ACA Implementation—Monitoring and Tracking

Trends in U.S. Health Care Spending Leading Up to Health Reform

September 2012

Fredric Blavin, Linda J. Blumberg,
Timothy Waidmann,
and Lokendra Phadera
The Urban Institute

Robert Wood Johnson Foundation

Urban Institute

INTRODUCTION

The fast pace of health care spending growth is a central concern in ensuring access to necessary medical care, playing a prominent role in all discussions related to health care reform and implementation of the Affordable Care Act (ACA). Health care spending has increased faster than has income over the last decade (Holahan, Blumberg et al. 2011), at the same time that the share of the population with health insurance declined. Such a dynamic forces trade-offs both in the public sector (i.e., spending on health programs may decrease spending in other sectors of government if additional revenues are not raised) and in the private sector (i.e., families that spend increasing shares of their income on health insurance have less to spend on other goods and services). While additional per capita spending on medical care, even without expansions in the share of the population insured, can increase value for those receiving additional services or greater intensity of care (Hadley et al. 2011), it does not always translate into additional value. At a minimum, the implicit trade-offs inherent in increased spending must be recognized and evaluated from both a societal and individual perspective. Quantifying the trends in health care spending is also a critical in effectively measuring the effect of key ACA provisions on health expenditures. Not doing so would mean that changes that would have likely occurred absent any reform could be wrongly attributed to the law.

The ACA's expansion of coverage, both public and private, and the consequent reduction in the uninsured should increase health care expenditures for those who sought less care due to lack of insurance coverage. Changes to typical cost-sharing responsibilities could also affect use of services and resulting costs. In addition, cost-containment initiatives introduced under the law could reduce health care spending relative to prior trends. Other components of the law that could affect spending include increased insurance market competition, increased payments to primary care providers under Medicaid, increased emphasis on preventive services and wellness programs, increased use of comparative effectiveness research, and changes in public and private payment strategies, including bundling provider payments or pay-for-performance programs.

Using the 2001 to 2009 Medical Expenditure Panel Survey–Household Component (MEPS-HC), this research analyzes trends in per capita health expenditures among the nonelderly by service category. We examine the composition of spending and how it has changed over the decade, and assess how spending growth has changed in the latter half of the period relative to the first. We also decompose the changes by service type into changes in the share of individuals using services, the average number of services used, and expenditures per unit of service.

This study addresses the following key questions:

- What was the overall trend in per capita health care spending over the decade? Did the average per capita spending growth rate in the first part of the decade differ from the growth rate in the latter part?
- What is the distribution of per capita health care spending across service categories? Has this distribution changed over the decade?
- Which key factors—growth in spending per unit of service, share of the population using services, the average number of services used—contributed to per capita spending growth over the decade? Were changes in per capita spending driven by compositional changes in demographic characteristics, changes in the distribution of insurance coverage, the prevalence of chronic conditions, or some combination?
- How do these findings affect predictions about the impacts of the Affordable Care Act?

LITERATURE REVIEW

A recent analysis of the National Health Expenditure Accounts (NHEA) finds that total spending in the last three years has grown at a near-historic low, largely due to the recession, but that spending has slowed each year since 2001. This analysis also finds that hospital spending was responsible for 40 percent of the increase in per capita health spending between 2006 and 2010, whereas spending on physician and clinical services, home health, and long-term care accounted for 35 percent of the increase (National Institute for Health Care Management 2012).[1]

Several other studies have examined broad national trends in health care spending. NHEA data from 2000 to 2009

show that health expenditures increased at an average rate of 6.8 percent while GDP grew at 4.0 percent annually. Spending growth also varied across payer type: Medicare spending increased at an average rate of 9.4 percent (8.3% after removing the effect of prescription drug payments shifting from Medicare to Medicaid), Medicaid spending for all enrollees increased at an average rate of at 8.1 percent, and total private health insurance spending increased at an average rate of 6.4 percent (Holahan, Blumberg et al. 2011). Martin et al. (2011) conclude that the deceleration of spending in 2009 was primarily driven by the slowdown in private health insurance spending to 1.3 percent (because many consumers lost employer-based private health insurance coverage), a 0.6 percent decline in spending on health care investment, and slower growth (0.4%) in out-of-pocket spending. As a counteracting force, Medicaid spending increased by 9 percent in 2009 due to rapid increases in enrollment. Martin et al. also find that in 2009, hospital spending increased by 5.1 percent, about the same growth rate as in 2008, but slower than the trend between 1999 and 2007. Physician and clinical service spending slowed to 4.0 percent, down from 5.2 percent in 2008, and retail prescription expenditures grew by 5.3 percent, up from 3.1 percent in 2008.

Similarly, researchers at the Agency for Healthcare Research and Quality release annual snapshots of health care expenses using the Medical Expenditure Panel Survey (MEPS). Kashihara and Carper (2010) provide 2008 point estimates of health care spending by type of service and payer, but do not analyze how spending changes over time. In contrast, Machlin and Kress (2009a, b) compare the distribution of expenses in 1996 with the distribution in 2006 among different adult age groups. They find that the proportion of adults 45 to 65 with non zero expenses remained relatively constant between 1996 and 2006, whereas the proportion of adults 18 to 44 with non zero expenses decreased by nearly 4 percentage points. Average expenses among those using health care services in all age groups substantially increased during this period. They also find that prescribed medicines were a substantially higher proportion of total expenses among adults, while hospital inpatient care was a markedly lower share in 2006 than in 1996.

A recent review of the literature highlights four reasons health care costs grow at a faster rate than the economy as a whole (Holahan, Blumberg et al. 2011). One of the most commonly cited sources of spending growth is the development and dispersion of medical technology, which directly and indirectly increases medical spending (e.g., new technologies increase an individual's lifespan and thereby lead to the use of other medical services). Second, other researchers find that the increased prevalence of chronic diseases and spending per treated case determine most of the growth in private health care spending. Third is the growing consolidation and lack of competition in both insurer and provider markets. Finally, high health care spending growth could be attributed to consumers being overinsured and shielded from the true cost of their care through the federal tax exemption of employer-sponsored insurance contributions.

Our analysis contributes to the literature in three ways. First, this study provides the most up-to-date look at spending trends by incorporating results from the 2009 MEPS. Similarly, none of the prior studies provide a comprehensive trend of health care expenses over the entire past decade. Third, this is the first study to isolate the drivers of health care spending factors on the MEPS (e.g., comparing utilization-pattern changes versus expenditure per use changes), using a multivariate regression approach to decompose variation in spending patterns.

DATA

We rely on the full-year consolidated data files from the MEPS-HC as the core dataset for this study. The MEPS-HC is a nationally representative survey of individual household members drawn from the pool of the prior year's National Health Interview Survey respondents. Given the large sampling variation in the MEPS-HC from 1998 to 2000, we analyze trends between 2001 and 2009, the most recent years of data available.

The MEPS-HC full-year consolidated data files provide detailed information on spending by public and private programs as well as out-of-pocket spending on various health care services used during the year. Panels for the survey are designed for two calendar years, featuring five rounds of interviews.[2] The survey also collects monthly information on each individual's health insurance status. Based on this information, we create six mutually exclusive health insurance categories with the following hierarchy: uninsured for the full year, uninsured during part of the year, private group coverage for most of the year, Medicaid/CHIP for most of the year, private nongroup for most of the year, and other public coverage for most of the year.

We also use the MEPS-HC event files to complement the service category information in the full-year consolidated files. The event files, supplemented by data from health care providers, contain detailed utilization and cost information for each medical event individuals report in the consolidated files. Using this information, we classify utilization and spending into physician and outpatient hospital, inpatient hospital, emergency room, prescription drugs, and other services (namely dental, home health, medical equipment expenditures, and visits to nonphysician providers).[3]

We obtain detailed information on chronic conditions from the MEPS-HC medical conditions files. The medical condition files contain information about physical and mental health conditions identified through medical events (e.g., office-based or ER visits) or reasons for one or more episodes of disability days. Conditions reported as having bothered the person during the reference period are also included in the medical condition files. We do not use data from the priority conditions section of the MEPS-HC, which asks individuals if they have ever been told by a health care professional that they have a specific condition, because of multiple changes in how these conditions were collected in the MEPS during the analysis period. For example, before 2007, priority condition data were only collected in rounds 3 and 5 of the survey, but in subsequent years these data were collected in all rounds; this could affect the reported prevalence of priority conditions and the distribution of conditions associated with events.[4]

Finally, to address the well-known problem of national health expenditures being underestimated in the MEPS, we inflate our expenditure estimates of service categories by the respective adjustment factors provided by Sing et al. (2006). The adjustments were made to all sources of payment except out-of-pocket spending, as it is one of the strongest features of the survey, and no administrative data source exists to which out-of-pocket spending might be benchmarked.[5] Even after these adjustments, the MEPS expenditure data are not equivalent to the NHEA because the MEPS does not collect data on long-term care spending, the institutionalized population, over-the-counter-drugs, public health spending, and administrative costs for insurance.

We also account for inflation by using the consumer price index for all urban consumers (CPI-U) to express all expenditures in 2011 prices. A possible alternative for deflating per capita spending is the medical care component of CPI (CPI-M). However, the CPI-M is, by design, sensitive to changes in the market basket of medical services and changes in medical prices. Since one goal of this analysis is to understand the role of changes in these two factors, removing them from the trends defeats the purpose. In addition, there is measurement error in the CPI-M: these estimates typically use list prices as opposed to actual transaction prices, they measure input costs as opposed to actual treatment costs, do not incorporate changes in quality, and they are disproportionately weighted toward out-of-pocket expenses (Newhouse 1992).

METHODS

We use piecewise regression models, with 2005 as the structural break point and estimate trend lines to compare the spending growth rates between the first and second halves of the study period. Sampling variation in individual health expenditures varies significantly from year to year, and this is evident in the average annual spending estimates produced from the MEPS-HC. The piecewise models assess the general trends in expenditures without disguising the volatility characteristic of health expenditure estimates.

To better understand the nature of expenditure growth, we decompose the change in per capita expenditures between 2001 and 2009 into changes in the fraction of the nonelderly using specific types of service, the average number of utilization events (visits, hospital stays, prescriptions filled) per user of each service, and the average expenditure per event. For example, to estimate the percentage of per capita expenditure growth from 2001 to 2009 attributable to changes in the share of the population using services, we first estimate per capita expenditures in 2009, holding this share constant at 2001 levels. The difference between this modified 2009 estimate and the actual 2009 estimate captures the change in per capita expenditures attributable to changes in the share of the population using any health care goods or services.

Finally, we estimate two-part models—where the first part predicts the probability of any use and the second part predicts spending among users—to isolate the variation in per capita expenditures between 2001 and 2009 due to underlying changes in population characteristics. First, we controlled for socioeconomic characteristics (age,

race, sex, health status, citizenship status, family type, family income, region, and metropolitan statistical area) at their 2001 levels and calculated their impact on the changes in per capita spending between 2001 and 2009. Next, we controlled for health insurance type based on the hierarchy described above. Last, we isolated the impacts of several prevalent chronic conditions, namely asthma, cancer, diabetes, endocrine, heart diseases, hypertension, and mental conditions. To estimate how changes in each factor affected expenditure trends, we used the results of the two-part models to calculate predicted expenditures in 2009 if each set of explanatory factors had remained unchanged, and compared these counterfactual estimates to actual 2009 outcomes. The differences can be interpreted as the impact of compositional changes.[6] We also used a nonparametric, multivariate decomposition approach based solely on reweighting, consistent with the method used by Selden and Pylypchuk (2008). This approach has the advantage of not imposing functional form assumptions, but does not assure replicating all relevant aspects of the 2001 data distribution. The results, not presented here, are qualitatively similar to the two-part model results and can be obtained upon request.

RESULTS

Trends in Per Capita Health Expenditures: 2001–2009

Figure 1 shows per capita health expenditures by medical service category for 2001 to 2009. Across the United States, per capita health expenditures rose from $2,873 in 2001 to $4,037 in 2009, an increase of 41 percent (data not shown). Physician and outpatient hospital spending was the dominant service category during the beginning and end of the period, followed by inpatient hospital spending. The growth in per capita spending from 2001 to 2009 on physician and hospital outpatient care (44%) and prescription drugs (54%) was substantially higher than that for hospital inpatient care (37%) and other services (16%). The growth in spending on emergency room care, while estimated at 63 percent, was not statistically different from the growth in other types of hospital care or physician services.

Changes in Rates of Growth over the Decade

Based on results from the piecewise regression models, figure 2 shows that some services appear to have grown at considerably different rates by service category in the second half of the decade (2005–2009) compared to the first half (2001–2005). Per capita spending growth rates overall (5.2% compared to 2.1%) and on hospital inpatient services (4.8% compared to 0.3%), prescription drugs (9.1% compared to 2.4%), and other services (3.2% compared to -0.2%) were noticeably lower in the second half of the period than they were in the first half. However, only the change in prescription drug spending was statistically significant ($p = 0.02$). In contrast, while not statistically different across the time periods, spending on emergency room care grew in the second half of the period compared to the first (6.4% compared to 4.2%).

Decomposition of Spending by Share Using Services, Units of Service Used, and Expenditures per Unit of Service

To better understand the source of increased per capita health care spending over 2001 to 2009, we used a simple decomposition approach to attribute changes to the share the population using services, the average number of units (e.g., physician office visits) used by each user, and the average expenditures per unit of services used. The results of this decomposition are shown in table 1 for total health expenditures and for each service category separately. With the exception of the other services category, the increases in per capita health expenditures from 2001 to 2009 were attributable to increases in health expenditures per unit of service. In three categories of services, hospital outpatient and physician care, hospital inpatient, and emergency room care, increased expenditures per unit accounted for all or virtually all of the increase in per capita expenditures, due to both the share of the population using the service and the number of units of each service used falling or staying constant.[7]

In the case of prescription drugs, the share of the population with at least one prescription fell somewhat over the period (from 61% to 58%), but the average number of fills for each person who had a prescription increased from just under 11 to just over 13 between 2001 and 2009.[8] The increase in the average number of prescriptions accounted for about 40 percent of the per capita spending increase over the period, while a large increase in average expenditure per prescription accounted for the remaining 60 percent. If the share of the population using prescription drugs had not fallen over the period, the spending growth would have been even higher.

Decomposition of Spending Trends by Socioeconomic Characteristics and Health Insurance Status, and Prevalence of Chronic Conditions

Table 2 shows the results of the multivariate decomposition analysis, which allows us to identify the extent to which changes in health spending between 2001 and 2009 were affected by changes in the distribution of a range of individual characteristics, including age, gender, race, health status, family type, family income, region and metropolitan statistical area of residence, immigration status, and health insurance status. In addition, we estimate the effects of changes in the prevalence of a number of chronic conditions, specifically asthma, cancer, diabetes, endocrine conditions, heart disease, hypertension, and mental conditions. Full tables of coefficients from two-part models are available upon request.

In total, and for every service category, most increased spending over the period is attributable to factors not measured in the models (e.g., increases in medical prices beyond the CPI-U and changes in medical technology). Overall, 78 percent of the increase in per capita health spending remains unexplained after controlling for changes in socioeconomic characteristics, health insurance type, and chronic condition prevalence. The increase in per capita spending remaining unexplained ranges from 52 percent for all other services to 87 percent for emergency room spending.

We find that for health care spending in total, and for three of the five separate categories of spending, changes in the socioeconomic characteristics and the health insurance status of the nonelderly population had little or no per capita cost increasing effect between 2001 and 2009. In fact, total per capita health spending, along with spending on emergency room care and combined hospital outpatient and physician care, would have been modestly higher in 2009 had the socioeconomic characteristics and the health insurance status of the nonelderly population remained at their 2001 levels. Roughly 4 percent of the increase in per capita prescription drug spending over the period was attributable to changes in socioeconomic characteristics and the health insurance distribution of the population. However, about 14 percent of the increased per capita spending on hospital inpatient care and about 20 percent of the increased per capita spending on all other services was attributable to changes in these characteristics over the period.

In contrast, among the nonelderly population, changes in the prevalence of chronic conditions or changes in spending per treated case contributed significantly to the increased per capita spending in every service category. Table 3 shows dramatic and statistically significant increases in the prevalence of several chronic conditions over the study period. According to our estimates in table 2, almost one-quarter of the increase in total health spending between 2001 and 2009 can be attributed to the increased prevalence of the seven chronic conditions or increases in the average spending per treated chronic condition for which data are available in the MEPS-HC.[9] This ranged from 15 percent of the increased per capita spending for hospital inpatient care to 35 percent of the increased per capita spending for prescription drugs.

DISCUSSION: KEY FINDINGS AND THEIR RELEVANCE TO NATIONAL HEALTH REFORM

Our analyses of the MEPS-HC found that in the decade leading up to passage of the ACA, per capita spending on personal health services among the nonelderly has been rising at an annual rate 3.5 percent faster than general consumer prices, although this rate appears to have slowed somewhat in the latter part of the decade. This finding is broadly consistent with trends in NHEA. We also find that:

Prescription drug expenditures have grown faster than have other service categories and are an increasing share of per capita health care spending.

Real per capita prescription drug spending among the nonelderly increased by over 50 percent from 2001 to 2009, with most of the increase occurring in the first half of the decade. From an evaluation perspective, this pattern highlights the importance of separating secular trends in per capita expenditures from changes attributable to specific market forces (e.g., shifts towards generic versions of blockbuster drugs) or policy changes (e.g., Medicare Part D, although this should not affect spending among the nonelderly population) in the pre-ACA implementation period. This pattern highlights prescription drug spending as a potential

target for future cost-containment efforts, such as using comparative effectiveness research to discourage the use of costly, ineffective drugs or conversely, to encourage the use of low-cost drugs that are equally effective as higher-cost interventions. Analysts can design appropriate and effective cost-containment strategies when they can differentiate between reasons for increased spending on drugs. One focus of our ongoing research is identifying the sources of the faster spending growth per capita for prescription drugs.

Growth in the latter part of the decade has been considerably slower than in the first for particular categories of services. It is currently unclear whether the slowing growth in these categories reflects a change in trend that could be expected to continue, or whether it reflects a regression to the mean, essentially a correction for the much higher growth rates seen in the years preceding it. What is clear, however, is that this trend started prior to the recession among both the nonelderly and elderly populations.[10] Without more clarity, it will be challenging to estimate ACA effects on rates of growth in health care spending, since we will have difficulty predicting what spending would have been in the absence of reform. Delving further into the differences in spending patterns in the later versus earlier part of the decade, therefore, is a near-term research priority.

Spending per unit of service, controlling for general inflation, is the largest factor in spending growth, not the share of population using services or the average number of services used. This finding implies that several factors, including changes in technology, increasing medical prices for the same or similar services, or increasing intensity of services provided, are the drivers behind cost growth changes over the decade. Research evidence indicates that higher cost-sharing responsibilities tend to reduce the number of contacts with medical providers, not the spending on services once that contact is made (Manning et al. 1987; Newhouse and the Health Insurance Experiment Group 1993); this finding suggests that successful cost-containment approaches should target the sources behind increased prices per unit of service delivered. For instance, insurance companies and policy-makers could use value-based insurance design to "encourage the use of services when the clinical benefits exceed the cost and likewise discourage the use of services when the benefits do not justify the cost" (Chernew, Rosen, and Fendrick 2007; Pauly and Blavin 2008). Unfortunately, identifying areas of overuse is challenging; a recent review of the literature finds that rates of overuse vary among studies and services and that a more substantial investment in overuse research is necessary to reduce inappropriate care (Korenstein et al. 2012). Again, further research into identifying these sources will be critical in directing cost-containment efforts appropriately.

Compositional changes in demographic characteristics and insurance coverage are not a driving force behind changes in per capita spending, but the prevalence of chronic conditions does seem to be an important factor. The particularly important role of chronic disease suggests that disease prevention and disease management strategies can control costs. Financing and delivery reforms, some of which are included in the ACA, others of which are being developed by policy researchers (Holahan, Schoen, and McMorrow 2011; Holahan, Blumberg, et al. 2011), address precisely the expensive care of chronic disease and how those costs might be controlled.

While they are suggestive, however, the findings on the role of chronic disease should be interpreted carefully. Past work has cautioned against literal interpretation of trends in self-reported health conditions (Waidmann, Bound, and Schoenbaum 1995), but even prevalence measures based on claims and other types of provider reporting, such as those used in this analysis, may not be free of problems (Song et al 2010). In particular, to receive payment for many types of care, physicians are required to justify those services with diagnoses. While responses to the MEPS are not tied to payment, providers may have incentive to justify more intensive treatments by "upcoding" or overstating the nature of the condition being treated. It is unclear if the strength of these incentives has changed over time, but if they have, some of the observed trend in chronic disease may be an artifact of incentives rather than a true trend in health.

Finally, while not explicitly examined here, our results suggest that exploring expenditure trends within type of insurance coverage would enhance policy discussions on cost containment. We have not examined expenditure trends within type of insurance coverage. While the gross comparisons do not appear to show that changes in insurance coverage distribution affect costs, the changes in coverage over the decade were smaller than those expected under the ACA (not to mention that they constituted reductions in coverage whereas the ACA will increase coverage). Thus, these changes would have been less likely to drive major changes in spending patterns. The coverage effects projected for the ACA could well have more noticeable effects on spending. Further, there may still be interesting patterns within each

insurance type that, in aggregate, counterbalance each other. Thus, in future work, we will stratify our sample into several insurance coverage groups (employer-sponsored, private nongroup, Medicaid/CHIP, and uninsured). We expect the uninsured group to exhibit different levels of expenditures, if not also trends over time. For the other groups, we might expect differentials in out-of-pocket spending that differ from trends in covered spending.

APPENDIX: TWO-PART MODEL METHODOLOGY

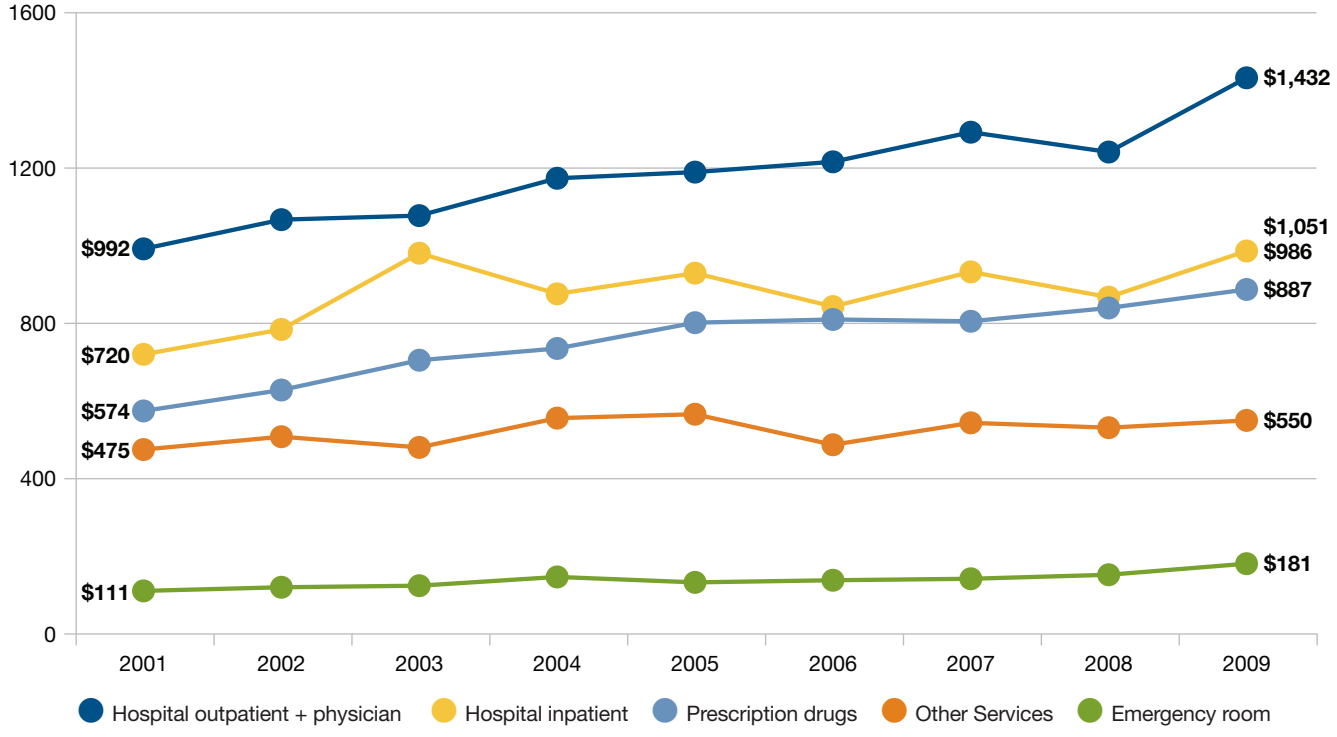
We use a two-part model to predict individual-level expenditures and decompose the variation in per capita expenditures between 2001 and 2009. The two-part model avoids estimation bias due to a large frequency of zero-value outcomes and the skewed nature of health care costs data. The first part relies on parametric binary models to estimate the predicted probability of nonzero expenditures conditional on a set of individual and household characteristics [$Pr(Y > 0 \mid \mathbf{X})$]. The second part has the expenditure level as the dependent variable and is conditional on the individual having nonzero expenditures The model also assumes that the level of expenditures is a linear function of exogenous covariates i.e., $E(\ln(Y) \mid Y>0, \mathbf{X} = \mathbf{X}\beta$ (Mullahy 1998). The final unconditional level of predicted expenditures is the product of the probabilities of any expenditure from the first part and the expected levels from the second part of the model i.e., $E(Yi \mid \mathbf{X}i) = Pr(Yi > 0 \mid \mathbf{X}i) * E(Yi \mid Yi > 0, \mathbf{X}i)$. We use a probit model for the first part of the model (but found similar results with logit models) and a generalized linear model (GLM) with a log-link function to estimate the level of expenditures.[11] As suggested by Manning and Mullahy (2001), we use the Park test to choose the variance distribution for our models. The Park test results performed overwhelmingly support the use of the Gamma distribution as the variance function for all of the GLM models ($\lambda_1 \approx 2$ for all GLMs).

As shown in the appendix tables, we estimate one restricted and one unrestricted model for each service type.[12] The restricted model uses socio-economic characteristics and health insurance status including age, age squared, gender, race, health status, family type, family income, region of residence, MSA residency, citizenship status, and health insurance type as explanatory factors. The unrestricted model, in addition to the mentioned covariates, includes the prevalence of a number of chronic conditions, specifically asthma, cancer, diabetes, endocrine conditions, heart disease, hypertension, and mental conditions. For both restricted and unrestricted models, we use the 2009 sample and coefficients to predict the probabilities of any expenditure (first part) and level of expenditure (second part) using 2001 covariate values. The products of the probabilities and expected level of expenditures on 2001 explanatory factors are the unconditional expected level of expenditures in 2009, had each set of explanatory covariates remained at 2001 levels. The variation in the per-capita expenditure between 2001 and 2009 can be decomposed as:

$$\gamma_{09A} - \gamma_{01A} = \gamma_{09A} - \gamma_{09r} + \gamma_{09r} - \gamma_{09u} + \text{Unexplained} \quad (1)$$

Where γ_{09A} and γ_{01A} are actual 2009 and 2001 per capita expenditures and γ_{09r} and γ_{09u} are the counterfactual predicted 2009 per-capita expenditures from the restricted and unrestricted models, respectively. The first part of the right hand side of (1), $\gamma_{09A} - \gamma_{09r}$, is the variation explained by the restricted model, i.e., changes in the socio-economic characteristics and the health insurance status of the non-elderly population between the years. The second part of the equation, $\gamma_{09r} - \gamma_{09u}$, is the variation explained by the change in prevalence of chronic conditions among non-elderly over the period.

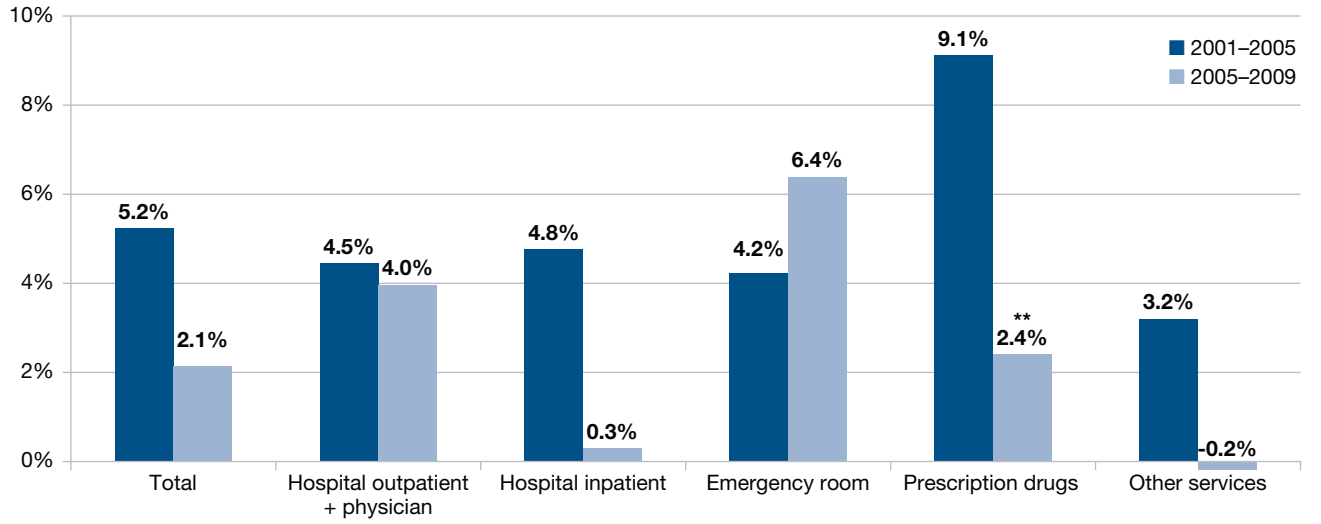
FIGURE 1: Per Capita Health Expenditures by Service Category, 2001–2009, Nonelderly



Source: Agency for Healthcare Research and Quality, Medical Expenditure Panel Survey–Household Component, 2001 to 2009.

Note: Expenditures are adjusted to the National Health Expenditure Accounts and expressed in 2011 prices.

FIGURE 2: Per Capita Health Expenditure Growth Rates, 2001–2005 versus 2005–2009, Nonelderly



Source: Agency for Healthcare Research and Quality, Medical Expenditure Panel Survey–Household Component, 2001 to 2009.

Note: Expenditures are adjusted to the National Health Expenditure Accounts and expressed in 2011 prices.

**p <. 10; **p < .05; ***p < .01*

TABLE 1: Components of Per Capita Expenditure by Service Type, 2001–2009, Nonelderly

Services	Year 2001	Year 2009	Decomposition
Total			
A. % Users	83.8%	82.8%	-4.0%
B. Number of units per user	15.8	17.2***	27.5%
C. Expenditures per unit	$217	$283***	76.5%
Per capita expenditures (AxBxC)	$2,873	$4,038***	$1,229
Hospital Outpatient + Physician			
A. % Users	68.2%	68.7%	2.5%
B. Number of visits per user	6.2	6.1	-6.0%
C. Expenditures per visit	$235	$342***	103.5%
Per capita expenditures (AxBxC)	$992	$1,433***	$436
Hospital Inpatient[a]			
A. % Users	5.9%	5.4%	-47.9%
B. Number of days per user	6.0	5.7**	-26.2%
C. Expenditures per day	$2,031	$3,239***	174.1%
Per capita expenditures (AxBxC)	$720	$987**	$211
Emergency Room Hospital			
A. % Users	12.4%	12.2%	-3.0%
B. Number of visits per user	1.5	1.4	-6.2%
C. Expenditures per visit	$618	$1,043***	109.2%
Per capita expenditures (AxBxC)	$111	$181***	$68
Prescription Drugs			
A. % Users	61.1%	58.1%***	-13.4%
B. Number of fills per user	10.8	13.1***	45.8%
C. Expenditures per prescription	$87	$117***	67.6%
Per capita expenditures (AxBxC)	$574	$887***	$335
All Other Services[b]			
A. % Users	51.7%	50.4%	-17.3%
B. Number of units per user	3.6	4.0***	64.7%
C. Expenditures per unit	$256	$276	52.6%
Per capita expenditures (AxBxC)	$475	$550**	$77
Nonelderly Population (Millions)	248	266	

Source: Agency for Healthcare Research and Quality, Medical Expenditure Panel Survey–Household Component, 2001 to 2009.

Notes: Expenditures are adjusted to the National Health Expenditure Accounts and expressed in 2011 prices. Per user figures are based on those with any of that specific service use.

a Includes zero-night hospital stays.

b Other services = other providers + dentist + home health + medical equipment expenditures.

**p <. 10; **p < .05; ***p < .01*

TABLE 2: Decomposition of Changes in Per Capita Expenditure, 2001–2009, by Service Type, Nonelderly

Services	Socioeconomic Charecteristics[c] and Health Insurance Type[d]	Prevalence of Chronic Conditions[e]	All Other (Unexplained)
Total	-1.6%***	23.1%***	78.4%
Hospital Outpatient + Physician	-5.6%***	27.9%***	77.7%
Hospital Inpatient[a]	14.1%*	14.5%**	71.4%
Emergency Room Hospital	-2.1%***	14.9%**	87.2%
Prescription Drugs	4.0%***	35.2%***	60.9%
All Other Services[b]	20.1%***	28.2%***	51.8%

Source: Agency for Healthcare Research and Quality, Medical Expenditure Panel Survey–Household Component, 2001 to 2009.

Note: Change in the composition of health insurance type explained very little of the change in the per capita expenditure from 2001 to 2009 and hence is not reported separately.

[a]*Includes zero-night hospital stays.*

[b]*Other services = other providers + dentist + home health + medical equipment expenditures.*

[c]*The model controls for age, age^2, sex, race, health status, family type, family income, region, metropolitan statistical area, and health insurance type at the 2001 level.*

[d]*Individuals are assigned to a single type of coverage based on the insurance hierarchy: Uninsured for the full year, any uninsurance during the year, private group, Medicaid/CHIP, private nongroup, and other public coverage for major part of the year.*

[e]*Chronic conditions controlled at 2001 level are asthma, cancer, diabetes, endocrine, heart diseases, hypertension, and mental conditions.*

**p <. 10; **p < .05; ***p < .01*

TABLE 3: Prevalence of Chronic Conditions, 2001–2009, among the Nonelderly

	2001	2009
Chronic conditions		
Asthma	4.8%	6.3%***
Cancer	1.0%	1.6%***
Diabetes	3.0%	4.6%***
Endocrine Disorders	7.6%	14.1%***
Heart Diseases	2.4%	3.4%***
Hypertension	8.1%	13.0%***
Mental Condition	11.6%	14.9%***

Source: Agency for Healthcare Research and Quality, Medical Expenditure Panel Survey–Household Component, 2001 to 2009.

**p <. 10; **p < .05; ***p < .01*

ENDNOTES

1 The NHEA measure total health spending in the United States from aggregate provider-based data sources, such as the U.S. Census Bureau's Economic Census and Service Annual Survey, the American Hospital Association, IMS Health, and government administrative data (Sing et al. 2006).

2 For more information on the MEPS-HC see http://www.meps.ahrq.gov/mepsweb/survey_comp/household.jsp.

3 We also separated outpatient hospital and physician services into distinct categories and obtained consistent outcomes. Results are available upon request.

4 Agency for Healthcare Research and Quality, 2011, "MEPS HC-129: 2009 Full-Year Consolidated Data File," http://meps.ahrq.gov/mepsweb/data_stats/download_data/pufs/h129/h129doc.shtml#2552Priority (accessed June 20, 2012).

5 Sing et al. (2006) compare MEPS and NHEA expenditure estimates for 2002 and explain why these estimates differ. The NHEA and MEPS differ with respect to their included populations, services, and service category definitions. Even after adjusting both data sources so that they have comparable categories, the authors find that the adjusted MEPS is $133 billion or 13.8 percent less than the adjusted NHEA total. The authors then provide adjustment factors by type of service and source of payment category so that the adjusted aggregate totals in the MEPS and NHEA would be comparable.

6 A more detailed description of the methodology can be found in the appendix.

7 Any differences discussed in the text are statistically significant in a two-tailed test at the 5 percent level. See table for details.

8 Prescriptions in the data are counted for both new prescriptions and refills. As a result, an individual filling and refilling a prescription for one month's worth of pills over the course of a year will have 12 prescriptions counted by this measure.

9 Full results of these models are available upon request.

10 The NHEA data show similar trends across Medicare and private insurance.

11 See Buntin and Zaslavsky (2004) for more on differences between comparison of GLM and OLS models.

12 We estimated the two-part model without health insurance type covariates to isolate the impact of change in the composition of health insurance type on per-capita expenditures. The estimation showed very little or no cost increasing effect; thus, we do not report the model separately.

REFERENCES

Buntin, M. B., and A. M. Zaslavsky. 2004. "Too Much Ado about Two-Part Models and Transformation? Comparing Methods of Modeling Medicare Expenditures." *Journal of Health Economics* 23(3): 525–42.

Chernew, M. E., A. B. Rosen, and A. M. Fendrick. 2007. "Value-Based Insurance Design." *Health Affairs* 26(2): 195–203.

Hadley, J., T. Waidmann, S. Zuckerman, and R. Berenson. 2011. "Medical Spending and the Health of the Elderly." *Health Services Research* 46(5): 1333–61. DOI: 10.1111/j.1475-6773.2011.01276.x.

Holahan, J., C. Schoen, and S. McMorrow. 2011. *The Potential Savings from Enhanced Chronic Care Management Policies.* Washington, DC: The Urban Institute. Health Policy Center Occasional Paper. http://www.urban.org/url.cfm?ID=412453.

Holahan, J., L. J. Blumberg, S. McMorrow, S. Zuckerman, T. Waidmann, and K. Stockley. 2011. *Containing the Growth of Spending in the U.S. Health System*. Washington, DC: The Urban Institute. Health Policy Center Occasional Paper. http://www.urban.org/url.cfm?ID=412419.

Kashihara, D., and K. Carper. 2010. "National Health Care Expenses in the U.S. Civilian Noninstitutionalized Population, 2008." Statistical Brief 301. Rockville, MD: Agency for Healthcare Research and Quality. http://www.meps.ahrq.gov/mepsweb/data_files/publications/st301/stat301.pdf. (Accessed February 21, 2012.)

Korenstein, D., R. Falk, E. Howell, T. Bishop, and S. Keyhani. 2012. "Overuse of Health Care Services in the United States: An Understudied Problem." *Archives of Internal Medicine* 172(2): 171–8.

Machlin, S., and M. Kress. 2009a. "Trends in Health Care Expenditures for Adults Ages 18–44: 2006 versus 1996." Statistical Brief 254. Rockville, MD: Agency for Healthcare Research and Quality. http://www.meps.ahrq.gov/mepsweb/data_files/publications/st254/stat254.pdf. (Accessed February 21, 2012.)

———. 2009b. "Trends in Health Care Expenditures for Adults Ages 45–64: 2006 versus 1996." Statistical Brief 255. Rockville, MD: Agency for Healthcare Research and Quality. http://www.meps.ahrq.gov/mepsweb/data_files/publications/st255/stat255.pdf. (Accessed February 21, 2012.)

Manning, W. G., and J. Mullahy. 2001. "Estimating Log Models: To Transform or Not to Transform?" *Journal of Health Economics* 20(4): 461–94.

Manning, W. G., J. P. Newhouse, N. Duan, E. B. Keeler, and A. Leibowitz. 1987. "Health Insurance and the Demand for Medical Care: Evidence from a Randomized Experiment." *American Economic Review* 77(3): 251–77.

Martin, A., D. Lassman, L. Whittle, A. Catlin, and National Health Expenditure Accounts Team. 2011. "Recession Contributes to Slowest Annual Rate of Increase in Health Spending in Five Decades." *Health Affairs* 30(1): 11–22.

Mullahy, J. 1998. "Much Ado about Two: Reconsidering Retransformation and the Two-Part Model in Health Econometrics." *Journal of Health Economics* 17(3): 247–81.

National Institute for Health Care Management. 2012. "U.S. Health Care Spending: The Big Picture." NIHCM Foundation Data Brief. Washington, DC: NIHCM Foundation. http://www.nihcm.org/images/stories/Data_Brief_1_-_Big_Picture_FINAL.pdf. (Accessed June 26, 2012.)

Newhouse, J. 1992. "Medical Care Costs: How Much Welfare Loss?" *Journal of Economic Perspectives* 6(3): 3–21.

Newhouse, J., and the Health Insurance Experiment Group. 1993. *Free for All? Lessons from the RAND Health Insurance Experiment*. Cambridge, MA: Harvard University Press.

Pauly, M. V., and F. Blavin. 2008. "Moral Hazard in Insurance, Value-Based Cost Sharing, and the Benefits of Blissful Ignorance." *Journal of Health Economics* 27(6): 1407—17.

Selden, T. M., and Y. Pylypchuk. 2008. "A Discrete Choice Decomposition Analysis of Racial and Ethnic Differences in Children's Health Insurance Coverage." *Journal of Health Economics* 27:1109–28.

Sing, M., J. S. Banthin, T. M. Selden, C. A. Cowan, and S. P. Keehan. 2006. "Reconciling Medical Expenditure Estimates from the MEPS and NHEA, 2002." *Health Care Financing Review* 28(1): 25–40.

Song, Y., J. Skinner, J. Bynum, J. Sutherland, J. E. Wennberg, and E. S. Fisher. 2010. "Regional Variation in Diagnostic Practices." *New England Journal of Medicine* 363:45–53.

Waidmann, T., J. Bound, and M. Schoenbaum. 1995. "The Illusion of Failure: Trends in the Self-Reported Health of the U.S. Elderly." *Milbank Quarterly* 73(2): 253–87.