

How Much of US Health Care Spending Provides Direct Care or Benefit to Patients?

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Plans to optimize health care in the United States highlight the high cost but rarely explore opportunities for redirecting resources within the existing system to increase access to care while lowering spending. This analysis indicates that, of the total national health care expenditures of \$3.21 trillion in 2015, only \$1.4 trillion to \$2.86 trillion was used to provide care to patients. This range was reached by the subtraction of excess spending in 7 categories. Thus, many opportunities exist to repurpose wasted expenditures to increase access to health care without the need for additional funding. *Cancer* 2019;125:1404-1409. © 2019 American Cancer Society.

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INTRODUCTION

Despite spending 18% of its gross domestic product—more than \$3.2 trillion—on health care (vs 6%-12% in other developed countries), the United States ranks poorly when objective health care measures are considered.^{1,2} Other countries, including those in Europe, accept the United Nations' recognition of health care as a human right, not a privilege or entitlement, and provide universal health care to all citizens.³ Despite broader coverage provided by the Patient Protection and Affordable Care Act (also known as Obamacare), close to 30 million Americans are still uninsured or underinsured. How can the United States spend so much on health care and receive so little?

In a profit-driven health care industry, most discussions revolve around high drug prices and high costs of hospital bills, procedures, and health care providers. However, to improve the Patient Protection and Affordable Care Act or enact more universal health care legislation, can we identify ways to cover additional people without spending more?^{1,2,4}

Our analysis identifies, within the existing published literature, areas of excess spending or waste and assesses the cost for providing care if these were eliminated. We propose a range of interventions that reduce costs, maintain or improve quality, and increase the value of health care in the United States.

SOURCES AND RECIPIENTS OF HEALTH CARE EXPENDITURES

If we understand the sources of funding and the distribution of funds in health care, we can identify infrastructures, procedures, and expenses that can then be scrutinized for their differential value. Private insurance companies, Medicare, Medicaid, and out-of-pocket payments encompass 80% of payments for health care.¹ The federal government is the largest source of funding (29%) and is followed by individuals who pay insurance premiums and out-of-pocket costs (28%).¹ Approximately 70% of total national health expenditures (NHE)¹ are consumed by hospitals, physician and clinical services, prescription drugs, and administrative costs for government and insurance companies. Because hospital care and physician and clinical services consume more than 50% of the funds, the current emphasis on value-based models, instead of fee-for-service models, is one reasonable solution to blunt costs.

METHODS FOR CALCULATING SAVINGS

To calculate savings, we first identified categories where reductions were possible. Savings were then calculated via the conversion of the original savings to 2015 dollars with the Consumer Price Index (CPI) medical index growth rate. In Table 1, all the savings

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TABLE 1. Estimated Expenditures for Care in the United States Without Excess Spending

Expenditures Not Spent on Providing Care	Source	Savings in 2015 Dollars (\$ Billion) ^a			
		CPI Medical Index ^b		NHE ^c	
		Conservative	Optimistic	Conservative	Optimistic
Overuse of medical services					
Medicare only	Skinner 2010 ⁵	128.2	192.3	128.2	192.3
Commercial only	Newhouse 2013 ⁶	380.8	444.3	380.8	444.3
All insurance categories	Newhouse 2013 ⁶ /Lassman 2017 ⁷	154.5	772.4	159.3	796.5
Administrative cost	Woolhandler 2003 ⁸		374.0		525.1
	Young 2010 ⁹	74.0		74.0	
	Berwick & Hackbarth 2012 ¹⁰	119.5	434.4	127.6	463.8
	Young 2010 ⁹	199.8	217.7	215.8	235.1
Fraud and abuse	Berwick & Hackbarth 2012 ¹⁰	76.6	254.0	81.7	271.1
	AHIMA Foundation 2010 ¹¹	26.6	88.6	26.1	86.9
	Davis 2012 ¹²	80.4	268.0	80.4	268.0
Defensive practice of medicine	McQuillan 2007 ¹³		164.8		184.4
	Mello 2010 ¹⁴	60.9		60.9	
	Rothberg 2014 ¹⁵		156.7		156.7
Health care–associated infections	Scott 2009 ¹⁶	45.4	57.3	49.8	62.8
	Zimlichman 2013 ¹⁷	9.9	13.7	10.7	14.8
Underuse of generic medications	Haas 2005 ¹⁸		35.7		35.7
	CBO 2010 ¹⁹	6.5		6.5	
	Johansen & Richardson 2016 ²⁰		31.2		31.2
	NCSL 2010 ²¹		53.9		53.9
Medication errors					
In hospital	Pan 2015 ²²	0.6	4.3	0.6	4.4
Ambulatory	Field 2005 ²³	1.5		2.1	
Ambulatory	Burton 2007 ²⁴		4.0		4.5
Medical errors	Thomas 1999 ²⁵		42.6		42.6
	Shreve 2010 ²⁶	14.0		15.2	
Cost of providing care without excess spending ^{d,e,f}		2857.1	1403.9	2850.2	1264.7
% of NHE spent on providing care		89%	44%	89%	39%
Excess pricing					
Pharmaceuticals	Danzon & Furukawa 2008 ²⁷	32.1	96.2	32.1	96.2
Services	Berwick & Hackbarth 2012 ¹⁰	93.8	198.8	100.2	212.2
Cost of providing care with elimination of excess pricing for pharmaceuticals and services ^f		2731.2	1109.0	2717.9	956.4

Abbreviations: CBO, Congressional Budget Office; CPI, Consumer Price Index; NCSL, National Conference of State Legislatures; NHE, national health expenditures.

^aBlanks indicate that the original source did not provide an estimate of savings.

^bInflation rate.

^cGrowth rate.

^dThe low cost of providing care (conservative savings) was calculated with the lowest savings in each category.

^eThe high cost of providing care (optimistic savings) was calculated with the highest savings in each category.

^fTotals may not sum exactly because of rounding.

calculated with the CPI are also shown with the NHE growth rate. Potential savings that are the same for the CPI and NHE columns were calculated as percentages of health care expenditures for 2015 or as per capita rates as indicated in the text. All estimates are in 2015 dollars unless otherwise indicated. The final range of savings was derived from the lowest and highest estimates in each category, which were used to represent conservative and optimistic values, respectively.

CATEGORIES WITH EXPENDITURES NOT INTENDED FOR CARE

Overuse of Medical Services

Overuse occurs when the risk of harm for provided care outweighs the benefits.²⁸ Studies on Medicare

populations have shown a 50% to 55% variation in unadjusted spending per beneficiary. Medicare service utilization not related to disease prevalence or severity varies by 20% to 30%.^{5,29,30} The Dartmouth Atlas has shown that, in the Medicare population, higher levels of resource inputs (not higher prices) lead to increased spending per beneficiary.⁵ The wide variation in spending occurs mostly because of post-acute care utilization. The Institute of Medicine's analysis of spending in Medicare Advantage and for total health care found similar differences in variation due to utilization.³⁰ Another study of Medicare spending has shown that variation in spending is driven by utilization and not prices, as evidenced by the persistence of variation after adjustments

for age, sex, race, and price to control for location.³⁰ In the commercial population, both price and utilization drive 36% to 42% of the variation of spending between the 90th and 10th percentiles of hospital referral regions (which represent health care markets for tertiary complex medical care).^{6,31} Therefore, with the removal of the variation in price and utilization, savings of \$380.8 billion to \$444.3 billion could occur (a 36%-42% reduction in commercial spending). High utilization is not known to improve quality. Therefore, if high-use regions lowered rates to those of low-use regions and we assume that the latter have no waste, the US health care industry would save \$128.2 billion for Medicare and \$380.8 billion for commercial patients.³² With an adjustment for variation in spending, the ratio of the 90th and 10th percentiles in total NHE spending varies from \$1.29 trillion to \$1.32 trillion.⁶ Therefore, potential savings of up to \$1.026 trillion could occur if utilization expenses were reduced to 29% to 32% of NHE (this would bring the 90th percentile to the 10th percentile of expenditures).⁶ Considering that this level of decrease in utilization may not be realistic, we estimate that \$154.5 billion to \$772.4 billion could be saved if spending per beneficiary in Medicare (conservative) and all insurance types (optimistic) in the 90th percentile were reduced to the mean annual Medicare spending (this would reduce spending of the 90th percentile to the 50th percentile of Medicare spending per beneficiary).^{6,7}

Administrative Cost

From 1990 to 2012, the number of people working in the US health care sector rose by 75%, mostly because of increases in administrative capacity and infrastructure.³³ The cost of administrative expenses in the United States, including insurance overhead, employers' costs for managing health benefits, and the administration of hospitals, nursing homes, practitioners' offices, and home care, has been increasing. The reasons offered include complexities in documenting, billing, and regulatory requirements.⁸ Woolhandler et al⁸ estimated that administrative costs in the United States exceeded those in Canada by \$209.8 billion in 1999. Reducing administrative costs to the Canadian level would save \$374 billion (CPI) in 2015. Although a single-payer system would reduce administrative expenses significantly, it is unlikely that such a system would be embraced in the United States with prevailing societal values. However, if billing and related expenses for private insurance were reduced to the level of public programs, costs could decrease by nearly \$74 billion (7% of 2015 commercial insurance expenditures).⁹

Recognizing the challenges of a multipayer system in the United States, one analysis found that \$120 billion to \$434 billion (CPI) could be saved with a reduction in the administrative complexity of payments.¹⁰ A second analysis placed this estimate at \$199.8 billion to \$217.7 billion (CPI).⁹

Fraud and Abuse

Fraud is defined as a deliberate misrepresentation that results in unauthorized benefits.³⁴ Abuse is defined as unnecessary expenses due to decisions that are not sound medical practices.³⁴ Fraud and abuse increase health care expenses through claims for services not rendered, up-coding, duplication, unbundling of tests and procedures, and inspection and regulatory burdens.³⁵ For example, \$52 million was billed in Los Angeles in 2010 through 49 false storefront operations using compromised identifiers from physicians in 18 states.³⁶ According to the estimates of Berwick and Hackbarth,¹⁰ fraud and abuse added \$98 billion to Medicare and Medicaid spending and up to \$272 billion in preventable costs to total NHE in 2011.³⁴ In 2016, the federal government recovered \$3.3 billion through legal settlements and judgments that required the return of fraudulent funds.³⁷ It is estimated that only 3% to 10% of fraud and abuse is identified. Therefore, \$26.6 billion to \$88.6 billion of NHE was not used for providing care (this takes into account that \$1 must be spent to recover \$6.10).^{11,12,38} The Association of Certified Fraud Examiners has estimated that reducing fraud and abuse could result in potential savings of \$80.4 billion to \$268.0 billion.^{12,38}

Defensive Practice of Medicine

Defensive medicine occurs when providers deliver medically unnecessary services or avoid high-risk patients and procedures for fear of legal liability. This ignores any harm or benefit arising from such practice. Early studies on the practice of defensive medicine showed that reducing provider liability pressure might reduce medical expenditures by 5% to 9% without substantial effects on mortality or medical complications.³⁹ Recent estimates of the cost of defensive medicine, calculated by the measurement of the impact of tort reform on the utilization of medical services, showed that \$45.6 billion of hospital and physician services in 2008, equivalent to 1.9% of NHE and \$124 billion in 2006 from personal health expenditures, could be saved without affecting quality of care.^{13,14} This would result in savings of \$60.9 billion to \$164.8 billion in 2015 dollars. Attempts to estimate the cost of defensive practice through behavioral questions

to physicians showed that 26% to 34% of overall health care costs could be attributed to defensive medicine.⁴⁰ Another survey showed that 2.9% of services ordered by physicians were completely defensive, and 13% were partially so.¹⁵ Based on this, the potential savings are \$156.7 billion. This assumes that 9.4% (2.9% and half of 13%) of physician services (54% of NHE) can be attributed to ordering services defensively and excludes any indemnity cost, administrative cost, or attorney fees.

Health Care–Associated Infections (HAIs)

High numbers of preventable infections in hospitals have led to the implementation of checklists and other preventive measures. Still, HAIs are common complications affecting 1.7 million to 2 million hospitalized patients; the estimated death toll is 103,000 annually. This costs up to \$57.3 billion (CPI).^{16,41,42} Recent studies have shown a declining incidence of HAIs.^{16,41} Five major HAIs (surgical site infections, ventilator-associated pneumonia, central-line bloodstream infections, *Clostridium difficile* infections, and catheter-associated infections) account for $\geq 80\%$ of nosocomial infections with nearly 440,000 hospitalized patients.¹⁷ This cost (between \$8.3 billion and \$11.5 billion in 2009), if eliminated, would result in savings of \$9.9 billion to \$13.7 billion (CPI).¹⁷ The total cost of HAIs is perhaps higher because the costs associated with physicians' services, home nursing, and other nonhospital costs are excluded from this estimate.⁴³

Underuse of Generic Medications and Biosimilars

Underuse of less expensive but equally effective generic medications results in significant cost increases. One study found unrealized annual savings of 3.6% of total drug expenditures in Medicaid and 9.5% in Medicare before the enactment of part D.⁴⁴ This represents estimated savings of \$229 million to \$450 million from the use of generic medications in 2000.⁴⁴ A study in 2000¹⁸ using the Medical Expenditure Panel Survey showed that switching prescriptions from brand name drugs to generic drugs could save 11% of total drug expenses, or approximately \$35.7 billion. The Congressional Budget Office reported that \$33 billion was saved in 2007 for Medicare part D by the substitution of available generics for brand name drugs, and there was the potential to save an additional 2% of total expenditures by the achievement of total generic substitution wherever feasible (\$6.5 billion in savings).¹⁹ Recent research showed that 9.6% of total drug expenditures (2010–2012) was

overspent on brand name drugs.²⁰ Therefore, savings of \$31.2 billion could be achieved.

In 2010, Express Script estimated that, because of the use of brand name drugs, the health care industry missed saving \$42 billion (16.6% of total prescription drug sales).²¹ This represents savings of up to \$53.9 billion in 2015. Generic utilization is nearly at 89% in the United States, and the potential for future savings might be restricted because every 1% generic utilization may yield \$4 billion to \$10 billion in savings.^{45,46} However, the new wave of expensive patented drugs launched recently for cancer and other specialties highlights the importance of high prices for both brand name and generic drugs. In the future, there might be a significant opportunity with biosimilars because reports indicate savings varying from \$44.2 billion to \$250 billion over 10 years.^{47,48}

Medication Errors

Medication errors can occur because of dosing errors, drug allergies or interactions, or reconciliation errors in hospital and ambulatory settings.⁴⁹ On average, a hospital patient is subject to 1 medication error per day.⁵⁰ Adverse drug events cause more than 1 million emergency visits and 280,000 hospitalizations each year.⁵¹ The in-hospital national cost of preventable adverse drug events ranged from \$600 million to \$4.2 billion in 2014.²² This means potential savings of \$600 million to \$4.3 billion (CPI). For ambulatory patients, the cost of preventable drug events varied from \$887 million in 2000 to \$3 billion in 2006^{23,24}; therefore, savings of \$1.5 billion to \$4.0 billion (CPI) are possible.

Medical errors not only affect the quality of care but also increase expenditures. A representative sample of hospital discharges in Utah and Colorado showed that 4.8% of the per capita expenditure in these states was spent on adverse events due to medical errors. When this is extrapolated to NHE, it is estimated that 1.33% of NHE, or \$42.6 billion, may be attributed to preventable adverse events, excluding medication errors and HAIs.²⁵ The Department of Health and Human Services has estimated that 27% of hospitalized Medicare beneficiaries experience adverse events or events that result in temporary harm during their stay; this accounted for 3.5% of Medicare's inpatient expenditures in 2009.⁵² This study also showed that 44% of events were clearly or likely preventable. Thus, approximately \$14.0 billion (CPI) was spent on direct medical costs for inpatient, outpatient, and prescription drug services to manage adverse outcome of medical care, excluding HAIs and medication errors.²⁶

Adding Up the Numbers

On the basis of existing evidence for unnecessary spending and spending that did not provide a benefit to patients, the estimated expenditure for care, without alterations in any prices, ranged from \$1.4 trillion to \$2.9 trillion, approximately 44% to 89% of the total health care expenditures in 2015. We calculated the optimistic value (\$1.4 trillion or 44%) by accounting for the highest savings possible in each category discussed and applying these savings to the total NHE in 2015. We calculated the conservative value (\$2.9 trillion or 89%) by considering the lowest savings possible in each category and removing these savings from the total NHE in 2015.

SUMMARY

Because millions of Americans are uninsured or underinsured, our analysis suggests that an important focus should be how to secure the appropriate funds within the system by the elimination of unnecessary or excessive costs that do not provide care. We estimate that of the \$3.21 trillion in NHE in 2015, the cost of providing care ranged from \$1.4 trillion to \$2.86 trillion (Table 1).² Thus, resources exist within the current health care system and are sufficient, if efficiency is improved, to provide more and better access to Americans struggling for health care coverage. This analysis may provide useful information to legislators, administrators, and providers as they continue to reshape the policies around health care. It is important to emphasize that the analysis does not consider higher expenses related to excessive profits in health care industry: drugs and devices, hospitals with a nontransparent chargemaster, salaried physicians and other providers, and profits of insurance companies. For example, lowering excess pricing for drugs and services to that of other developed countries could produce additional savings of up to \$32 billion to \$96 billion.^{10,27}

In summary, achieving the goal of providing universal, affordable, and optimal health care coverage in the United States is possible without the need to increase funding.

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AUTHOR CONTRIBUTIONS

All authors had access to the data and a role in writing the manuscript.

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