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The Cost of Obesity in Oklahoma

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According to data from the Behavioral Risk Factor Surveillance System (BRFSS)1 on adults aged 18 years and older, obesity is steadily increasing in the United States. The treatment of obesity and obesity-related conditions, such as diabetes, osteoarthritis, and heart disease, costs billions of dollars per year nationally.

This report addresses the direct and indirect costs to the state of Oklahoma due to the rising obesity rates within the populace. There are two types of costs associated with obesity and obesity related conditions. Direct costs are most frequently discussed, and include medical services, inpatient and outpatient hospital visits, laboratory tests, and drug therapies. Indirect costs, or cost of illness, is defined as “resources forgone as a result of a health condition,”2  can fall into several categories, such as loss of hours worked and employee wages.

The National Conference of State Legislatures estimates the cost of the Annual Obesity-Attributable Expenditures for 2009 to be $1,720,000,000 (1.72 billion dollars).3 This burden, on its own, weakens Oklahoma’s economy, but when we include expand our estimate to the cost due to include the lost work hours, this number increases to $1,950,000,000 (1.95 billion dollars).

**A Look at Obesity across the Oklahoma Population**

Current trends in Oklahoma demonstrate that the obesity rate fluctuates by demographic, though the general patterns are consistent from 2000 to 2010 (Table 1).3 For example, obesity rates in 2000 were highest among Blacks, American Indians, and those with less education and income, and rates continued to be the highest among those same demographics in 2010. While patterns were similar, the magnitude of change differed by group. Some of the greatest rate increases occurred among groups that had some of the lowest rates in 2000, such as males, Whites, and those aged 55-64 years.

**Table1. Percentage of the Oklahoma Adult Population who are Obese, by Demographic, OK BRFSS.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  | 2000 | 2010 | % Increase |
| Total | Total | 19.7 | 31.3 | 58.9 |
| Sex | Male | 19.0 | 31.9 | 67.9 |
|  | Female | 20.3 | 30.6 | 50.7 |
| Race/Ethnicity | White non-Hispanic | 18.5 | 29.3 | 58.4 |
|  | Black non-Hispanic | 26.6 | 41.8 | 57.1 |
|  | American Indian non-Hispanic | 28.1 | 40.2 | 43.1 |
|  | Hispanic | 22.8 | 31.9 | 39.9 |
| Age Group | 18 to 24 | 12.9 | 20.7 | 60.5 |
|  | 25 to 34 | 20.0 | 29.4 | 47.0 |
|  | 35 to 44 | 24.0 | 35.6 | 48.3 |
|  | 45 to 54 | 25.7 | 35.6 | 38.5 |
|  | 55 to 64 | 18.2 | 35.6 | 95.6 |
|  | 65 and older | 14.7 | 26.1 | 77.6 |
| Education | Less than high school | 24.2 | 36.9 | 52.5 |
|  | High school graduate/GED | 19.8 | 33.3 | 68.2 |
|  | Some post-secondary school | 19.0 | 32.3 | 70.0 |
|  | College graduate | 17.7 | 25.6 | 44.6 |
| Household Income | < $15,000 | 24.5 | 38.7 | 58.0 |
|  | $15,000 – 24,999 | 23.1 | 37.4 | 61.9 |
|  | $25,000 – 34,999 | 20.1 | 33.4 | 66.2 |
|  | $35,000 – 49,999 | 19.6 | 29.6 | 51.0 |
|  | ≥ $50,000 | 17.3 | 27.8 | 60.7 |

Rates of obesity differ by county, and tend to be lower in the counties with the most populous cities (Oklahoma, Tulsa, and Cleveland Counties). Table 2 shows the percent change in obesity by county. Hughes (21.2%), Woods (21.7%), and Grant (24.2%) Counties had the lowest obesity rates in the state, while Noble (39.1%), Jefferson (39.3%), and Latimer (42.2%) Counties had the highest rates. The most populous counties experienced great increases in obesity rates from 2000 to 2010 (Oklahoma County, 72.6%; Tulsa County, 61.2%; and Cleveland County, 71.5%).

**Table 2. County Obesity Rates and Percent Change between 2000-2004 and 2005-2010.**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| County Name | 2000-2004 | 2005-2010 | % Change | County Name | 2000-2004 | 2005-2010 | % Change | County Name | 2000-2004 | 2005-2010 | % Change |
| Adair | 30.2 | 35.4 | +17.2 | Grant | 26.5 | 24.2 | -8.7 | Nowata | 29.7 | 33.1 | +11.4 |
| Alfalfa | 33.7 | 31.9 | -5.3 | Greer | - | 34.9 | - | Okfuskee | 19.7 | 31.7 | +60.9 |
| Atoka | 18.1 | 34.5 | +90.6 | Harmon | - | - | - | Oklahoma | 21.1 | 28.4 | +34.6 |
| Beaver | 25.3 | 29.5 | +16.6 | Harper | - | - | - | Okmulgee | 29.0 | 33.7 | +16.2 |
| Beckham | 22.3 | 32.5 | +45.7 | Haskell | 25.4 | 31.1 | +22.4 | Osage | 30.0 | 32.8 | +9.3 |
| Blaine | 32.0 | 31.5 | -1.6 | Hughes | 24.4 | 21.2 | -13.1 | Ottawa | 25.1 | 32.2 | +28.3 |
| Bryan | 17.6 | 30.4 | +72.7 | Jackson | 24.7 | 31.7 | +28.3 | Pawnee | 23.6 | 32.3 | +36.9 |
| Caddo | 28.8 | 29.1 | +1.0 | Jefferson | 21.5 | 39.3 | +82.8 | Payne | 20.1 | 27.4 | +36.3 |
| Canadian | 20.7 | 26.4 | +27.5 | Johnston | 26.2 | 24.7 | -5.7 | Pittsburg | 25.4 | 30.2 | +18.9 |
| Carter | 20.0 | 30.6 | +53.0 | Kay | 24.9 | 31.3 | +25.7 | Pontotoc | 25.3 | 35.0 | +38.3 |
| Cherokee | 25.4 | 31.1 | +22.4 | Kingfisher | 24.5 | 30.5 | +24.5 | Pottawatomie | 25.0 | 34.2 | +36.8 |
| Choctaw | 22.1 | 30.0 | +35.7 | Kiowa | 29.7 | 31.1 | +4.7 | Pushmataha | 26.1 | 25.2 | -3.4 |
| Cimarron | - | 26.2 | - | Latimer | 25.6 | 42.2 | +64.8 | Roger Mills | - | 35.5 | - |
| Cleveland | 19.2 | 26.5 | +38.0 | Le Flore | 23.2 | 31.0 | +33.6 | Rogers | 21.6 | 29.4 | +36.1 |
| Coal | 36.3 | 33.6 | -7.4 | Lincoln | 31.3 | 28.0 | -10.5 | Seminole | 30.8 | 37.7 | +22.4 |
| Comanche | 21.3 | 31.4 | +47.4 | Logan | 25.1 | 32.7 | +30.3 | Sequoyah | 28.7 | 32.9 | +14.6 |
| Cotton | - | 37.9 | - | Love | 23.9 | 25.6 | +7.1 | Stephens | 28.0 | 27.6 | -1.4 |
| Craig | 19.3 | 36.8 | +90.7 | McClain | 22.9 | 34.8 | +52.0 | Texas | 17.4 | 27.5 | +58.0 |
| Creek | 25.6 | 32.3 | +26.2 | McCurtain | 29.3 | 33.4 | +14.0 | Tillman | 33.1 | 34.5 | +4.2 |
| Custer | 21.6 | 29.8 | +38.0 | McIntosh | 23.4 | 37.4 | +59.8 | Tulsa | 20.8 | 27.2 | +30.8 |
| Delaware | 23.5 | 30.6 | +30.2 | Major | 42.8 | 26.9 | -37.1 | Wagoner | 23.8 | 31.2 | +31.1 |
| Dewey | 30.0 | 29.1 | -3.0 | Marshall | 36.5 | 33.8 | -7.4 | Washington | 19.8 | 26.7 | +34.8 |
| Ellis | 15.7 | 36.8 | +134.4 | Mayes | 21.1 | 36.9 | +74.9 | Washita | 20.8 | 24.5 | +17.8 |
| Garfield | 27.7 | 33.7 | +21.7 | Murray | 16.9 | 32.1 | +89.9 | Woods | 17.2 | 21.7 | +26.2 |
| Garvin | 26.0 | 29.8 | +14.6 | Muskogee | 27.1 | 29.6 | +9.2 | Woodward | 26.2 | 32.5 | +24.0 |
| Grady | 24.5 | 34.5 | +40.8 | Noble | 21.6 | 39.1 | +81.0 |  |  |  |  |

**Economic Impact on Oklahoma State, by County**

Oklahoma suffers economically from its large percentage of obese citizens. The costs of obesity related to health care, hospitalization, and care for co-morbities are a large portion of associated obesity costs. To understand the larger impact of obesity, we must also look at things like increased gas spent moving larger bodies, larger clothing and furniture to accommodate larger bodies, and fast food costs. The entire cost of obesity may never be fully understood, as there are simply too many variables to take into account. Such variables as wear and tear on vehicles, roads, and buildings have no information as of yet, but do contribute to increased spending. In just looking at individual spending and the cost of health care, we can begin to see how obesity is affecting individual and governmental spending.

Table three shows the obese population percentage in each Oklahoma counties, and the estimated portion of government health coverage, such as Medicare and Medicaid, that is used on obesity related health care. This is an estimation of the direct cost of each counties spending on obesity. This data was generated by distributing the expenditure for State-level Estimated Annual Obesity2 by the percentage of the population that is obese by county.

For example, over thirty-five percent of Adair’s 22,683 people are obese. The increased Medicaid and governmental spending for Adair’s obese population is over 10,000,000 dollars.

**Table 3: Cost to County for Increased Medicaid and Governmental Spending in Million Dollars for Obese Population.**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| County | % | Population | Cost | County | % | Population | Cost | County | % | Population | Cost |
| Adair | 35.4 | 22,683 | 10.2 | Grant | 24.2 | 4,527 | 2.0 | Nowata | 33.1 | 10,536 | 4.8 |
| Alfalfa | 31.9 | 5,642 | 2.5 | Greer | 34.9 | 6,239 | 2.8 | Okfuskee | 31.7 | 12,191 | 5.5 |
| Atoka | 34.5 | 14,182 | 6.4 | Harmon | - | 2,922 | 1.3 | Oklahoma | 28.4 | 718,633 | 324.2 |
| Beaver | 29.5 | 5,636 | 2.5 | Harper | - | 3,685 | 1.7 | Okmulgee | 33.7 | 40,069 | 18.1 |
| Beckham | 32.5 | 22,119 | 10.0 | Haskell | 31.1 | 12,769 | 5.8 | Osage | 32.8 | 47,472 | 21.4 |
| Blaine | 31.5 | 11,943 | 5.4 | Hughes | 21.2 | 14,003 | 6.3 | Ottawa | 32.2 | 31,848 | 14.4 |
| Bryan | 30.4 | 42,416 | 19.1 | Jackson | 31.7 | 26,446 | 11.9 | Pawnee | 32.3 | 16,577 | 7.5 |
| Caddo | 29.1 | 29,600 | 13.4 | Jefferson | 39.3 | 6,472 | 2.9 | Payne | 27.4 | 77,350 | 34.9 |
| Canadian | 26.4 | 115,541 | 52.1 | Johnston | 24.7 | 10,957 | 4.9 | Pittsburg | 30.2 | 45,837 | 20.7 |
| Carter | 30.6 | 47,557 | 21.5 | Kay | 31.3 | 46,562 | 21.0 | Pontotoc | 35 | 37,492 | 16.9 |
| Cherokee | 31.1 | 46,987 | 21.2 | Kingfisher | 30.5 | 15,034 | 6.8 | Pottawatomie | 34.2 | 69,442 | 31.3 |
| Choctaw | 30 | 15,205 | 6.9 | Kiowa | 31.1 | 9,446 | 4.3 | Pushmataha | 25.2 | 11,572 | 5.2 |
| Cimarron | 26.2 | 2,475 | 1.1 | Latimer | 42.2 | 11,154 | 5.0 | Roger Mills | 35.5 | 3,647 | 1.6 |
| Cleveland | 26.5 | 255,755 | 115.4 | Le Flore | 31 | 50,384 | 22.7 | Rogers | 29.4 | 86,905 | 39.2 |
| Coal | 33.6 | 5,925 | 2.7 | Lincoln | 28 | 34,273 | 15.5 | Seminole | 37.7 | 25,482 | 11.5 |
| Comanche | 31.4 | 124,098 | 56.0 | Logan | 32.7 | 41,848 | 18.9 | Sequoyah | 32.9 | 42,391 | 19.1 |
| Cotton | 37.9 | 6,193 | 2.8 | Love | 25.6 | 9,423 | 4.3 | Stephens | 27.6 | 45,048 | 20.3 |
| Craig | 36.8 | 15,029 | 6.8 | McClain | 34.8 | 7,527 | 3.4 | Texas | 27.5 | 20,640 | 9.3 |
| Creek | 32.3 | 69,967 | 31.6 | McCurtain | 33.4 | 15,840 | 7.1 | Tillman | 34.5 | 7,992 | 3.6 |
| Custer | 29.8 | 27,469 | 12.4 | McIntosh | 37.4 | 41,259 | 18.6 | Tulsa | 27.2 | 603,403 | 272.2 |
| Delaware | 30.6 | 41,487 | 18.7 | Major | 26.9 | 34,506 | 15.6 | Wagoner | 31.2 | 73,085 | 33.0 |
| Dewey | 29.1 | 4,810 | 2.2 | Marshall | 33.8 | 33,151 | 15.0 | Washington | 26.7 | 50,976 | 23.0 |
| Ellis | 36.8 | 4,151 | 1.9 | Mayes | 36.9 | 20,252 | 9.1 | Washita | 24.5 | 11,629 | 5.2 |
| Garfield | 33.7 | 60,580 | 27.3 | Murray | 32.1 | 13,488 | 6.1 | Woods | 21.7 | 8,878 | 4.0 |
| Garvin | 29.8 | 27,576 | 12.4 | Muskogee | 29.6 | 70,990 | 32.0 | Woodward | 32.5 | 20,081 | 9.1 |
| Grady | 34.5 | 52,431 | 23.7 | Noble | 39.1 | 11,561 | 5.2 |  |  |  |  |

Table four shows the increased per capita medical expenditure for obese individuals by county. Medical costs are approximately $2741 higher for obese individuals. For example, thirty-five percent of Adair’s 22,683 population is obese. At $2741 per person, Adair has approximately 22,000,000 dollars in increased medical spending due to obesity.

**Table 4: Additional Per Capita Medical Spending in Millions of Dollars for Obese Individuals.**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| County | % | Population | Cost | County | % | Population | Cost | County | % | Population | Cost |
| Adair | 35.4 | 22,683 | 22.0 | Grant | 24.2 | 4,527 | 3.0 | Nowata | 33.1 | 10,536 | 9.6 |
| Alfalfa | 31.9 | 5,642 | 4.9 | Greer | 34.9 | 6,239 | 6.0 | Okfuskee | 31.7 | 12,191 | 10.6 |
| Atoka | 34.5 | 14,182 | 13.4 | Harmon | - | 2,922 | 0.0 | Oklahoma | 28.4 | 718,633 | 559.4 |
| Beaver | 29.5 | 5,636 | 4.6 | Harper | - | 3,685 | 0.0 | Okmulgee | 33.7 | 40,069 | 37.0 |
| Beckham | 32.5 | 22,119 | 19.7 | Haskell | 31.1 | 12,769 | 10.9 | Osage | 32.8 | 47,472 | 42.7 |
| Blaine | 31.5 | 11,943 | 10.3 | Hughes | 21.2 | 14,003 | 8.1 | Ottawa | 32.2 | 31,848 | 28.1 |
| Bryan | 30.4 | 42,416 | 35.3 | Jackson | 31.7 | 26,446 | 23.0 | Pawnee | 32.3 | 16,577 | 14.7 |
| Caddo | 29.1 | 29,600 | 23.6 | Jefferson | 39.3 | 6,472 | 7.0 | Payne | 27.4 | 77,350 | 58.1 |
| Canadian | 26.4 | 115,541 | 83.6 | Johnston | 24.7 | 10,957 | 7.4 | Pittsburg | 30.2 | 45,837 | 37.9 |
| Carter | 30.6 | 47,557 | 39.9 | Kay | 31.3 | 46,562 | 39.9 | Pontotoc | 35.0 | 37,492 | 36.0 |
| Cherokee | 31.1 | 46,987 | 40.1 | Kingfisher | 30.5 | 15,034 | 12.6 | Pottawatomie | 34.2 | 69,442 | 65.1 |
| Choctaw | 30.0 | 15,205 | 12.5 | Kiowa | 31.1 | 9,446 | 8.1 | Pushmataha | 25.2 | 11,572 | 8.0 |
| Cimarron | 26.2 | 2,475 | 1.8 | Latimer | 42.2 | 11,154 | 12.9 | Roger Mills | 35.5 | 3,647 | 3.5 |
| Cleveland | 26.5 | 255,755 | 185.8 | Le Flore | 31.0 | 50,384 | 42.8 | Rogers | 29.4 | 86,905 | 70.0 |
| Coal | 33.6 | 5,925 | 5.5 | Lincoln | 28.0 | 34,273 | 26.3 | Seminole | 37.7 | 25,482 | 26.3 |
| Comanche | 31.4 | 124,098 | 106.8 | Logan | 32.7 | 41,848 | 37.5 | Sequoyah | 32.9 | 42,391 | 38.2 |
| Cotton | 37.9 | 6,193 | 6.4 | Love | 25.6 | 9,423 | 6.6 | Stephens | 27.6 | 45,048 | 34.1 |
| Craig | 36.8 | 15,029 | 15.2 | McClain | 34.8 | 7,527 | 7.2 | Texas | 27.5 | 20,640 | 15.6 |
| Creek | 32.3 | 69,967 | 61.9 | McCurtain | 33.4 | 15,840 | 14.5 | Tillman | 34.5 | 7,992 | 7.6 |
| Custer | 29.8 | 27,469 | 22.4 | McIntosh | 37.4 | 41,259 | 42.3 | Tulsa | 27.2 | 603,403 | 449.9 |
| Delaware | 30.6 | 41,487 | 34.8 | Major | 26.9 | 34,506 | 25.4 | Wagoner | 31.2 | 73,085 | 62.5 |
| Dewey | 29.1 | 4,810 | 3.8 | Marshall | 33.8 | 33,151 | 30.7 | Washington | 26.7 | 50,976 | 37.3 |
| Ellis | 36.8 | 4,151 | 4.2 | Mayes | 36.9 | 20,252 | 20.5 | Washita | 24.5 | 11,629 | 7.8 |
| Garfield | 33.7 | 60,580 | 56.0 | Murray | 32.1 | 13,488 | 11.9 | Woods | 21.7 | 8,878 | 5.3 |
| Garvin | 29.8 | 27,576 | 22.5 | Muskogee | 29.6 | 70,990 | 57.6 | Woodward | 32.5 | 20,081 | 17.9 |
| Grady | 34.5 | 52,431 | 49.6 | Noble | 39.1 | 11,561 | 12.4 |  |  |  |  |

**Summary**

Obesity rates have increased almost 60% across the Oklahoma population since 2000.  The growth of obesity contributes to higher insurance rates, lost time at work, and a sizable burden to our state’s funding. Approximately, $1,950,000,000 (1.95 billion dollars) is spent in Oklahoma every year in obesity related costs. Beyond the currently measured direct and indirect obesity costs, individuals themselves use more of their budgets to maintain a larger body size, and in the attempt to lose weight through non-cost effective means (such as fad diets, or diet pills that have no validity, but are purchased and generally fail to work).

As we are able to measure more sources of spending on obesity we will be able to have a more accurate picture of the total cost of obesity on government and individual spending. Regardless, the current estimates are high.

The Oklahoma State Department of Health has started to help reduce the burden, by helping Oklahomans eat better and move more.

The Oklahoma State Department of Health (OSDH) has been mobilizing efforts to improve the health and quality of life of Oklahoma residents. Some of the most recent initiatives include the Oklahoma Health Improvement Plan,the Shape Your Future campaign, and establishment of the Center for the Advancement of Wellness.

The Oklahoma Health Improvement Plan4 was developed in collaboration with health professionals, government agencies, and community members to focus on key priorities and outcomes which will greatly impact the health of Oklahomans. One of the key priorities is obesity, and several objectives are outlined in the plan to enhance access to and opportunities for healthy nutrition and physical fitness for all Oklahomans.

Shape Your Future5 was launched in early 2011 in conjunction with the Tobacco Settlement Endowment Trust and partner organizations as a social marketing campaign to provide Oklahomans with information and resources for eating better, moving more, and being tobacco-free. Individuals, organizations, and communities can implement these policies and practices, thus improving quality of life of residents. The idea is that if Oklahoma’s health status was similar to the national average, 5,320 lives would be saved each year.

Most recently, the Center for the Advancement of Wellness was established as a means of strategically aligning resources within OSDH that address obesity and tobacco prevention. The Community Development Service (CDS) now works alongside the Center. Several ongoing programs within CDS include Turning Point, Certified Healthy Oklahoma, and CATCH. The Turning Point Initiative, begun in 1998, consists of community partnerships whose focus is to enhance the health status of Oklahomans. While their activities vary, many communities have developed plans that target obesity reduction and prevention. The Certified Healthy Oklahoma Programs began in 2003 as a means of encouraging and recognizing businesses that were committed to improving the health of their employees.

The Certified Healthy programs have since expanded to recognize restaurants, schools, campuses, and communities who are also doing their part to promote healthy lifestyles among their respective populations. CATCH, or Coordinated Approach to Child Health, is a healthy nutrition and physical activity program that is in its fifth year in after-school programs across the state.

There are a plethora of programs aimed at reducing and preventing obesity across the state of Oklahoma. Programs are utilizing a variety of approaches to promote healthy behavior change, including individual, organizational, community, and policy strategies. OSDH is leading the way to Create a State of Health.

References

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