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# THE CONCENTRATION OF HEALTH CARE SPENDING

NIHCM FOUNDATION DATA BRIEF  
JULY 2012



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## KEY POINTS FROM THIS BRIEF:

- Spending for health care services is highly concentrated among a small proportion of people with very high use. Conversely, a significant portion of the population has very low health care spending.
- People who are older or who have one or more chronic medical conditions or functional limitations are significantly more likely to be among the highest spending patients.
- High spending persists over multiple years for many patients, while others return to more normal spending levels after an expensive episode. There is also evidence that high spending occurs near the end of life for many patients, particularly within the Medicare population.
- Targeting the highest spenders represents the greatest opportunity to have a significant impact on overall spending, but implementation of strategies directed at high spenders is challenging for a number of reasons.
- The concentration of health spending also has important implications for health policies related to acceptance of and compensation for differential risks.

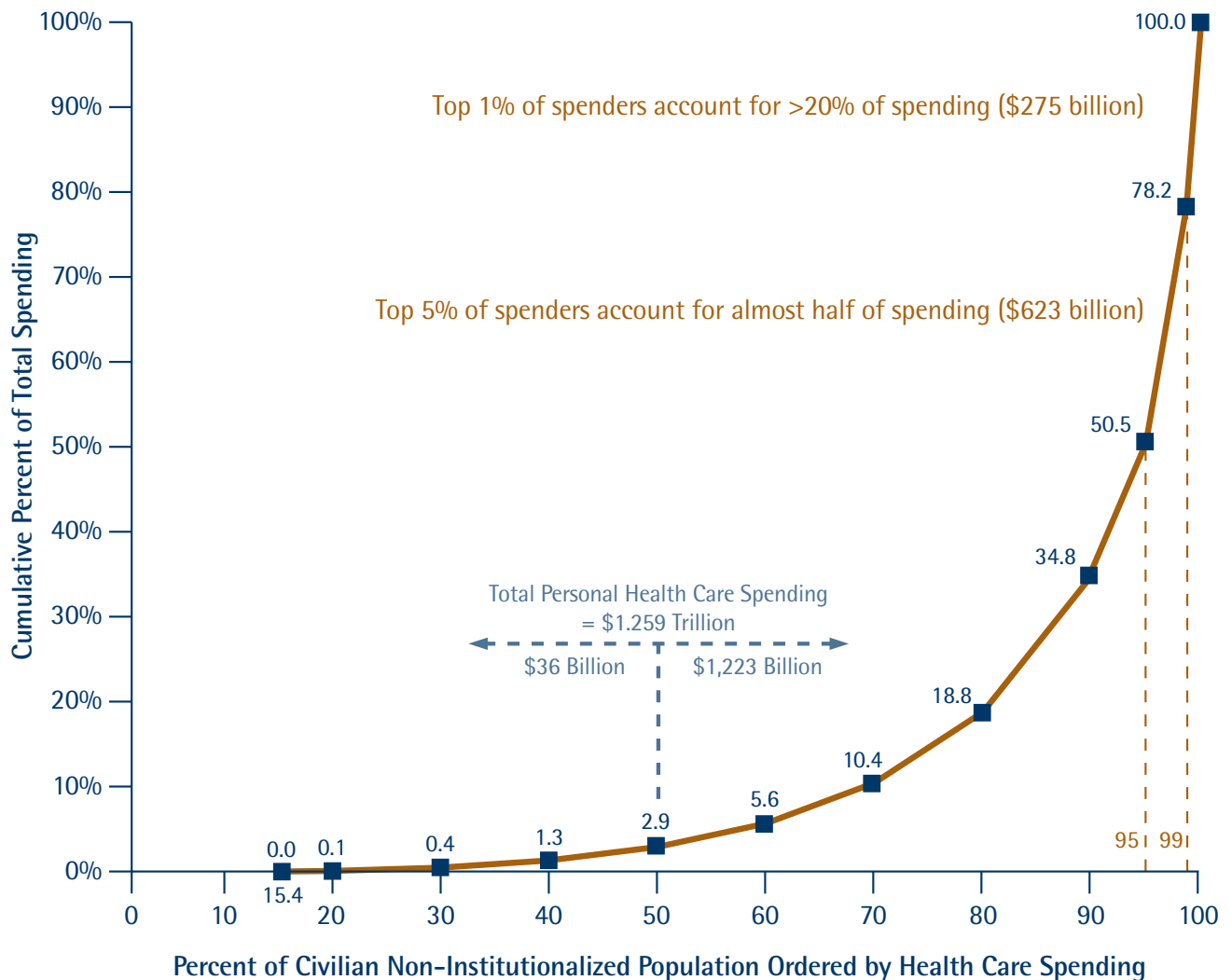
Spending for health care services in the United States is highly concentrated among a small proportion of people with very high use. For the overall civilian population living in the community, the latest data indicate that more than 20 percent of all personal health care spending in 2009 – or \$275 billion – was on behalf of just 1 percent of the population (Figure 1). The 5 percent of the population with the highest spending was responsible for nearly half of all spending. At the other end of the spectrum, 15 percent of the population recorded no spending whatsoever in the year, and the half of the population with the lowest spending accounted for just 3 percent of total spending.<sup>i</sup>

Medicare claims data can be used to make similar calculations for the Medicare population specifically.

Those analyses show that spending is somewhat less concentrated for this population since individuals across the board are more likely to use health care services. Even there, however, recent data indicate that the top 1 percent of spenders account for 14 percent of

<sup>i</sup> These figures, derived from the Medical Expenditure Panel Survey (MEPS), exclude care provided to residents of institutions, such as long-term care facilities and penitentiaries, as well as care for military and other non-civilian members of the population. Likewise, they reflect spending only for personal health care services, not the much broader spending reflected in the National Health Expenditure Accounts (NHEA), which include government public health spending, administrative costs, research, capital investments and many other public and private programs such as school health and worksite wellness. As such, the total spending estimate from the MEPS (\$1.259 trillion in 2009) is significantly lower than the total spending reflected in the NHEA (\$2.496 trillion in 2009).

FIGURE 1. CUMULATIVE DISTRIBUTION OF PERSONAL HEALTH CARE SPENDING, 2009



NIHCM Foundation analysis of data from the 2009 Medical Expenditure Panel Survey.

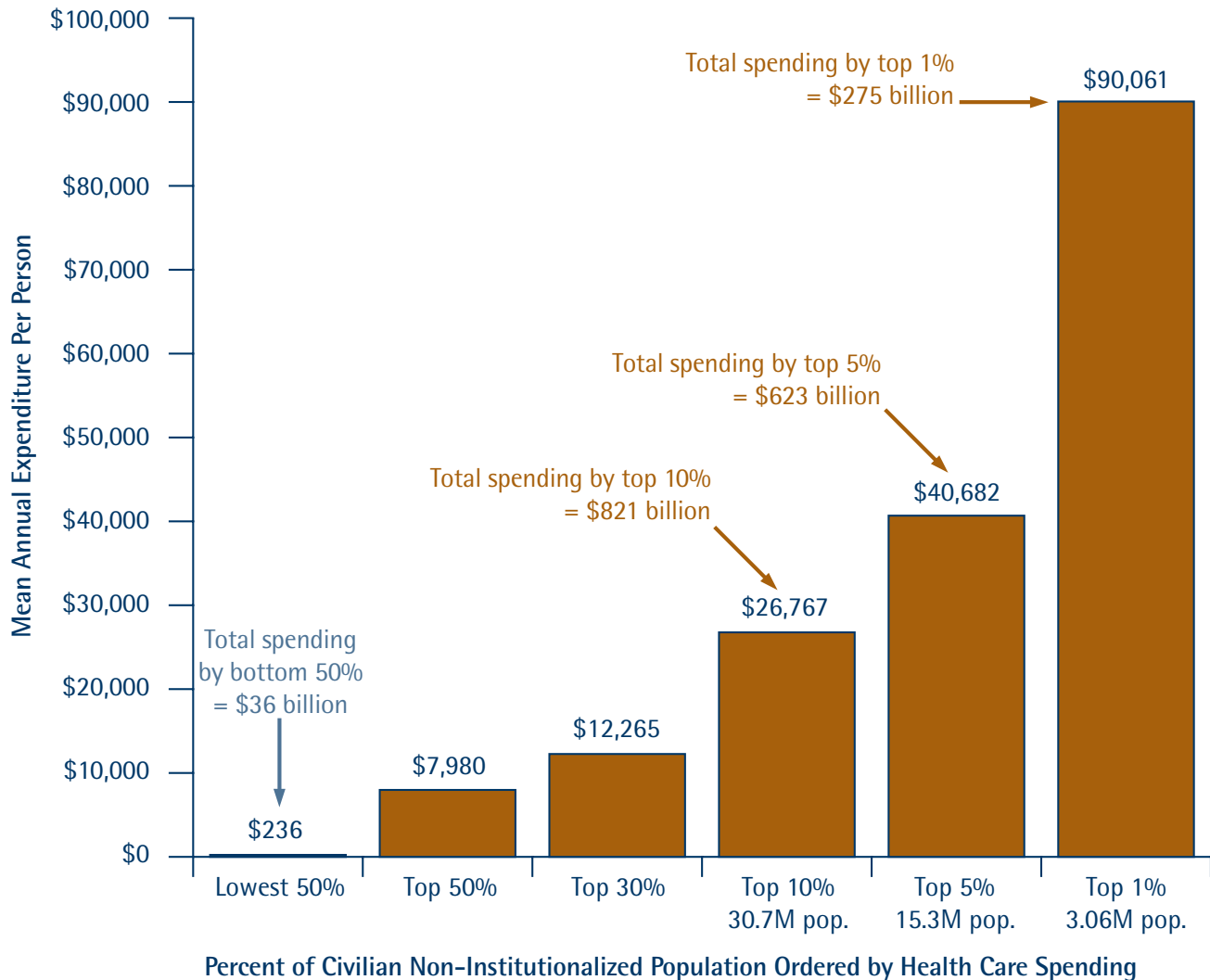
program spending and the top 5 percent are responsible for 38 percent of spending.<sup>1</sup>

With numbers like these, it is clear that per-person spending among the highest users is substantial and represents a natural starting point when thinking about how to curb health care spending. For instance, the average expenditure for each of the approximately 3 million people comprising the top 1 percent of spenders was more than \$90,000 in 2009 (Figure 2). The top 5 percent of spenders were responsible for

\$623 billion in expenditures or nearly \$41,000 per patient. In contrast, mean annual spending for the bottom half of distribution was just \$236 per person, totaling only \$36 billion for the entire group of more than 150 million people.

While the highly skewed distribution of spending has been observed for many years, spending has actually become slightly less concentrated over time as high spending has spread to a broader swath of the population. For example, whereas 56 percent of

FIGURE 2. MEAN PER-CAPITA SPENDING BY SPENDING GROUP, 2009



NIHCM Foundation analysis of data from the 2009 Medical Expenditure Panel Survey.

spending was concentrated among the top 5 percent in 1987,<sup>2</sup> this group accounted for just under half of spending in 2009. Similarly, the spending share for the top 1 percent fell from 28 percent in 1987 to about 22 percent in 2009. One explanation offered for this flattening of the distribution is the rise in population risk factors – most notably, obesity – and the corresponding increase in treated prevalence for chronic diseases linked to these risk factors, such as hypertension, diabetes and hyperlipidemia.<sup>3</sup> That is, as more people are diagnosed with and treated for

these common chronic conditions, a larger share of the population will incur relatively high medical spending.

### WHO ARE THE HIGH SPENDERS?

Analyses of the characteristics of people in the highest spending groups reveal few surprises. As would be expected, and consistent with earlier studies,<sup>2,4</sup> data from 2009 reveal that the highest spenders are significantly older and in worse health. Although people

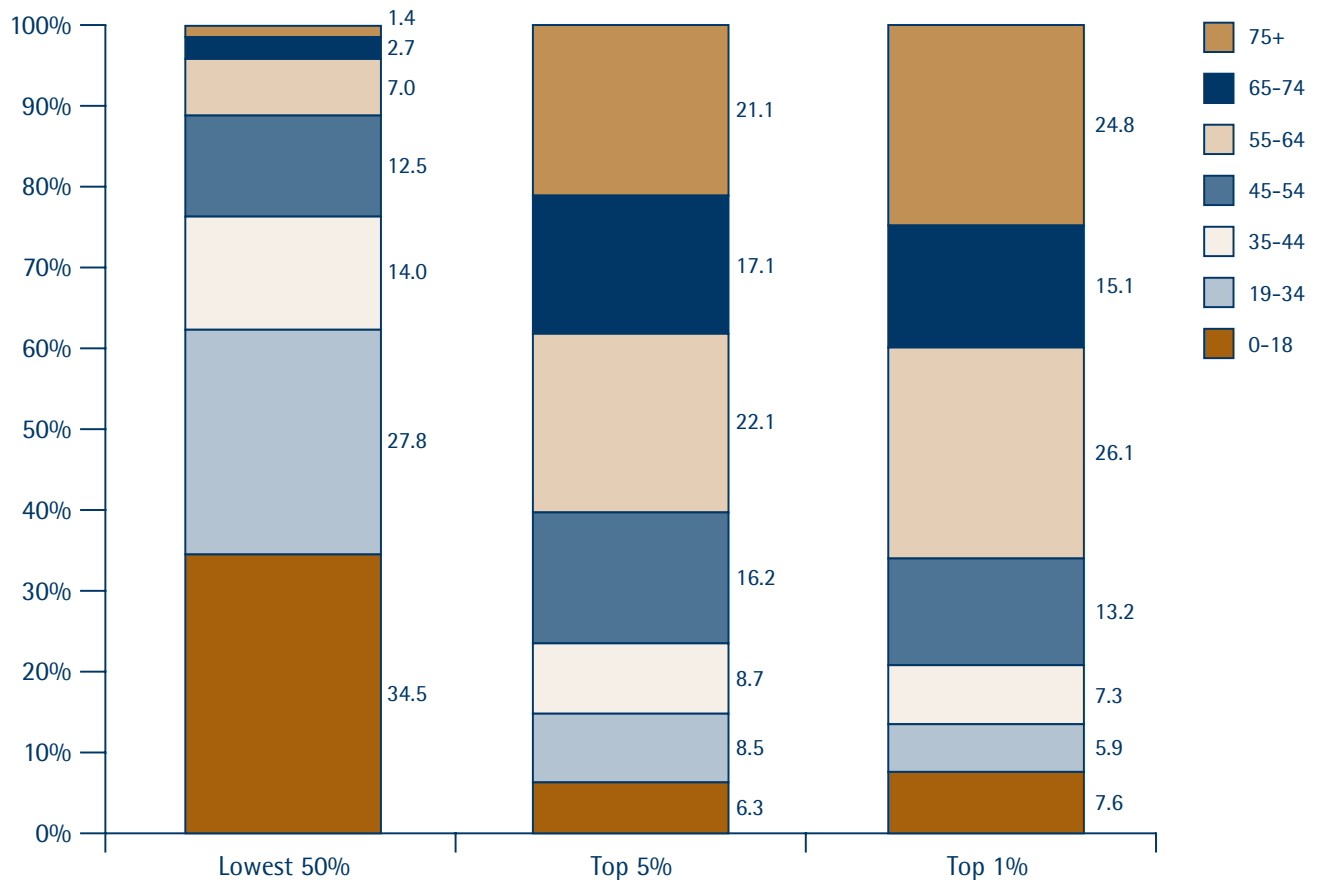
over age 64 comprise just 13 percent of the U.S. civilian population, they make up some 40 percent of those with the top 1 and top 5 percent highest spending (Figure 3). Conversely, 62 percent of those in the lower half of the spending distribution are under age 35, whereas this age group represents only 47 percent of the total population. The highest spenders also are significantly more likely to report that their health status is only fair or poor, while lower spenders overwhelmingly report very good or excellent health (Figure 4).

Additional insights on the relationship between health status and high spending come from a study conducted by the Lewin Group using MEPS data from 2006.<sup>5</sup> They found that only 7 percent of people in the top 5 percent spending group reported having no chronic condition or functional limitation. Instead, roughly 30 percent of

these high spenders had at least one chronic condition but no functional limitation, another 30 percent had both a chronic condition and a functional limitation, and another 30 percent had chronic conditions and were so limited functionally that they needed assistance with one or more of the activities of daily living (Figure 5). Their work also demonstrated that the risk of being a high spender increased as the number of chronic conditions and functional limitations rose.

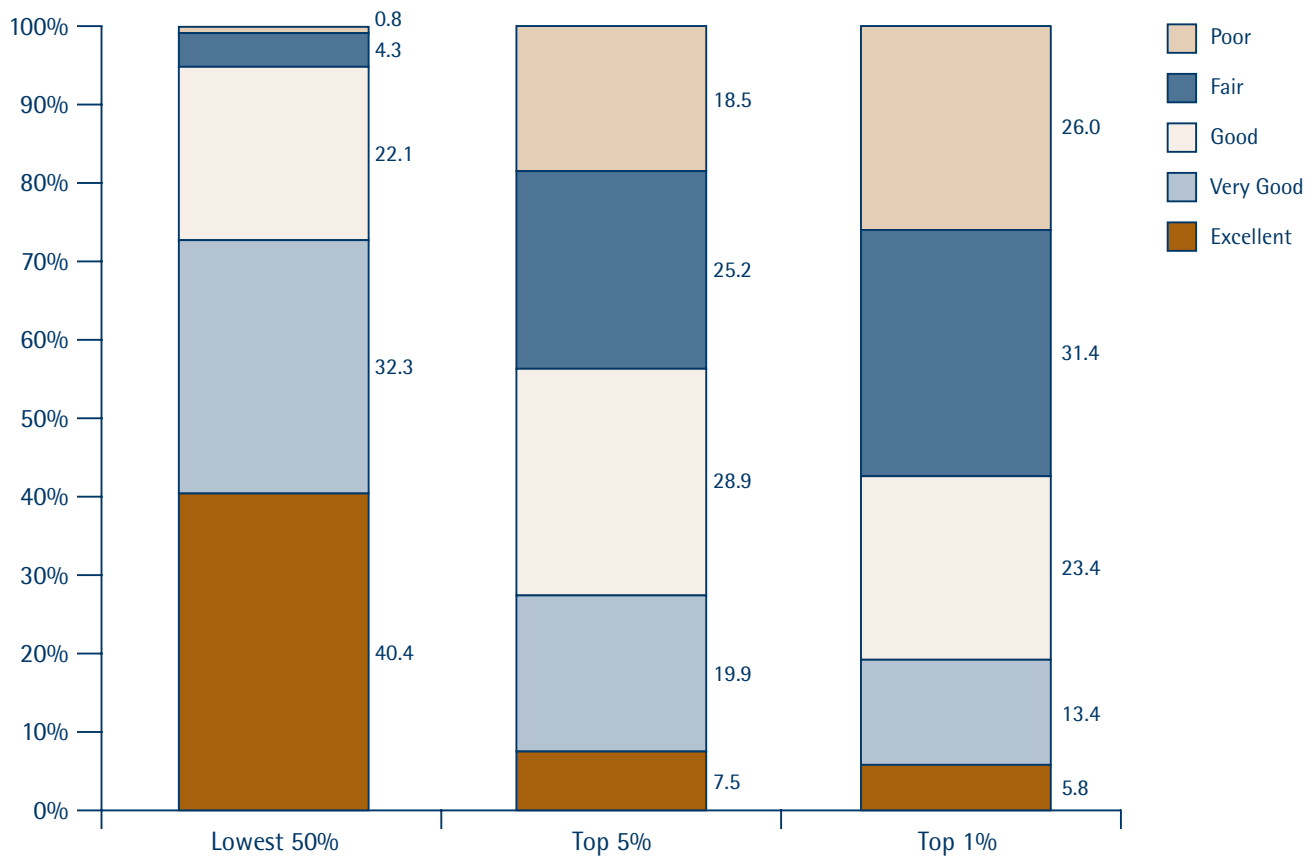
Data from the Lewin work can also be used to identify the specific chronic conditions often found among the highest spending patients. As shown in Figure 6, two-thirds of elderly patients with high spending had been diagnosed with hypertension, 45 percent had lipid disorders (high cholesterol), 37 percent had diabetes, and 30 percent had some type of unspecified

FIGURE 3. AGE DISTRIBUTION OF LOW VS. HIGH SPENDING GROUPS, 2009



NIHCM Foundation analysis of data from the 2009 Medical Expenditure Panel Survey.

FIGURE 4. HEALTH STATUS OF LOW VS. HIGH SPENDING GROUPS, 2009



NIHCM Foundation analysis of data from the 2009 Medical Expenditure Panel Survey.

arthritis [arthropathies not elsewhere classified (NEC) or otherwise specified (NOS)]. Psychiatric disorders were also present for 15 to 19 percent of the elderly high spenders, as were heart-related conditions. Although prevalence rates for these conditions were uniformly higher among the very high spenders than among other elderly patients, several of the common conditions – notably hypertension, high cholesterol, and arthritis – were also relatively prevalent among elderly people who were not in the highest spending group, reducing the usefulness of these conditions for predicting high spending.

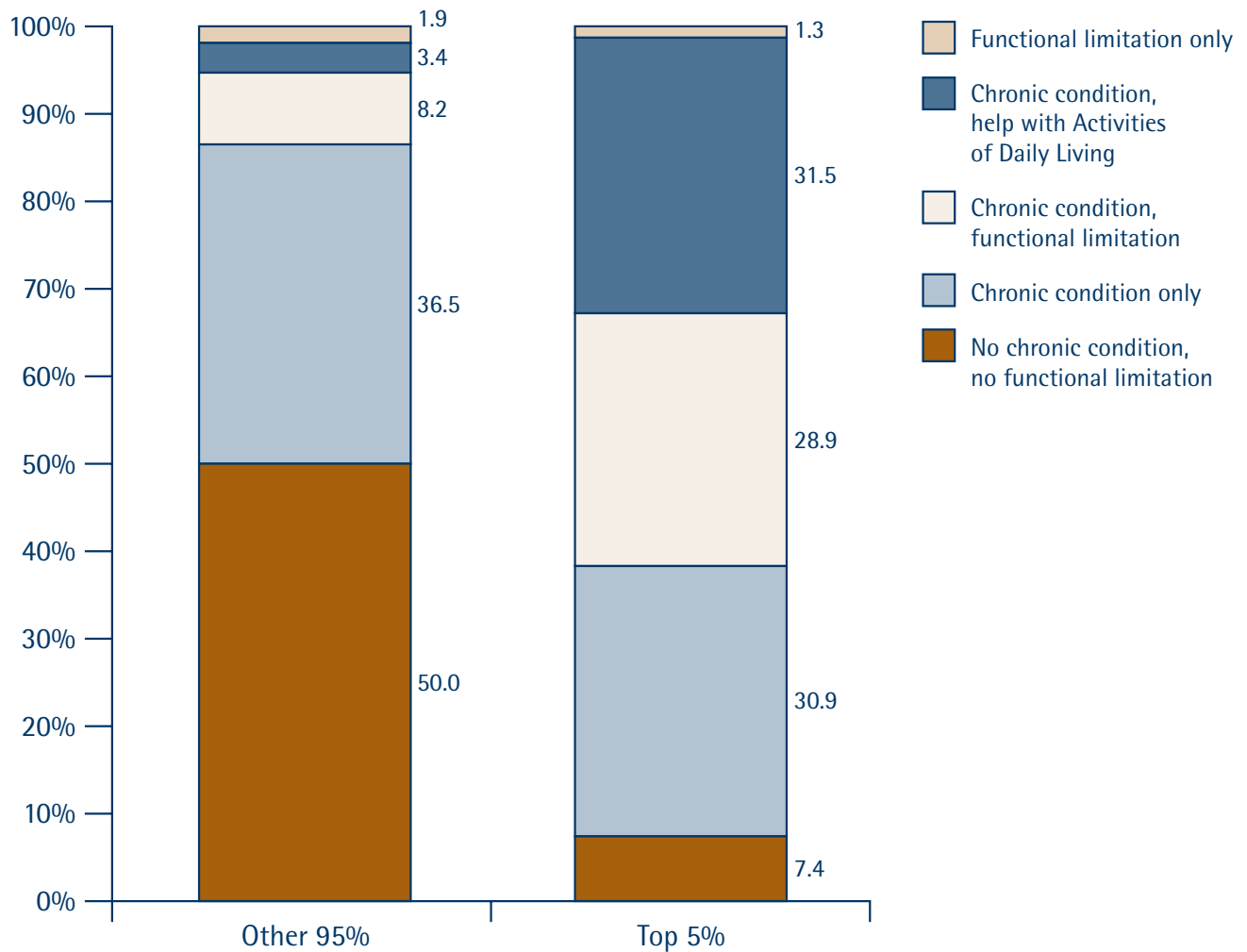
A similar analysis for high spenders under the age of 65 identifies many of the same conditions as being associated with high spending (Figure 7). Except for the psychiatric conditions, which were at least as prevalent for non-elderly high spenders as for their

elderly counterparts, the other conditions appeared less frequently among the non-elderly high spenders. When present, however, they were much more predictive of high spending. For example, while more than one-third of the non-elderly high spenders had high blood pressure, only 10 percent of those with lower spending had this condition.

### THE PERSISTENCE OF HIGH SPENDING

**Persistence Over Two Years.** Because the Medical Expenditure Panel Survey follows sampled individuals for two years, we can use this source to examine the persistence of high spending over two years. Data from the 2008 – 2009 panel demonstrate that there is a fair degree of persistence in spending patterns (Figure 8), with only one-quarter of people moving between the

FIGURE 5. CHRONIC CONDITIONS AND FUNCTIONAL LIMITS AMONG LOW VS. HIGH SPENDING GROUPS, 2006



NIHCM Foundation analysis of data contained in The Lewin Group, "Individuals Living in the Community with Chronic Conditions and Functional Limitations: A Closer Look," January 2010.

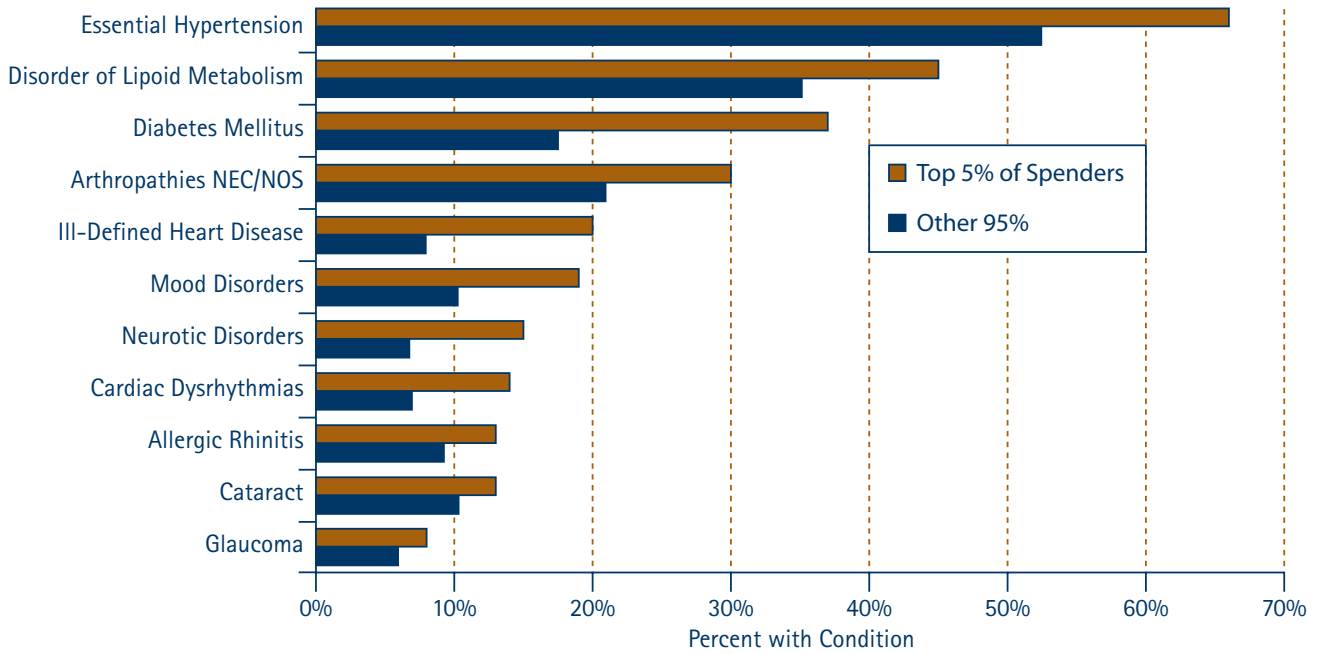
top and bottom halves of the spending distribution from year to year. Forty-five percent of those in the top decile of spending in 2008 and one in five of those in the very highest spending group remained in that group in the next year.<sup>6</sup> Comparable analyses based on earlier panels document very similar patterns.<sup>2</sup>

Figure 9 takes a closer look at the characteristics of people who remained high spenders vs. those who transitioned to a lower spending level after a year of high spending. Specifically, starting with the top decile of spenders in 2008, we compare the 45 percent who

remained in that group in 2009 with the 25 percent whose subsequent spending fell enough to classify them among the bottom 75 percent of spenders in 2009.

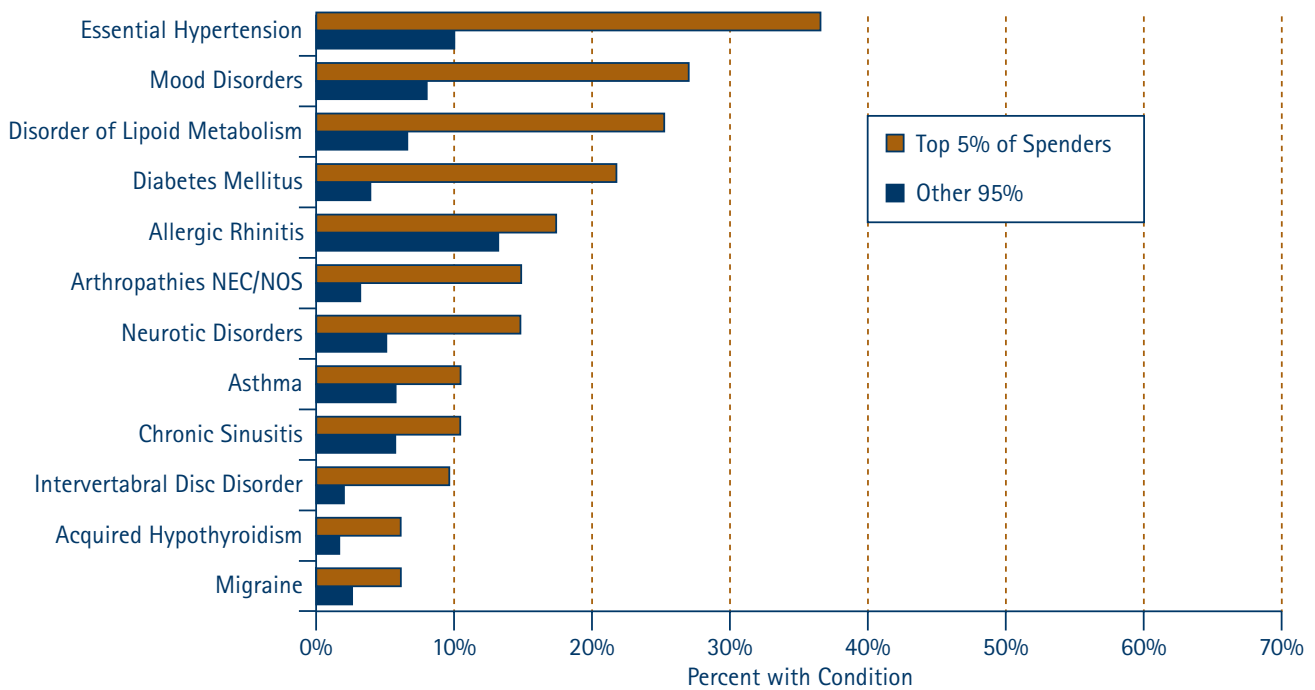
Clear and expected patterns emerge with respect to both age and health status. In the left-hand panel we see that those with persistently high spending were much more likely to be older, while those returning to lower spending in the second year were more predominantly younger patients. The right-hand panel considers the impact of health status. Health status information was collected from survey respondents around the end

FIGURE 6. COMMON CONDITIONS AMONG ELDERLY HIGH SPENDERS, 2006



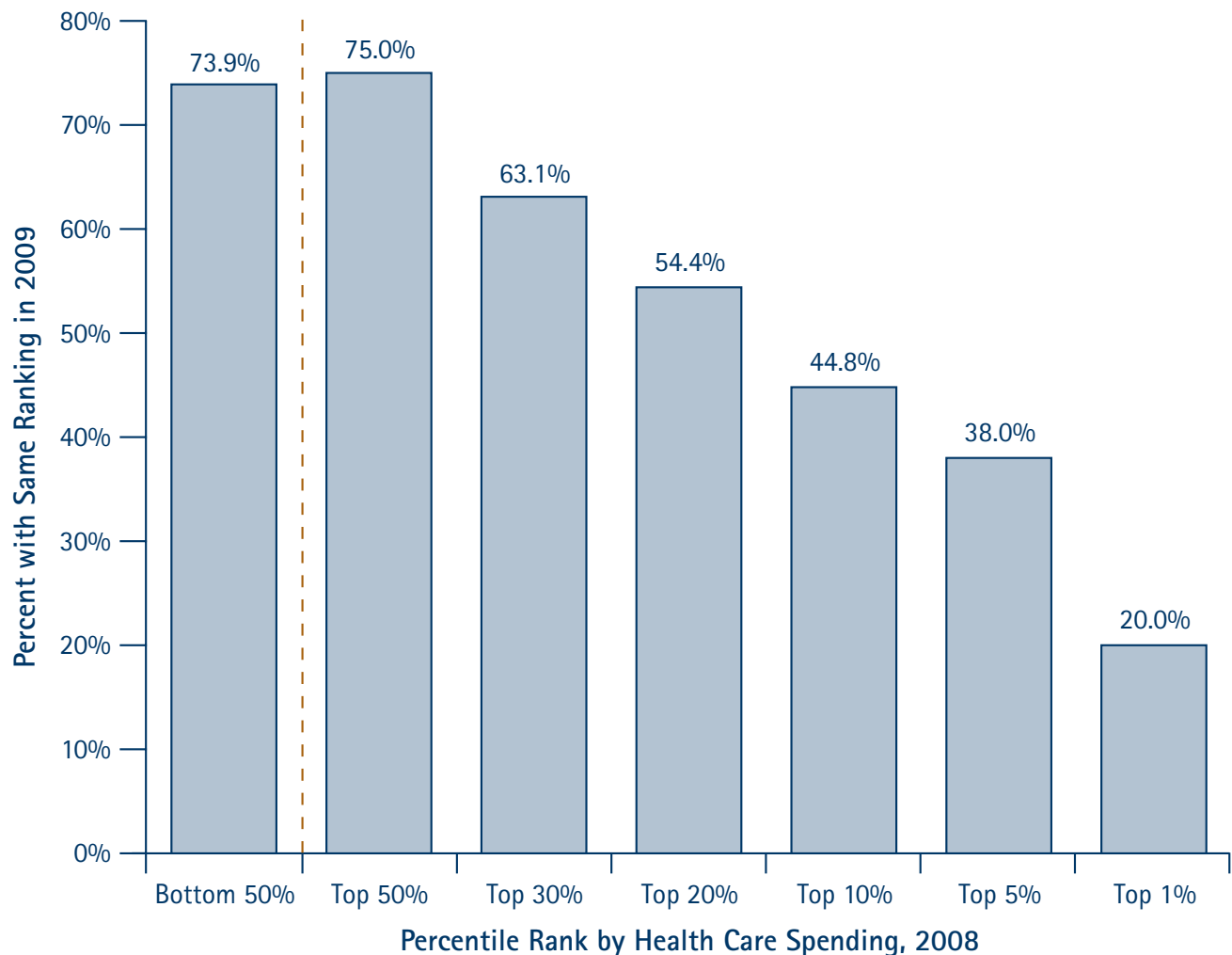
NIHCM Foundation analysis of data in The Lewin Group, "Individuals Living in the Community with Chronic Conditions and Functional Limitations: Closer Look," Jan. 2010. Featured conditions are among the most prevalent for both high and non-high spenders.

FIGURE 7. COMMON CONDITIONS AMONG NON-ELDERLY HIGH SPENDERS, 2006



NIHCM Foundation analysis of data in The Lewin Group, "Individuals Living in the Community with Chronic Conditions and Functional Limitations: Closer Look," Jan. 2010. Featured conditions are among the most prevalent for both high and non-high spenders.

FIGURE 8. PERSISTENCE IN SPENDING PATTERNS OVER TWO YEARS



Source: Cohen SB and Yu W. "The Concentration and Persistence in the Level of Health Expenditures over Time: Estimates for the U.S. Population, 2008-2009." Agency for Healthcare Research and Quality, Statistical Brief #354. January 2012.

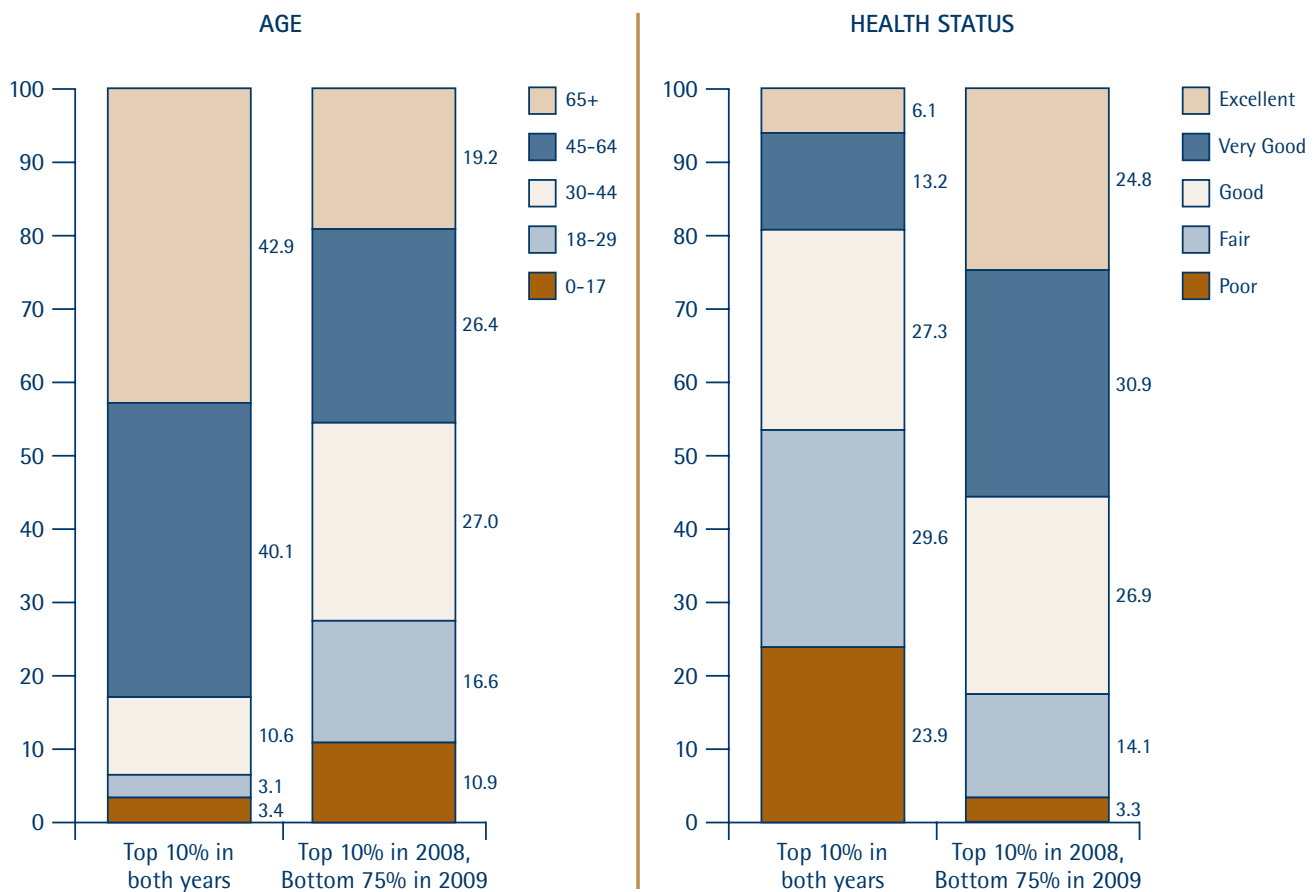
of 2008, that is, after they had already experienced a year of high spending but before they knew what 2009 would bring. While more than half of those who ended up remaining high spenders in 2009 had rated their health status as fair or poor at this mid-way point, more than half of those who experienced lower health spending in 2009 reported their health status as very good or excellent as that year was beginning. This finding points to the transitory nature of some health problems, even those that lead to very high spending for a period of time.

**Persistence Over a Longer Period.** An analysis by the Congressional Budget Office used Medicare claims data to examine spending patterns of Medicare beneficiaries over nine years.<sup>7</sup> As shown in Figure 10, analysts began with the universe of Medicare beneficiaries who were in the top quartile of spending in 1997, and then examined the four-year periods before and after 1997 to see where these high spenders had been and where they ended up.

In each year prior to 1997, the high cost beneficiaries could have been either in the top quartile of FFS



FIGURE 9. CHARACTERISTICS OF PERSISTENT HIGH SPENDERS



Source: Cohen SB and Yu W. "The Concentration and Persistence in the Level of Health Expenditures over Time: Estimates for the U.S. Population, 2008-2009." Agency for Healthcare Research and Quality, Statistical Brief #354. January 2012.

spending, in the bottom 75 percent, or not in FFS Medicare at the time (either because they were yet eligible for Medicare or, less likely, because they had a period of enrollment in Medicare managed care.) We see that nearly half of those who would be high cost in 1997 were also high cost in 1996 and more than one-quarter were high cost four years before. Similar patterns are observed when looking forward from the reference year: 44 percent of the high cost beneficiaries remained high cost in 1998, and one-quarter were high cost four years later. Although the same beneficiaries are not necessarily in the top 25 percent group in all years, as some might have had an expensive episode then returned to a lower level of spending, the data are very suggestive of persistent high spending that continues beyond the two-year period that can be

examined with the MEPS data. In fact, in a related analysis, CBO showed that half of all beneficiaries who were in the top quartile based on cumulative spending between 1997 and 2001 had high monthly costs for at least 22 of the 60 months in the period.

In addition to possibly transitioning to lower spending in the post-1997 period, high cost beneficiaries might also have died or moved out of FFS Medicare into managed care. The data show that 14 percent of the people who had high costs in 1997 died in that year and that 40 percent had died by 2001, revealing that a non-trivial portion of high spending within the Medicare program is for people in their final months or years of life. If we consider only surviving high-cost beneficiaries from 1997, nearly one-half also had high

costs four years later, again pointing to the long-term burden of living with chronic illnesses.

### IMPLICATIONS OF CONCENTRATED SPENDING

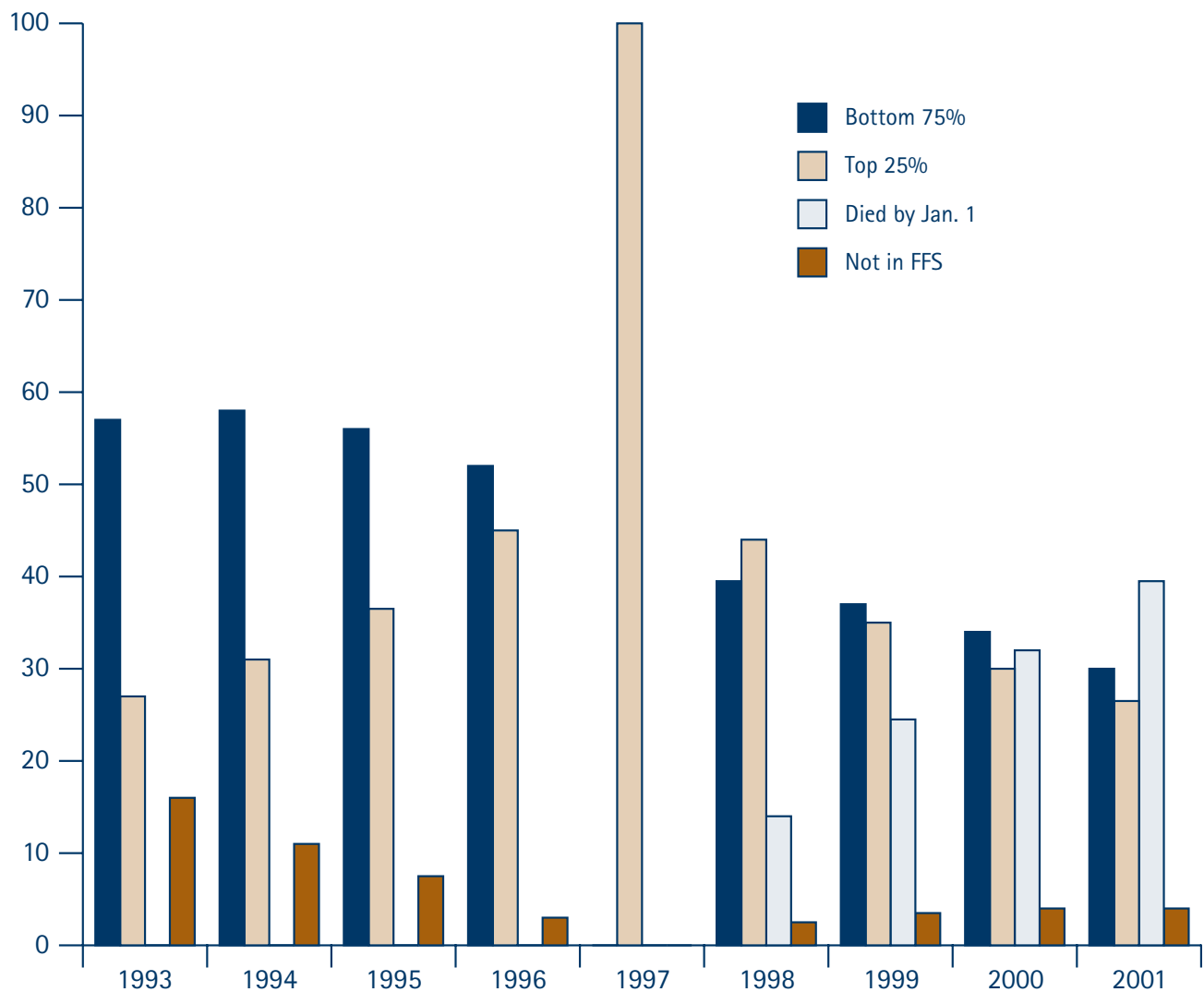
The concentration of health care spending has several implications for health policy, particularly as we think about how to control overall spending for health services. First is the obvious need to “follow the money.” With half of the population incurring just \$36 billion in health care costs, it simply is not possible to realize

significant contemporaneous or short-term savings by directing cost-control efforts at this group.<sup>ii</sup>

Strategies to improve management of chronic conditions, end-of-life care, and expensive episodes hold more promise, but raise challenges as well. To begin, accurate prospective identification of patients who can most benefit from disease management can be tricky since

ii Keeping this healthy population healthy, on the other hand, has the potential to lead to savings over the longer term by avoiding or delaying the onset of chronic diseases.

FIGURE 10. LONG-TERM PATTERNS OF MEDICAL SPENDING



Source: Congressional Budget Office. “High-Cost Medicare Beneficiaries.” May 2005.

many of the same chronic conditions associated with higher spending are also present – and in the case of the elderly, highly prevalent – among lower-spending groups (Figure 6). Furthermore, even when these conditions are less prevalent for low spenders, the number of low spenders with the condition will be high simply because many more people are low spenders. Thus, interventions based solely on the presence of a chronic condition are bound to include a significant number of people who would not incur high costs, at least in the short term.<sup>7</sup> Managing high spending at the end of life can also be problematic. Not all persons with high spending will die soon, and predicting timing of death and distinguishing between care that may extend life in a meaningful way and care that does little good is something that is often accomplished only in retrospect. Societal reluctance to discuss end-of-life care and fears of rationing only complicate the matter. Finally, although it might be possible to manage some of the expensive episodes more efficiently through use of clinical pathways, for example, it is virtually impossible to predict or avoid these random high-cost events.

A second implication of the highly concentrated spending pertains to the acceptance of risk by providers and payers. Emerging payment and delivery system reforms, such as accountable care organizations, rely on integrated provider organizations to accept some degree of risk for a defined patient population. These organizations will need a patient base that is large enough to balance out the sizeable downside risk of attracting just a few high spending cases. Additional risk-adjustment and other means of protection against high-cost outlier cases may also be needed. Similarly, in a world of community rating and guaranteed issue, insurers face a significant risk of adverse selection and negative financial implications if they happen to attract a disproportionate number of high spending patients. Here, too, adequate means of protecting against adverse selection and the risk posed by high spenders are required.

## ENDNOTES

- 1 Medicare Payment Assessment Commission. "A Data Book: Health Care Spending and the Medicare Program." June 2011. [http://www.medpac.gov/document\\_TOC.cfm?id=617](http://www.medpac.gov/document_TOC.cfm?id=617). (Accessed February 22, 2012.)
- 2 Stanton MW. "The High Concentration of U.S. Health Care Expenditures." *AHRQ Research in Action*, Issue #19, June 2006. [www.ahrq.gov/research/ria19/expendria.pdf](http://www.ahrq.gov/research/ria19/expendria.pdf). (Accessed February 17, 2010.)
- 3 Thorpe KE, Florence CS, Howard DH, Joski P. "The Rising Prevalence of Treated Disease: Effects on Private Health Insurance Spending." *Health Affairs*, W5-317-25. June 27, 2005.
- 4 Conwell LJ, Cohen JW. "Characteristics of Persons with High Medical Expenditures in the U.S. Civilian Noninstitutionalized Population, 2002." *AHRQ Statistical Brief #73*, March 2005. [meps.ahrq.gov/mepsweb/data\\_files/publications/st73/stat73.pdf](http://meps.ahrq.gov/mepsweb/data_files/publications/st73/stat73.pdf). (Accessed March 16, 2011.)
- 5 The Lewin Group, "Individuals Living in the Community with Chronic Conditions and Functional Limitations: A Closer Look," January 2010. [hhs.gov/daltcp/reports/2010/closerlook.pdf](http://hhs.gov/daltcp/reports/2010/closerlook.pdf). (Accessed July 22, 2011.)
- 6 Cohen SB, Yu W. "The Concentration and Persistence in the Level of Health Expenditures over Time: Estimates for the U.S. Population, 2008-2009." *AHRQ, Statistical Brief #354*, January 2012. [mepsweb/data\\_files/publications/st354/stat354.pdf](http://mepsweb/data_files/publications/st354/stat354.pdf). (Accessed January 13, 2012.)
- 7 Congressional Budget Office. "High-Cost Medicare Beneficiaries." May 2005. <http://www.cbo.gov/publication/16487>. (Accessed August 2, 2011.)

## ABOUT NIHCM FOUNDATION

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

## ABOUT THIS BRIEF

This brief was prepared by Julie A. Schoenman, PhD, ([jschoenman@nihcm.org](mailto:jschoenman@nihcm.org)), under the direction of Nancy Chockley, MBA, ([nchockley@nihcm.org](mailto:nchockley@nihcm.org)). We are grateful to Michael Hagan for his review of an earlier draft of this brief.

Part of the Foundation's larger research focus on health care spending, this document is the third in a series of briefs presenting current data and analysis on selected topics relevant to discussions of our nation's high and rising health care spending. The initial brief, "U.S. Health Care Spending: The Big Picture," provided an overview of health care spending in the United States and was followed by "Government Spending for Health Entitlement Programs."

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**NIHCM**  
FOUNDATION

1225 19TH STREET NW  
SUITE 710  
WASHINGTON, DC 20036

202.296.4426  
202.296.4319 (FAX)

[WWW.NIHCM.ORG](http://WWW.NIHCM.ORG)