs when employees move from low-risk to high-risk are much greater than the decreases in costs produced when they move from high-risk to low-risk.<sup>20</sup>

## Endnotes

- <sup>1</sup> Eric A. Finkelstein, Ian C. Fiebelkorn and Guijing Wang, "The Costs of Obesity Among Full-time Employees," *American Journal of Health Promotion* (September/October 2005), p. 50; and Judith Ricci and Elsbeth Chee, "Lost Productive Time Associated with Excess Weight in the U.S. Workforce," *Journal of Occupational and Environmental Medicine* (December 2005), p. 1,227.
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- <sup>6</sup> 2006 Koop Health Award, "The USAA Take Care of Your Health Program."
- <sup>7</sup> 2004 C. Everett Koop National Health Awards, "The UAW-GM LifeSteps Health Promotion Program," <http://healthproject.stanford.edu/koop/2004winnerindex.htm> (Last visited March 6, 2007.)
- <sup>8</sup> National Business Group on Health, Center for Prevention and Health Services, *Health Improvement: A Comprehensive Guide to Designing, Implementing and Evaluating Worksite Programs*, by Courtney Rees and Ronald Finch (Washington, D.C., November 2004), p. 5.
- <sup>9</sup> F. Wang, T. McDonald, L. J. Champagne, and D. W. Edington, "Relationship of Body Mass Index and Physical Activity to Health Care Costs Among Employees," *Journal of Occupational and Environmental Medicine* (May 2004), p. 428.
- <sup>10</sup> Interview with Kathy Durbin, director of benefits, H-E-B, Austin, Texas, February 14, 2007.
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- <sup>12</sup> Daniel Zank and Donna Friedsam, "Employee Health Promotion Programs: What is the Return on Investment?" *Wisconsin Public Health & Health Policy Institute Issue Brief* (September 2005.)
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- <sup>16</sup> National Business Group on Health, *Health Improvement: A Comprehensive Guide to Designing, Implementing and Evaluating Worksite Programs*, p. 4.
- <sup>17</sup> R. J. Ozminowski, "A Return on Investment Evaluation of the Citibank," pp. 31-39.
- <sup>18</sup> William Whitmer, Kenneth Pelletier, et al., "Editorial: A Wake-up Call for Corporate America," *Journal of Occupational and Environmental Medicine* (September 2003), p. 923.
- <sup>19</sup> Louis Yen, Timothy McDonald, David Hirschland, Dee Edington, "Association Between Wellness Score from a Health Risk Appraisal and Prospective Medical Claims Costs," *Journal of Occupational and Environmental Medicine* (October 2003), p. 1053.
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## Has America Outgrown Itself?

As Americans get bigger, so does our stuff. And we're outgrowing more than our clothes.

Consider the trend in seating, for instance. According to reports in the *Washington Post*, the standard width of a movie theatre seat used to be 19 inches; now it's 23 inches. *Slate* magazine reports the same trend affects church pews. Manufacturers used to allot 18 inches per worshipper; now they allow 21 inches.

Office furniture is changing, too. Business office furniture companies now advertise chairs made stronger for heavier workers and offer optional arm rests that slide out, making more room for girth.

Cars are getting larger, too. The *Washington Post* reports that design engineers are being challenged to provide more seat room without losing other features such as cup holders, DVD screens and air bags. Some SUVs sport 40-inch-wide driver seats.

Airlines confronted the size issue several years ago by requiring exceedingly large passengers to purchase two seat tickets, against much public outcry. The requirement was not without merit, however. According to the BBC, in 2002 a British woman was awarded roughly \$20,000 in compensation from Virgin Airlines for severe physical damage after being squashed by an obese person who sat next to her. The woman suffered a blood clot, torn muscles and sciatica after an 11-hour flight.

The extra weight Americans are carrying cost the airline industry some serious money over the last decade. According to a study in the *American Journal of Preventive Medicine*, the increase in the average passenger's

weight required airlines to use an extra 350 million gallons of fuel at a cost of \$275 million each year—and that was based on prices in 2000, when jet fuel cost 79 cents per gallon, compared to roughly \$1.80 in February 2007.

And we not only need bigger seats—we also need more room to get into and out of the places we're sitting, working or shopping. *Slate* reports that revolving doors have grown from six feet in width to an average of eight feet. Supermarket aisles have widened from a standard five feet to the current seven to 7.5 feet—not necessarily to accommodate our larger sizes, but to accommodate the larger carts our bigger appetites require. And increasing the width of the aisles means building bigger grocery stores, which means higher real estate costs—all of which is passed on to the consumer in the cost of food.

From infant car seats to caskets, everything is being made bigger. In 2006, the *Journal of Pediatrics* reported that about 1 percent of all American children—more than 283,000 kids—are too big to fit safely in a car seat.

And for the end of life, Goliath Casket, Inc. specializes in manufacturing oversized caskets. In hospitals, larger scales and beds are just the beginning—even hypodermic needles are being made longer to penetrate our thicker hides, according to the *San Francisco Chronicle*. Companies of all kinds are adjusting their designs and products in an effort to find ways to accommodate and profit from our growing waistlines. If people need to fit in it, sit in it or lie on it, someone is thinking about making it bigger.

# Texas Employer Survey

To obtain information on Texas employers' major health care costs and concerns, and the benefits they offer their employees, the Comptroller's office surveyed 150 of the state's largest employers. Respondents identified obesity and its related medical conditions as important factors behind rising health care costs, lost productivity and increased absenteeism.

The survey sample included national and international companies in nearly every sector of the economy. These companies were asked to provide data based on their Texas workforces; when this information was unavailable, they were asked to provide data on their national workforces.

Thirty companies responded to the survey. All 30 offer health care benefits to some or all of their employees. The overwhelming majority of these companies, 27, reported increases in the cost of health care from 2002 to 2006. The highest reported increase in health care costs was 57 percent in 2006; the lowest increase was 5 percent; and the average increase was 26.7 percent.

The most prevalent medical conditions reported among the companies surveyed were coronary artery disease (16), cancer (13), diabetes (12), hypertension (8) and gastrointestinal disorders (7). Three large companies reported obesity as one of their top three most prevalent medical conditions.

The most costly medical conditions were almost identical to the most prevalent conditions: coronary artery disease (19), cancer (18), diabetes (10) and gastrointestinal disorders (5).

Many of these medical conditions are related to, or directly attributable to, obesity.

Twenty-one companies responded when asked to list the top causes of absenteeism in their work forces. These included

coronary artery disease, cancer, injury and mental health issues; four companies listed obesity as one of their top three causes of absenteeism.

The survey asked specific questions on obesity and its effect on Texas companies. Twenty-five companies estimated the percentage of their workforce that is obese; these estimates ranged from 10 percent to 70 percent. Virtually all companies responding to the survey listed increased health care costs, lost productivity and increased absenteeism as effects of obesity, although none has attempted to estimate the cost of these effects.

Employers are taking steps to address the problem of obesity. Twenty-two of the 30 responding companies have health and wellness programs, some of which offer incentives to employees who participate. Reported participation rates ranged from 9 percent to 80 percent.

Finally, the Comptroller asked one question to determine if the health of the state's work force could influence a company's decision to expand in, relocate to or move out of Texas; and one question to determine how much importance the company would give to health care costs in relation to labor costs and the education and skill of the workforce when considering Texas for relocation.

Four large employers out of 30 responded that the health of a region's population and work force would factor into such a decision. Four large employers also responded that health care costs would weigh as heavily as labor costs and the education and skill level of the workforce in any decision to expand or move to a new region in Texas.

A copy of the survey instrument can be found in **Appendix 2**.



“Obesity is the terror within. Unless we do something about it, the magnitude of the dilemma will dwarf 9-11 or any other terrorist attempt.”

Dr. Richard Carmona, former U.S. surgeon general, during a lecture at the University of South Carolina. (2006)

“A survey of HR executives says that 62% of managers are concerned most with workforce obesity and physical inactivity; only 3% rated smoking as their number one concern.”

Aon Consulting (2005)

“At least 50 percent of health care expenditures are lifestyle related and therefore are potentially preventable.”

Dr. Eduardo Sanchez, Director of the Institute for Health Policy at The University of Texas School of Public Health (2007)



# Roadmap to the Future





# Today's Children

Tomorrow's Work Force

The future trend of our obesity crisis depends on today's children and their ability to learn healthy lifestyles.

The National Health and Nutrition Examination Survey (NHANES), a study of U.S. adults and children conducted by the U.S. Centers for Disease Control and Prevention, has documented a dramatic increase in the prevalence of overweight American children. According to NHANES data, 6.1 percent of U.S. children aged 12 to 19 were overweight during the period of 1971 through 1974; in 2003 and 2004, by contrast, 17.4 percent of children were overweight in this age range (Exhibit 23).<sup>1</sup>

Overweight children are likely to remain overweight or become obese adults. The U.S. Surgeon General has reported

that 70 percent of overweight children will become overweight or obese adults.<sup>2</sup>

In a Texas-specific study conducted from 2004–2005, researchers found high rates of overweight and at-risk-of overweight among children; 42 percent of fourth graders were overweight or at-risk-of overweight, as were 39 percent of eighth graders and 36 percent of eleventh graders.<sup>3</sup>

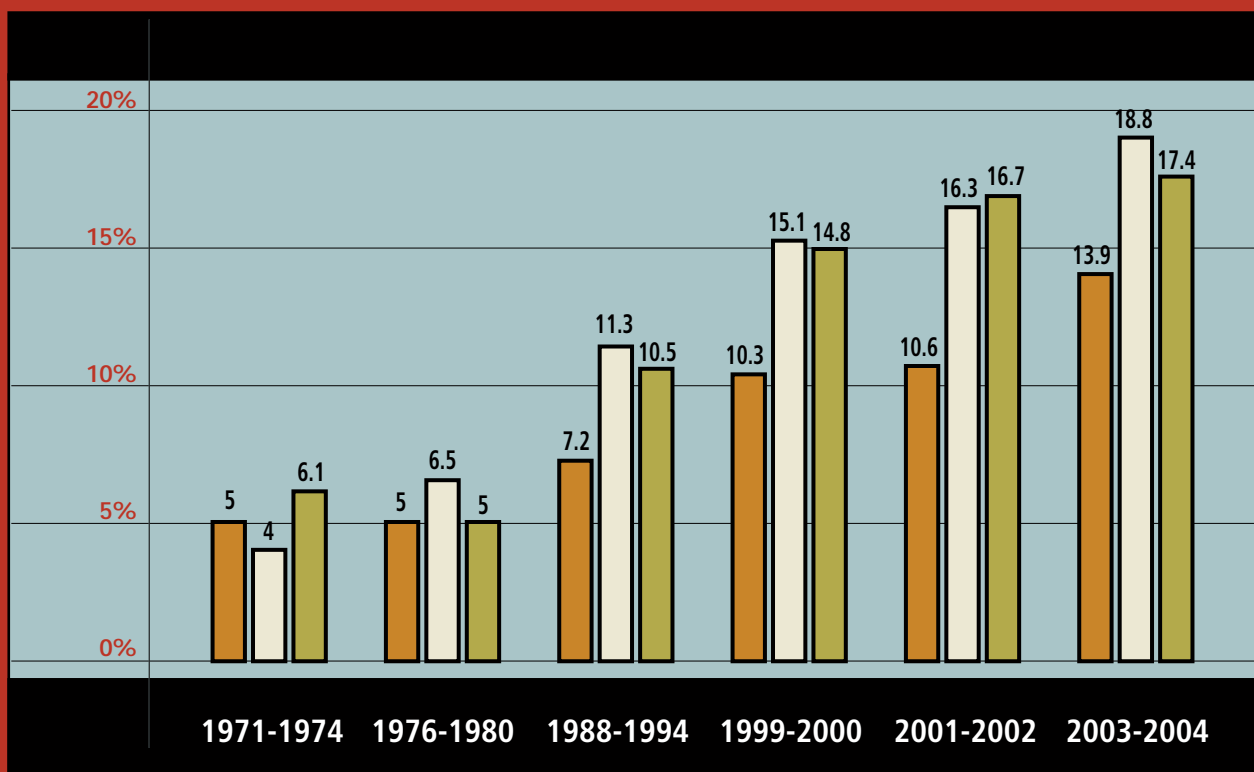
In a 2002 *Houston Chronicle* article, Dr. William J. Klish, of Texas Children's Hospital was quoted as saying:

"If we don't get this epidemic [of childhood obesity] in check, for the first time in a century children will be looking forward to a shorter life expectancy than their parents." (2002)<sup>4</sup>

**Exhibit 23** Prevalence of Overweight in U.S. Children

2-5 year olds
  6-11 year olds
  12-19 year olds

Note: Data points based on available data from NHANES and are not spaced yearly because surveys were not conducted yearly. Source: Texas Comptroller of Public Accounts and U.S. Centers for Disease Control and Prevention.



These children, as obese adults, will contribute more than their normal weight counterparts to the higher costs of health care and losses in productivity.

## The Future of Obesity

By the year 2025, many of today's overweight children will be entering the work force—at a considerable cost to their employers. Using logistic modeling the Comptroller estimates that 46.8 percent of Texas adults will be obese and 14.4 percent will be normal weight by 2025 (**Exhibit 24**). In that year, the Comptroller estimates that there will be a total of 10.6 million cases of adult obesity in Texas, more than 9.1 million new cases since 1990.<sup>5</sup>

In the exhibit below, the dashed lines project obesity versus normal weight prevalence. At this rate, the number of obese Texas adults will surpass the number of normal-weight Texas adults after 2008.<sup>6</sup>

## Future Costs

The Comptroller estimates that obesity cost Texas businesses and private insurers \$3.3 billion in 2005. This cost includes health care costs and those due to absenteeism, presenteeism and disability.

If we project these costs out to 2025, and account for the increase in the prevalence of obesity estimated earlier and the increase in the working population, obesity and obesity-related illnesses could cost Texas businesses \$15.8 billion in 2025. Health care costs will comprise more than 55 percent of the total cost, at \$8.8 billion; absenteeism will account for \$2.1 billion; presenteeism will account for \$4.5 billion; and disability will account for \$420 million (**Exhibits 25 and 26**).

For more detail on future cost projections, see **Appendix 3**.

## Conclusion

“Employers are not *choosing* to become involved in waging the war on obesity—they are *already* involved. Employers today are paying a high price in health care costs, lost productivity and absenteeism due to disability and even death connected to obesity.”<sup>7</sup>

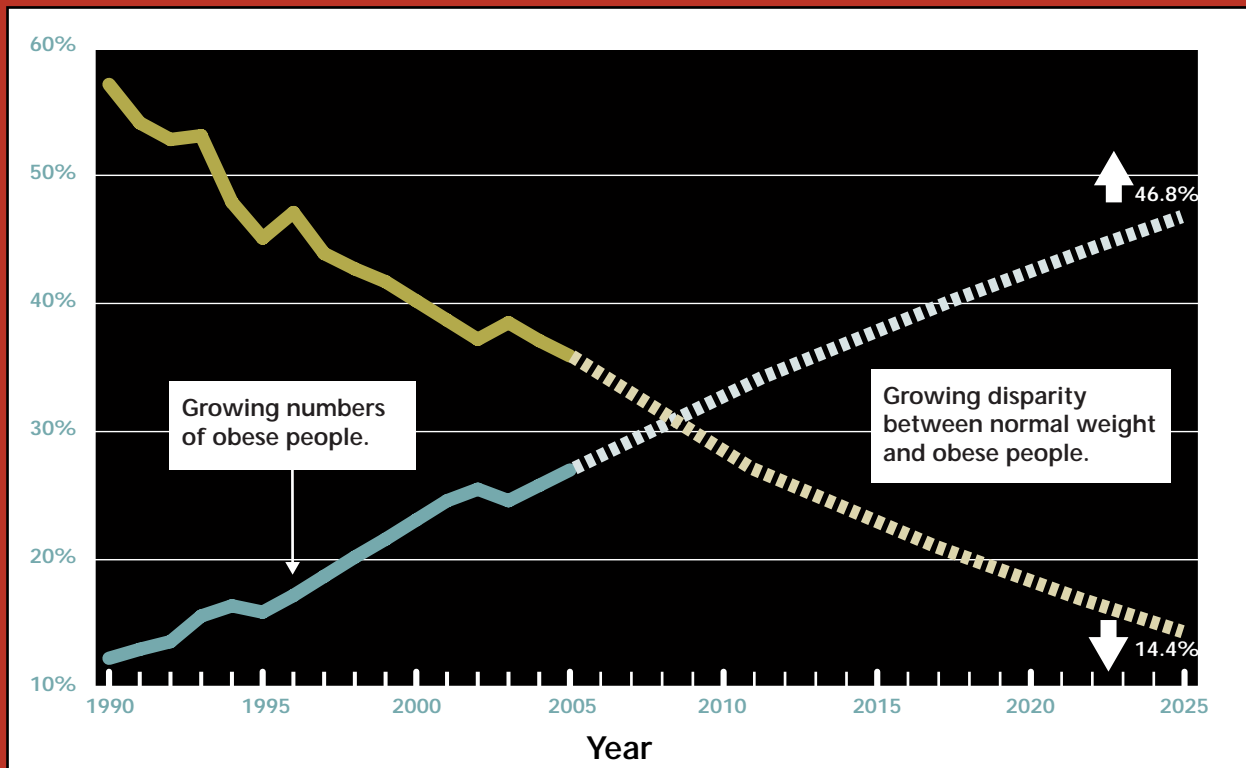
—LuAnn Heinen, director, Institute on the Costs and Health Effects of Obesity, National Business Group on Health (2005)

Every Texan should be concerned about the growing obesity epidemic. Today, nearly *two-thirds* of Texas adults are overweight or obese, putting them at risk for heart disease, stroke, diabetes, cancer and hypertension. If current trends continue,

**Exhibit 24** Projected Adult Obesity Trends in Texas 1990-2025



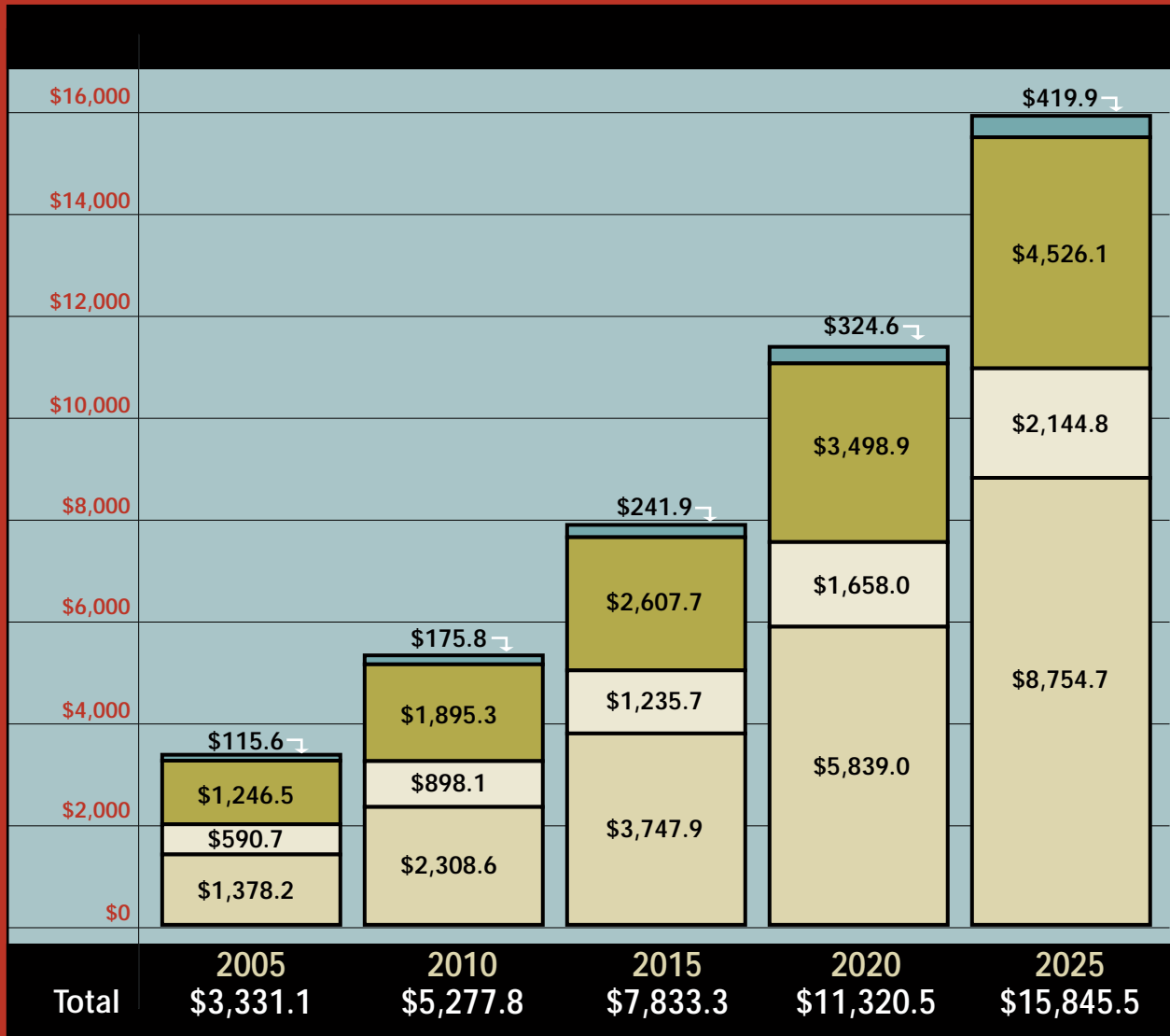
Source: Texas Comptroller of Public Accounts and U.S. Centers for Disease Control and Prevention.



**Exhibit 25 Costs to Private Businesses and Insurers Attributable to Obesity (in millions)**



Source: Texas Comptroller of Public Accounts and U.S. Centers for Disease Control and Prevention.



the number of overweight and obese citizens will grow so rapidly that many Texas businesses may not be able to survive. What some observers fear is that health care costs will outpace profits and make many businesses uncompetitive.

One major company representative who spoke with the Comptroller’s review team found that its health care costs were increasing by 27 percent per year. At this rate, the company estimated its health care costs would overcome its profits within five years. To stop this trend, the employer instituted a wellness program that has slowed this growth to less than 3 percent per year.

Businesses have long recognized that goals are rarely met unless they are measured and tracked. With obesity, not much is tracked. All stakeholders will need a better means to docu-

ment the costs and health effects of overweight and obesity in children and adults.

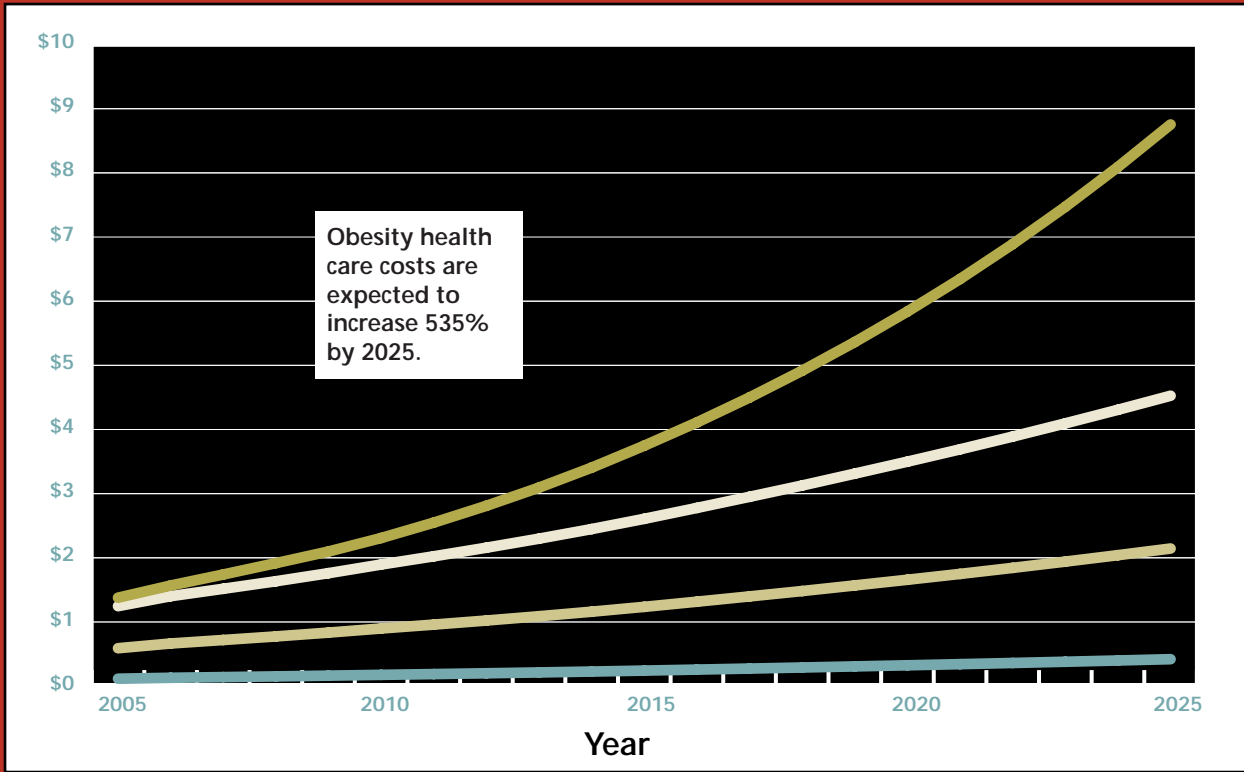
Today BMI and obesity as a co-morbidity are not tracked in insurance claim records nor are they readily available in medical records. Costs incurred from obesity are difficult to assess, and virtually no research has been done to define the costs associated with overweight children. Unless stakeholders can track and measure costs and related health issues for obesity, it will be difficult to effectively control the epidemic.

The Comptroller applauds the bold initiatives the Texas Legislature is taking to improve the health of our children, the work force of tomorrow. Legislation has been filed that would institute more physical education in our public schools. Already, foods of minimal nutritional value have been removed

**Exhibit 26** Costs to Private Businesses and Insurers Attributable to Obesity (in billions)



Note: Employment Cost Index applied to health care; Consumer Price Index applied to the other cost drivers.  
Sources: Texas Comptroller of Public Accounts and U.S. Centers for Disease Control and Prevention.



from almost all school cafeterias and many vending machines. These measures are a huge step in the right direction, and should slow the growth of overweight Texas children.

But to stem the tide of the obesity epidemic, all stakeholders—employers, parents, schools, the medical community and government must work together, to do whatever they can to both reduce the current obese population and to *prevent* healthy and overweight people from becoming obese. Ultimately, we must become a society focused on preventing obesity, rather than treating the diseases it causes.

Dr. Paul Handel, vice president and chief medical officer for Blue Cross/Blue Shield of Texas has articulated a hopeful vision for our future:

“By refocusing our health care system on preventing illness, managing chronic conditions and encouraging healthy lifestyles instead of treating people only when they’re sick, businesses can reduce health care costs and improve worker health and productivity.” (2006)<sup>8</sup>

**Endnotes**

- <sup>1</sup> U.S. Centers for Disease Control and Prevention, “Overweight and Obesity: Childhood Overweight—Overweight Prevalence,” <http://www.cdc.gov/nccdphp/dnpa/obesity/childhood/prevalence.htm> (Last visited March 6, 2007.)
- <sup>2</sup> U. S. Surgeon General, “Overweight and Obesity: Health Consequences,” [http://www.surgeongeneral.gov/topics/obesity/calltoaction/fact\\_consequences.htm](http://www.surgeongeneral.gov/topics/obesity/calltoaction/fact_consequences.htm) (Last visited March 6, 2007.)
- <sup>3</sup> Deanna M. Hoelscher, et al., School Physical Activity are Nutrition (SPAN) III Survey, 2004-2005. UT School of Public Health, Houston.
- <sup>4</sup> Todd Ackerman, “Study Shows Houston Kids Getting Fatter,” *The Houston Chronicle* (January 23, 2002), p. A-19.
- <sup>5</sup> Estimates made using projected adult population data from the Texas State Demographer and a 0.5 migration scenario.
- <sup>6</sup> Estimates are from the Comptroller of Public Accounts, based on logistic functional modeling from 1990-2005 BRFSS observations.
- <sup>7</sup> LuAnn Heinen, “The Big Picture: U.S. Employers Combat Weight-related Health Costs,” *Health & Productivity Management*, Special Edition Vol. 1, No. 2 (February 2005)
- <sup>8</sup> Texas Coalition for Worksite Wellness, “Statewide Summit Urges Innovative Solutions to Employee Health,” Austin, Texas, November 20, 2006. (Press release.)



“Today companies are integrating their wellness programs into their corporate programs more—not just offering them as sideline programs—and executives are much more supportive. In addition, companies are branding their programs with their own brand as a way to promote themselves to employees and future recruits.”

LuAnn Heinen, Director, National Business Group on Health, Institute on the Costs and Effects of Obesity (2007)

# The Texas Story



- 27.0 percent of adult Texans are obese. 37.1 percent are overweight. Only 35.9 percent of adult Texans are of a normal weight.
- The prevalence of obesity and overweight in adult Texans rose 49.4 percent from 1990 to 2005.
- Texas is 10th in the nation in the percentage of its adult population that is overweight or obese.
- From 1990 to 2005, the percentage of the obese adult population alone increased 119.5 percent in Texas.
- 37.4 percent of adult Texans residing in the lower south Texas region are obese; the highest prevalence of any region in the state.
- 66.4 percent of adults in San Antonio are either overweight or obese, the highest prevalence of any city in the state.



# Texas Adults

■ 42 percent of Texas fourth graders, 39 percent of Texas eighth graders and 36 percent of Texas eleventh graders are overweight or at-risk-of overweight.

■ 70 percent of overweight children will become overweight or obese adults.

■ Healthy lifestyle choices must be developed at an early age.

■ Fostering healthy lifestyles is easier than breaking unhealthy practices later in life.

■ Unhealthy foods with minimal nutritional value have been removed from almost all cafeterias and many district vending machines as well.

■ Pending legislation could increase physical activity for children.



# Texas Children and Public Schools

- By 2025, if current trends continue, 46.8 percent of adult Texans will be obese and only 14.4 percent will be normal weight.
- Texas businesses fund the majority of private insurance, and thus pay a disproportionate share of the costs of obesity.
- Obesity costs employers in terms of higher health care expenses, absenteeism, lost productivity and disability—and all of these costs are avoidable.
- Obesity increases health care costs by 36 percent and medication costs by 77 percent.
- Texas employment-based insurance premiums rose by 29.3 percent from 2001-2004.
- Obesity cost Texas businesses \$3.3 billion in 2005.
- If health care costs and current obesity trends continue, obesity could cost Texas businesses \$15.8 billion annually by 2025.



# Texas Businesses

■ Companies that invest in wellness and disease management programs experience savings within 3-5 years.

■ Studies conclude that each dollar spent on wellness programs generates an average savings of \$3.48 on health care expenses and an additional \$5.82 in reduced absenteeism costs.

■ Studies show each dollar spent on disease management programs generates between \$1.40 and \$13.00 in savings.

■ USAA has slashed workplace absences and saved more than \$105 million over three years in health care costs.

■ General Motors experiences a \$2 to \$3 return on their investment in a health promotion program and saves \$42 per participant per year in health care costs.

■ H-E-B reduced its growing health care costs from 27 percent annual increases down to just 2.7 percent.

■ Dell experienced reduced inpatient admission costs due to their wellness program.



# Texas Workplaces

“By refocusing our health care system on preventing illness, managing chronic conditions and encouraging healthy lifestyles instead of treating people only when they’re sick, businesses can reduce health care costs and improve worker health and productivity.”

Dr. Paul Handel (2007)

“Obesity has roughly the same association with chronic health conditions as does 20 years’ aging; this greatly exceeds the associations of smoking or problem drinking.”

Roland Sturm, Senior Economist,  
RAND Corporation (2002)

“Obesity is one of the higher-ranked burdens of ill health; on par with tobacco.”

Dr. David Siegel, manager of prevention and wellness programs for General Motors. (2007)



# Further Information





# For Further Information

## Texas Coalition for Worksite Wellness

The Texas Coalition for Worksite Wellness is a program of the Texas Business Group on Health (TBGH), one of the state's leading voices on health care and business issues. Coalition members are dedicated to finding positive, innovative solutions to the challenges posed by our current health care system. By emphasizing prevention, wellness and disease management in our workplaces and health benefit systems, we can improve Texans' health, prevent costly disease and lower health care costs.

### Marianne Fazen, PhD

Texas Coalition for Worksite Wellness  
c/o Texas Business Group on Health  
11520 North Central Expressway, Suite 201  
Dallas, Texas 75243  
Phone: (214) 382-3037  
Email: [info@txworksitewellness.org](mailto:info@txworksitewellness.org)  
On the Web at [www.txworksitewellness.org](http://www.txworksitewellness.org)

## Institute on the Costs and Health Effects of Obesity, National Business Group on Health

The National Business Group on Health in 2003 launched the Institute on the Costs and Health Effects of Obesity to tackle one of the nation's most serious and preventable health problems. The Institute has already produced important tools to estimate the cost of obesity to employers, initiate employee communication on healthy weight, and design employer-sponsored wellness programs that meet HIPAA requirements. Comprised of large employer members, the Institute aims to reverse the alarming trend of increasing overweight and obesity that is damaging the health and productivity of our workforce and burdening corporate America with excessive—and avoidable—medical and disability costs.

### LuAnn Heinen

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Washington, D.C. 20001  
Phone: (612) 827-0552  
Email: [info@businessgrouphealth.org](mailto:info@businessgrouphealth.org)  
On the Web at [www.businessgrouphealth.org](http://www.businessgrouphealth.org)

## Weight-control Information Network (WIN), National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK), National Institutes of Health (NIH)

The Weight-control Information Network (WIN) is an information service of the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK), National Institutes of Health (NIH). WIN was established in 1994 to provide the general public, health professionals, the media, and Congress with up-to-date, science-based information on obesity, weight control, physical activity, and related nutritional issues.

### The Weight-control Information Network

1 WIN Way  
Bethesda, MD 20892-3665  
Phone: (202) 828-1025 or 1-877-946-4627  
Email: [win@info.niddk.nih.gov](mailto:win@info.niddk.nih.gov)  
On the Web at [www.win.niddk.nih.gov](http://www.win.niddk.nih.gov)

## Centers for Disease Control and Prevention (CDC), Division of Nutrition and Physical Activity

CDC's Division of Nutrition and Physical Activity (DNPA) takes a public health approach to address the role of nutrition and physical activity in improving the public's health and preventing and controlling chronic diseases. The scope of DNPA activities includes epidemiological and behavioral research, surveillance, training and education, intervention development, health promotion and leadership, policy and environmental change, communication and social marketing, and partnership development.

### Division of Nutrition and Physical Activity, National Center for Chronic Disease Prevention and Health Promotion, Centers for Disease Control and Prevention

4770 Buford Highway, NE, MS/K-24  
Atlanta GA 30341-3717  
Phone (800) 232-4636  
On the Web at [www.cdc.gov/nccdphp/dnpa](http://www.cdc.gov/nccdphp/dnpa)



# Glossary

Definitions taken from the  
National Institutes of Health,  
Centers for Disease Control and Prevention  
and the Mayo Clinic

**Absenteeism:** a habitual pattern of absence from work.

**Body Mass Index (BMI):** a measure of body weight relative to height. BMI can be used to assess whether people are at a healthy weight, overweight or obese. BMI is determined by dividing a person's body weight in kilograms by their height in meters squared.

**Behavioral Risk Factor Surveillance System (BRFSS):** health data collected by the U.S. Centers for Disease Control and Prevention from all 50 states.

**Centers for Disease Control and Prevention (CDC):** an agency of the federal Department of Health and Human Services. The CDC develops disease prevention and control, environmental health and health promotion and educational activities designed to improve the health of people of the United States.

**Diabetes:** a disease that occurs when the body is not able to use blood glucose (sugar). Blood sugar levels are controlled by insulin, a hormone in the body that helps move glucose from the blood to muscles and other tissues. Diabetes occurs when the pancreas does not make enough insulin or the body does not respond to the insulin that is made.

**Type 1**—a life-long condition in which the pancreas stops making insulin. Without insulin, the body cannot use glucose for energy. To treat the disease, a person must inject insulin, follow a diet plan, exercise daily and test blood sugar several times a day. Type 1 diabetes usually begins before the age of 30.

**Type 2**—also known as “adult-onset diabetes,” type 2 diabetes is the most common form of diabetes. About 90 to 95 percent of people who have diabetes have type 2 diabetes. People with type 2 diabetes produce insulin, but either do not make enough insulin or do not use the insulin they make. Most people who have this type of diabetes are overweight. Therefore, people with type 2 diabetes may be able to control their condition by losing weight through diet and exercise. They may also need to inject insulin or take

medicine while following a healthy program of diet and exercise. Although type 2 diabetes commonly occurs in adults, an increasing number of children and adolescents who are overweight are also developing type 2 diabetes.

**Disease management:** a process that reduces health care costs and improves the quality of life enjoyed by individuals with chronic disease conditions, by minimizing the symptoms of the disease.

**Health promotion:** the promotion of healthy ideas and concepts to motivate individuals to adopt healthy behaviors.

**Health Risk Appraisal (HRA):** a tool used to determine a person's risk of future health problems.

**Incidence:** the number of new cases of a disease diagnosed each year.

**Obese:** having a high amount of body fat; having a BMI of 30 or higher.

**Overweight:** being too heavy for one's height; having a BMI between 25 and 29.

**Normal weight:** a BMI between 18.5 and 24.9.

**Presenteeism:** decreased productivity from employees at work. Obesity and obesity-related illnesses have a negative effect on work functions such as performing certain tasks more slowly, repeating tasks or making mistakes. Many tasks that require physical activity cannot be accomplished because of illness or pain.

**Prevalence:** percentage of new and old cases of a disease existing in a population at a given time.

**Risk factors:** traits or habits that make a person more likely to develop disease. Some risk factors can be controlled (weight or eating habits), while others (age and gender) cannot.

# Appendix 1

## Method To Calculate Costs

### Method to Calculate Health Care Cost

	Health Expenditures	2004	2005	Percent Increase
1	U.S.	\$1,858,888,000,000	\$1,987,689,000,000	6.9%
2	Texas	\$106,774,000,000	\$114,172,292,944	6.9%

	U.S. Expenditures by Age	Percent Health Expenditures	Percent Private Insurance	Percent Combined
3	Age (19-64)	51.4%	46.5%	23.9%
	Age (65+)	36.3%	14.5%	5.3%
	<b>Total</b>	<b>87.7%</b>		<b>29.2%</b>

	Employment-Based Insurance	Percent of Total
4	U.S.	59.5%
	Texas	52.4%
	Texas Percent of U.S.	88.1%

	Texas Reduction Fraction	Percent
	U.S. Adult Private Ins. Percent	29.2%
	Texas Percent of U.S.	88.1%
	Texas Adult Private Ins. Percent	25.7%

	Level of Analysis (Texas)	Estimated Expenditures
	Total Expenditures	\$114,172,292,944
	Percent Adult Private Insurance	25.7%
	Adult Exp. Private Insurance	\$29,324,430,032
5	Obesity Attributed Percent	4.7%
	Obesity Attributed Costs	\$1,378,248,211

#### Method to Calculate Absenteeism Cost

	Areas of Costs	Estimated Costs	Percent
	Health Care	\$1,378,248,211	70%
6	Absenteeism	\$590,677,805	30%
	<b>Total Costs</b>	<b>\$1,968,926,016</b>	<b>100%</b>

#### Method to Calculate Presenteeism Cost

	Areas of Costs	Estimated Costs	Percent
	Absenteeism	\$590,677,805	32.2%
7	Presenteeism	\$1,246,503,897	67.8%
	<b>Total Costs</b>	<b>\$1,837,181,702</b>	<b>32.2%</b>

	Areas of Costs	Estimated Costs	Percent
	Health Care	\$1,378,248,211	42.9%
	Absenteeism	\$590,677,805	18.4%
	Presenteeism	\$1,246,503,897	38.8%
	<b>Total Costs</b>	<b>\$3,215,429,914</b>	<b>100.0%</b>

#### Method to Calculate Disability Cost

	Areas of Costs	Estimated Costs	Percent
	Health Care	\$1,378,248,211	92.3%
8	Disability	\$115,628,578	7.7%
	<b>Total Costs</b>	<b>\$1,493,876,790</b>	<b>92.3%</b>

#### Summary of Costs

	Areas of Costs	Estimated Costs	Percent
	Health Care	\$1,378,248,211	41.4%
	Absenteeism	\$590,677,805	17.7%
	Presenteeism	\$1,246,503,897	37.4%
	Disability	\$115,628,578	3.5%
	<b>Total Costs</b>	<b>\$3,331,058,492</b>	<b>100.0%</b>

<sup>1</sup> National Health Expenditure Data, 2005 (U.S. health care costs increased 6.9% from 2004 to 2005).

<sup>2</sup> National Health Expenditure Data, State-Level, 2004 (applied 6.9% increase to 2004 Texas health care cost).

<sup>3</sup> National Health Expenditure Data, Personal Health Spending, 1999 (most recent data breaking out payer of health care costs by age) 87.7% of all health care expenditures were by ages 19 and older, with private insurance paying for 46.5% of the cost of ages 19-64 and 14.5% of ages 65+.

<sup>4</sup> U.S. Census Bureau, Current Population Survey, 2006 (2005 data). Fewer adults in Texas have employment-based insurance. As a result, CPA reduced adult expenditures paid by private insurance (29.2%) by the difference in U.S. adults and Texas adults covered by employment-based insurance.

<sup>5</sup> Finkelstein, Eric, et al., National Medical Spending Attributable to Overweight and Obesity, 2003 (4.7%).

<sup>6</sup> Finkelstein, Eric, et al., Cost of Obesity to Full-time Employees, 2005; findings concluded that when the universe of costs is health care and absenteeism, health care accounts for 70% of the cost and absenteeism 30%.

<sup>7</sup> Ricci, Judith, Elsbeth Chee, Lost Productive Time Associated with Excess Weight in the U.S. Workforce, 2005; findings concluded that when the universe of costs is absenteeism and presenteeism, absenteeism accounts for 32.2% of the cost and presenteeism 67.8%.

<sup>8</sup> Goetzel, Ron, et al., The Health and Productivity Health Burden of the Top Ten, 2003; based on CPA calculations of obesity related diseases, CPA findings concluded that when the universe of costs is health care and disability, health care accounts for 92.3% of the cost and disability 7.7%.

# Appendix 2

## Texas Health Care Cost Survey

The Texas economy depends on a thriving business environment. To strengthen the Texas economy, Susan Combs, Texas Comptroller of Public Accounts, is researching your major challenges and costs associated with the health of your workforce. Participants will not be identified in any report.

### Optional Information

Company name \_\_\_\_\_

Contact name \_\_\_\_\_

Contact phone \_\_\_\_\_

Contact email \_\_\_\_\_

1. Approximately how many employees does your firm employ? \_\_\_\_\_

2. What type of industry? (Check one)

<input type="checkbox"/>	Agriculture/Mining/Construction	<input type="checkbox"/>	Manufacturing
<input type="checkbox"/>	Transportation/Communications/Utilities	<input type="checkbox"/>	Wholesale
<input type="checkbox"/>	Retail	<input type="checkbox"/>	Finance
<input type="checkbox"/>	Service	<input type="checkbox"/>	Health Care
<input type="checkbox"/>	Education	<input type="checkbox"/>	Other

3. Does your firm offer health benefits to your employees?

<input type="checkbox"/>	Yes
<input type="checkbox"/>	No (If "No", please skip to question 7)

4. Do covered workers pay a portion of their insurance premium?

	Yes	Full-time	%	Part-time	%
<input type="checkbox"/>					
<input type="checkbox"/>	No				

5. Has your firm seen an increase in the cost per employee associated with health care from 2002 to 2006?

<input type="checkbox"/>	Yes	What percent increase?	%
<input type="checkbox"/>	No		

6. What is your firm's average annual health care cost per employee?

Dollar Amount	Year
\$	

7. What are the three most prevalent medical conditions at your firm?

Coronary artery disease	Gastrointestinal disorders
Hypertension	Osteoarthritis
Type I Diabetes	Type II Diabetes
Obesity	Stroke
Cancer	Injury
Mental Health	Lung and respiratory diseases
Other	

8. Which three medical conditions are the most costly to your firm?

Coronary artery disease	Gastrointestinal disorders
Hypertension	Osteoarthritis
Type I Diabetes	Type II Diabetes
Obesity	Stroke
Cancer	Injury
Mental Health	Lung and respiratory diseases
Other	

9. Which three medical conditions are the top causes of absenteeism in your firm?

Coronary artery disease	Gastrointestinal disorders
Hypertension	Osteoarthritis
Type I Diabetes	Type II Diabetes
Obesity	Stroke
Cancer	Injury
Mental Health	Lung and respiratory diseases
Other	

10. What are your greatest health concerns for your workforce? (Check all that apply)

Loss of productivity
Health care costs
Absenteeism
Workers at work, but due to health related problems, have decreased productivity
Other

11. What percent of your workforce would you consider to be overweight or obese? \_\_\_\_\_ %

Is this an estimate or measurement?

12. What effect does obesity have on your firm? (Check all that apply)

<input type="checkbox"/>	Increased health care costs
<input type="checkbox"/>	Increased absenteeism
<input type="checkbox"/>	Loss of productivity
<input type="checkbox"/>	Expenses incurred from building or furniture modifications
<input type="checkbox"/>	None
<input type="checkbox"/>	Other

13. Does your firm measure the costs of lost productivity or absenteeism due to medical conditions?

<input type="checkbox"/>	Yes
<input type="checkbox"/>	No

14. If "Yes" to Q13, what is the annual amount?

Dollar Amount	Year
\$	
How did you make that determination?	

15. Do you offer any wellness programs to your employees?

<input type="checkbox"/>	Yes
<input type="checkbox"/>	No

16. If "Yes" to Q15, what benefit (savings or cost avoidance) to your firm do these programs provide.

	Dollar Amount	Year
Lower health care costs?	\$	
Better productivity or less absenteeism?	\$	
Other return-on-investment measures?		
Please describe:		
What is your workforce participation rate?		%

17. Does your firm offer any disease management programs to your employees?

<input type="checkbox"/>	Yes
<input type="checkbox"/>	No

18. If "Yes" to Q17, what benefit (savings or cost avoidance) to your firm do these programs provide.

	Dollar Amount	Year
Lower health care costs?	\$	
Better productivity or less absenteeism?	\$	
Other return-on-investment measures?		
Please describe:		
Please estimate the percentage of your employees who participate in at least one disease management program.		%

19. If "Yes" to Q15 or Q17, does an outside company provide wellness and/or disease management services to your firm?

<input type="checkbox"/>	Yes
<input type="checkbox"/>	No

20. If "Yes" to Q15 or Q17, what incentives do you offer your employees to participate in these programs?  
(Check all that apply)

<input type="checkbox"/>	Cash
<input type="checkbox"/>	Paid time off
<input type="checkbox"/>	Awards and recognition
<input type="checkbox"/>	Reduced employee costs for health premiums or copays
<input type="checkbox"/>	Discounts for health clubs
<input type="checkbox"/>	Other
<input type="checkbox"/>	None

21. If "No" to Q15 or Q17, would such programs be helpful to your firm?

<input type="checkbox"/>	Yes
<input type="checkbox"/>	No

22. Would the health of a region's population and workforce factor into your decision to expand in Texas or move to a new region in Texas?

<input type="checkbox"/>	Yes
<input type="checkbox"/>	No

Please explain:

23. Would the cost of health care weigh as heavily as labor costs and the education and skill of the workforce in your decision to expand in Texas or move to a new region in Texas?

<input type="checkbox"/>	Yes
<input type="checkbox"/>	No

Please explain:

# Appendix 3

## Future Costs of Obesity

Year	Health Care	Work Force	Prevalence	Obese Workers	ECI	Cost Per Worker
2005	\$1,378,248,211	10,629,600	27.0%	2,869,992	-	\$480.23
2006	\$1,568,293,065	10,862,200	28.7%	3,115,693	4.82%	\$503.35
2007	\$1,739,977,967	11,060,300	29.7%	3,289,564	5.08%	\$528.94
2008	\$1,916,812,643	11,295,300	30.8%	3,478,281	4.19%	\$551.08
2009	\$2,098,410,044	11,527,500	31.8%	3,670,179	3.75%	\$571.75
2010	\$2,308,571,117	11,746,700	32.9%	3,861,625	4.56%	\$597.82
2011	\$2,548,512,100	11,955,300	33.9%	4,052,835	5.19%	\$628.82
2012	\$2,810,488,494	12,145,300	34.9%	4,240,502	5.40%	\$662.77
2013	\$3,094,566,065	12,339,900	35.9%	4,432,211	5.35%	\$698.20
2014	\$3,405,763,049	12,553,000	36.9%	4,633,049	5.29%	\$735.10
2015	\$3,747,901,947	12,790,200	37.9%	4,845,502	5.22%	\$773.48
2016	\$4,109,993,268	13,027,100	38.8%	5,060,604	5.00%	\$812.15
2017	\$4,499,318,377	13,258,700	39.8%	5,276,168	5.00%	\$852.76
2018	\$4,916,542,181	13,482,600	40.7%	5,490,886	5.00%	\$895.40
2019	\$5,363,038,938	13,698,700	41.6%	5,704,325	5.00%	\$940.17
2020	\$5,838,999,918	13,904,000	42.5%	5,914,833	5.00%	\$987.18
2021	\$6,345,561,177	14,098,300	43.4%	6,121,879	5.00%	\$1,036.54
2022	\$6,889,777,143	14,293,700	44.3%	6,330,392	5.00%	\$1,088.37
2023	\$7,471,115,759	14,484,400	45.1%	6,537,649	5.00%	\$1,142.78
2024	\$8,092,117,313	14,671,400	46.0%	6,743,867	5.00%	\$1,199.92
2025	\$8,754,678,142	14,854,200	46.8%	6,948,607	5.00%	\$1,259.92

Year	Absenteeism	Work Force	Prevalence	Obese Workers	CPI	Cost Per Worker
2005	\$590,677,805	10,629,600	27.0%	2,869,992	-	\$205.81
2006	\$664,229,654	10,862,200	28.7%	3,115,693	3.58%	\$213.19
2007	\$718,976,716	11,060,300	29.7%	3,289,564	2.52%	\$218.56
2008	\$774,518,738	11,295,300	30.8%	3,478,281	1.88%	\$222.67
2009	\$834,267,187	11,527,500	31.8%	3,670,179	2.08%	\$227.31
2010	\$898,131,859	11,746,700	32.9%	3,861,625	2.32%	\$232.58
2011	\$958,833,018	11,955,300	33.9%	4,052,835	1.72%	\$236.58
2012	\$1,022,447,519	12,145,300	34.9%	4,240,502	1.92%	\$241.11
2013	\$1,089,222,738	12,339,900	35.9%	4,432,211	1.92%	\$245.75
2014	\$1,160,061,617	12,553,000	36.9%	4,633,049	1.89%	\$250.39
2015	\$1,235,725,003	12,790,200	37.9%	4,845,502	1.85%	\$255.03
2016	\$1,316,179,779	13,027,100	38.8%	5,060,604	1.98%	\$260.08
2017	\$1,398,377,296	13,258,700	39.8%	5,276,168	1.90%	\$265.04
2018	\$1,481,902,731	13,482,600	40.7%	5,490,886	1.83%	\$269.88
2019	\$1,569,563,437	13,698,700	41.6%	5,704,325	1.95%	\$275.15
2020	\$1,658,027,991	13,904,000	42.5%	5,914,833	1.88%	\$280.32
2021	\$1,748,968,575	14,098,300	43.4%	6,121,879	1.92%	\$285.69
2022	\$1,843,228,655	14,293,700	44.3%	6,330,392	1.92%	\$291.17
2023	\$1,940,779,372	14,484,400	45.1%	6,537,649	1.95%	\$296.86
2024	\$2,041,085,332	14,671,400	46.0%	6,743,867	1.95%	\$302.66
2025	\$2,144,790,181	14,854,200	46.8%	6,948,607	1.98%	\$308.66

Year	Presenteeism	Work Force	Prevalence	Obese Workers	CPI	Cost Per Worker
2005	\$1,246,503,897	10,629,600	27.0%	2,869,992	-	\$434.32
2006	\$1,401,719,931	10,862,200	28.7%	3,115,693	3.58%	\$449.89
2007	\$1,517,252,334	11,060,300	29.7%	3,289,564	2.52%	\$461.23
2008	\$1,634,462,335	11,295,300	30.8%	3,478,281	1.88%	\$469.91
2009	\$1,760,549,137	11,527,500	31.8%	3,670,179	2.08%	\$479.69
2010	\$1,895,322,379	11,746,700	32.9%	3,861,625	2.32%	\$490.81
2011	\$2,023,419,677	11,955,300	33.9%	4,052,835	1.72%	\$499.26
2012	\$2,157,664,984	12,145,300	34.9%	4,240,502	1.92%	\$508.82
2013	\$2,298,580,335	12,339,900	35.9%	4,432,211	1.92%	\$518.61
2014	\$2,448,071,205	12,553,000	36.9%	4,633,049	1.89%	\$528.39
2015	\$2,607,743,203	12,790,200	37.9%	4,845,502	1.85%	\$538.18
2016	\$2,777,526,445	13,027,100	38.8%	5,060,604	1.98%	\$548.85
2017	\$2,950,987,382	13,258,700	39.8%	5,276,168	1.90%	\$559.30
2018	\$3,127,250,615	13,482,600	40.7%	5,490,886	1.83%	\$569.53
2019	\$3,312,240,488	13,698,700	41.6%	5,704,325	1.95%	\$580.65
2020	\$3,498,926,715	13,904,000	42.5%	5,914,833	1.88%	\$591.55
2021	\$3,690,838,094	14,098,300	43.4%	6,121,879	1.92%	\$602.89
2022	\$3,889,754,588	14,293,700	44.3%	6,330,392	1.92%	\$614.46
2023	\$4,095,615,291	14,484,400	45.1%	6,537,649	1.95%	\$626.47
2024	\$4,307,290,369	14,671,400	46.0%	6,743,867	1.95%	\$638.70
2025	\$4,526,138,102	14,854,200	46.8%	6,948,607	1.98%	\$651.37

Year	Disability	Work Force	Prevalence	Obese Workers	CPI	Cost Per Worker
2005	\$115,628,578	10,629,600	27.0%	2,869,992	-	\$40.29
2006	\$130,026,776	10,862,200	28.7%	3,115,693	3.58%	\$41.73
2007	\$140,743,828	11,060,300	29.7%	3,289,564	2.52%	\$42.78
2008	\$151,616,498	11,295,300	30.8%	3,478,281	1.88%	\$43.59
2009	\$163,312,601	11,527,500	31.8%	3,670,179	2.08%	\$44.50
2010	\$175,814,478	11,746,700	32.9%	3,861,625	2.32%	\$45.53
2011	\$187,697,079	11,955,300	33.9%	4,052,835	1.72%	\$46.31
2012	\$200,149,983	12,145,300	34.9%	4,240,502	1.92%	\$47.20
2013	\$213,221,616	12,339,900	35.9%	4,432,211	1.92%	\$48.11
2014	\$227,088,734	12,553,000	36.9%	4,633,049	1.89%	\$49.01
2015	\$241,900,277	12,790,200	37.9%	4,845,502	1.85%	\$49.92
2016	\$257,649,763	13,027,100	38.8%	5,060,604	1.98%	\$50.91
2017	\$273,740,399	13,258,700	39.8%	5,276,168	1.90%	\$51.88
2018	\$290,090,984	13,482,600	40.7%	5,490,886	1.83%	\$52.83
2019	\$307,251,071	13,698,700	41.6%	5,704,325	1.95%	\$53.86
2020	\$324,568,516	13,904,000	42.5%	5,914,833	1.88%	\$54.87
2021	\$342,370,659	14,098,300	43.4%	6,121,879	1.92%	\$55.93
2022	\$360,822,612	14,293,700	44.3%	6,330,392	1.92%	\$57.00
2023	\$379,918,726	14,484,400	45.1%	6,537,649	1.95%	\$58.11
2024	\$399,554,194	14,671,400	46.0%	6,743,867	1.95%	\$59.25
2025	\$419,855,015	14,854,200	46.8%	6,948,607	1.98%	\$60.42

-Future costs of health care, absenteeism, presenteeism and disability were projected by applying an inflation index (ECI or CPI) to the cost per worker, multiplied by the estimated number of obese adults.

-Cost Per Worker – Estimates of 2005 cost per worker calculated by dividing 2005 health care, absenteeism, presenteeism or disability cost by the 2005 number of obese workers. Future cost per worker calculated by applying ECI/CPI to 2005.

-Obese Workers – Estimates of obese workers calculated by applying the estimated prevalence of adult obesity to the estimated workforce.

-Prevalence – Estimates from Comptroller of Public Accounts; based on a logistic regression from 1990-2005 BRFSS observations.

-Workforce (Total Employed) – Estimates from the Comptroller of Public Accounts.

-Employment Cost Index, Health Insurance portion (ECI) – U.S. Bureau of Labor Statistics

-Consumer Price Index (CPI) – U.S. Bureau of Labor Statistics



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This document can be found on the Web:  
*<http://www.window.state.tx.us/specialrpt/obesitycost/>*

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