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DATAWATCH

Mental Disorders Top The List Of The Most Costly Conditions In The United States: \$201 Billion

Estimates of annual health spending for a comprehensive set of medical conditions are presented for the entire US population and with totals benchmarked to the National Health Expenditure Accounts. In 2013 mental disorders topped the list of most costly conditions, with spending at \$201 billion.

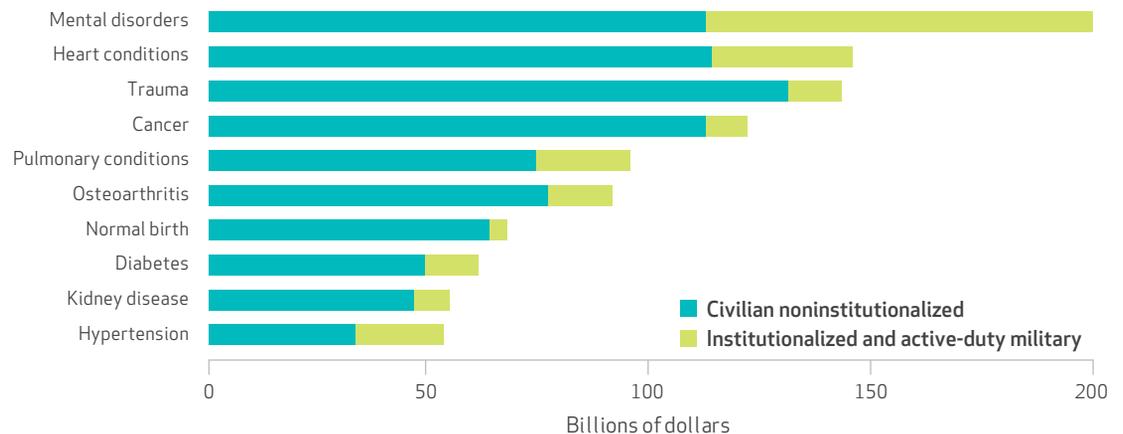
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The National Health Expenditure Accounts (NHEA), maintained by the Centers for Medicare and Medicaid Services, provide official estimates of annual health spending in the United States. The NHEA covers spending by the entire US population broken out by type of service and source of payment, but not by medical condition. For many years the Agency for Healthcare Research and Quality (AHRQ) has produced estimates of spending by medical condition from its Medical Expenditure Panel Survey (MEPS), but they are limited to the civilian noninstitutionalized population and include double counting of spending that involves multiple conditions.¹ The Commerce Department's Bureau of Economic Analysis recently released

the Health Care Satellite Account, which promises to be an ongoing source of spending by medical condition, without double counting, for the civilian noninstitutionalized population.^{2,3} Estimates of health spending by medical condition for the entire US population, without double counting and benchmarked to the NHEA, were first developed in a 2009 study published in *Health Affairs* that covered the period 1996–2005.⁴ This article updates those estimates through 2013, using similar data and methods. The inclusion of institutionalized populations has a significant impact on total spending and brings mental disorders to the top of the list of medical conditions with the highest estimated spending: \$201 billion in 2013 (Exhibit 1).

EXHIBIT 1

Ten medical conditions with the highest estimated spending in 2013



SOURCE Author's analysis of study data. **NOTES** Institutionalized populations include nursing home residents, long-term patients in psychiatric hospitals, and prisoners. Trauma is fractures and wounds. Pulmonary conditions include chronic obstructive pulmonary disease, asthma, and other pulmonary diseases.

Study Data And Methods

Details about the data and methods are provided in online Appendix Exhibits A1 and A2.⁵ In brief, NHEA service-category spending was adjusted (for example, shifting a portion of hospital spending to nursing home spending) to be consistent with other data sources. It was then apportioned across the following population segments: civilian noninstitutionalized, nursing home residents, long-term patients in psychiatric hospitals, prisoners, and members of the military on active duty. Three NHEA service categories (durable medical equipment, nondurable medical products, and other personal health care) were eliminated from consideration because of a lack of data suitable for allocating spending to medical conditions. For the remaining categories, which account for about 89 percent of spending, the allocation of spending to medical conditions was done separately for each population segment, with methods that eliminated double counting.

For the civilian noninstitutionalized population, which accounted for about 82 percent of spending, MEPS data were used to allocate spending across medical conditions for each included service category. Nursing home residents accounted for about 15 percent of spending, and the National Nursing Home Survey⁶ was the primary data source for allocating their spending across medical conditions. The remaining population segments accounted for about 3 percent of health spending, and data and methods were identified, case by case, to allocate their spending to medical conditions (for specifics, see Appendix Exhibit A2, pages 12, 15, and 16).⁵

Medical conditions were based on the 260 categories defined in the AHRQ Clinical Classifications Software and the ARHQ mapping architecture. Unless otherwise noted, AHRQ grouping schemes were used to create a smaller number of aggregate conditions.⁷

MEPS assigns medical conditions to health care events based on survey self-reports and is known to undercount some high-cost cases, which results in potential errors and biases in that assignment.⁸ MEPS survey methods were changed in 2007, which required adjustments that caused estimates presented here to differ from those in the 2009 study.⁴

Study Results

TEN CONDITIONS WITH THE HIGHEST ESTIMATED SPENDING IN 2013 The top ten medical conditions in terms of estimated spending in 2013 are shown in Exhibit 1. The category of mental disorders tops the list by a substantial margin, at \$201 billion—of which more than 40 percent is

spending for institutionalized populations. Next are heart conditions and trauma, with spending at \$147 billion and \$143 billion, respectively. Cancer is fourth at \$122 billion, and pulmonary conditions round out the top five at \$95 billion.

The top five conditions in the AHRQ list of 2013 spending are trauma, heart conditions, mental disorders, cancer, and osteoarthritis.¹ The difference in rankings is primarily because AHRQ spending is limited to the civilian noninstitutionalized population, while this study included institutionalized people and members of the military on active duty.

TEN CONDITIONS WITH THE FASTEST SPENDING GROWTH, 1996–2013 Personal health spending grew at an average annual rate of 5.9 percent between 1996 and 2013, while gross domestic product (GDP) grew by 4.3 percent (Exhibit 2). The difference between these two rates is commonly referred to as the “excess growth rate.” In dollar terms, excess growth was \$472 billion, in the sense that if health spending had grown at the same rate as the GDP between 1996 and 2013, health spending would have been \$472 billion lower in 2013 than it actually was. (All dollar amounts mentioned are in nominal dollars—that is, not adjusted for inflation.)

Diseases related to the gallbladder, pancreas, and liver topped the list of the ten fastest-growing conditions (Exhibit 2). The top four conditions grew by 10 percent annually, or nearly 6 percentage points faster than the GDP. Together they contributed \$101 billion to excess growth, which is more than one-fifth of the \$472 billion total. Growth in the next six fastest-growing conditions was 6–9 percent and contributed \$160 billion to excess growth, about one-third of the total. Together, these ten fastest-growing conditions accounted for more than half of all excess spending growth.

Spending on mental disorders had a 5.6 percent growth rate and was not among the top ten. But because it is such a large category, it contributed the most in terms of excess dollars spent: \$38 billion (data not shown). Another large category was heart conditions, which grew at only 2 percent. Spending on this category actually reduced excess growth by \$70 billion, in the sense that it was \$70 billion lower in 2013 than if it had grown at the same rate as the GDP.

TEN CONDITIONS WITH THE GREATEST SLOW-DOWN AFTER THE MANAGED CARE BACKLASH The history of health spending since 1996 includes the tail end of the managed care era (1996–99), when spending grew at an average annual rate of 5.8 percent; the years of managed care “backlash” (2000–03), when the average annual growth soared to 8.0 percent as managed care retreated in the face of strong consumer

EXHIBIT 2

Ten fastest-growing medical conditions by growth rate and their contribution to excess spending growth, 1996–2013

Medical condition	Spending (billions)		Average growth rate	Excess growth (billions)	Share of excess growth
	1996	2013			
Gallbladder, pancreatic, or liver disease	\$ 10	\$ 52	10%	\$ 32	7%
Hyperlipidemia	5	27	10	16	3
Upper gastrointestinal tract conditions	10	48	10	28	6
Lupus or connective tissue disorders	9	44	10	25	5
Kidney disease	12	54	9	30	6
Diabetes	14	62	9	32	7
Skin disorders	11	43	8	20	4
Osteoarthritis	27	91	7	36	8
Back problems	15	49	7	19	4
Pulmonary conditions	35	95	6	23	5
Total personal health care spending	918	2,441	6	472	100

SOURCE Author's analysis of study data. **NOTES** Excess growth in dollars is the difference between spending in 2013 and what it would have been if spending since 1996 had grown at same rate as the gross domestic product (4.3 percent). Medical conditions with less than \$20 billion in spending in 2013 are excluded. All dollar amounts are in nominal dollars. All numbers are rounded. Growth rates are average annual compounded rates.

opposition; the pre-recession slowdown (2004–07), with 6.8 percent average annual growth; and the recession and its aftermath (2008–13), with 4.1 percent average annual growth.⁹

The health spending slowdown that followed the managed care backlash has been of great interest to health economists.^{2,10} The contribution of medical conditions to this slowdown is examined here by comparing growth rates during the backlash period to those in later years.

Hyperlipidemia (high cholesterol) led the list of ten medical conditions with the greatest spending slowdown for the period (Exhibit 3). The average annual rate of spending growth for

hyperlipidemia was 24 percent during the backlash period but only 2 percent thereafter—a drop of 22 percentage points. Next was upper gastrointestinal conditions, with a decline of 14 percentage points. Cancer and heart conditions were also in the top ten medical conditions with the greatest slowdown, with declines of 5 percentage points and 4 percentage points, respectively.

SPENDING BY DIAGNOSTIC CATEGORIES AND SELECTED MEDICAL CONDITIONS Among the major diagnostic categories, the circulatory system accounted for 14 percent of total expenditures in 2013 (Exhibit 4). The next-largest category was

EXHIBIT 3

Ten medical conditions with the largest slowdown in rate of spending growth following the managed care backlash, by slowdown rate

Medical condition	2013 spending (billions)	Growth rate		Slowdown (percentage points)
		Backlash period (2000–03)	Postbacklash period (2004–13)	
Hyperlipidemia	\$ 27	24%	2%	–22
Upper gastrointestinal tract conditions	48	21	7	–14
Kidney disease	54	18	7	–11
Gallbladder, pancreatic, or liver	52	19	10	–8
Hypertension	53	11	3	–8
Osteoarthritis	91	13	5	–7
Cancer	122	9	4	–5
Back problems	49	11	6	–5
Heart conditions	147	6	1	–4
Skin disorders	43	9	7	–2

SOURCE Author's analysis of study data. **NOTES** All dollar amounts are in nominal dollars. All numbers are rounded. Medical conditions with less than \$20 billion in spending in 2013 are excluded. Growth rates are average annual compounded rates.

EXHIBIT 4
Personal health spending by diagnostic category and medical condition, selected years 1996–2013

	Expenditures (billions)					Annual growth	Percent of 2013 expenditures
	1996	1999	2003	2007	2013		
DIAGNOSTIC CATEGORY^a OR MEDICAL CONDITION							
Circulatory system	\$175	\$192	\$246	\$288	\$294	3%	14%
Heart conditions	105	102	128	138	147	2	7
Coronary heart disease	79	69	84	85	79	0	4
Congestive heart failure	12	14	19	25	25	5	1
Dysrhythmias	12	13	18	22	34	6	2
Cerebrovascular disease	26	27	29	35	32	1	1
Hypertension	20	27	41	51	53	6	2
Hyperlipidemia ^b	5	9	21	33	27	10	1
Mental disorders	79	97	123	160	201	6	9
Anxiety and depression	29	37	56	71	87	7	4
Dementia ^c	19	22	25	32	38	4	2
Musculoskeletal system	57	75	112	144	211	8	10
Osteoarthritis	27	34	55	65	91	7	4
Back problems	15	18	28	40	49	7	2
Lupus or connective tissue disorders	9	15	17	22	44	10	2
Injury and poisoning	63	73	96	128	160	6	7
Trauma	57	67	87	116	143	6	7
Digestive system	45	53	88	121	184	9	8
Gallbladder, pancreatic, or liver disease	10	10	20	24	52	10	2
Upper gastrointestinal tract conditions	10	12	25	34	48	10	2
Neoplasms	58	61	85	122	129	5	6
Cancers	54	55	79	114	122	5	6
Respiratory system	60	71	85	106	147	5	7
Pulmonary conditions	35	44	55	68	95	6	4
COPD	11	11	14	19	30	6	1
Asthma	6	7	12	15	19	7	1
Pneumonia	16	17	17	24	33	4	2
Nervous system	50	56	78	101	125	6	6
Eye problems	15	15	22	26	32	4	1
Genitourinary system	32	38	61	77	101	7	5
Kidney disease	12	14	27	34	54	9	3
Endocrine system	26	32	48	74	101	8	5
Diabetes	14	17	26	43	62	9	3
Other categories ^d	82	99	136	183	260	7	12
Normal birth	26	29	37	55	67	6	3
Screening, prevention, and exams	45	57	80	103	146	7	7
General exam	28	37	56	77	108	8	5
Dental	46	57	75	96	109	5	5
EXPENDITURES							
Allocated	\$817	\$ 961	\$1,313	\$1,704	\$2,167	6%	100%
Unallocated	100	126	165	216	274	6	13
All personal health care ^e	918	1,086	1,478	1,919	2,441	6	113

SOURCE Author's analysis of study data. **NOTES** All dollar amounts are in nominal dollars. All numbers are rounded. Growth rates are average annual compounded rates. COPD is chronic obstructive pulmonary disease. ^aDiagnostic categories are from the *International Classification of Diseases*, Ninth Revision (ICD-9), with exceptions noted below. Only selected medical conditions are shown, so expenditures by condition sum to less than expenditures by category. ^bHyperlipidemia is mapped to the endocrine system chapter in ICD-9. ^cDementia includes Alzheimer's disease, which is mapped to nervous system disorders in ICD-9. ^dIncludes pregnancy, perinatal conditions, skin diseases, infectious diseases, blood diseases, and congenital anomalies. ^eFrom the National Health Expenditure Accounts. The medical condition detail follows the definitions of the Agency for Healthcare Research and Quality (AHRQ) used previously (see Note 7 in text), with some additional entries (for example, the major subcomponents of heart conditions). Note that mental disorders is a major diagnostic category that is also considered a medical condition in the AHRQ scheme.

the musculoskeletal system (10 percent), followed by mental disorders (9 percent) and the digestive system (8 percent).

The largest diagnostic category, the circulatory

system, had the slowest rate of growth in spending—3 percent, or about 1.2 percentage points slower than the GDP. Within this category, rapid growth in spending on hyperlipidemia and

hypertension was offset by slow growth in spending on heart and cerebrovascular diseases. The fastest growth was seen in the digestive, endocrine, and musculoskeletal diagnostic categories, which had rates of growth of 8–9 percent.

Discussion

In 1996 the most costly medical condition, by far, was heart conditions, at \$105 billion, with mental disorders a distant second at \$79 billion. They had equal spending in 2004 (\$131 billion each; data not shown), and by 2013 spending on mental disorders had moved far ahead—reaching \$201 billion versus \$147 billion spent on heart conditions.

The story is not so much about rapid growth in spending on mental disorders, because the category's 5.6 percent average annual growth rate was about average for all personal health spending. Instead, what stands out is the 2 percent growth in spending on heart conditions over this period, which was more than 2 percentage points slower than GDP growth. Had national health expenditures (NHE) grown at the same rate as spending on heart conditions did, the NHE share of the GDP (13 percent in 1996) would have fallen to 9 percent in 2013 instead of increasing to 17 percent (author's calculations).

Nearly all of the ten fastest-growing medical conditions in terms of spending are associated with obesity. However, most of the spending growth rates are far too high to be fully explained by obesity-induced increases in disease prevalence. A more important factor appears to be the introduction of expensive new treatments that reached increasingly larger segments of the affected population over time, causing treated prevalence to rise much faster than the prevalence of disease.¹¹ A prime example is the introduction of Lipitor, a breakthrough treatment for hyperlipidemia that was introduced in 1996. Between 2000 and 2012 the number of people being treated for hyperlipidemia roughly doubled, despite only a modest increase in actual prevalence.¹²

For most of the conditions with the greatest slowdown in spending growth after the managed care backlash, the major contributing factor was very high growth rates in the backlash period (2000–03)—not very low growth rates after that. For example, the category of upper gastrointestinal conditions had a 21 percent growth rate in the backlash period, followed by a 7 percent growth rate thereafter (Exhibit 3). Thus, to understand the causes for the slowdown, it would be useful to focus first on why the rates were so high during the backlash and then on why those

Because mental disorders is such a large category, it contributed the most in terms of excess dollars spent.

high rates did not persist.

In the case of hyperlipidemia, initial high growth was attributable to the rapid diffusion of a breakthrough prescription drug, and the subsequent slowdown was due to a leveling off in diffusion of the drug, followed by a shift to lower-cost generic drugs after the patent on Lipitor expired. Spending on hyperlipidemia actually declined from \$33 billion in 2007 to \$27 billion in 2013 (Exhibit 4). It would be useful to flesh out a narrative for each of the remaining conditions on this list to identify additional overarching themes behind the slowdown.

Conclusion

One key finding of this study is the degree to which spending on mental disorders in 2013 exceeded that on all other medical conditions, including heart conditions, trauma, and cancer. Spending on mental disorders tends to be underestimated in other sources because institutionalized populations are excluded.

A second key finding is the continuing low rate of growth in spending on heart conditions and cerebrovascular disease. Most of the fastest-growing medical conditions, in terms of spending, are associated with obesity, yet heart conditions and cerebrovascular disease—which are also associated with obesity—have exhibited very low spending growth. Age-adjusted death rates for these two conditions have been declining, and research suggests the importance of reductions in smoking, other lifestyle improvements, better control of risk factors such as hypertension and hyperlipidemia, and improvements in treatment.¹³ A look ahead suggests that reductions in deaths from heart conditions and cerebrovascular disease are likely to drive spending on mental disorders even higher, as more people survive to older ages—when mental disorders, such as dementia, become more prevalent. ■

5.6%

Growth

Spending on mental disorders had a 5.6 percent growth rate between 1996 and 2013. It was not among the top 10 conditions with the fastest spending growth.

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NOTES

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