Trends Underlying Employer-Sponsored Health Insurance Growth For Americans Younger Than Age Sixty-Five

ABSTRACT Little is known about the trends in health care spending for the 156 million Americans who are younger than age sixty-five and enrolled in employer-sponsored health insurance. Using a new source of health insurance claims data, we estimated per capita spending, utilization, and prices for this population between 2007 and 2011. During this period per capita spending on employer-sponsored insurance grew at historically slow rates, but still faster than per capita national health expenditures. Total per capita spending for employer-sponsored insurance grew at an average annual rate of 4.9 percent, with prescription spending growing at 3.3 percent and medical spending growing at 5.3 percent. Out-of-pocket medical spending increased at an average annual rate of 8.0 percent, whereas out-of-pocket prescription drug spending growth was flat. Growth in the use of medical services and prescription drugs slowed. Medical price growth accelerated, and prescription price growth decelerated. As a result, changes in utilization contributed less than changes in price did to overall spending growth for those with employer-sponsored insurance.

With rare exceptions, health care spending growth has outpaced economic growth in the United States since the end of World War II. Most of the information on health care spending comes from the Medicare program, surveys, or aggregate health accounts. However, more than half of Americans are enrolled in private, employer-sponsored health insurance plans. Although much information is available about the trends in premiums for these people, little is known about their health care use and spending. The Health Care Cost Institute (HCCI) is an independent, nonprofit, nonpartisan research institute. It was established in 2011 with the goal of advancing knowledge on health care use and spending in the United States. Three large private health insurance companies agreed to make paid claims data available to HCCI to create a repository of US health insurance claims data. In 2012 HCCI released three reports on people with private insurance. These reports used fee-for-service claims data to estimate expenditures on employer-sponsored insurance for 2010 and 2011.

This study expands on those reports to examine trends in those expenditures from 2007 through 2011. This longer period offers a more complete picture of health care expenditures for the privately insured. We describe the trends in per capita health care expenditures, utilization, prices, and intensity for people with employer-sponsored insurance. We explore how medical and prescription spending changed during this period. We describe the different trends in out-of-pocket and insurer spending and the impact of these trends on the privately insured. We also compare spending trends in employer-
sponsored insurance to those in all private and public insurance in the United States.

**Study Data And Methods**

*Data* We analyzed an aggregated data set from HCCI that was based on 4.5 billion paid medical and pharmacy claims incurred between 2007 and 2011. The claims were for about forty million enrollees per year who resided in one of the fifty states or the District of Columbia. All of the analyzed claims were for people who were younger than age sixty-five and covered by employer-sponsored insurance. The claims data included coverage dates, age, region, sex, total dollars paid to providers, copayments, coinsurance, deductibles, utilization counts, procedure codes, diagnostic codes, and revenue or payment codes.

The HCCI data set included two key adjustments to make the data representative of all health care expenditures for the study population (approximately 156 million Americans younger than age sixty-five in 2011). First, all claims from 2007 to 2009 were considered fully adjudicated (that is, 100 percent of the claims were considered to have been processed and paid). Second, standard actuarial methods were used to impute any expenditures or utilization still awaiting adjudication for 2010 and 2011. The final data were weighted by region, age, and sex.

We categorized the aggregated claims as medical or prescription. For the purposes of this analysis, medical claims consisted of facility claims and professional procedure claims. We coded pharmacy claims as prescriptions.

Not all people in the HCCI data set had both medical and prescription employer-sponsored coverage. Therefore, we calculated spending and out-of-pocket spending per capita, as well as utilization per 1,000 population, using a medical population and a prescription population as appropriate. The number of coverage years (a proxy for the number of people with coverage for a full year) was calculated by dividing the weighted total number of coverage months by twelve.

**Per Capita Expenditures** We calculated health care expenditures per capita by summing all of the weighted payments made to providers and dividing by weighted coverage years. To avoid underestimating prescription spending per capita, we calculated the medical and prescription per capita spending separately.

Out-of-pocket expenditures were calculated from the total weighted dollars spent on copayments, coinsurance, and deductibles reported in the claims data. Insurers’ expenditures were calculated by subtracting out-of-pocket expenditures from total expenditures. We also decomposed per capita spending by service price and service quantity (utilization).9

**Service Use** To calculate total utilization, we summed admissions, procedures, visits, or filled days (for prescriptions) and divided the counts by coverage years. For prescriptions, we used filled days rather than scripts to avoid differences in script lengths (which are often seven, thirty, or ninety days). In creating its data set, HCCI determined if a claim should be counted as a single unit of service (admission, procedure, visit, or filled day) based on whether there was a payment for that claim line. And it adjusted the count to deal with claims that had zero or negative allowed reimbursement dollars.10

**Prices** To derive the average prices paid for medical and prescription services, we divided total expenditures by total utilization for the year and category. This is similar to methods described by Ana Aizcorbe and Nicole Nestoriak for calculating disease-specific service prices.11 However, we report changes in prices for the following broad types of services: inpatient facility, outpatient facility, and professional procedures. This approach allowed us to identify the relative impact of utilization and prices on changes in spending.

In calculating the average annual prices paid for medical services, we did not control for how the resources used to provide care might have changed the prices paid. Using a method similar to one proposed by Abe Dunn and coauthors, we devised a metric to determine changes in prices using a weighted or base price.12 We applied resource intensity weights to each claim line to measure base prices. For example, if the proportion of deliveries performed by cesarean section increases, then the intensity of care may have increased and be reflected in costlier care. Using intensity weights, we were able to control for any changes in our price measure that resulted from increases in the intensity of care. Our measure of the intensity-adjusted price thus captured true increases in the price paid for care.

The HCCI data set included a commercially adjusted set of resource weights from the Centers for Medicare and Medicaid Services. For inpatient facility claims, the HCCI data set used the weights associated with diagnosis-related groups. For outpatient visit claims, it used the weight associated with each claim’s ambulatory payment classification. And for procedures, it used the relative value units associated with each code from the Current Procedural Terminology or from an equivalent coding system for common health care procedures.

The HCCI data set included imputed weights when intensity weights were missing, except for
skilled nursing and hospice care, for which it was not possible to calculate weights. From the weights, we produced an average intensity weight per utilization count to measure medical resource use for each service category. From these intensity weights, we derived an intensity-adjusted price (average price paid divided by average intensity weight), which should reflect average base price for a service. Because the purpose of this study was to assess changes in trends, we report changes in intensity and intensity-adjusted prices, instead of their levels.

LIMITATIONS Claims are an excellent data source for some types of health care analysis. However, claims do not include, among other things, medical chart information. Claims in the HCCI data set do not include consumers’ premiums, administrative costs, or insurers’ profits, all of which contribute to the total cost of obtaining health care.

In addition, the HCCI claims data included limited information about benefits. Therefore, we could not control for differences in coverage, nor could we determine if services were provided in or out of network. Furthermore, if a beneficiary did not file a claim for a health care service, the HCCI data set did not contain information on anything spent for that service.

The HCCI data set analyzed in this article consisted of fee-for-service data based on standard coding schemes. Thus, it excluded capitation or salary payments because those do not include individually priced claims. All prices and expenditures reported in the HCCI data set were in nominal dollars. Therefore, we compared expenditures per capita on employer-sponsored insurance to nominal per capita gross domestic product (GDP) and nominal per capita national health expenditures.

Study Results

TOTAL PER CAPITA SPENDING During the study period, per capita expenditures on employer-sponsored insurance grew at an average annual rate of 4.9 percent (Exhibits 1 and 2). On average, the insurance expenditures grew 1.6 percentage points faster than the per capita national health expenditures and 3.9 percentage points faster than the GDP.

PER CAPITA MEDICAL SPENDING Per capita medical expenditures for people with employer-sponsored insurance grew an average of 5.3 percent annually and increased by $703 to $3,773 between 2007 and 2011 (Exhibit 1). Medical expenditures included facility fees for inpatient admissions, outpatient visits, and outpatient procedures, as well as the fees paid to medical professionals for procedures. In all of the years in the study period, medical expenditures grew faster than the GDP (Exhibit 2).

One way of analyzing the growth in medical expenditures is to decompose them into the components that drive changes in spending trends. We considered those components to be average prices (actual payments per service) and utilization (numbers of services used). Utilization grew more slowly (1.7 percent, on average) than medical prices (3.5 percent, on average) in all of the years in the study period (Exhibit 3 and online Appendix Exhibit A1). As a result, utilization growth accounted for less than one-third of the increase in medical expenditures between 2007 and 2011; two-thirds of the increase was a result of rising prices.

We calculated changes in service intensity and derived a trend for intensity-adjusted prices (see Appendix Exhibit A1). In all of the years in the study period and across all medical services, intensity-adjusted unit prices grew much more rap-

**EXHIBIT 1**

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<th>Per Capita Expenditures On Employer-Sponsored Health Insurance, 2007-11</th>
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*Out-of-pocket per capita expenditures as a share of total per capita expenditures. Annual percentage-point changes are not included.
idly than intensity overall. Intensity-adjusted prices for inpatient admissions grew at an annual average rate of 5.2 percent over the study period, whereas inpatient intensity grew at a rate of 1.3 percent.

Average annual intensity for outpatient facilities and professional procedures declined. In contrast, intensity-adjusted prices for these items grew at an average annual rate of 2.9 percent and 2.2 percent, respectively.

We divided per capita expenditures into payments by the insurer and out-of-pocket payments by the beneficiary (copayments, deductibles, and coinsurance). In 2011 insurers paid about 85.5 percent of per capita medical expenditures; the remaining 14.5 percent was paid out of pocket (Exhibit 1). The share of expenditures per capita paid out of pocket had increased steadily and was 1.4 percent points greater in 2011 than in 2007.

Insurers’ per capita medical spending increased at an average annual rate of 4.9 percent, whereas out-of-pocket per capita spending grew 8.0 percent per year, on average (Exhibit 1). Insurers’ per service medical spending grew more slowly than out-of-pocket per service spending (6.2 percent annually, on average) (Exhibit 3 and Appendix Exhibit A2).

**Per Capita Prescription Spending**

The HCCI data included payments to retail and mail-order pharmacies for prescription drugs and prescribed medical devices. Per capita spending on prescriptions rose by $92 between 2007 and 2011, to $773—for an average annual growth rate of 3.3 percent (Exhibit 1). However,
the rate of growth slowed over time. After 2010 per capita spending on prescriptions grew more slowly than medical expenditures, national health expenditures, and GDP (Exhibit 2).

We decomposed prescription expenditures into utilization and price components, using the total number of filled days to calculate the average price per day (Exhibit 4 and Appendix Exhibit A1). The number of filled days increased by 0.4 percent annually, on average. However, this growth slowed over time and was negative in 2011. The price per filled day grew by 2.8 percent per year, but its growth also slowed during the period. Rising prescription prices might have deterred prescription utilization. Insurers’ per capita prescription spending rose by $93 during the study period, to $587—an average annual increase of 4.4 percent (Exhibit 1). Most of the growth came from increased expenditures per filled day, instead of increased utilization (Exhibit 4). Insurers’ expenditures per filled day grew at an annual average rate of 4.0 percent (Appendix Exhibit A2).

In 2007, 27.5 percent of per capita prescription expenditures were out of pocket; the figure was 24.1 percent in 2011 (Exhibit 1). Per capita out-of-pocket expenditures in nominal dollars were $187 in both 2007 and 2011. Growth in these expenditures was flat because of slowing growth in price and utilization (Exhibit 4). The average annual growth rate of out-of-pocket spending per filled day was negative (−0.4 percent), so that fewer dollars were paid out of pocket per filled day in 2011 than in 2007.

Discussion
Between 2007 and 2011 the growth in per capita medical and prescription spending on people with employer-sponsored insurance slowed. Medical expenditures grew more slowly in 2010 and 2011 than in 2008 and 2009, but throughout the study period they grew more rapidly than nominal per capita GDP and NHE. However, spending on prescriptions slowed over time and grew at rates slower than nominal per capita GDP. Medical expenditures outpaced GDP because of accelerating prices, which were offset in part by slowing growth in utilization. Prescription expenditure growth, conversely, fell below GDP growth as utilization declined and price growth decelerated.

Reduced Utilization To better understand the utilization slowdown, we explored the average annual changes in utilization for major medical services (Appendix Exhibit A1). Our analysis found that increases in outpatient care and procedures kept health care utilization growing, even as inpatient admissions declined. Our finding is consistent with other reporting on the HCCI data set and other sources. Prior HCCI re-

**EXHIBIT 4**

Changes In Per Capita Prescription Spending, Utilization, Out-Of-Pocket Spending, And Insurer Spending In Employer-Sponsored Health Insurance, 2007–11


*Notes:* Percent change is from the previous year. The bars (out-of-pocket spending and insurer spending) relate to spending per person (the left-hand y axis). The lines (utilization, out-of-pocket spending per filled day, and insurer spending per filled day) relate to percent change (the right-hand y axis).
ports found that growth in outpatient visits was flat between 2009 and 2011, whereas the use of facilities for outpatient procedures (such as imaging) increased, resulting in net outpatient growth.5–7 HCCI reports also found that office visits to primary care physicians declined, while office visits to specialists grew.7,25 Preventive visits to both primary care providers and specialists also experienced growth between 2009 and 2011.7,26

A 2013 analysis of the Truven MarketScan database that focused on areas of increasing spending growth found increased use of preventive services, inpatient joint surgery, childbirth services, and surgical procedures by the people with employer-sponsored insurance in the period 2006–11.16 Other studies suggest that some of these trends are reflected in national estimates for changes in inpatient days (which declined in 2010 and 2011), outpatient visits (which grew more slowly after 2010 than before), and clinical and physician services (which are growing, but at unspecified rates).2

Changes in the population with employer-sponsored insurance may have influenced utilization patterns. The 2011 Current Population Survey found that the number of people who were younger than age sixty-five and had employer-sponsored insurance declined by ten million between 2007 and 2011.4 However, our statistics were calculated per 1,000 insured people and, therefore, were not necessarily influenced by the total number of people covered by employer-sponsored insurance.

An analysis of the 2011 NHE suggested that the growth in nonprice factors, including utilization, were influenced by an aging population.2 In the HCCI population, the share of adults ages 55–64 (who have higher per capita health spending than any younger age group) increased by 1.8 percentage points, suggesting that utilization growth had slowed even as the population grew somewhat older. The recession may have also changed the overall pool of people covered by employer-sponsored insurance, resulting in year-by-year differences in the average health status of people with that insurance. Slowing utilization growth could reflect the fact that the insured population changed during the study period.

Another factor potentially influencing utilization is the rising enrollment in consumer-driven health plans. The share of insured people covered by these plans rose steadily between 2007 and 2011.3,16 A growing body of research suggests that health care spending trends for people in these plans differ somewhat from spending trends for those with other plan types. However, very little work has been done to quantify the differences in utilization, prices, and intensity across plan types.1,17 A full understanding of the factors behind the slowdown in spending growth awaits further research.

**DIVERGING PRICE TRENDS** Although overall prices paid rose, medical and prescription price trends diverged. After adjusting for intensity, we found that price per medical service grew more rapidly than intensity or utilization (Appendix Exhibit A2).13 At the same time, growth in prescription price per filled day slowed. A number of studies, including those by HCCI, have found that the use of generic drugs has been increasing as the use of brand-name drugs declines.18 The lower prices of generic drugs and devices purchased through insurance plans could be constraining overall prescription price growth.

**SHIFTING THE MEDICAL BURDEN TO THE INSURED** In all years in the study period, growth in out-of-pocket medical spending outpaced that in insurers’ medical spending (Exhibit 1). Changes in the use of services and benefit design (such as uptake of consumer-driven health plans) may have influenced the distribution of payments between insurer and insured.3,14,17 We did not control for the use of health expenditures accounts (such as health retirement accounts or health savings accounts), consumer-driven health plans, or changes in benefit structure. Therefore, we were unable to explore this question.

**SHIFTING THE PRESCRIPTION BURDEN TO INSURERS** Payments by insurers also accounted for most of the expenditures on prescriptions, although beneficiaries paid a higher share of prescription spending than they did of medical services spending. Growth in out-of-pocket prescription spending was effectively flat. However, insurers’ share of per capita spending on prescriptions grew slowly over time, with spending increasing at an average annual rate of 4.4 per-
Rising health care prices were the primary driver of increased per capita spending.

The authors acknowledge the assistance of the Health Care Cost Institute and Aetna, Humana, and UnitedHealthcare, in providing the claims data analyzed in this study.

NOTES
8 All the methods used in this study are described in detail online. See Health Care Cost Institute. Health care cost and utilization report: 2011: analytic methodology [Internet]. Washington (DC): HCCI; 2012 Sep [cited 2013 Aug 30].
10 Negative reimbursement amounts occur when an insurer decides that a claim has been paid in error, making it important to adjust the utilization count. Negative and zero reimbursements were adjusted as follows: If the allowed reimbursement amount was less than 0, we made the utilization count –1. If the allowed reimbursement amount was equal to 0, the utilization count was 0.
11 Aizcorbe A, Nestorik B. Changing mix of medical care services: stylized facts and implications for price in-
Dunn A, Liebman E, Shapiro AH. Developing a framework for decomposing medical-care expenditure growth: exploring issues of representativeness [Internet]. In: Jorgenson DW, Landefeld JS, Schreyer P, editors. Measuring economic sustainability and progress, Conference on Research in Income and Wealth. Chicago (IL): University of Chicago Press; forthcoming 2014. Available from: http://www.nber.org/chapters/c12841.pdf. Our spending decomposition method differed from that of Abe Dunn and colleagues in the following ways: Our unit of analysis was a single admission, visit, procedure, or filled day, not episodes of care; and we were interested in changes in resource intensity and intensity-adjusted prices, not in standardizing the utilization of service.

To access the Appendix, click on the Appendix link in the box to the right of the article online.

Ryu AJ, Gibson TB, McKellar MR, Chernew ME. The slowdown in health care expenditures in 2009–11 reflected factors other than the weak economy and thus may persist. Health Aff (Millwood). 2013;32(5):835–40. Using data on twelve million people insured by large corporations, Ryu and colleagues found that spending for employer-sponsored insurance grew slower (rather than faster) than national health expenditures overall in 2010–11. Our study used different data (forty million people insured by all sizes of employers) and somewhat different methods. It is unclear if the differences in our results and theirs were due to differences in the data sets or the methodology. However, our findings do agree with theirs that spending trends for employer-sponsored insurance in 2010 and 2011 do not follow the historical pattern.


