



What Accounts For The Rise In Health Care Spending?

Rising Rates of Obesity, Increases in Chronic Disease Prevalence, and New Technology
Are Critical Drivers in Spending Increases

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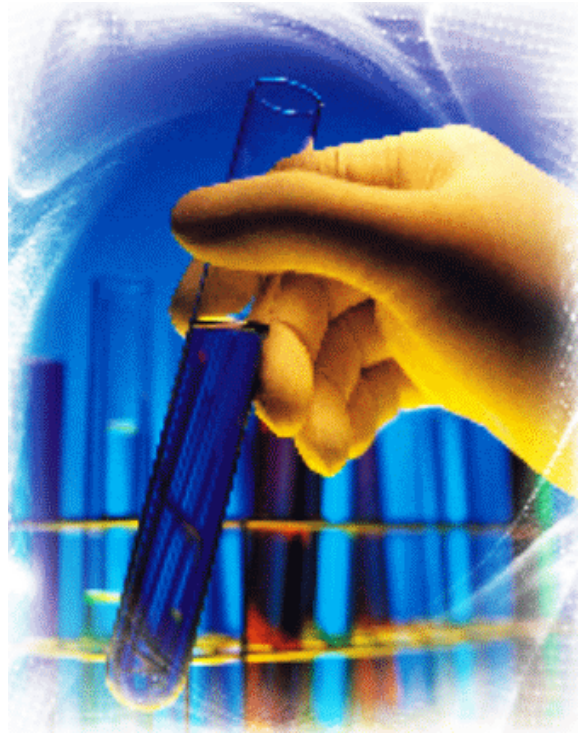


Increases in health expenditures, and how to rein them in, are among the critical policy challenges the United States faces.

National health spending is estimated to have grown almost 7% in 2007, reaching over \$2 trillion, or roughly \$7,800 per person. Absent policy redirection, the growth rate is expected to hold steady at nearly 7% through 2017, reaching more than \$4 trillion. Health spending is expected to be in excess of 16% of gross domestic product (GDP) in 2007 and nearly 20% in 2017.¹

The rise in treated disease prevalence comprises increasing cases of new disease (incidence), increasing cases of disease overall (prevalence), shifting diagnosis and reporting patterns, and changing clinical guidelines that call for expanded treatment intensity or duration or both.

Disaggregating the real drivers of rising health care spending is essential to developing effective solutions.



This policy brief updates previous work by Thorpe, Florence, and Joski on U.S. health spending by medical condition.² Health care spending over time is analyzed by medical condition and decomposed into *changes in cost per case, changes in treated disease prevalence, the composite effect of those factors, and population growth.*

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Obesity and Its Health—and Health Spending—Consequences

Over the past quarter century, obesity has increased dramatically in the United States. The most recent data from the Centers for Disease Control and Prevention (CDC) report that 32% of adults aged 20 and older are overweight and 34% are obese.^{3,4} Poor diet and physical inactivity—leading to obesity and its consequences—are poised to overtake tobacco as the leading actual cause of death in the U.S.⁵

Overweight and obese individuals are at increased risk for many deleterious and costly health conditions, including:

- Hypertension
- Osteoarthritis
- Dyslipidemia
- Type 2 diabetes
- Coronary heart disease
- Back pain
- Depression
- Stroke
- Gallbladder disease and gallstones
- End-stage renal disease
- Sleep apnea
- Respiratory problems
- Difficulties in pregnancy and childbirth
- Some cancers (including endometrial, breast, and colon)^{6,7,8,9,10}

Previous research has shown the contribution to health spending of increases in obesity and its associated chronic diseases. Between 1987 (when adult obesity averaged 14%)¹¹ and 2001 (when it was 31%)¹² increases in the proportion of and spending on obese people relative to people of normal weight accounted for 27% of the rise in inflation-adjusted per capita spending. Spending for diabetes accounted for 38% of the increase, hyperlipidemia for 22%, and heart disease, 41%. Increases in obesity prevalence alone accounted for 12% of the growth in health spending over the period.¹³

Overall, much of the increase in U.S. health spending—by some measures as much as 20%—is attributable to the rise in obesity over the past two decades. Spending increases result from rising incidence and prevalence of obesity and its associated conditions, but also to more intensive treatment of overweight and obese patients. *If the prevalence of obesity were the same today as in 1987, health care spending in the U.S. would be 10% lower per person, or about \$200 billion less each and every year.*¹⁴

Rising Rates of Obesity-Associated Conditions

As obesity has risen, so have incidence and prevalence of associated costly chronic conditions. More than 133 million Americans—45% of the total population—have at least one chronic disease.¹⁵ Chronic diseases kill more than 1.7 million Americans yearly, and account one-third of years of potential life lost before age 65.¹⁶ For many of the most costly chronic conditions—such as heart disease, cancer, and diabetes—both disease prevalence and rates of medication treatment are much higher in the United States than in other industrialized countries.¹⁷ The underlying obesity rate (33% in the U.S. versus 17% in Europe) accounts a non-trivial portion of the higher prevalence of chronic disease in America and associated higher health spending.

The Cost of Chronic Disease

Chronic diseases account for fully 75% of the nation's overall health care spending. In public programs, the proportion is even higher.

- 96 cents of every Medicare dollar is spent on chronic disease care and treatment.
- 83 cents of every Medicaid dollar goes to chronic disease.
- Of the roughly \$1.75 trillion dollars expended on direct health costs in 2006, an estimated \$1.3 trillion was spent on chronic disease.

Factors in Health Spending

Table 1 shows the percentage change in health care spending from 2000 to 2005 by medical condition, broken out by cost per case, treated prevalence, and the interaction of these two factors. Conditions known to be obesity-associated (or to be complicated by obesity) are shaded orange.

Several important factors in health spending are readily apparent in this table:

- The impact of rising obesity is starkly evident in the number of orange boxes, and in the increases in cost per case and treated prevalence for obesity-associated conditions.
- Nine of the top 10 conditions with the largest growth in cost per case had more than 50% increases over the five-year period. These conditions were not the ones with the largest increase in treated prevalence, however.
- Overall, there is a sharp discordance between the largest increases in cost per case and the largest increases in treated prevalence. Circulation disorders jumped the most in cost per case, but dropped the most in treated prevalence. That discordance is likely due to greater treatment intensity and duration.
- Only three conditions—hypertension, stomach disorders, and lupus—posted less than double-digit increases in cost per case. At the same time, these three conditions increased dramatically—an average of more than 90%—in treated prevalence.
- At the opposite extreme, mental disorders posted the largest reduction in cost per case, but the highest increase in treated prevalence, demonstrating the effect of less expensive therapeutics.

Table 2 presents a similar analysis over the past two decades, comparing 1987 to 2005, and shows the change in cost per case, treated prevalence, and the effects of increased population over time.

- Note that, over this period, trauma care posted the largest increase in cost per case, but decreases in population affected and treated prevalence.
- Population growth accounted for a large part of increased spending for certain conditions, including hypertension, diabetes, pulmonary conditions, mental disorders, and back problems—all obesity-associated. These conditions also saw large percentage gains in treated prevalence.
- Cerebrovascular disease (also obesity associated) posted the greatest decline in cost per case over the period, but also the largest increase in treated prevalence.



Table 1: Percentage Change in Adults' (18-74 Years) Health Care Spending by Medical Condition, Attributed to Cost Per Case, Condition Prevalence, and Joint Effects, 2000-2005

Condition	Cost Per Case	Treated Prevalence	Joint Effect
Circulation Related Disorders	185.9%	-143.3%	57.4%
Cerebrovascular Disease	93.1%	14.7%	-7.8%
Skin Disorders	90.6%	6.8%	2.6%
Childbirth	88.5%	8.8%	2.7%
Trauma	76.5%	17.0%	6.5%
Arthritis	72.1%	19.4%	8.4%
Endocrine System Disorders	60.2%	28.7%	11.1%
Pneumonia	57.7%	37.7%	4.6%
Kidney Disease	51.1%	23.2%	25.8%
Cancer	47.2%	45.7%	7.2%
Pulmonary Conditions	46.7%	47.1%	6.2%
Upper Gastrointestinal Disorders	31.9%	46.4%	21.7%
Diabetes	26.2%	62.3%	11.5%
Liver Disease	25.1%	59.8%	15.1%
Back Problems	19.7%	71.9%	8.4%
Heart Disease	16.7%	81.8%	1.5%
Hypertension	9.3%	87.1%	3.6%
Stomach Disorders	6.8%	91.4%	1.8%
Lupus	4.9%	94.1%	1.0%
Mental Disorders	-10.8%	116.6%	-5.8%

NOTE: Obesity-associated conditions (and conditions shown to be made more costly by obesity) are shaded orange. Conditions with the largest percentage increase are shaded red. Conditions with the largest percentage decrease are shown in blue.

SOURCE: Medical Expenditure Panel Survey, Household Component (MEPS-HC), 2000-2005.

Table 2: Attributable Decomposition of Percentage Change in Adults' (18-74 Years) Health Care Spending by Medical Condition in Cost Per Case, Condition Prevalence, and Population Growth, 1987-2005

Condition	Cost Per Case	Treated Prevalence	Increased Population
Trauma	123.68%	-48.69%	-2.37%
Stomach Disorders	73.23%	-20.24%	0.15%
Childbirth	70.57%	-0.24%	0.18%
Circulation Related Disorders	52.08%	-102.27%	1.46%
Skin Disorders	47.09%	6.48%	2.01%
Cancer	44.09%	8.70%	0.96%
Pneumonia	38.36%	-2.47%	0.62%
Heart Disease	37.28%	-5.55%	3.29%
Arthritis	34.05%	15.63%	2.42%
Lupus	33.38%	16.19%	1.79%
Hypertension	26.43%	22.11%	5.81%
Kidney Disease	20.51%	27.25%	0.39%
Endocrine System Disorders	18.09%	26.86%	4.73%
Pulmonary Conditions	8.99%	41.34%	6.90%
Upper Gastrointestinal Disorders	2.66%	57.40%	2.69%
Mental Disorders	-3.94%	72.64%	5.68%
Back Problems	-2.62%	61.66%	4.84%
Liver Disease	-2.92%	52.15%	0.86%
Diabetes	-17.52%	81.85%	5.17%
Cerebrovascular Disease	-34.80%	101.90%	0.67%

NOTE: Obesity-associated conditions (and conditions shown to be made more costly by obesity) are shaded orange. Conditions with the largest percentage increase are shaded red. Conditions with the largest percentage decrease are shown in blue.

SOURCE: 1987 National Medical Expenditure Survey (NMES) and 2005 Medical Expenditure Panel Survey, Household Component (MEPS-HC).

Policy Implications

This analysis underscores several critical policy considerations:

First, much of the rise in medical spending is obesity-related. There have been sharp increases in treated prevalence of conditions like diabetes, hypertension, and heart disease. Future cost-containment efforts must address this sizeable component of rising U.S. health costs through effective primary and secondary prevention—precluding obesity and promoting healthy weight loss among those already overweight or obese.

Second, this analysis demonstrates that spending per case has increased dramatically for some obesity-related conditions, such as circulation disorders, cerebrovascular disease, and arthritis. Reducing incidence and prevalence of obesity-related chronic conditions won't decrease spending per case—but will decrease overall spending.

The World Health Organization calculates that at least 80% of all heart disease, stroke, and type 2 diabetes and more than 40% of cancer would be prevented if people ate healthier, exercised, and stopped using tobacco.¹⁸ Less than 1% of our nation's health spending is invested in prevention. Instead, virtually all our annual outlays go to attempting to restore health—or some measure of it—once it is already lost.¹⁹

Third, the value of much increased health spending—whether per case or in treated prevalence—is not immediately clear. Some spending may post solid returns on investment, some may not. Comparative effectiveness research is critical to better understanding what works, for whom, under what conditions, and why. Proposals for a national center focused on this research have recently received renewed attention in Congress. Rationalizing cost-containment efforts requires this information.



References

- ¹ Sean Keehan, Andrea Sisko, Christopher Truffer, Sheila Smith, Cathy Cowan, John Poisal, M. Kent Clemens, and the National Health Expenditure Accounts Projections Team, Centers for Medicare and Medicaid Services, "Health Spending Projections Through 2017: The Baby-Boom Generation Is Coming To Medicare," *Health Affairs Web Exclusive* 27 (February 2008): w145–w15. <http://content.healthaffairs.org/cgi/content/full/27/2/w145?maxtoshow=&HITS=25&hits=25&RESULTFORMAT=&fulltext=spending&andorexactfulltext=and&searchid=1&FIRSTINDEX=50&sortspec=date&resourcetype=HWCIT>. Accessed July 31, 2008.
- ² Kenneth E. Thorpe, Curtis S. Florence, Peter Joski, "Which Medical Conditions Account for the Rise in Health Care Spending?," *Health Affairs Web Exclusive*:w4-437-445. <http://content.healthaffairs.org/cgi/reprint/hlthaff.w4.437v1.pdf>. Accessed August 8, 2008.
- ³ National Center for Health Statistics, "Health e-stats: Prevalence of Overweight and Obesity Among Adults: United States, 2003-2004." http://www.cdc.gov/nchs/products/pubs/pubd/hestats/overweight/overwght_adult_03.htm. Accessed July 31, 2008.
- ⁴ Cynthia L. Ogden, Margaret D. Carroll, Margaret A. McDowell, Katherine M. Flegal, National Center for Health Statistics, Division of Health and Nutrition Examination Surveys, "NCHS Data Brief: Obesity Among Adults in the United States—No Statistically Significant Change Since 2003-2004." November 2007. <http://www.cdc.gov/nchs/data/databriefs/db01.pdf>. Accessed July 31, 2008.
- ⁵ Ali H. Mokdad, James S. Marks, Donna F. Stroup, Julie L. Gerberding, "Actual Causes of Death in the United States, 2000," *JAMA* 291 (2004):1238-1245.
- ⁶ American Obesity Association, "Costs of Obesity." <http://obesity1.tempdomainname.com/treatment/cost.shtml>. Accessed July 31, 2008.
- ⁷ Sarah Markowitz, Michael A. Friedman, Shawn M. Arent, "Understanding the Relation Between Obesity and Depression: Causal Mechanisms and Implications for Treatment," *Clinical Psychology: Science and Practice* 15 (2008): 1-20.
- ⁸ NJ Sebire, M Jolly, J P Harris, J Wadsworth, M Joffe, RW Beard, L Regan, S Robinson, "Maternal Obesity and Pregnancy Outcome: A Study of 287,213 Pregnancies in London," *International Journal of Obesity* 25 (2001):1175–1182.
- ⁹ Marie I. Cedergren, "Maternal Morbid Obesity and the Risk of Adverse Pregnancy Outcome," *Obstetrical & Gynecological Survey* 59 (2004):489-491.
- ¹⁰ Centers for Disease Control and Prevention, "Overweight and Obesity: Introduction." July 2008. <http://www.cdc.gov/nccdphp/dnpa/obesity/>. Accessed August 1, 2008.
- ¹¹ Jeffrey A. Rhoades, Barbara M. Altman, Llewellyn J. Cornelius, Center for Financing, Access, and Cost Trends, Agency for Healthcare Research and Quality (AHRQ), "Statistical Brief #37: Trends in Adult Obesity in the United States, 1987 and 2001: Estimates for the Noninstitutionalized Population, Age 20 to 64." http://www.meps.ahrq.gov/mepsweb/data_files/publications/st37/stat37.pdf. Accessed July 31, 2008.
- ¹² National Center for Health Statistics, "Health e-stats: Prevalence of Overweight and Obesity Among Adults: United States, 2003-2004." http://www.cdc.gov/nchs/products/pubs/pubd/hestats/overweight/overwght_adult_03.htm. Accessed July 31, 2008.
- ¹³ Kenneth E. Thorpe, Curtis S. Florence, David H. Howard, Peter Joski, "The Impact of Obesity on Rising Medical Spending," *Health Affairs W4* (2004):480-486.
- ¹⁴ Partnership to Fight Chronic Disease, "An Unhealthy Truth: Rising Rates of Chronic Disease and the Future of Health in America." http://www.fightchronicdisease.com/pdfs/PFCDLAUNCH_FINAL5.14.ppt.
- ¹⁵ Shin-Yi Wu, Anthony Green, "Projection of Chronic Illness Prevalence and Cost Inflation" Santa Monica, California: RAND Corporation, 2000.
- ¹⁶ Centers for Disease Control and Prevention, "Chronic Disease Overview." <http://www.cdc.gov/nccdphp/overview.htm>. Accessed February 12, 2008.
- ¹⁷ Kenneth E. Thorpe, David H. Howard, Katya Galactionova, "Differences in Disease Prevalence as a Source of the U.S.-European Health Care Spending Gap," *Health Affairs Web Exclusive* (2007):w678-w686.
- ¹⁸ World Health Organization (WHO), *Preventing Chronic Diseases: A Vital Investment* (Geneva: WHO, 2005).
- ¹⁹ Julie L. Gerberding, "Protecting Health—The New Research Imperative," *JAMA* 294 (2005): 1403-1406.
- ²⁰ Gail R. Wilensky, "Comparative Clinical Effectiveness: Leveraging Innovation To Improve Health Care Quality for all Americans," Testimony before the Senate Finance Committee (July 17, 2008), <http://finance.senate.gov/sitepages/hearing071708.htm>. Accessed July 23, 2008.



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