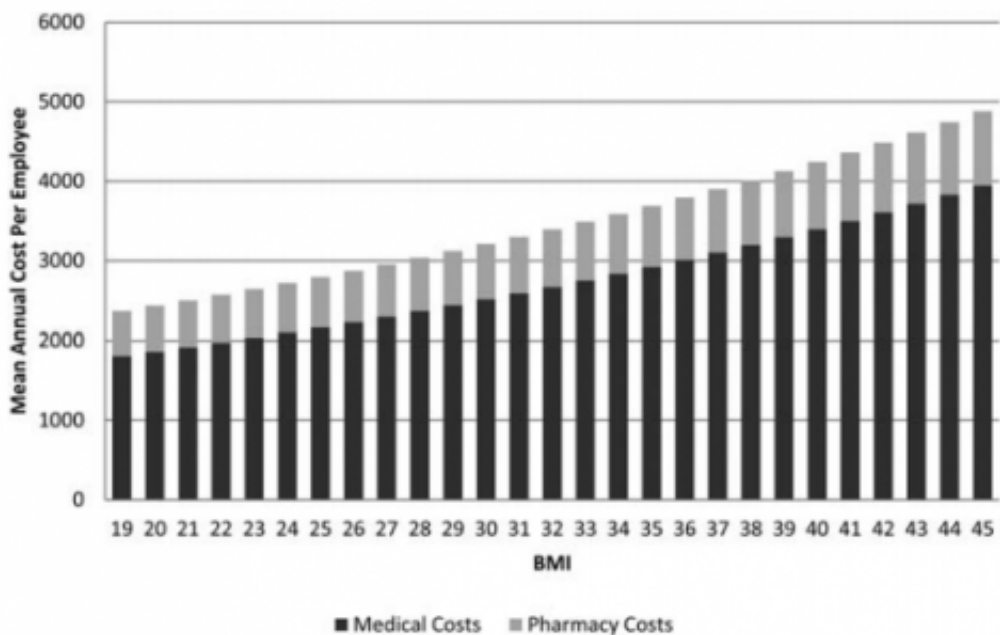


Health care costs steadily increase with body mass

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Analyzing health care claims from Duke employees, Duke researchers observed that the average medical care and pharmacy costs grew gradually with each unit increase in BMI. Credit: Duke Medicine

Researchers at Duke Medicine are giving people another reason to lose weight in the new year: obesity-related illnesses are expensive. According to a study published in the journal *Obesity*, health care costs increase in parallel with body mass measurements, even beginning at a recommended healthy weight.

The researchers found that costs associated with medical and drug claims rose gradually with each unit increase in body mass index (BMI). Notably, these increases began above a BMI of 19, which falls in the lower range of the healthy BMI category.

"Our findings suggest that excess fat is detrimental at any level," said lead author Truls Østbye, M.D., Ph.D., professor of community and family medicine at Duke and professor of [health](#) services and systems research at Duke-National University of Singapore.

A study published earlier this year in the *Journal of the American Medical Association*, using death data from several large population studies, concluded that while higher degrees of obesity were associated with higher mortality rates, being overweight or even slightly obese was actually linked with lower mortality. Since these findings questioned the general belief that high [body mass](#) leads to poor health outcomes, Østbye and his colleagues sought to better understand the rates of obesity-related disease, or morbidity, by measuring health care utilization and costs.

Using health insurance claims data for 17,703 Duke employees participating in annual health appraisals from 2001 to 2011, the researchers related costs of doctors' visits and use of prescription drugs to employees' BMIs.

BMI is a measurement of a person's weight adjusted for his or her height, and can be used to screen for possible weight-related health problems. A healthy or normal BMI is 19-24, while overweight is 25-29 and obese is 30 and above. For example, a 5-foot-6-inch person who weighs 117.5 pounds has a BMI of 19, while a person of the same height weighing 279 pounds has a BMI of 45. Underweight individuals (who reported a BMI less than 19) were excluded from this analysis, as very low weight may be a result of existing illness.

Measuring costs related to doctors' visits and prescriptions, the researchers observed that the prevalence of obesity-related diseases increased gradually across all BMI levels. In addition to diabetes and hypertension—the two diseases most commonly associated with being overweight or obese—the rates of nearly a dozen other disease categories also grew with increases in BMI. Cardiovascular disease was associated with the largest dollar increase per unit increase in BMI.

The average annual [health care costs](#) for a person with a BMI of 19 was found to be \$2,368; this grew to \$4,880 for a person with a BMI of 45 or greater. Women in the study had higher overall medical costs across all BMI categories, but men saw a sharper increase in medical costs the higher their BMIs rose.

The study did not find a change in the relationship between levels of obesity and health care costs from 2001 to 2011. In contrast to the recent evidence relating to mortality, which concluded that only more obese people were at a higher risk of death, the current findings suggest that the occurrence of obesity-related illnesses and related costs begin increasing at a [healthy weight](#).

Given the growing health costs associated with excess weight, the researchers stressed the importance of implementing effective health and weight-loss programs.

"The fact that we see the combined costs of pharmacy and medical more than double for people with BMIs of 45 compared with those of 19 suggests that interventions on weight are warranted," said Marissa Stroe, a co-investigator on the study.

The researchers also noted that the workplace is a good setting for implementing weight loss programs, given that employers can target the more than 100 million Americans who spend most of their waking hours

at work. The Affordable Care Act recognizes this advantage, and has created new incentives to promote employee wellness programs.

"Employers should be interested in these findings, because, directly or indirectly, they end up paying for a large portion of these health care costs," Østbye said.

The researchers are currently working to evaluate the impact of employer-sponsored weight and health management programs on [health care](#) costs.

Provided by Duke University Medical Center

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