

# UNDERSTANDING U.S. HEALTH CARE SPENDING

## NIHCM FOUNDATION DATA BRIEF JULY 2011



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### SUMMARY OF KEY POINTS

- U.S. spending for health care has been on a relentless upward path – reaching \$2.5 trillion in the aggregate, \$8,100 per person, and 17.6 percent of GDP in 2009.
- Spending is highly concentrated among a relatively small portion of high-cost users, with just 5 percent of the population responsible for almost 50 percent of all spending. At the other end, half of the population accounts for just 3 percent of spending.
- As more people are being diagnosed with and treated for chronic conditions, including many linked to rising obesity rates, high health spending has spread to a larger segment of the population. The spending distribution remains highly concentrated, however.
- Higher spending for hospital care and physician and clinical services accounted for half of the increase in total national health spending between 2005 and 2009 and more than 80 percent of the increase in private insurance premiums over the period.
- Rising prices per unit of service have played a larger role than rising utilization rates as a determinant of recent expenditure growth.
- Key drivers of rising unit prices and higher utilization include advances in medical technology, rising treated prevalence rates for chronic diseases, and increased provider consolidation and market power.

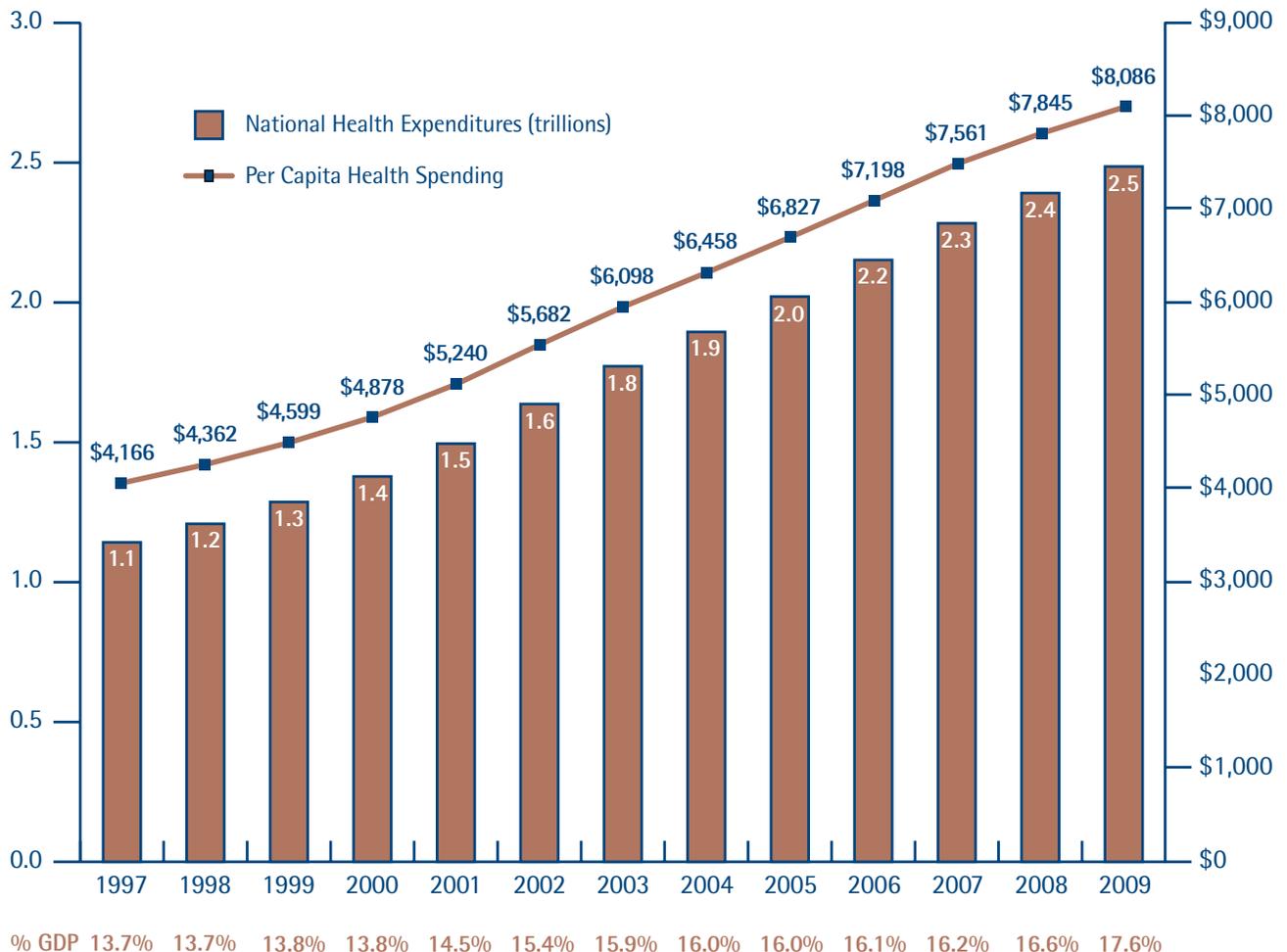
### OVERVIEW OF NATIONAL SPENDING FOR HEALTH CARE

According to newly updated figures from the National Health Expenditure Accounts (NHEA), the official estimates of health care spending in the United States, we spent nearly \$2.5 trillion on health care in 2009, reaching an all-time high of \$8,086 per person (Figure 1). This per-capita spending represents an almost two-fold increase since 1997. Furthermore, due in large part to the decline in GDP as a result of the recession, total health care spending as a percent

of GDP ticked up a full percentage point to reach 17.6 percent in 2009.

Of the nearly \$8,100 in health spending for each person in the U.S., approximately \$6,800 (84 percent) went to cover personal health care services and products (Figure 2). This spending included nearly \$2,500 per person for hospital services; more than \$1,600 for the services of physicians and independent laboratories; \$1,100 for retail purchases of prescription drugs, durable medical equipment and other medical products; \$1,100 for care provided by free-standing home health agencies, other

FIGURE 1. NATIONAL HEALTH EXPENDITURES, TOTAL, PER CAPITA, AND AS A PERCENT OF GDP, 1997-2009



Source: NIHCM Foundation analysis of data from the National Health Expenditure Accounts, available at <https://www.cms.gov/NationalHealthExpendData/>.

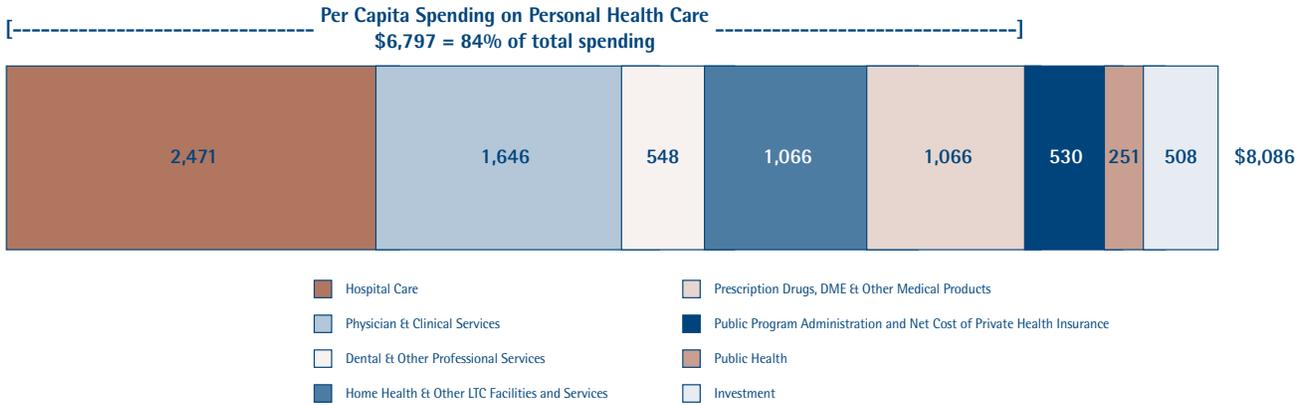
long-term care providers, and in other non-traditional settings; and about \$550 for services of dentists and other non-physician health care professionals.<sup>a</sup>

a Hospital services include inpatient and hospital-based outpatient, home health, nursing home and hospice care, as well as the cost of inpatient pharmacy and resident physicians. Physician and clinical services reflect the care provided by physicians (MDs and DOs) in their offices and free-standing outpatient care settings and services billed independently by laboratories. Other long-term care providers include free-standing nursing homes and rehabilitation facilities and continuing care retirement communities with on-site nursing facilities (assisted living). Other non-traditional settings and providers include school and worksite health clinics, residential mental health/substance abuse treatment centers, some ambulance providers, and services provided through Medicaid home and community-based waivers. Other non-physician health care professionals include chiropractors, optometrists, podiatrists, private-duty nurses, and physical, occupational and speech therapists.

The remaining 16 percent of national health spending is for government-funded public health activities, the administrative costs of public insurance programs, the net cost of private insurance, and government and non-commercial investments in health care research, structures, and equipment.<sup>b</sup>

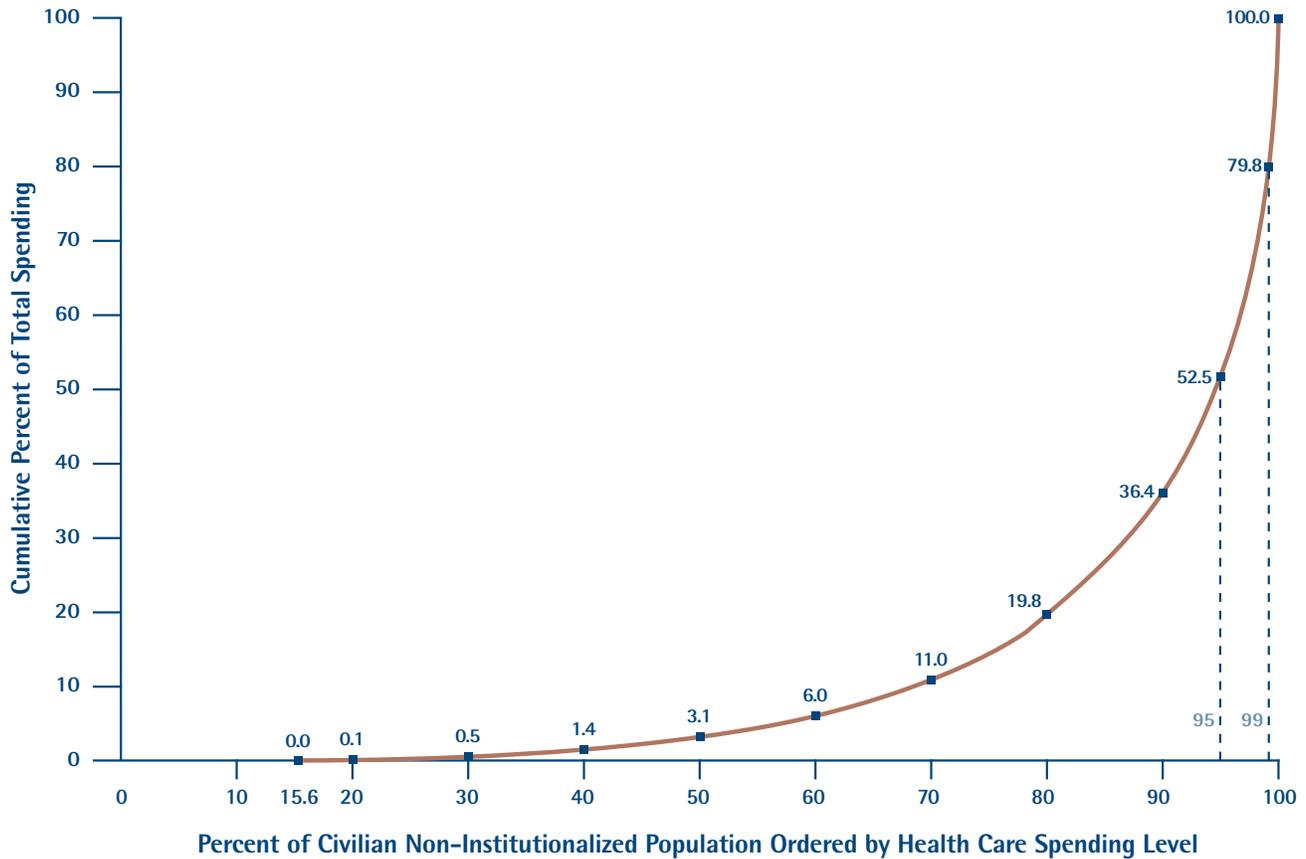
b The net cost of private health insurance is defined as the difference between total premiums collected and the payments made on behalf of enrollees to cover all of their medical costs. As such, it includes all administrative costs, rate credits and dividends paid to beneficiaries and stockholders, taxes paid to the government, additions to reserves, and profits (or losses). Research and development expenditures by commercial (for-profit) manufacturers of drugs, medical equipment and medical supplies are assumed to be recouped through product sales in these sectors and are captured in the spending reported earlier for these sectors.

FIGURE 2. COMPONENTS OF NATIONAL HEALTH SPENDING PER CAPITA, 2009



Source: NIHCM Foundation analysis of data from the National Health Expenditure Accounts, available at <https://www.cms.gov/NationalHealthExpendData/>.

FIGURE 3. DISTRIBUTION OF HEALTH CARE SPENDING, 2008



Source: NIHCM Foundation analysis of data from the National Health Expenditure Accounts, available at <https://www.cms.gov/NationalHealthExpendData/>.

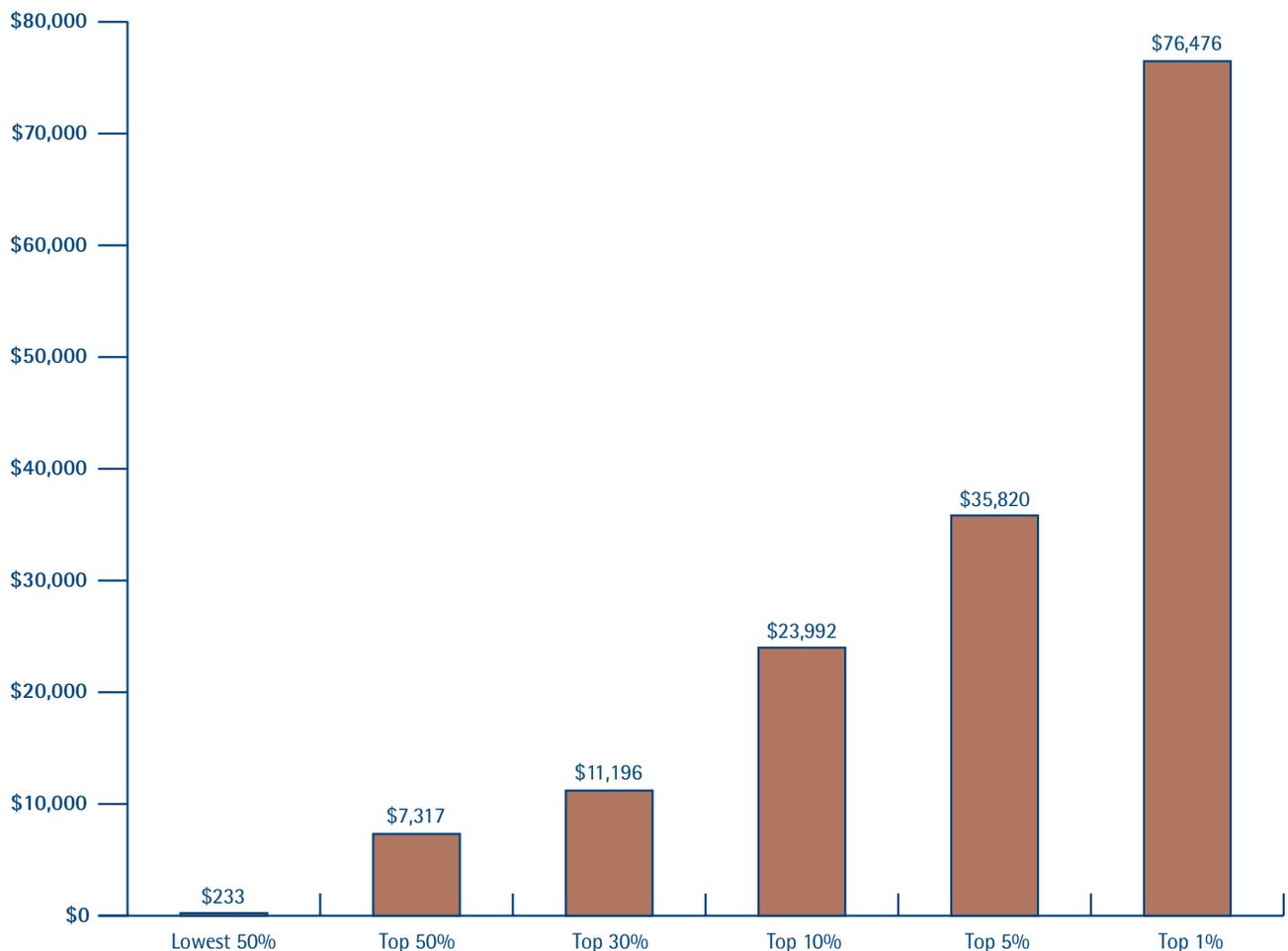
### CONCENTRATION OF SPENDING FOR HEALTH CARE SERVICES

Our analysis of data from the 2008 Medical Expenditure Panel Survey (MEPS) illustrates the extent to which spending for health care services is concentrated among a small number of high-cost users. The MEPS data reflect payments from public and private third-party payers and out-of-pocket spending for health care services for the civilian, non-institutionalized population (and, thus, capture only a subset of the total national health spending reflected in the NHEA data). In 2008, the spending reported via MEPS totaled \$1.15 trillion.

As shown in Figure 3, 15.6 percent of the civilian, non-institutionalized population had no health care spending at all in 2008 and the half of the population with the lowest spending accounted for only 3.1 percent of all expenditures. In contrast, 63.6 percent of all spending was incurred by the 10 percent of the population with the highest spending. The top 5 percent of the population accounted for almost half (47.5 percent) of all spending, and the top 1 percent of the population was responsible for 20.2 percent of spending.

Mean annual expenditures were correspondingly skewed as well, with those in the bottom half of

FIGURE 4. MEAN EXPENDITURE PER PERSON, FROM LOW TO HIGH SPENDING GROUPS, 2008



Source: NIHCM Foundation analysis of data from the 2008 Medical Expenditure Panel Survey, available at [http://www.meps.ahrq.gov/mepsweb/data\\_stats/meps\\_query.jsp](http://www.meps.ahrq.gov/mepsweb/data_stats/meps_query.jsp)

the spending distribution incurring an average of just \$233 in spending per person during 2008 while those in the top half of spending had mean per capita spending of \$7,317 (Figure 4). For those in the top 10, top 5, and top 1 percent of spending, these figures increased exponentially to \$23,992, \$35,820, and \$76,476, respectively.

### Who are the High Spenders?

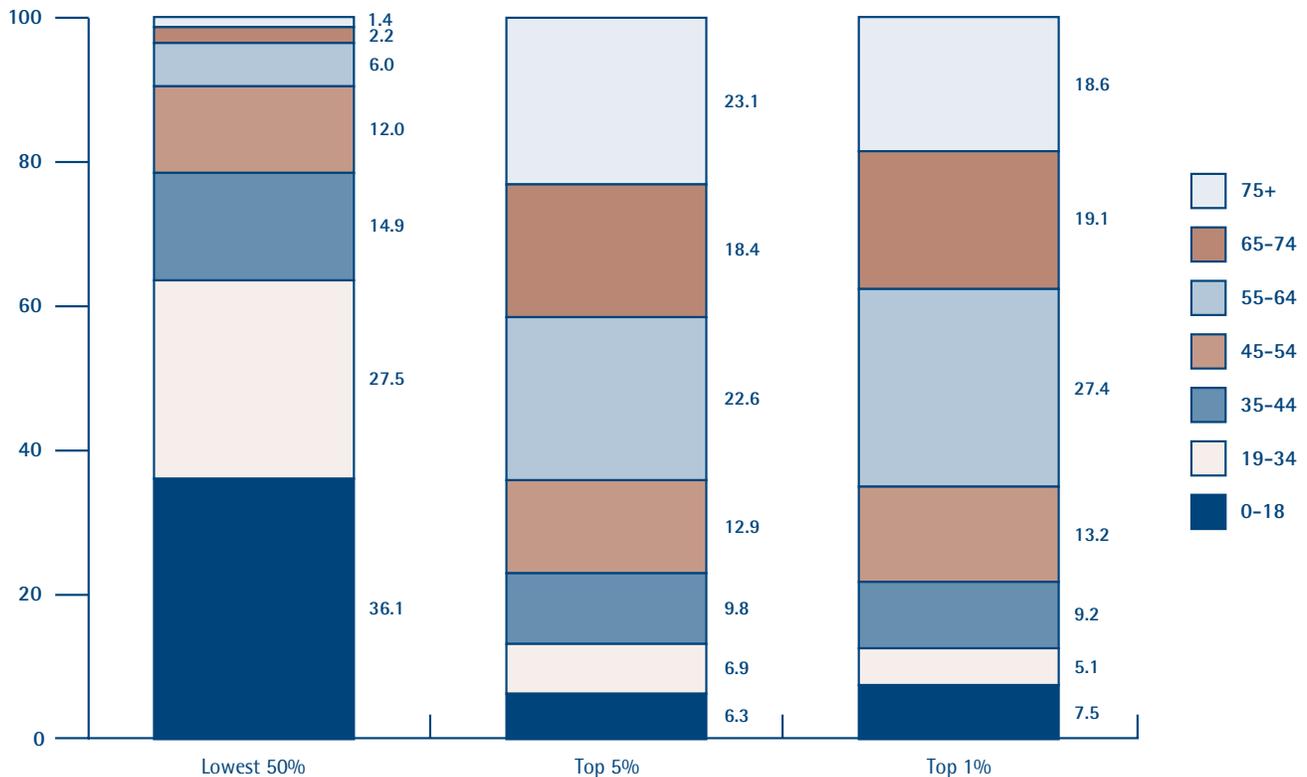
Not surprisingly, people over 55 made up a much larger proportion of the high spending groups, while those in the lower spending groups tended to be much younger, on average (Figure 5). Likewise, 60 percent of people who accounted for the top 1 percent of spending rated their health as being only fair or poor, compared to just 5 percent of people in the lowest half of spending (data not shown).

### The Importance of Chronic Conditions

While the highly skewed distribution of spending has been markedly persistent over time, the proportion of expenditures accounted for by the highest spending groups has actually declined somewhat over the past two decades as high medical spending has spread to a broader swath of the population. For example, spending by the top 5 percent of spenders declined from 56 percent in 1987 to 48 percent in 2008.<sup>1</sup> This flattening of the spending distribution is consistent with the well-documented increase in population risk factors – most notably, obesity – and a concomitant increase in treated disease prevalence for chronic conditions that are clinically linked to these risk factors, such as hypertension, diabetes and hyperlipidemia.<sup>2</sup>

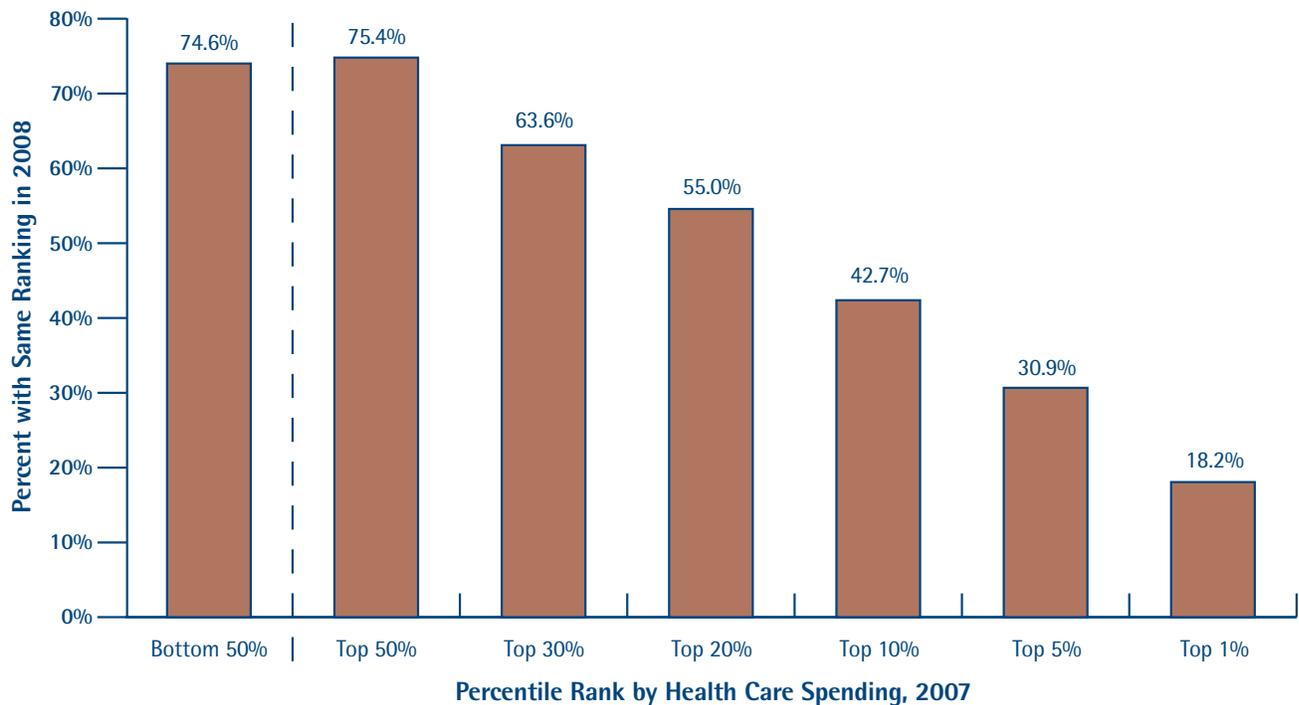
An analysis by The Lewin Group using 2006 MEPS data confirmed the importance of chronic conditions as a

FIGURE 5. AGE DISTRIBUTION BY SPENDING CATEGORY, 2008



Source: NIHCM Foundation analysis of data from the 2008 Medical Expenditure Panel Survey, available at [http://www.meps.ahrq.gov/mepsweb/data\\_stats/meps\\_query.jsp](http://www.meps.ahrq.gov/mepsweb/data_stats/meps_query.jsp)

FIGURE 6. PERSISTENCE IN HEALTH CARE SPENDING OVER TIME, 2007-2008



Source: Cohen SB and Yu W. "The Concentration and Persistence in the Level of Health Expenditures over Time: Estimates for the U.S. Population, 2007-2008." Agency for Healthcare Research and Quality, Statistical Brief #309. December 2010.

driver of high health care spending.<sup>3</sup> People with at least one chronic health condition were two to four times more likely than the general population to have spending in the top 5 percent, with the risk increasing as the number of chronic conditions rose. The link with obesity-related conditions was also evident in this work. Nearly half of all people in the top 5 percent of spending reported having hypertension, one-third had lipid disorders (high cholesterol), and more than one-quarter had diabetes.

Chronic conditions are also a likely reason why some people have high spending over an extended period, particularly when multiple chronic conditions are present. A recent analysis of MEPS data by Cohen and Yu provides evidence of the degree of persistence from one year to the next in spending patterns for a given individual (Figure 6).<sup>4</sup> They found that 18 percent of people who were in the top 1 percent spending category in 2007 remained in the top-spending category in 2008. For the top 5 percent and top 10 percent spending categories, the comparable

retention figures were 31 and 43 percent, increasing to nearly two-thirds retention from year to year among those in the top 30 percent of spending.

### THE MOST COSTLY CONDITIONS

Across the full civilian non-institutionalized population, not just those with high medical spending, the five most expensive health conditions are heart disease, cancer, trauma, mental disorders and pulmonary conditions. Various analyses using MEPS data from 1996 to 2006 have consistently identified these conditions as individually accounting for the 5 largest shares of total medical spending, with their combined contribution to overall spending pegged at 33 to 37 percent, depending on the year of data.<sup>5,6,7</sup> A separate analysis by Thorpe et al. revealed that higher spending for these five conditions alone accounted for more than 30 percent of the increase in health care spending between 1987 and 2000.<sup>8</sup>

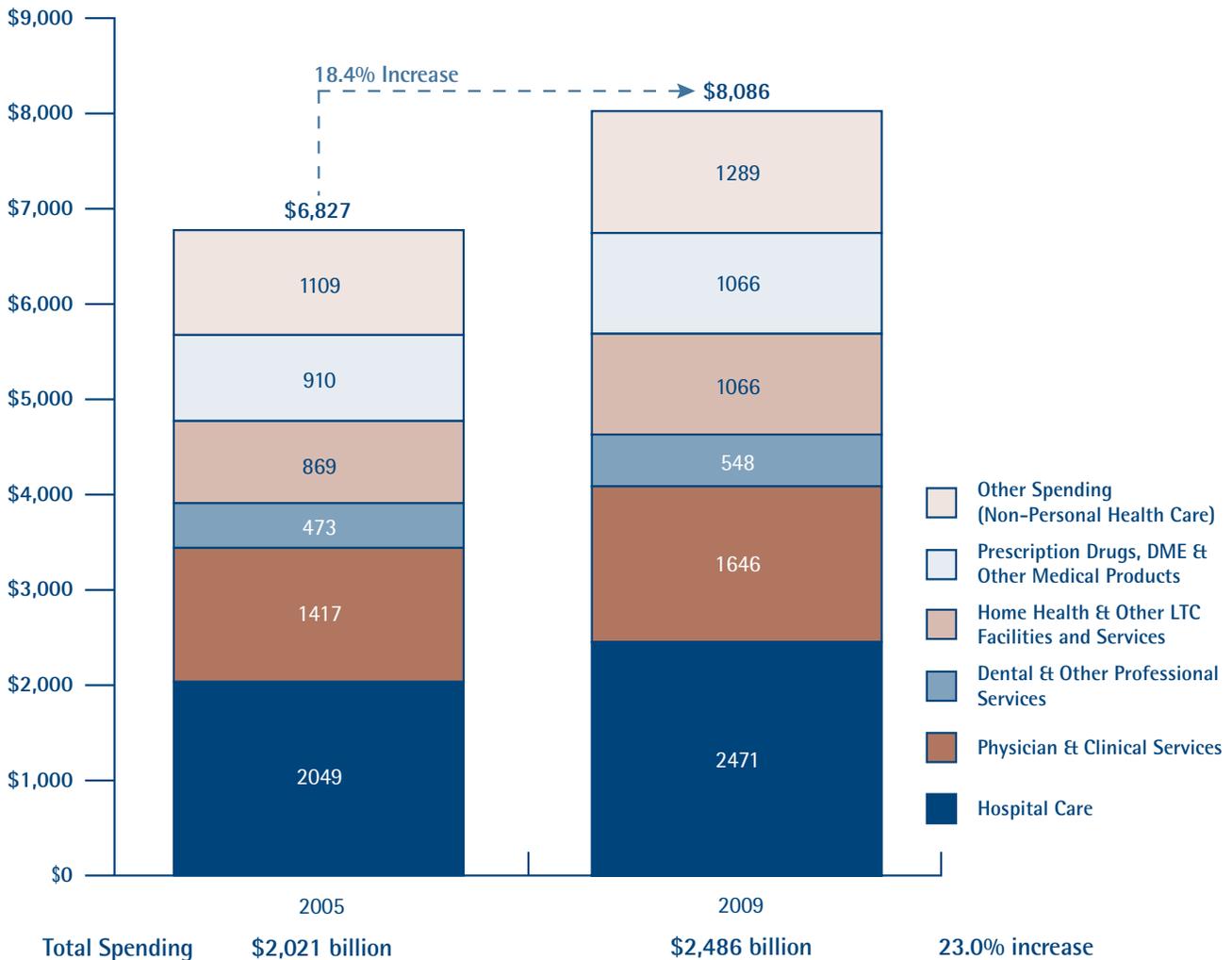
## THE SECTORS DRIVING SPENDING GROWTH

### National Spending

Between 2005 and 2009, total national health spending increased from \$2,021 billion to \$2,486 billion, or by 23 percent. A portion of this increase is attributable to growth in the population. When population growth is accounted for by examining per-capita health spending, we see spending growth of 18.4 percent over the five years – from \$6,827 per person to \$8,086 (Figure 7).

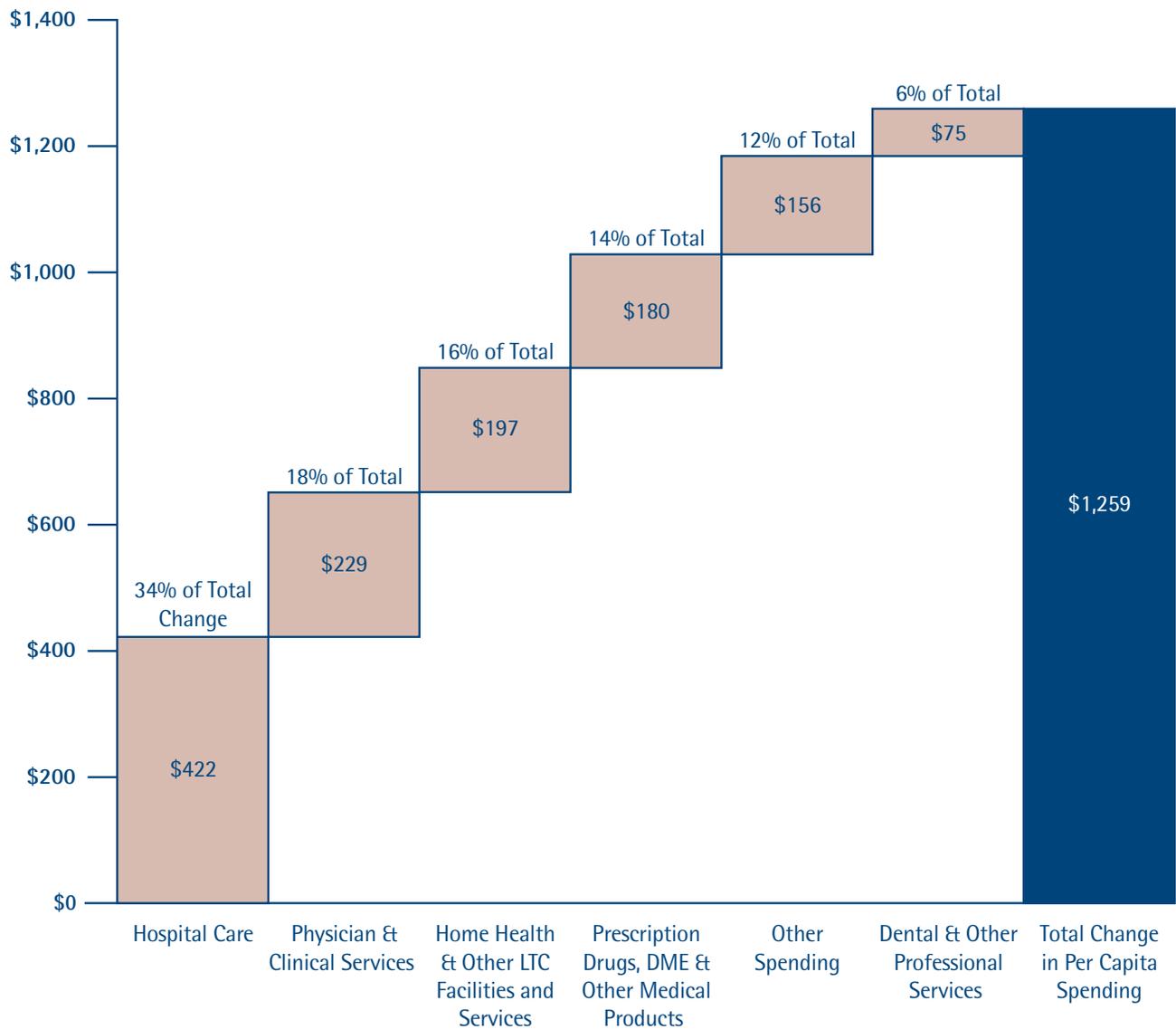
Figure 8 shows the relative contribution of the various health care sectors to this \$1259 growth in per-capita spending. Hospital spending increased by \$422 per person over this period (a 21 percent increase over the 2005 base), and this increase was responsible for fully one-third of the total growth in spending. Spending for physician and clinical services was the next largest contributor to overall spending growth, rising by \$229 and accounting for 18 percent of the total growth. Rising spending for dental and other health professional services contributed 6 percent to total spending growth, while the remaining sectors

FIGURE 7. GROWTH IN COMPONENTS OF NATIONAL HEALTH SPENDING PER CAPITA, 2005-2009



Source: NIHCM Foundation analysis of data from the National Health Expenditure Accounts, available at <https://www.cms.gov/NationalHealthExpendData/>.

FIGURE 8. SECTORS DRIVING GROWTH IN PER CAPITA HEALTH SPENDING, 2005 - 2009



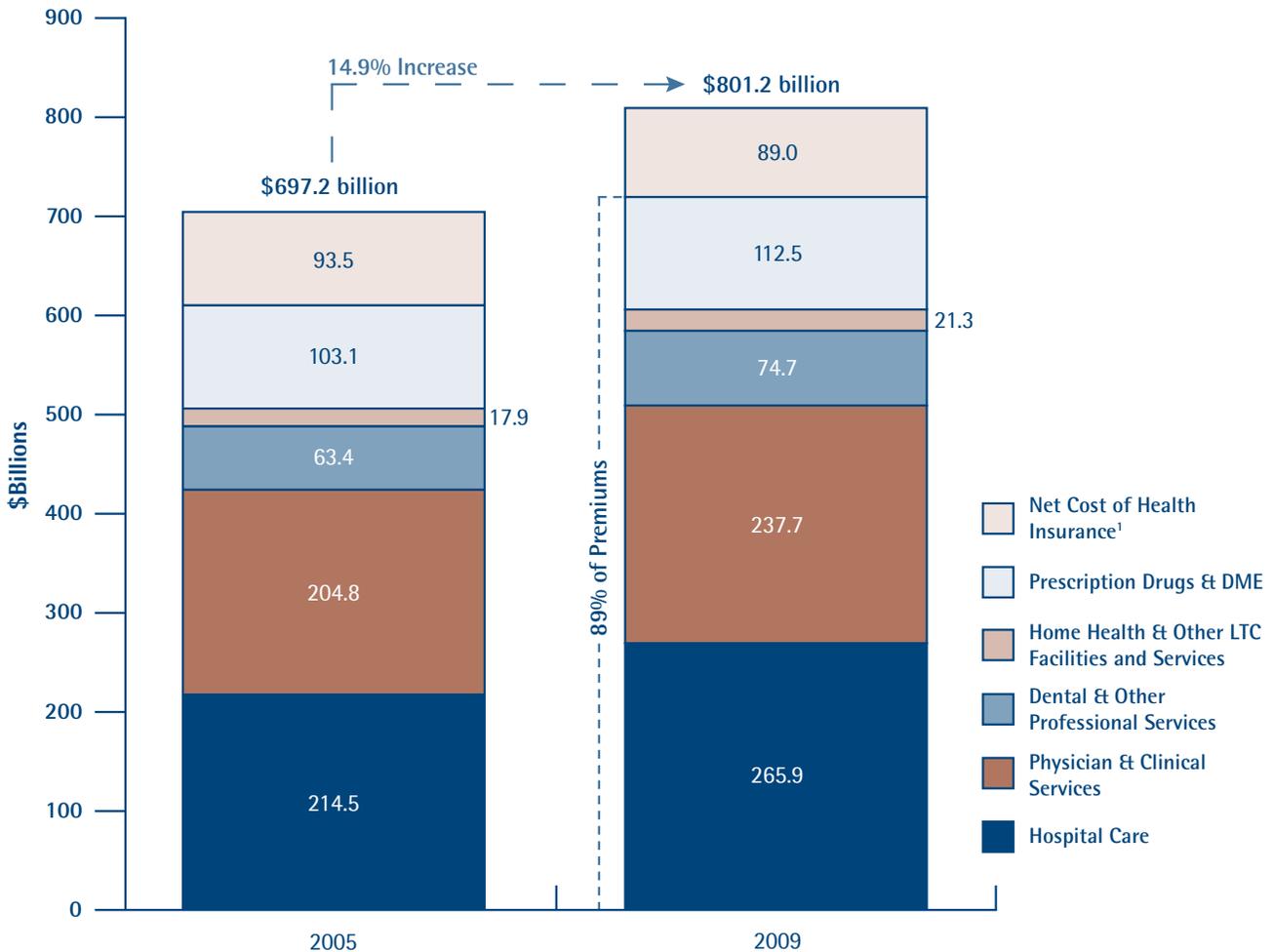
Source: NIHCM Foundation analysis of data from the National Health Expenditure Accounts, available at <https://www.cms.gov/NationalHealthExpendData/>.

each accounted for approximately 12 to 16 percent of expenditure growth. In the “other spending” category, the major driver of increased spending was for government public health activities (which grew roughly 32 percent in the five years – data not shown), followed by growth in investments (which grew about 15 percent over the period).

### Private Health Care Premiums

Over this same five-year period (2005–2009), national spending on premiums for private health insurance increased by nearly 15 percent, from \$697 billion to \$801 billion (Figure 9). In 2009, all but \$89 billion of the private premium dollars (89 percent of the total

FIGURE 9. GROWTH IN COMPONENTS OF PRIVATE HEALTH INSURANCE SPENDING, 2005 – 2009



1. Net cost of health insurance is defined as total premium revenue minus spending for health care services and is equal to administrative costs, rate credits and dividends, taxes, additions to reserves, and profits or losses.

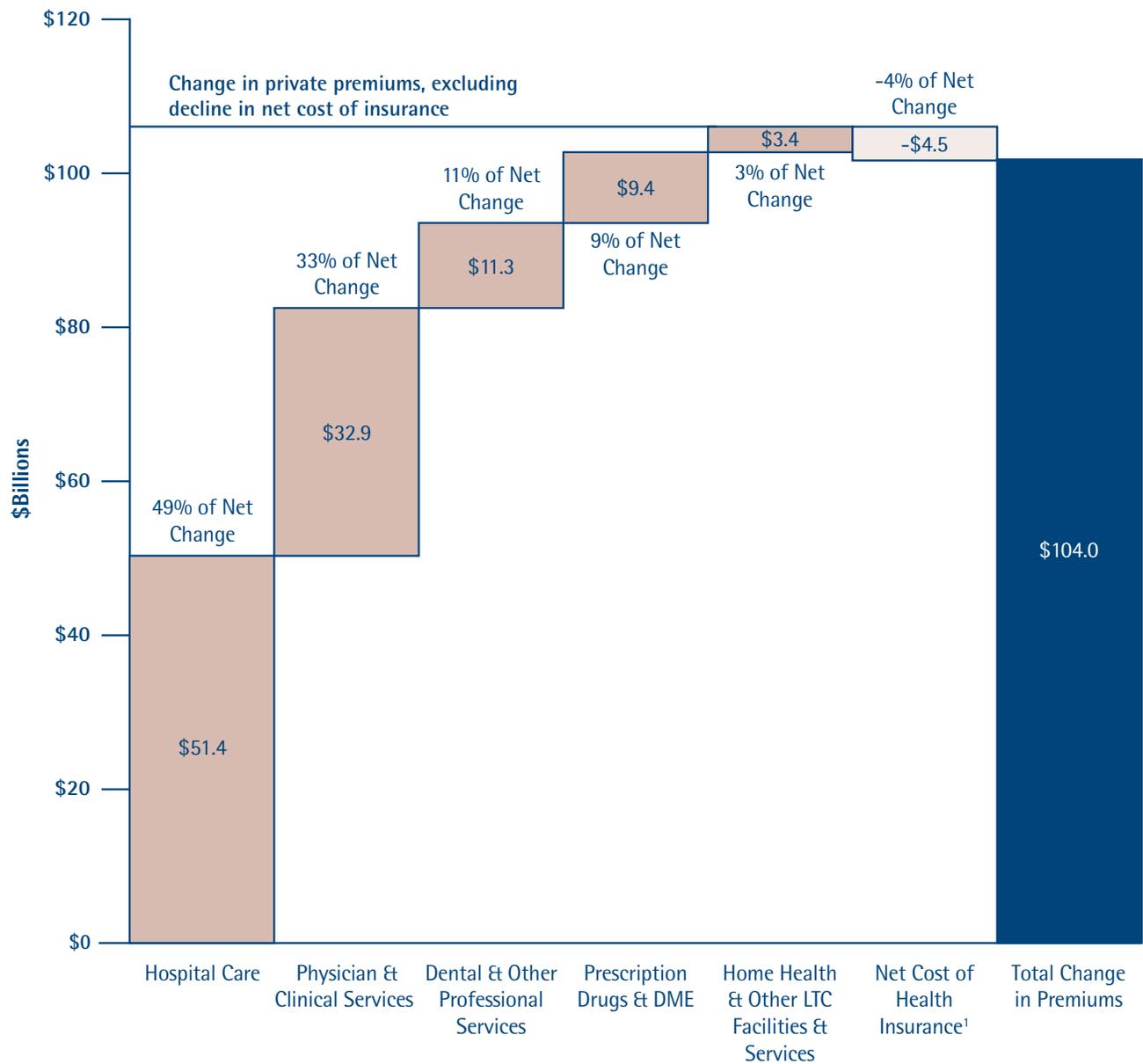
Source: NIHCM Foundation analysis of data from the National Health Expenditure Accounts, available at <https://www.cms.gov/NationalHealthExpendData/>.

premium bill) was used to purchase health care services for enrolled beneficiaries, and the remaining 11 percent was used to cover the net cost of insurance. Spending for all categories of health care services increased between 2005 and 2009 while the net cost of insurance declined slightly over the period.

In Figure 10 we show the relative contribution of each health care sector to the \$104 billion increase in private premiums. Once again, rising hospital spending was the largest driver of the increase, with the \$51.4

billion spending increase for this sector accounting for almost half of the total rise in premiums. Spending on physician and other clinical services grew by nearly \$33 billion, accounting for another one-third of the premium increase. Spending increases in other sectors played a more modest role in driving premium spending upward. Notably, premiums would have been about 4 percent higher in 2009 if not for the \$4.5 billion decrease in resources going to cover the net cost of insurance.

FIGURE 10. SECTORS DRIVING CHANGE IN PRIVATE HEALTH INSURANCE PREMIUMS, 2005 - 2009



1. Net cost of health insurance is defined as total premium revenue minus spending for health care services and is equal to administrative costs, rate credits and dividends, taxes, additions to reserves, and profits or losses.

Source: NIHCM Foundation analysis of data from the National Health Expenditure Accounts, available at <https://www.cms.gov/NationalHealthExpendData/>.

From these statistics, it is clear that higher spending for hospital, physician and other clinical services is responsible for the lion's share of the growth in private premiums. These sectors are also the most important drivers behind the rise in per capita national health spending. While other health care sectors certainly

play a role in rising expenditures, it is hard to escape the importance of the hospital and physician sectors given that they account for a large proportion of spending and have exhibited large expenditure growth over time.

## FACTORS BEHIND THE SPENDING INCREASES

### Higher Unit Prices vs. Higher Utilization

Spending increases in any sector can be caused by higher prices for each unit of service and/or by a higher volume of services. Parsing the factors responsible for increased health care spending is complex, but the weight of the evidence indicates that spending increases in recent years have been driven more by growth in the unit price of services than by growth in the volume of services consumed. Unit price increases reflect both general inflation and growth in health care prices in excess of inflation. Utilization increases are computed as the residual growth in spending after accounting for growth in unit price.

Depending on the data used, recent estimates of the relative importance of these factors suggest that unit price increases are one-and-a-half to three times more important than changes in utilization. For example, the most recent analysis of the National Health Expenditure Accounts data by members of the government team responsible for compiling and analyzing the data found that general inflation and medical price inflation accounted for 60 percent of the change in personal health care spending from 2008 to 2009, while non-price factors were responsible for the remaining 40 percent of spending growth.<sup>9</sup> A PriceWaterhouseCoopers analysis of employer-sponsored health premium data collected through the Kaiser Family Foundation determined that 75 percent of the 6.1 percent growth in premiums between 2006 and 2007 was due to price factors, and 25 percent was attributable to changes in utilization.<sup>10</sup> Likewise, the analysis of data for the 2011 Milliman Medical Index attributes most of the growth in family medical spending between 2010 and 2011 to increases in average unit price in the inpatient, outpatient, physician, and pharmacy sectors.<sup>11</sup> And an analysis by UnitedHealth Group of its own claims experience for 2009 indicates that unit price pressures – especially for inpatient and outpatient services and some widely prescribed drugs – explained two-thirds of its increased medical costs.<sup>12</sup>

### Drivers of Higher Unit Prices and Higher Utilization

The above reports and other published research describe a number of factors that can contribute to unit price increases in excess of general inflation and/or to higher utilization. These systemic factors affect growth in both public and private health spending and include:

- new medical technology, which is broadly defined as changes to the procedures, equipment, and processes used to deliver medical care.<sup>13</sup> While some of these changes have the potential to reduce the cost of caring for a given patient, many new technologies not only increase per-patient costs but also expand utilization to new patient populations.<sup>10,11,14</sup> Likewise, while some technological advances bring benefits that outweigh any added costs,<sup>15</sup> others increase costs without adding commensurate benefits.<sup>16</sup>
- growing rates of obesity, a concomitant rise in the incidence and prevalence of many chronic conditions, and increasing treated prevalence rates for chronic conditions;<sup>2,8,10,12,17,18</sup>
- fee-for-service payment incentives that encourage a higher volume of services and fail to promote effective coordinated management of chronic conditions;<sup>12,19</sup>
- growing economic prosperity (real GDP per capita), which works to reinforce demand for health care services and expand use of new technologies;<sup>14</sup>
- expanding insurance coverage, which also fuels health care demand and use of new technologies<sup>14,20</sup> and can dampen the incentive of providers of care to become more productive to the extent that patients are insulated from the cost of inefficient production;
- defensive medicine and more intensive use of diagnostic testing;<sup>10</sup> and
- an aging population.<sup>10</sup>

Additional factors affect the prices that private insurers must pay for health care services and, thus, are relevant primarily for understanding the growth in private insurance premiums.<sup>c</sup> These factors include:

- ongoing provider consolidation and enhanced negotiating strength vis-à-vis insurers, resulting in an ability to extract higher payment rates from insurers;<sup>10,11,12,21,22,23,24,25</sup>
- demand for broad provider networks from purchasers of health insurance, which further limits insurers' ability to negotiate aggressively with providers on price;<sup>10</sup> and
- cost shifting and price discrimination, when providers with a strong market position attempt to recoup shortfalls from public payers and uncompensated care by charging higher prices to private payers.<sup>10,11,26</sup>

Estimates of the extent to which each of these factors contribute to overall spending growth vary widely, depending on the study methods and data used and the time period considered. There is, however, general consensus that technological change is a major driver of spending increases while defensive medicine and population demographics are minor factors in spending growth – even though these latter factors may contribute significantly to high per-capita spending at a point in time.<sup>27</sup> The increasing burden from chronic diseases, particularly those related to burgeoning obesity rates, is also frequently singled out as an important contributor to spending growth in the past few decades. Until we are successful in tackling the key underlying causes of medical spending inflation, we will continue to face rising private health care premiums and rising national spending for health care.

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c By and large, private insurers negotiate payment rates with providers and are subject to market forces. In contrast, most payment rates used by public payers are set through administered pricing systems and are largely immune from provider power in specific geographic markets.

## ENDNOTES

- 1 NIHCM Foundation analysis of data from the 2008 Medical Expenditure Panel Survey, available at [http://www.meps.ahrq.gov/mepsweb/data\\_stats/meps\\_query.jsp](http://www.meps.ahrq.gov/mepsweb/data_stats/meps_query.jsp), and Yu WW and Ezzati-Rice TM. "Concentration of Health Care Expenditures in the U.S. Civilian Noninstitutionalized Population." AHRQ Statistical Brief #81, May 2005.
- 2 Thorpe KE, Florence CS, Howard DH, Joski P. "The Rising Prevalence of Treated Disease: Effects on Private Health Insurance Spending." *Health Affairs*, W5-317-W5-325. June 27, 2005.
- 3 The Lewin Group. "Individuals Living in the Community with Chronic Conditions and Functional Limitations: A Closer Look." Report to the Office of the Assistant Secretary for Planning and Evaluation. January 2010.
- 4 Cohen SB, Yu W. "The Concentration and Persistence in the Level of Health Expenditures over Time: Estimates for the U.S. Population, 2007-2008." Agency for Healthcare Research and Quality. Statistical Brief #309. December 2010.
- 5 Olin GL, Rhoades JA. "The Five Most Costly Medical Conditions, 1997 and 2002: Estimates for the U.S. Civilian Non-institutionalized Population." Agency for Healthcare Research and Quality. Statistical Brief #80. May 2005.
- 6 Soni A. "The Five Most Costly Medical Conditions, 2000 and 2004: Estimates for the U.S. Civilian Non-institutionalized Population." Agency for Healthcare Research and Quality. Statistical Brief #167. March 2007.
- 7 Soni A. "The Five Most Costly Medical Conditions, 1996 and 2006: Estimates for the U.S. Civilian Non-institutionalized Population." Agency for Healthcare Research and Quality. Statistical Brief #248. July 2009.
- 8 Thorpe KE, Florence CS, Joski P. "Which Medical Conditions Account for the Rise in Health Care Spending?" *Health Affairs*, W4-437-W4-445. August 25, 2004.
- 9 Martin A, Lassman D, Whittle L, Catlin A and the National Health Expenditure Accounts Team. "Recession Contributes to Slowest Annual Rate of Increase in Health Spending in Five Decades." *Health Affairs*, 30(1):11-22. January 2011.
- 10 PriceWaterhouseCoopers. "The Factors Fueling Rising Health Care Costs 2008." Report prepared for America's Health Insurance Plans. December 2008.
- 11 Milliman, Inc. "2011 Milliman Medical Index." May 2011.
- 12 UnitedHealth Group. "Why Are Health Care Costs Rising?" March 2010.
- 13 Kaiser Family Foundation. "How Changes in Medical Technology Affect Health Care Costs." Snapshots: Health Care Costs. March 2007.
- 14 Smith S, Newhouse JP, Freeland MS. "Income, Insurance, and Technology: Why Does Health Spending Outpace Economic Growth?" *Health Affairs*, 28(5):1276-84. September/October 2009.
- 15 Cutler DM, McClellan M. "Is Technological Change in Medicine Worth It?" *Health Affairs*, 20(5):11-29. September/October 2001.
- 16 Chandra A, Skinner JS. "Technology Growth and Expenditure Growth in Health Care." NBER Working Paper No. 16953. April 2011.
- 17 Thorpe KE, Ogden LL, Galaktionova K. "Chronic Conditions Account for Rise in Medicare Spending from 1987 to 2006." *Health Affairs*, 29(4):718-24. April 2010.
- 18 Thorpe KE, Florence CS, Howard DH, Joski P. "The Impact of Obesity on Rising Medical Spending." *Health Affairs*, W4-480-W4-486. October 20, 2004.
- 19 Adigozel O, Pellathy TM, Singhal S. "Why Understanding Medical Risk is Key to U.S. Health Reform." *The McKinsey Quarterly*, June 2009.
- 20 Finkelstein A. "The Aggregate Effects of Health Insurance: Evidence from the Introduction of Medicare." *Quarterly Journal of Economics*, 122(1):1-37, 2007.
- 21 Vogt WB, Town R. "How Has Hospital Consolidation Affected the Price and Quality of Hospital Care?" Robert Wood Johnson Foundation Synthesis Project. Research Synthesis Report No. 9, February 2006.
- 22 Vogt WB. "Hospital Market Consolidation: Trends and Consequences." *Expert Voices*, NIHCM Foundation, November 2009.
- 23 Chernew ME, Sabik LM, Chandra A, Gibson TB, Newhouse JP. "Geographic Correlation Between Large-Firm Commercial Spending and Medicare Spending." *American Journal of Managed Care*, 16(2):131-8. February 2010.
- 24 Office of Massachusetts Attorney General. "Examination of Health Care Cost Trends and Cost Drivers." Report for Annual Public Hearing. March 16, 2010.
- 25 Berenson RA, Ginsburg PB, Kemper N. "Unchecked Provider Clout in California Foreshadows Challenges to Health Reform." *Health Affairs*, 29(4):1-7. April 2010.
- 26 Frakt AB. "How Much Do Hospitals Cost Shift? A Review of the Evidence." *Milbank Quarterly*, 89(1):90-130. March 2011.
- 27 Ginsburg PB. "High and Rising Health Care Costs: Demystifying U.S. Health Care Spending." Robert Wood Johnson Foundation Synthesis Project. Research Synthesis Report No. 16, October 2008.

### **ABOUT THE NIHCM FOUNDATION**

The National Institute for Health Care Management Research and Educational Foundation is a nonprofit organization whose mission is to promote improvement in health care access, management and quality.

### **ABOUT THIS BRIEF**

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