



2015 Health Care Cost and Utilization Report

November 2016

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Executive Summary

The Health Care Cost Institute (HCCI) is pleased to release the *2015 Health Care Cost and Utilization Report*. The report covers the health care cost and utilization trends for Americans younger than age 65 and covered by employer-sponsored insurance (ESI) for the years 2012 through 2015. It includes data from four national insurance companies: Aetna, Humana, Kaiser Permanente, and UnitedHealthcare. Due to the inclusion of Kaiser Permanente data in the HCCI dataset, data and trends in the *2015 Report* cannot be directly compared to those in HCCI's previous *Health Care Cost and Utilization Reports* (which can be found on HCCI's Website). However, the methodology used to analyze the new dataset was the same as in previous years (see Data and Methods, page 28).¹

As in previous years, the focus of this report is on trends in health care per capita spending, per capita out-of-pocket spending, utilization of health care services, and average price of services for the younger than 65, national ESI population. The report also measures growth in intensity—that is, the complexity—of health care services and adjusts for intensity to produce an intensity-adjusted average price (see “Decomposition key definitions”, page 12). For national per capita spending and out-of-pocket spending, trends are also broken down by region of the country, age group, gender, and age-gender groups. Health care utilization, price, intensity, and intensity-adjusted price trends are presented for each of the four major health care service categories (the three medical service categories and

prescriptions), and for the subservice and detailed service categories that make up the major service categories (see “Key definitions” for more information about HCCI's health care service categories, page iii).

Components of the National Spending Trends

In 2015, spending per capita for the ESI population grew by 4.6% over the previous year, to \$5,141 per person (Table 1). This growth was faster than previous years' growth: 3.0% growth in 2013 and 2.6% growth in 2014. The 4.6% spending growth rate was slightly higher than might be expected, given the previous years' growth rates. In every year studied, the biggest driver of per capita spending growth was increasing prices. However, in some years increases in the utilization of services also played a role in spending growth (see Drivers of Spending Growth, page 10).

Specifically, in 2013, utilization of generic prescriptions and professional services increased. These increases in use, combined with price increases for all service categories except for generic prescriptions, led to a 3.0% rise in per capita spending in that year (Appendix Table A1). In 2014, utilization of the medical service categories and brand prescriptions declined, while only use of generic prescriptions increased (Appendix Table A2). At the same time, the average price of every service category increased, although generally at slower rates than in the previous year. The general declines in the utilization of services, combined with the slightly slower growth in price, led to the

BY THE NUMBERS: 2015

Mainly price growth but also growth in utilization pushed up spending

\$5,141

Spending per capita for the ESI population

4.6%

Increase in health care spending per capita, higher than the previous two years

\$813

Out-of-pocket health care spending per capita

15.8%

Proportion of total health care spending paid out of pocket, the lowest during the study period

1.5% & 0.2%

Increases in utilization of outpatient-other and professional services

2.7% & 3.5%

Increases in the average price per outpatient-other and professional service

smaller growth in spending in 2014.

In 2015, we observed the fastest per capita spending growth rate of the study period: 4.6% (Appendix Table A3). The trends in utilization and price growth in 2015 were more similar to the trends observed in 2013 than those observed in 2014. Utilization of professional services and generic prescriptions increased (as in 2013), as did the utilization of outpatient-other services. In general, the average price growth for the categories of health services grew faster in 2015 than in the previous study period's years. Utilization increases in several health services categories and faster growth in prices combined to create the study period's fastest per capita spending growth rate.

Changes in Out-of-Pocket Spending Trends

Out-of-pocket spending per capita for the study population increased each year of the study period (Table 2). (For more information about the components of out-of-pocket spending, see "Out-of-pocket spending definitions".) The fastest growth in out-of-pocket per capita spending occurred in 2013 (3.3%). The following year, out-of-pocket spending per capita grew at a much slower rate, just 1.8%. In 2015, the final year of the study period, per capita out-of-pocket spending grew by 3.0%. In each year studied, per capita out-of-pocket spending grew at slower rates than did total per capita spending. Between 2012 and 2014, the proportion of total spending that consumers paid out of pocket was relatively stable, moving only from 16.1% to 16.2%. However, in 2015, that percentage declined slightly, to 15.8%.

The per capita out-of-pocket spending trends and the decline in the share of

spending paid by consumers were largely influenced by declining out-of-pocket spending on brand and generic prescriptions. While out-of-pocket per capita spending on outpatient services and professional services increased in each year studied – and out-of-pocket spending on acute inpatient admissions increased in most years, the out-of-pocket per capita spending on brand and generic prescriptions declined each year. This may have had the largest impact on the out-of-pocket spending trends of the oldest age group of adults studied (ages 55-64). The oldest adult age group was the only age group to experience a decline in out-of-pocket per capita spending in a single year (in 2014), and this was observed for both men and women in that age group (Appendix Table A4). Compared to the out-of-pocket spending growth rates observed for men and women in the younger age groups, the slowest average annual growth in out-of-pocket per capita spending was observed for men and women in the oldest adult age group.

Notable trends

Office visits to PCPs declined: Between 2012 and 2015, the number of office visits to primary care physicians (PCPs) declined at an average annual rate of 4.7% (Appendix Table A23). There were 209 fewer office visits to PCPs per 1,000 insured in 2015 than in 2012. In contrast, the utilization rates for the other types of doctor visits identified by HCCI (office visits to specialists, preventive visits to PCPs, and preventive visits to specialists) generally increased over the study period. The largest increase in use was for office visits to specialists, which increased over the study period by 167 office visits to specialists per 1,000 insured (see Professional

Services).

Overall decline in the use of ER visits: In 2012, the utilization of emergency room (ER) visits for the national population was 180 ER visits per 1,000 insured (Appendix Table A23). By 2015, this number had dropped to 173 visits per 1,000 individuals. HCCI had previously noted this trend in fewer ER visits by children (ages 0-18). In this report, we observed a decline in 2015 in the use of ER visits by nearly all age groups. The exception was for the oldest adult age group (ages 55-64), whose use was stable between 2014 and 2015 (see Outpatient Services).

Utilization of MHSU, LD, and newborn hospital admissions stable: Over the study period, the national utilization rates of mental health and substance use (MHSU), labor and delivery (LD), and newborn admissions each stayed steady; the number of admissions per 1,000 insured in the last year of the study period was the same as in the first year (Appendix Table A23). In contrast, use of the much more common medical and surgical admissions declined over the study period; and there were fewer of each of these more common admissions in the last year of the study period than in the first year (see Acute Inpatient Admissions).

Spending per capita on brand anti-infective agents increased, while use decreased: Between 2012 and 2015, spending per capita on brand anti-infective agents nearly doubled, going from \$53 per person to \$101 per person (Appendix Table A20). This \$48 per person increase in spending made up 40.3% of the \$119 increase in per person spending on all brand prescriptions. Over the same period, utilization of brand anti-infective agents dropped an average annual 7.3%

KEY DEFINITIONS

What is per capita spending?

Per capita spending in this report is the estimate of total expenditures on medical and pharmacy claims divided by the employer-sponsored insured (ESI) population.

What are medical services and their subservice and detailed categories?

Three medical service categories are identified: inpatient facility, outpatient facility, and professional procedures. These service categories are divided into subservice categories and further classified into “detailed service” categories.

- **Acute inpatient admissions:** This subservice category consists of the five detailed service categories: medical, surgical, labor and delivery (LD), newborn, and mental health and substance use (MHSU) admissions. It excludes hospice, skilled nursing facility, and ungroupable admissions (see *Data and Methods*). Only acute inpatient admissions are discussed in this report because hospice, SNF, and ungroupable admissions are relatively rare in the younger than age 65 ESI population. However, the trends for the fill inpatient service category are available in the tables.
- **Outpatient visits:** This subservice category consists of three detailed service categories: ER visits, outpatient surgery, and observation visits.
- **Outpatient-other services:** This subservice category consists of four detailed categories that make up the outpatient-other services category: ancillary services, miscellaneous services, laboratory and pathology services (lab/path), and radiology services.
- **Professional services:** This subservice category consists of 11 detailed service categories: administered drugs (including chemotherapy drugs); the administration of drugs; anesthesia; office visits to primary care providers (PCPs); office visits to specialists; miscellaneous services; pathology and laboratory (path/lab) services; preventive visits to PCPs; preventive visits to specialists; radiology services; and surgery services.

What are prescription service, subservice, and detailed service categories and subclasses?

HCCI analyzes prescription drug and device claims from pharmacies and suppliers. The prescription service category is divided into brand and generic drug subservice categories and is further classified into detailed service categories, and further into subclasses.

- **Brand and generic prescriptions:** These detailed service categories for brand and generic prescriptions are based on the AHFS classification system.² The prescription detailed service categories are: anti-infective agents; cardiovascular drugs; central nervous system (CNS) agents; eye, ear, nose, throat (EENT) preparations; gastrointestinal (“gastro”) drugs; hormones and synthetic substitutes (“hormones”); respiratory drugs; skin and mucous membrane (“skin”) agents; and a category of the remaining “other” therapeutic categories of prescriptions.

(Appendix Table A23). The per capita spending increase on brand anti-infective agents was due to the increase in the average price per filled day, which more than doubled from \$35 per filled day to \$83 per filled day (Appendix Table A24; see Prescriptions).

Special Section: Spending Per Capita on Health Care in Selected States in 2015

This report introduces a new analysis that describes total and out-of-pocket per capita spending trends in 18 states and compares the state-level trends to the national average. The states selected are geographically diverse and meet HCCI’s reporting requirements. Although these states

do not represent a random sample of states, they provide an interesting look at health care spending trends around the nation.

Spending Per Capita for the ESI Population

In 2015, spending per capita for the national ESI population was \$5,141 (Figure 1 and Table 1). This was a \$226 increase over the previous year. Spending per capita grew each year between 2012 and 2015 (the “study period”), with spending growth rates ranging from 2.6% (2014) to 4.6% (2015). Between 2012 and 2015, spending increased by \$488 per person.

Spending by Gender

In each year studied, spending per capita for women was higher than for men. In 2015, spending was \$5,684 per woman and \$4,581 per man (Table 1). In each year studied, spending for men grew at a faster rate than spending for women. However, even with faster annual growth rates, spending for men increased by a smaller dollar amount over the study period than did spending for women:

an increase of \$474 per man and \$506 per woman. This led to the difference in spending between men and women widening over the study period. From 2012 to 2015, the difference in spending between genders rose from \$1,071 per capita to \$1,103 per capita.

Per capita spending for women was higher than for men on every type of service, except brand prescriptions. In 2015, spending per capita on brand prescriptions was \$29 higher for men than for women (Appendix Table A5). The largest spending difference between the genders was on professional services, where spending was \$628 higher for women.

Spending by Age Group

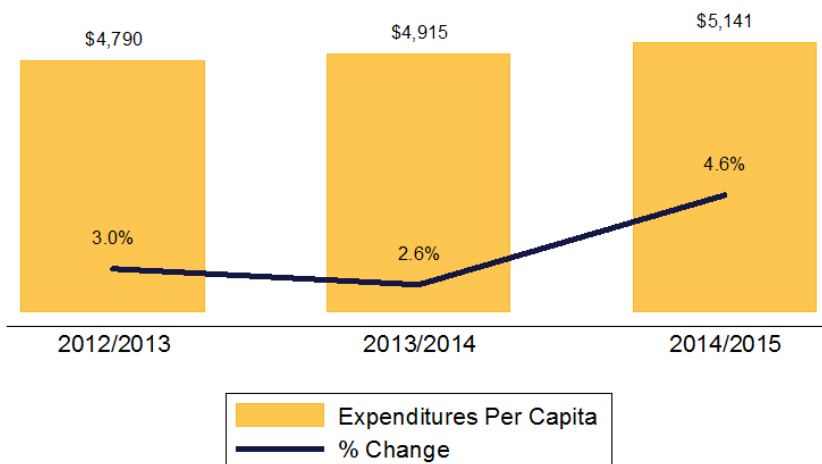
In every year studied, per capita spending increased with age and was highest for the oldest age group (ages 55-64) and lowest for the youngest

age group (ages 0-18). In 2015, spending was \$9,707 per oldest adult and \$2,791 per child (Table 1). Spending per capita for children was similar to spending for the youngest adults (ages 19-25): \$2,791 and \$2,915, respectively.

In all the years studied, the two youngest age groups experienced the fastest spending growth rates (Table 1). And in 2015, spending grew faster than in any of the previous study years, which was true for all the age groups. However, even with the fastest spending growth rates, the youngest age groups had the smallest per capita spending increase over the study period. Between 2012 and 2015, per capita spending growth for the oldest age group (\$901 per person) was nearly three times larger than the growth for the three youngest age groups (over \$300 per person; Figure 2). This per capita spending increase was driven largely by an increase in spending on prescriptions. Between 2012 and 2015, for the oldest adult age group, spending on prescriptions increased by \$358 per person; this was larger than the increase in spending on all health services for each of the three youngest age groups (Appendix Table A6).

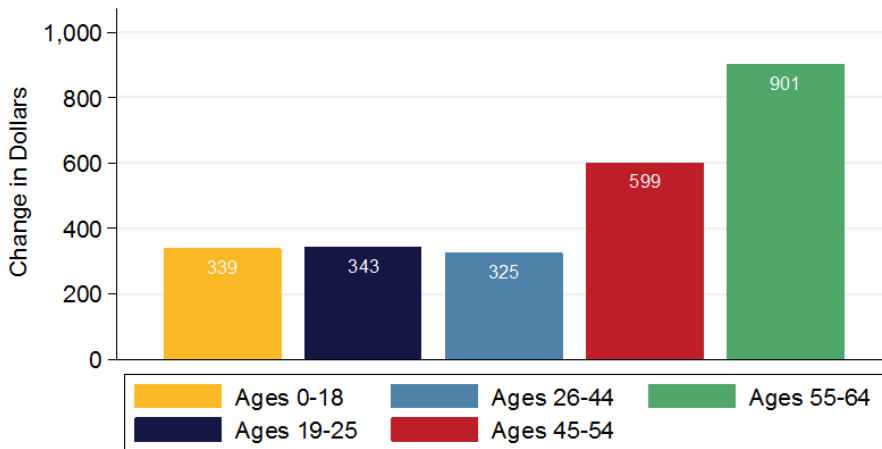
For all of the age groups studied, the highest per capita spending was on professional services followed by spending on outpatient services (Appendix Table AX). For the three youngest age groups, the least per capita spending was on prescriptions, while for the two oldest adult age groups, the least per capita spending was on acute inpatient admissions.

Figure 1
Per Capita Spending for Insureds, Younger than Age 65, 2012-2015



Source: HCCI, 2016.
Notes: All data weighted to reflect the national, younger than age 65 ESI population. Data from 2014 and 2015 adjusted using actuarial completion.

Figure 2
Increase in Spending Per Capita
by Age Group, 2012-2015



Source: HCCTI, 2016.
 Notes: All data weighted to reflect the national, younger than 65 ESI population.
 Data from 2014 and 2015 adjusted using actuarial completion.

Spending by Age-Gender Groups

Across the study population, per capita spending for women was higher than spending for men. However, for two of the three age groups--children (ages 0-18) and the oldest adults (ages 55-64), per capita spending was higher for boys and men by \$265 per boy and \$235 higher per man (Appendix Table A7). For children, per capita spending for boys was higher on all subservice categories, except for outpatient-other services, for which spending was \$1 higher per girl than per boy. On the detailed categories of services, per capita spending levels were similar for boys and girls; the largest spending difference was \$37, on generic central nervous system (CNS) agents (Appendix Table A9).

For the oldest adult age group, (ages 55-64), spending for women was higher than for men on professional services and all outpatient services. The largest difference within this age group was for acute inpatient admissions: spending per capita was \$569 more for men (Appendix Table A7). Of

that amount, \$417 was on surgical admissions (Appendix Table A17). This was the largest spending difference by gender for any age group on a detailed category of services. Interestingly, the second largest spending difference by gender within this age group was on brand anti-infective agents: \$232 higher for the oldest adult men in 2015.

For the three middle age groups of adults (ages 19-24, 25-44, and 45-54), spending per woman was higher than spending per man (Appendix Table A7). While per capita spending increased with age, the difference in spending between men and women increased through age 44, and then was smaller for adults ages 45-55. For each of these three age groups, the biggest difference in spending between men and women was on professional services. In 2015, per capita spending on professional services was at least \$500 higher for women than men.

In the professional services category, for the two younger adult age groups, the largest per capita spending differ-

ence by gender was for surgical services followed by laboratory and pathology (lab/path) services (Appendix Table A11 and Appendix Table A13). Interestingly, for the 45-54 year old group, the largest spending difference by gender was on administered drugs: a difference of \$156 per person (Appendix Table A15). For adults ages 19-24, the largest per capita spending difference between men and women was on ER visits (a \$151 per person difference; Appendix Table A11). For adults ages 25-44, the largest gender spending difference was on professional surgical services (a \$282 difference; Appendix Table A13), while for adults age 45-54 it was on outpatient surgical services (a \$247 difference; Appendix Table A15).

Per capita spending trends for boys and girls were similar during childhood (Appendix Table A7). As men and women age through the early adult years (for women these may be child-bearing years) the spending trends diverge, and spending is higher for women than men on all types of health services. The gender difference in spending peaked in adults ages 25-44. Through the two oldest age groups, spending trends gradually converged, until spending was higher for men than women in the oldest age group. For more information, see similar trends reported by Dale Yamamoto in *Health Care Costs from Birth to Death*.³

Spending by Region

In every year studied, per capita spending was highest in the Northeast and lowest in the West. Per capita spending in the South was second highest, and was third highest in the Midwest. Of the highest and lowest spending regions, the dollar increase in per capita spending over the study

period was twice as high in the Northeast as it was in the West (Table 1). As noted above, per capita spending on health care tended to increase with age and one possible contributing factor in these spending trends is the average age of the population in these regions. As noted above, per capita spending on health care tended to increase with age. In 2015, of the four regions, the Northeast had the highest median age at 39.7, while the West had the lowest median age at 36.5.⁴

In 2015, the Northeast had the fastest growth rate (5.1%) observed for any region in any year studied. The largest per capita spending increase (\$265 per person) was due largely to an increase in spending on prescriptions (a \$101 per person increase). In comparison, per capita spending in 2015 on prescriptions rose no more than \$76 per person in any other region.

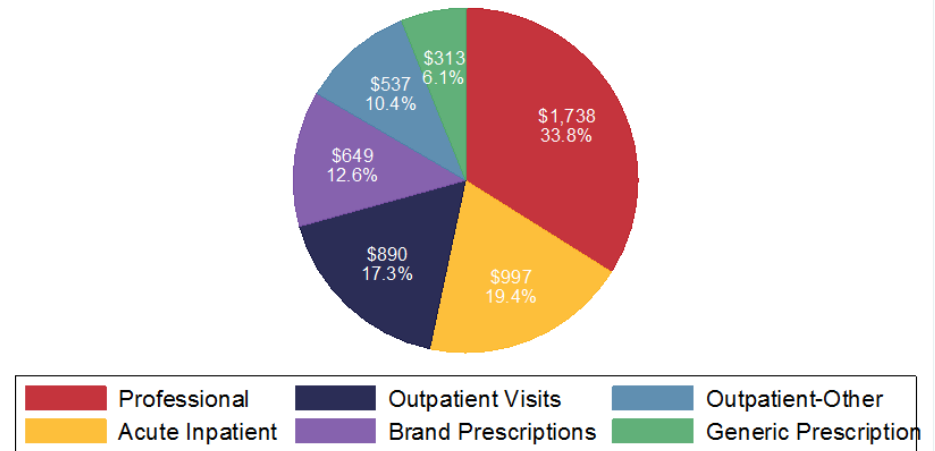
In 2015, the West experienced the lowest per capita spending and the smallest spending increase (Table 1). Interestingly, the West had the highest per capita spending on acute inpatient admissions of any region (\$1,058), but had nearly the lowest per capita spending on all other categories of health services (Appendix Table A19). For example, spending on prescriptions in the West was \$784 per person, compared with \$1,057 per person in the South.

Spending by Service Category

As with total spending per capita, spending on each of the categories of health services increased each year of the study period (Table 1). The slowest growth rates in spending per capita and the smallest dollar increase in spending across the study period was for acute inpatient admissions. The fastest growth rates and largest dollar

Figure 3

Spending Per Capita and Percent of Total Spending Per Capita on Subservice Categories, 2015



Source: HCCI, 2016.
 Notes: All data weighted to reflect the national, younger than 65 ESI population.
 Data from 2014 and 2015 adjusted using actuarial completion.
 Percents sum to 99.7% due to exclusion of other prescriptions, SNF, hospice, and ungroupable inpatient stays.

increases in per capita spending were for prescriptions.

Professional Services: Of the four service categories, professional services accounted for most of the per capita spending (Figure 3). In 2015, spending per capita on professional services was \$1,738, which made up a third of the year’s total per capita spending (Table 1). However, over the study period, these services saw modest spending growth: \$125 per person. In 2015, as in all years studied, most professional service spending was on surgical services: \$278 per person (Appendix Table A20). Over the study period, per capita spending on administered drugs had the largest spending increase. Between 2012 and 2015, spending on administered drugs rose from \$158 per person to \$190 per person.

Outpatient Services: The second highest spending per capita, after professional services, was for outpatient services. In 2015, per capita spending on outpatient services was \$1,427 (Figure 3 and Table 1), most of which was on outpatient visits (\$890 per

person). Of the per capita outpatient visit spending, nearly all was on surgical visits (\$527; Appendix Table A20).

The remainder of the per capita outpatient spending was on outpatient-other services. In 2015, \$537 per person was spent on outpatient-other services (Figure 3 and Table 1). Over the study period, spending per capita on outpatient-other services experienced slower growth rates and smaller dollar increases compared to outpatient visits. Between 2012 and 2015, spending per capita on outpatient-other services increased by \$48 per capita, compared with a \$125 increase on outpatient visits.

Acute Inpatient Admissions: In 2015, spending on acute inpatient admissions was \$997 per person (Figure 3 and Table 1). Over the study period, acute admissions generally had the slowest per capita spending growth rates and had the smallest spending increase. Between 2012 and 2015, spending on acute admissions increased by \$53 per person, compared to a \$153 per person increase in spending on all outpatient services

over the same time period. In the acute inpatient admissions category, the most per capita spending in 2015 was on surgical admissions (\$513), followed by medical admissions (\$296; Appendix Table A20). In 2015, of the detailed categories of acute admissions, only surgical admissions had a spending increase that was greater than \$3 per person, having risen by \$15 per person.

Prescriptions: Compared to the other service categories, the least dollars per capita were spent on prescriptions: \$964 per person in 2015 (Figure 3 and Table 1). However, prescriptions had the fastest spending growth rate of any service category in both 2014 and 2015. Prescriptions also had the largest dollar increase in per capita spending both in 2015 (\$77 per person) and over the entire study period (\$159 per person).

Per capita spending was twice as high on brand prescriptions as on generic prescriptions: in 2015, \$649 versus \$313 (Figure 3 and Table 1). In 2014 and 2015, brand prescriptions had a faster growth rate than any other service category. In 2015, brand prescriptions also had the largest dollar increase in per capita spending (\$66), largely due to increases in per capita spending on brand hormones and synthetic substitutes (a \$22 per person increase) and brand anti-infective agents (a \$20 increase; Appendix Table A20).

In contrast, of all the service categories, per capita spending was lowest on generic prescriptions (\$313) (Figure 3 and Table 1). Spending on generic prescriptions increased by just \$10 per capita in 2015 and by \$39 over the study period, the smallest dollar spending increase for all service categories. In the generic prescriptions category, the highest

spending was on central nervous system (CNS) agents (\$97 per capita), which saw just a \$2 per person increase in 2015 (Appendix Table A20).

Table 1: Annual Spending Per Capita (2012–2015)

	2012	2013	2014	2015	Percent Change 2012/2013	Percent Change 2013/2014	Percent Change 2014/2015
Per Capita	\$4,653	\$4,790	\$4,915	\$5,141	3.0%	2.6%	4.6%
Per Capita by Region							
Northeast	\$4,782	\$4,978	\$5,187	\$5,452	4.1%	4.2%	5.1%
Midwest	\$4,655	\$4,807	\$4,931	\$5,148	3.2%	2.6%	4.4%
South	\$4,772	\$4,897	\$5,007	\$5,240	2.6%	2.2%	4.6%
West	\$4,355	\$4,445	\$4,527	\$4,711	2.1%	1.9%	4.1%
Per Capita by Age							
18 and Younger	\$2,453	\$2,560	\$2,644	\$2,791	4.4%	3.3%	5.6%
19-25	\$2,572	\$2,675	\$2,770	\$2,915	4.0%	3.5%	5.2%
26-44	\$4,117	\$4,216	\$4,288	\$4,442	2.4%	1.7%	3.6%
45-54	\$6,038	\$6,207	\$6,358	\$6,637	2.8%	2.4%	4.4%
55-64	\$8,806	\$9,041	\$9,293	\$9,707	2.7%	2.8%	4.5%
Per Capita by Gender							
Men	\$4,107	\$4,238	\$4,372	\$4,581	3.2%	3.2%	4.8%
Women	\$5,178	\$5,326	\$5,442	\$5,684	2.8%	2.2%	4.4%
Per Capita by Service Category							
Inpatient	\$961	\$982	\$987	\$1,012	2.2%	0.5%	2.6%
Acute Inpatient	\$944	\$967	\$972	\$997	2.4%	0.6%	2.6%
Outpatient	\$1,274	\$1,325	\$1,366	\$1,427	4.0%	3.1%	4.5%
Visits	\$785	\$820	\$850	\$890	4.4%	3.7%	4.7%
Other	\$489	\$505	\$515	\$537	3.3%	2.1%	4.2%
Professional Procedures	\$1,613	\$1,658	\$1,676	\$1,738	2.8%	1.1%	3.7%
Prescriptions	\$805	\$826	\$887	\$964	2.6%	7.4%	8.7%
Brands	\$530	\$540	\$583	\$649	1.9%	7.9%	11.4%
Generics	\$274	\$285	\$303	\$313	3.9%	6.3%	3.3%

Source: HCCI, 2016.

Notes: All data weighted to reflect the national population ages 0-64. Data for 2014 and 2015 adjusted using actuarial completion. All per capita dollars from allowed amounts. All figures rounded.

Out-of-Pocket Spending Per Capita

Out-of-pocket spending per person increased each year studied, reaching \$813 per capita in 2015 (Figure 4 and Table 2; see “Out-of-pocket spending definitions”, page 8). Between 2014 and 2015, spending per capita out of pocket grew by \$24, and between 2012 and 2015, by \$62 per person. In the first three years of the study period, between 2012 and 2014, the percentage of total health care costs borne by consumers out of pocket was stable at just over 16%. In 2015, this proportion declined slightly, to 15.8% of total health care costs paid out of pocket.

Out-of-Pocket Spending by Gender

In every year studied, women paid more per capita out of pocket than did men. In 2015, women paid over 30% more out of pocket: \$929 per woman and \$693 per man (Table 2). Also,

women paid a larger percentage of their total health care costs out of pocket: 16.3% for women compared to 15.1% for men.

During the study period, men generally saw out-of-pocket per capita spending grow at faster rates than did women. However, between 2012 and 2015, out-of-pocket per capita spending for women increased by a larger amount than for men: \$68 per woman compared with \$56 per man (Table 2).

Out-of-Pocket Spending by Age Group

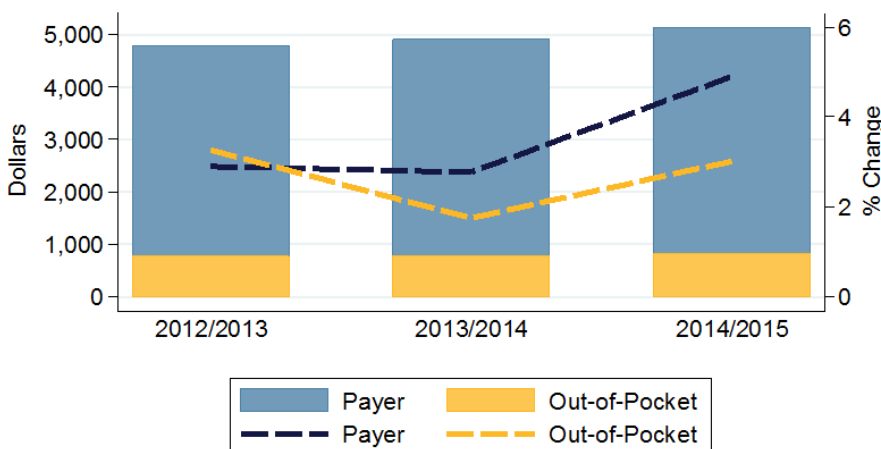
As with total spending, out-of-pocket spending per capita increased with age. The oldest age group had the highest per capita out-of-pocket spending (\$1,269 in 2015), while the youngest age group had the lowest (\$482; Table 2). However, the share of total health care costs paid out-of-

pocket declined with age. The youngest adult age group (19-25 year olds) paid the highest percentage of costs (18.6%) out of pocket, compared with 13.1% for the oldest adults.

The younger age groups also had faster growth rates for their out-of-pocket spending compared to the older age groups. In each year studied, the two youngest age groups (ages 0-18 and 19-24) had the fastest spending growth rates. Interestingly, the oldest adult age group (age 55-64) saw their per capita out-of-pocket spending decline slightly in 2014, by \$12 per person (Table 2). Both in 2015 and over the entire study period, the smallest dollar increase in per person out-of-pocket spending was observed for the oldest adults (declines of \$16 per person and \$42 per person, respectively). The largest dollar increase in per person out-of-pocket spending in both 2015 and across the study period was for the 26-44 year old age group: declines of \$28 per person and \$72 per person, respectively.

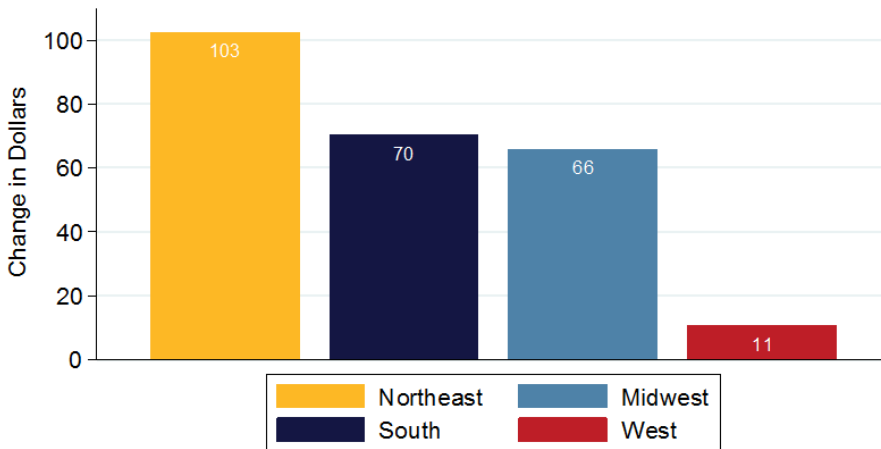
Over the study period, all the age groups saw the biggest increases in per capita out-of-pocket spending on professional services and outpatient services (Appendix Table A21). In contrast, per capita spending out of pocket on prescriptions, especially brand prescriptions, declined for every age group over the same period. The largest declines in prescription out-of-pocket spending were for the oldest age groups, while the smallest spending declines were observed for the youngest age groups.

Figure 4
Payer and Out-of-Pocket Spending Per Capita for Insureds Younger than Age 65, 2012-2015



Source: HCII, 2016.
Notes: All data weighted to reflect the national, younger than 65 ESI population. Data from 2014 and 2015 adjusted using actuarial completion.

Figure 5
Increase in Out-of-Pocket Spending Per Capita by Region, 2012-2015



Source: HCCI, 2016.
 Notes: All data weighted to reflect the national, younger than 65 ESI population. Data from 2014 and 2015 adjusted using actuarial completion.

Out-of-Pocket Spending by Region

In 2015, out-of-pocket spending was the lowest in the West (\$637 per person), and the second-lowest total per capita spending. However, unlike total spending trends, the highest out-of-pocket spending was observed in the South (\$903; Table 2), whereas it has the second highest total per capita spending (Table 1). The South also paid the highest percentage of health care costs out of pocket: 17.2% compared to 13.5% in the West and 14.7% in the Northeast (Table 2).

The Northeast generally had the fastest out-of-pocket spending growth, while the West had the slowest. In 2014, the West saw a \$1 per person decrease in out-of-pocket spending per capita (Figure 5 and Table 2). The West was the only region to experience a decline in per capita out-of-pocket spending during the study period. Due to the slower growth rates over the 2012-2015 study period, the West saw just an \$11 per person increase in out-of-pocket spending,

compared with a \$103 per person increase in the Northeast – the largest increase for any region.

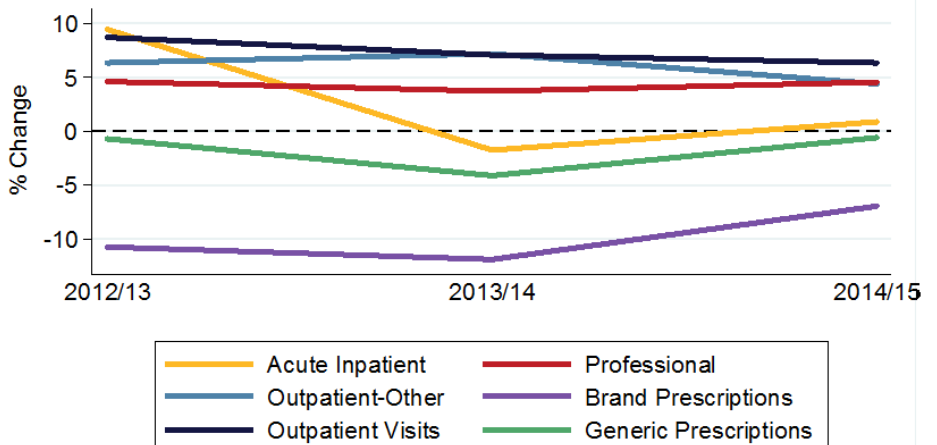
Out-of-Pocket Spending by Service Category

Overall, professional services and outpatient services had the highest out-of-pocket spending per capita and the largest dollar increases in out-of-

pocket spending (Table 2). In contrast, out-of-pocket spending on acute admissions was stable over the study period, while out-of-pocket spending on prescriptions declined each year.

Professional Services: In 2015, as in all years studied, more per capita out-of-pocket dollars were spent on professional services than any category of health services: \$372 per person in 2015 (Table 2). This higher spending on professional services was due largely to higher total spending and higher average utilization of these services compared to total spending and utilization for the other medical service categories. Over the study period, the out-of-pocket spending on professional services increased by \$44 per person, the largest increase of the health service categories. Out-of-pocket per capita spending on office visits to specialists made up over 30% of the spending increase and accounted for the highest out-of-pocket spending on any single type of professional service (\$64 per capita in 2015; Appendix Table A22).

Figure 6
Annual Percentage Changes in Out-of-Pocket Spending Per Capita by Subservice Category, 2012-2015



Source: HCCI, 2016.
 Notes: All data weighted to reflect the national, younger than 65 ESI population. Data from 2014 and 2015 adjusted using actuarial completion.

Outpatient Services: Outpatient services accounted for the second highest share of out-of-pocket spending and second largest per capita increase in out-of-pocket spending. In 2015, out-of-pocket spending on outpatient services was \$235 per person, up \$42 per person from spending in 2012 (Table 2). Of that \$235, 60% was spent on outpatient visits, while the remaining 40% was spent on outpatient-other services. The highest spending on outpatient visits was for emergency room (ER) visits: \$72 per person (Appendix Table A22). ER visits also had the largest increase in per capita out-of-pocket spending over the study period, comprising half of the total \$41 per person increase in out-of-pocket spending on all outpatient services.

Acute Inpatient Admissions: After a \$4 per person increase between 2012 and 2013, spending out of pocket on acute admissions was \$49 per person in the subsequent years studied (Table 2). Of the out-of-pocket dollars spent on acute admissions, the high-

est out-of-pocket spending was on medical admissions: \$15 per capita in 2015 (Appendix Table A2).

Prescriptions: In contrast to out-of-pocket per capita spending on medical services, out-of-pocket spending on prescriptions declined throughout the study period (Figure 6 and Table 2). Between 2012 and 2015, spending out of pocket on prescriptions declined from \$184 per person to \$157 per person. Generic prescriptions accounted for more out-of-pocket per capita spending than brand prescriptions: in 2015, \$96 per person versus \$61 per person. However, between 2012 and 2015, out-of-pocket spending on brand prescriptions saw a larger decline (\$22 per person) than did generic prescriptions (\$5 per person). The drop in brand prescription spending was due largely to spending declines for brand cardiovascular drugs (an \$8 per person decline) and brand CNS agents (a \$7 per person decline; Appendix Table A22).

OUT-OF-POCKET SPENDING DEFINITIONS

Out-of-pocket spending per capita: Out-of-pocket spending includes the patient's share of payment for the provision of health care services and prescriptions covered by insurance; such spending includes any copayments, coinsurance payments, or deductible payments. If an insurance claim was not filed (e.g., for the purchase of over-the-counter medicines), the expenditures are not included in this metric. These payments also do not reflect any refunds, rebates, coupons, or discounts that individuals received after making the out-of-pocket payments. HCCI calculated out-of-pocket expenditures per capita by dividing total out-of-pocket spending by the total insured population.

Deductibles: A deductible, both individual and family deductibles, is the amount of incurred health care costs that an insured must pay out of pocket before the health plan reimbursement begins in a contract period. For example, for health care expenses of \$2,000 in a year, an insured with a \$1,000 deductible would pay the first \$1,000 out of pocket. After the deductible is satisfied, the insured and the health plan jointly pay for the remaining \$1,000 of expenses according to the insurance contract's coinsurance and co-payment policies.

Coinsurance: Coinsurance is the portion of covered health care costs borne by an insured. After insureds meet their deductible requirements, they generally pay for a portion of the remaining health care expenses out of pocket. For example, they may pay according to a fixed percentage of the expense, such as 20%. The insurer (payer) pays the other 80%.

Co-payments: Copayments are specified amounts paid by the insured for services delivered. Typically, copayments are fixed fees for such services as physician office visits, prescriptions, and hospital admissions.

Table 2: Annual Out-of-Pocket Spending Per Capita (2012–2015)

	2012	2013	2014	2015	Percent Change 2012/2013	Percent Change 2013/2014	Percent Change 2014/2015
Out-of-Pocket Per Capita	\$751	\$775	\$789	\$813	3.3%	1.8%	3.0%
Share of Expenditures	16.1%	16.2%	16.1%	15.8%	N/A	N/A	N/A
Out-of-Pocket Per Capita by Region							
Northeast	\$700	\$732	\$768	\$803	4.5%	4.9%	4.5%
Midwest	\$793	\$815	\$835	\$859	2.8%	2.4%	2.9%
South	\$833	\$868	\$875	\$903	4.2%	0.9%	3.1%
West	\$626	\$629	\$628	\$637	0.5%	-0.1%	1.3%
Out-of-Pocket Per Capita by Age							
18 and Younger	\$425	\$444	\$461	\$482	4.7%	3.8%	4.4%
19-25	\$495	\$503	\$519	\$543	1.5%	3.2%	4.7%
26-44	\$741	\$763	\$785	\$813	2.9%	2.9%	3.6%
45-54	\$945	\$977	\$992	\$1,017	3.4%	1.6%	2.5%
55-64	\$1,227	\$1,265	\$1,253	\$1,269	3.1%	-0.9%	1.2%
Out-of-Pocket Per Capita by Gender							
Men	\$637	\$660	\$673	\$693	3.7%	1.9%	3.0%
Women	\$861	\$887	\$902	\$929	3.0%	1.7%	3.0%
Out-of-Pocket Per Capita by Service Category							
Inpatient	\$46	\$50	\$49	\$50	9.1%	-1.7%	0.8%
Acute Inpatient	\$45	\$49	\$49	\$49	9.4%	-1.8%	0.9%
Outpatient	\$193	\$208	\$222	\$235	7.7%	7.1%	5.5%
Visits	\$114	\$124	\$133	\$141	8.7%	7.1%	6.3%
Other	\$79	\$84	\$90	\$94	6.3%	7.1%	4.4%
Professional Procedures	\$328	\$343	\$356	\$372	4.6%	3.7%	4.5%
Prescriptions	\$184	\$175	\$162	\$157	-5.2%	-7.4%	-3.1%
Brands	\$83	\$74	\$65	\$61	-10.8%	-11.9%	-6.9%
Generics	\$101	\$101	\$97	\$96	-0.7%	-4.1%	-0.6%

Source: HCCI, 2016.

Notes: All data weighted to reflect the national population ages 0-64. Data for 2014 and 2015 adjusted using actuarial completion. All per capita dollars from allowed amounts. All figures rounded.

Drivers of Spending Growth

Health care cost growth is the result of changes in the number of services provided (“utilization”) and the prices paid for those services. Included in the calculation of prices paid is service intensity—the complexity of services used to provide care. Thus, to examine drivers of spending growth, HCCI analyzed how the different components of spending — price and utilization, along with intensity and intensity-adjusted prices — affected health care trends for medical and prescription categories of health services.

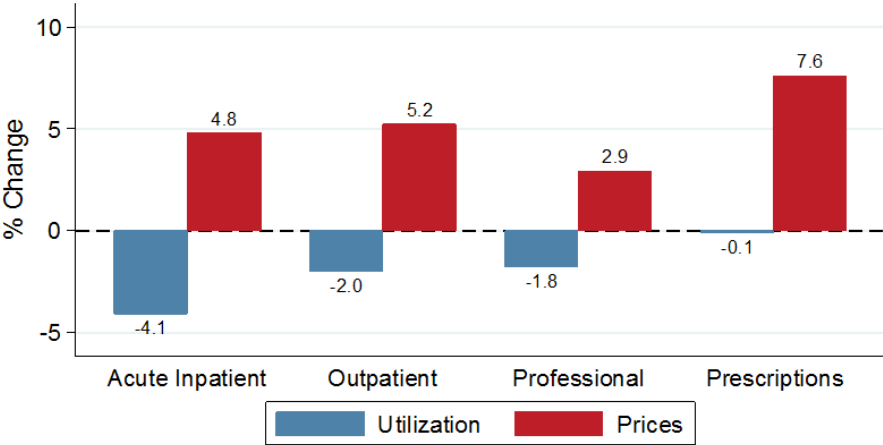
Specifically, HCCI measured utilization for medical subservice categories as the number of services used per 1,000 individuals, and, for prescription categories, the number of filled days of a prescription per 1,000 individuals. Price was measured for medical service categories as the average price of a service in that category, whereas for prescription categories, it was measured as the average price of a filled day of a prescription. Because changes in price could reflect changes in how care is delivered, HCCI’s analyses also considered intensity — the complexity of services used to provide care. Intensity was used to adjust prices paid to a base price that all patients would pay for a given service (“intensity-adjusted price”). Adjusting prices for intensity allowed HCCI to examine whether prices changed owing to differences in the resources used to treat patients or to changes in other factors. (For more information about these metrics and the categories of health care services, see “Key Definitions”, page iii.)

Between 2012 and 2015, the average price per service for each medical service category and for brand prescriptions rose each year (Figures 7 and 8 and Table 3). Utilization rate trends, however, were more mixed. While use of acute inpatient admissions and brand prescriptions fell every year studied, in 2015 utilization rates increased slightly for outpatient services and professional services and increased every year of the study period for generic prescriptions. In both 2014 and 2015, the decline in the use of filled days of brand prescriptions was larger than the increase in the use of generic prescriptions, which led to a net decline in these years in the use rate for filled days of prescriptions. In 2015, small increases occurred in the average intensity of medical services, which, combined with the increases in average price, led to increases in the average intensity-adjusted price for medical services.

In 2015, per capita spending for the ESI population increased by 4.6%; this was a larger spending increase than occurred in the study period’s previous years (Table 1). This spending increase was due mainly to increases in the average price of health services (Figure 8 and Appendix Table A3). However, the increase in 2015 was larger than in prior years due to the small increases in utilization of outpatient and professional services in that year (Appendix Tables A1-A3).

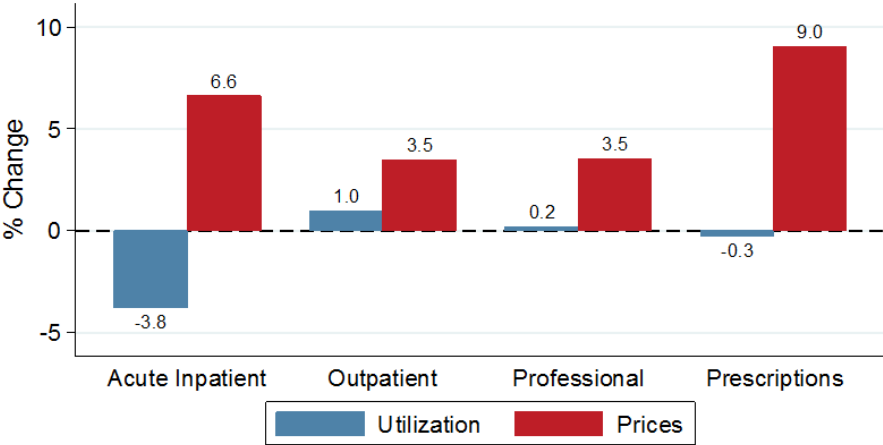
Drivers of Spending Growth – Continued

Figure 7
Changes in Utilization and Prices of Health Care Service Categories, 2014



Source: HCCL, 2016.
Notes: All data weighted to reflect the national, younger than age 65 ESI population.
Data from 2014 and 2015 adjusted using actuarial completion.

Figure 8
Changes in Utilization and Prices of Health Care Service Categories, 2015



Source: HCCL, 2016.
Notes: All data weighted to reflect the national, younger than age 65 ESI population.
Data from 2014 and 2015 adjusted using actuarial completion.

DECOMPOSITION KEY DEFINITIONS

What is utilization and average price?

Utilization is the average number of uses for a service per 1,000 insured. For every service use, there is an associated dollar amount paid to providers by both insurers and the insured. Average price is calculated by dividing total spending for a service category, subservice category, or detailed service category by the associated number of service uses.

What is intensity?

Intensity is a measure of the complexity of a service, including length of delivery time, severity of illness, and amount of resources used for each medical service. For example, one patient has a simple 15-minute appointment with a physician, while another patient has a 30-minute visit with the same physician. Intensity of services is greater for the second patient, even though each was counted as a single office visit. Many factors can account for changes in service intensity, including new and better forms of treatment, the health status of the population receiving services, and reimbursement system modifications that either encourage or discourage one form of treatment over another. HCCI measures intensity by assigning a weight designed by Centers for Medicare & Medicaid Services (CMS) and commercially adjusted to each medical service, when possible. HCCI does not currently calculate intensity for prescriptions, admissions to a hospice or skilled nursing facility, or ungroupable hospital admissions.

What is intensity-adjusted price?

Isolating the effect of intensity on the price paid per service allows for the calculation of the price of a service after adjusting for delivery time, the patient's severity of illness, and resources used. The consumer never sees this price directly. The intensity-adjusted price, sometimes known as "unit price", is calculated by dividing the average price paid for the service by the average intensity of the service. For example, intensity equal to one would lead to no difference between prices paid and intensity-adjusted prices. Intensity less than one would lead to a higher adjusted price than the price paid; an intensity level greater than one would mean that the adjusted price was less than the price paid.

Table 3: Changes in Utilization, Price, Intensity, and Intensity-Adjusted Price by Service Category (2012–2015)

	2012	2013	2014	2015	Percent Change 2012/2013	Percent Change 2013/2014	Percent Change 2014/2015
Utilization per 1,000 insureds by Service Category							
Inpatient	58	56	54	52	-4.1%	-4.0%	-3.8%
Acute Inpatient	56	54	52	50	-2.9%	-4.1%	-3.8%
Outpatient	2,870	2,832	2,775	2,802	-1.3%	-2.0%	1.0%
Visits	323	319	314	305	-1.5%	-1.4%	-2.8%
Other	2,547	2,513	2,460	2,496	-1.3%	-2.1%	1.5%
Professional Procedures	16,515	16,574	16,275	16,305	0.4%	-1.8%	0.2%
Prescriptions - Filled Days	282,447	284,678	284,302	283,430	0.8%	-0.1%	-0.3%
Brands	54,393	45,804	38,536	34,301	-15.8%	-15.9%	-11.0%
Generics	228,010	238,842	245,710	249,033	4.8%	2.9%	1.4%
Average Price Paid per Service by Service Category							
Inpatient	\$16,496	\$17,575	\$18,401	\$19,614	6.5%	4.7%	6.6%
Acute Inpatient	\$16,950	\$17,877	\$18,739	\$19,967	5.5%	4.8%	6.6%
Outpatient	\$444	\$468	\$492	\$509	5.4%	5.2%	3.5%
Visits	\$2,429	\$2,574	\$2,707	\$2,916	6.0%	5.2%	7.7%
Other	\$192	\$201	\$210	\$215	4.6%	4.3%	2.7%
Professional Procedures	\$98	\$100	\$103	\$107	2.4%	2.9%	3.5%
Prescriptions - Filled Days	\$3	\$3	\$3	\$3	1.8%	7.6%	9.0%
Brands	\$10	\$12	\$15	\$19	21.0%	28.3%	25.1%
Generics	\$1	\$1	\$1	\$1	-0.8%	3.3%	2.0%
Average Intensity per Service by Service Category							
Acute Inpatient	1.29	1.30	1.32	1.34	1.0%	0.9%	2.0%
Outpatient	3.23	3.23	3.23	3.24	0.2%	-0.2%	0.2%
Visits	18.06	17.89	17.61	18.19	-1.0%	-1.6%	3.3%
Other	1.35	1.38	1.39	1.41	2.3%	1.0%	1.1%
Professional Procedures	1.80	1.83	1.83	1.85	1.3%	-0.1%	1.5%
Average Intensity-Adjusted Price per Service by Service Category							
Acute Inpatient	\$13,129	\$13,712	\$14,248	\$14,889	4.4%	3.9%	4.5%
Outpatient	\$137	\$145	\$153	\$157	5.2%	5.5%	3.2%
Visits	\$134	\$144	\$154	\$160	7.0%	6.8%	4.3%
Other	\$142	\$146	\$151	\$153	2.3%	3.3%	1.6%
Professional Procedures	\$54	\$55	\$56	\$57	1.1%	3.0%	2.0%

Source: HCCI, 2016.

Notes: All data weighted to reflect the national population ages 0-64. Data for 2014 and 2015 adjusted using actuarial completion. All per capita dollars from allowed amounts. All figures rounded.



Professional Services

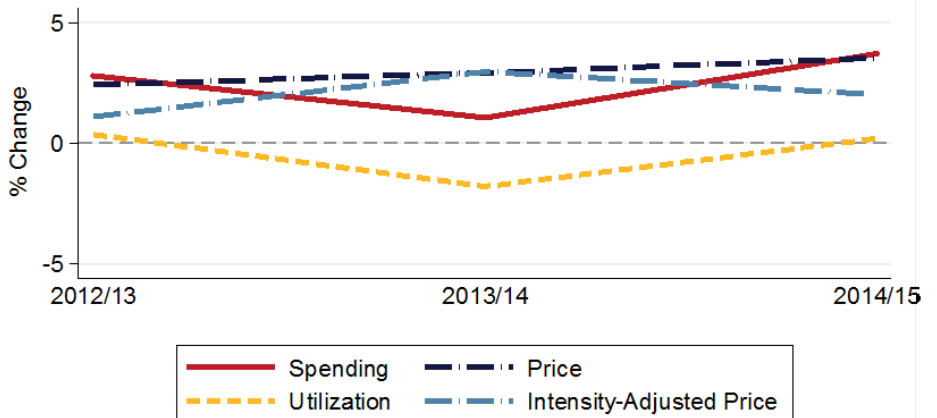
Spending on professional services made up the largest portion—about one third—of total per capita spending for the ESI population. In 2015, spending on professional services was \$1,738 per person (Table 1). Over the study period, spending on these services grew moderately, at an average annual rate of 2.5%. Between 2012 and 2015, total spending grew by \$125 per person; a smaller increase than for outpatient services or prescriptions over this period.

Compared to the other categories of medical services, the utilization rate of professional services was much higher. Use of professional services increased slightly in 2013, declined slightly in 2014, and increased again in 2015 (Figure 9). The 2015 increase in use was small, but pushed total spending such that 2015 growth exceeded 2014 growth. Notably, although the rate of use of professional services increased in 2015, use of these services in 2015 was lower than at the beginning of the study period in 2012: 16,305 services per 1,000 in 2015 compared to 16,515 services per 1,000 in 2012.

The average price per professional service increased every year studied, but increased at a much slower rate than the rates for the other categories of medical services. The average price of a professional service grew at an average annual 3.0%, compared to average annual growth of 5.6% for acute admissions and 4.7% for outpatient services (Table 3). Between 2012 and 2015, the average price for a professional service increased from \$98 to \$107. The average intensity of

Figure 9

Annual Percentage Changes in Per Capita Spending, Utilization per 1,000 Insureds, and Price of Professional Services, 2012-2015



Source: HCCI, 2016.

Notes: All data weighted to reflect the national, younger than age 65 ESI population. Data from 2014 and 2015 adjusted using actuarial completion.

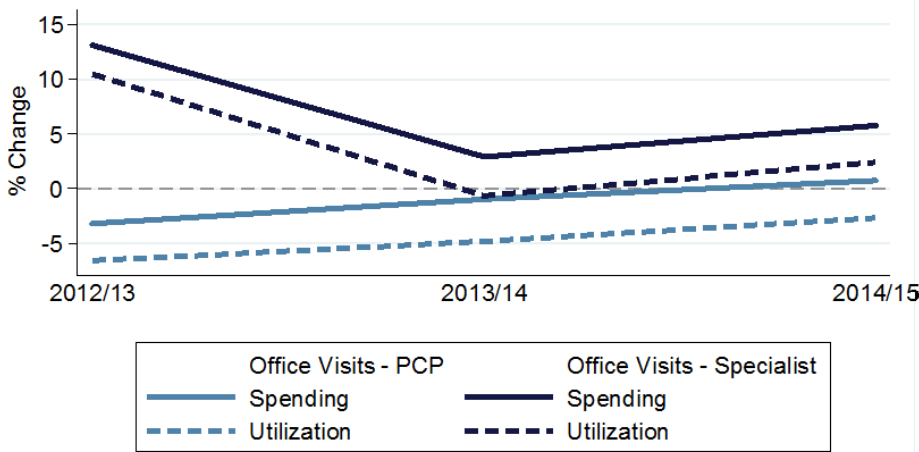
a professional service was relatively stable over the time period. After adjusting for intensity, the average intensity-adjusted price of a professional service over the study period increased at an average annual 2.0%.

Spending on Professional Services

The detailed categories of professional services include office visits to primary care providers (PCPs), office visits to specialists, preventive visits to PCPs, preventive visits to specialists, administered drugs, laboratory and pathology (lab/path) services, radiology services, administration of drugs, anesthesia, surgical services, and a category of the remaining “miscellaneous” services. Of these detailed categories, the most spending was on visits to the doctor: \$369 per person in 2015 (Appendix Table A20). HCCI classifies these doctor vis-

its as four types: office and preventive visits, to either PCPs or specialists. Of those types of doctor visits, in 2012, the most dollars per capita were spent on office visits to PCPs. However, over the study period, spending per capita on office visits to specialists increased each year (by an average annual 7.3%), while spending on office visits to PCPs generally declined (mirroring the trend in the utilization rate of these visits; Figure 10). In 2015, spending on office visits to specialists was \$162 per person, compared with \$138 per person on office visits to PCPs. Comparatively, the spending per capita on preventive visits was much lower; in 2015, spending on preventive visits to PCPs was \$49 per person, compared with \$20 per person on preventive visits to specialists. Between 2012 and 2015, per capita spending increased by an average annual 5.7% for preventive

Figure 10
Annual Percentage Changes in Utilization and Spending of Office Visits to Doctors, 2012-2015



Source: HCCI, 2016.
 Notes: All data weighted to reflect the national, younger than age 65 ESI population.
 Data from 2014 and 2015 adjusted using actuarial completion.

visits to PCPs and 6.3% for preventive visits to specialists.

Consistent with the spending trends for doctor visits, per capita spending generally increased over the study period on the administration of drugs, anesthesia, professional surgical services, and the miscellaneous services category. Spending per capita was higher for the miscellaneous category than for the other detailed service categories, but spending on any single service was highest for surgical services: \$278 per person in 2015 (Appendix Table A20). However, surgical services had the slowest growth rate of the four detailed service categories; spending per capita grew an average annual 0.3%, or just \$3 per person over the study period.

Administered drugs followed a pattern similar to the other professional services categories. Between 2012 and 2015, per capita spending on administered drugs increased by an average annual 6.4%, growing by \$32 to \$190 per person (Appendix Table A20). In contrast, spending on professional radiology services declined

each year studied, by an average annual 1.9%, falling by \$8 per person in 2015. Spending per capita on professional lab/path services increased moderately between 2012 and 2014, before a small decrease in spending in 2015 (to \$144 per person).

Utilization of Professional Services

In 2012, the most common type of doctor visit, on average, was office visits to PCPs. However, the rate of use of office visits to PCPs declined each year studied, while the rate of use of office visits to specialists increased each year (Figure 10). By 2015, the use of specialist office visits was higher than the rate for PCP office visits: 1,514 office visits to specialists per 1,000 insured and 1,344 office visits to PCPs per 1,000 insured (Appendix Table A23). Small increases occurred in the use of preventive visits both to PCPs and to specialists; the rate of use of these visits was higher at the end of the study period than at the beginning. However, in-

creases in the use of office visits to specialists, of preventive visits to PCPs, and of preventive visits to specialists did not offset the decline in the use of office visits to PCPs. Between 2012 and 2015, the use of all doctor visits declined, from 3,361 doctor visits per 1,000 insured in 2012 to 3,348 per 1,000 in 2015 (data not shown).

Between 2012 and 2014, rates of use generally declined for the professional services categories of administration of drugs, anesthesia, surgical services, and miscellaneous services. However, in 2015, the use of these services increased slightly. Miscellaneous services saw the largest increase in use (by 177 services per 1,000 insured) and the highest use rate: 5,577 services per 1,000 insured (Appendix Table A23). Comparatively, the other three types of services had much lower utilization rates, with the highest rate for surgical services (666 surgical services per 1,000 insured in 2015).

For administered drugs, professional lab/path services, and professional radiology services, use generally declined over the study period. Use of administered drugs declined by an average annual 2.7%, use of lab/path services by an average annual 0.6%, and radiology services by an average annual 2.2% (Appendix Table A23). One of the professional services with the highest utilization rate was lab/path services, which was higher than the utilization rate of all types of doctor visits; in 2015, there were 4,519 lab/path services per 1,000 insured compared to 3,348 doctor visits per 1,000 insured.

Average Price and Intensity

In all years of the study, the average price of most professional services increased. The exception to this was

radiology services, which had a \$1 average price decrease in 2015 after \$1 average price increases in the previous years (Appendix Table A24). Overall, the average price of a radiology service changed little --just \$1 higher in 2015 than in 2012. Between 2012 and 2015, lab/path services also increased in average price, from \$29 to \$32 per lab/path service. The average intensity of a radiology and lab/path service had opposite trends. Over the study period, the average intensity of a radiology service declined slightly, while the average intensity of a lab/path service increased (Appendix Table A25). Similar to average price, the intensity-adjusted average price of both radiology and lab/path services was relatively stable over the study period (Appendix Table A26). (For more information about average price and intensity, see "Decomposition key definitions".)

The fastest average annual growth rate among the detailed category of professional services was for administered drugs. Between 2012 and 2015, the average price of an administered drug increased an average annual 9.3%, from \$409 to \$534 (Appendix Table A24). The average intensity of an administered drug changed very little over the study period: 0.01 higher in 2015 than in 2012 (Appendix Table A25). The average intensity-adjusted price of an administered drug was higher than for the other professional services categories: \$444 in 2015, up \$101 over 2012 (Appendix Table A26).

The average price trends were relatively similar across the types of doctor visits, and the average price for each type grew about an average annual 3% (Appendix Table A24). Overall, preventive visits had higher average prices than did office visits, and visits to specialists had higher aver-

age prices than visits to PCPs. In 2015, the highest average price was for preventive visits to specialists (\$148 per visit) and the lowest was for office visits to PCPs (\$103 per visit). This same trend held for the average intensity of a doctor visit. The highest average intensity was for preventive visits to specialists, while the lowest was for office visits to PCPs (Appendix Table A25). The average intensity of each type of visit was higher at the end of the study period than at the beginning. Interestingly, once intensity was adjusted for, the average intensity-adjusted price was the same across all visit types. In 2015, the average intensity-adjusted price of each doctor visit type was \$42 (Appendix Table A26).

Among the professional services categories, anesthesia services had the highest average price. The average price of anesthesia grew an average annual 2.0% over the study period, increasing from \$718 to \$761 (Appendix Table A24). Similarly, the average price of a surgical service was high compared to other professional services: \$417 in 2015. Over the study period, the average intensity of anesthesia services was relatively stable, while the average intensity of surgical services increased slightly (Appendix Table A25). After adjusting for intensity, the average intensity-adjusted price of anesthesia services remained the second-highest (after administered drugs): \$122 in 2015. The average intensity-adjusted price of surgical services was much lower than the unadjusted average price: \$52 in 2015, which was similar to the average intensity-adjusted prices of other professional services (Appendix Table A26).

Professional Service Trends for Age-Gender Groups

For both boys and girls (ages 0-18), the highest use rates among the professional services were for office visits to PCPs. In 2015, there were 1,487 PCP office visits per 1,000 boys and 1,508 per 1,000 girls (Appendix Table A27). Office visits to PCPs were the most frequently used service in 2015, despite the fact that utilization for both boys and girls declined between 2012 and 2015, by 210 visits per 1,000 boys and 216 visits per 1,000 girls. Over the same period, the utilization of the other three types of doctor visits increased for both boys and girls. The largest increase was for office visits to specialists by girls, which increased by 154 visits per 1,000 girls, compared to an increase of 141 visits per 1,000 boys.

For men and women in all the adult age groups (ages 19-24, 25-44, 45-54, and 55-64), the highest use rate among the professional services was for lab/path services. Use of professional lab/path services increased with age, and women had a higher utilization rate than men in each age group (Appendix Tables A29-A36). Also for men and women in the adult age groups, the second highest utilization rate was for office visits to specialists. However, this trend was true only for 2013 through 2015; in 2012, the office visits to PCPs had higher utilization rates for each adult age/gender group. Between 2012 and 2015, the utilization rates of office visits to PCPs declined, while the utilization rates of office visits to specialists increased.



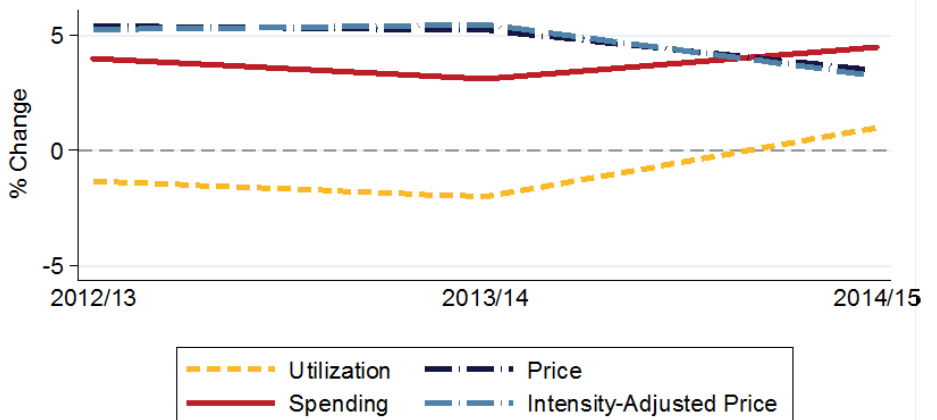
Outpatient Services

In 2015, spending for the ESI population on outpatient services was \$1,427 per person (Table 1). Spending on outpatient services accounted for just under 30% of total per capita spending. Over the study period, spending on these services rose by \$153 per person, growing at an average annual 3.9%. Of the \$1,427 per capita spending on outpatient services, 62.4% was on outpatient visits (\$890 per person); the rest was on outpatient-other services (\$537 per person). Spending per capita over the study period grew at a faster rate for outpatient visits compared to outpatient-other services: an average annual 4.3% versus 3.2%.

Between 2012 and 2014, the use of all outpatient services declined slightly by 95 services per 1,000 insured to 2,775 services per 1,000 (Table 3). Use increased by 1.0% the following year due to an increase in the use of outpatient-other services, which rose by 36 outpatient-other services per 1,000 insured. Outpatient-other services also made up the bulk of the total outpatient use. In 2015, there were 2,496 outpatient-other services per 1,000 insured compared to 305 outpatient visits per 1,000. Over the study period, the use of outpatient visits declined by 18 visits per 1,000 insured.

During the study period, the average price and average intensity per outpatient visit was much higher than for outpatient-other services: in 2015, \$2,916 per outpatient visit versus \$215 per outpatient-other service (Table 3). The average price for both subservice categories rose each year

Figure 11
Annual Percentage Changes in Per Capita Spending, Utilization per 1,000 Insureds, Price, and Intensity -Adjusted Price of Outpatient Services, 2012-2015



Source: HCCI, 2016.

Notes: All data weighted to reflect the national, younger than age 65 ESI population. Data from 2014 and 2015 adjusted using actuarial completion.

studied, with outpatient visits having a faster average annual growth rate: 6.3% for outpatient visits versus 3.9% for outpatient-other services. Similarly, the average intensity of an outpatient visit compared with an outpatient-other service was almost 13 times higher. However, between 2012 and 2014, the average intensity of an outpatient-other service rose slightly each year, while the average intensity of an outpatient visit declined. In 2015, the average intensity of an outpatient visit rose by a modest 3.3%. Interestingly, once average intensity was adjusted for, the average intensity-adjusted price of an outpatient visit was relatively similar to that of an outpatient-other service: \$160 per outpatient visit compared to \$153 per outpatient-other service. As with the unadjusted average price, the average intensity-adjusted price increased each year for both subservice categories,

although the average annual growth rate was faster for outpatient visits (6.0%) than for outpatient other services (2.4%).

The remainder of this section details the spending, utilization, price, intensity, and unit price trends for the detailed categories of outpatient visits and then for the detailed categories of outpatient-other services. The detailed categories of outpatient visits are: emergency room (ER) visits, observation visits, and surgical visits. The detailed categories of outpatient-other services are: ancillary services (e.g., ambulance, home health), laboratory and pathology (lab/path) services, radiology services, and a category of the remaining "miscellaneous" outpatient services.

Outpatient Visits

HCCI examined spending, utilization, price, intensity, and intensity-

adjusted price trends for the ESI study population’s outpatient visits. HCCI’s detailed categories of outpatient visits include emergency room (ER) visits, observation visits, and surgical visits. Of the three types of outpatient visits, the highest per capita spending was on outpatient surgical visits (\$527 per person in 2015) and the lowest was on observation visits (\$40; Appendix Table A20). However the highest average annual spending growth rate (7.2%) and the largest increase in spending (\$60 per person) over the time period was on ER visits. Between 2012 and 2015, spending on ER visits increased from \$262 per person to \$322 per person. In contrast, spending on observation visits changed little, increasing just \$4 per person over the study period. Outpatient surgical visits saw moderate per capita spending growth, which increased an average annual 2.7% or \$40 per person.

In contrast to per capita spending trends, which increased for each of the services each year studied, the utilization rates for outpatient visits generally declined over the study period (Appendix Table A23). Only ER visits saw a modest increase of 1 visit per 1,000 insured in 2014. Between 2012 and 2015, the utilization rate of ER visits declined an average annual 1.3%, from 180 ER visits per 1,000 insureds to 173 per 1,000. Between 2012 and 2014, use rates for observation visits were stable at 20 visits per 1,000 insured. In 2015, however, the use rate declined by 2 observation visits per 1,000 insured. The largest utilization rate decline for outpatient visits was for surgical visits, which fell an average annual 2.7%. Between 2012 and 2015, surgical visits per 1,000 insured fell from 124 to 114 visits.

The average price for outpatient visit

type increased each year studied. The highest average price and the largest increase in average price over the study period was for outpatient surgical visits (Appendix Table A24). Between 2012 and 2015, the average price of a surgical visit rose by \$686 to \$4,621. Over those years, the average price of ER visits grew the fastest (average annual 8.6%), but was the lowest: \$1,863 in 2015. The average price of an observation visit increased by \$379 over the study period to \$2,233.

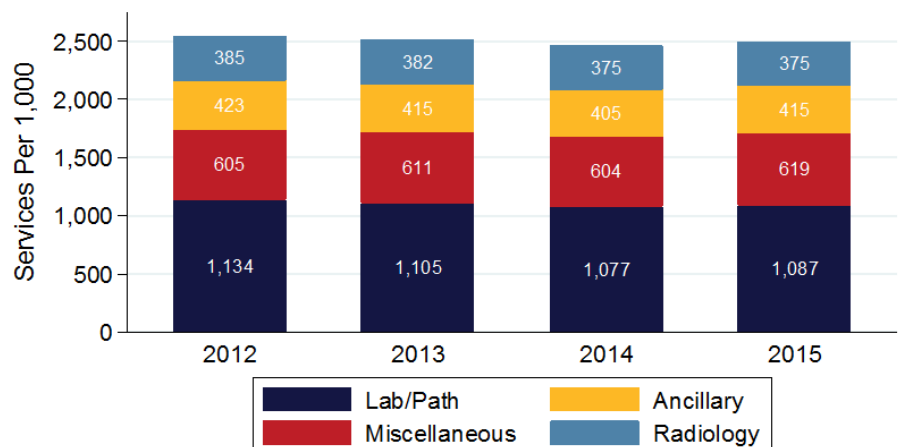
Between 2012 and 2014, the average intensity across outpatient visit types generally declined but increased in 2015 (Appendix Table A25). Both observation and surgical visits had a higher average intensity in 2015 than in 2012. ER visits, however, had a slightly lower intensity (7.77) in 2015 than in 2012 (7.79). After adjusting for intensity, observation visits had the highest intensity-adjusted price: \$243 in 2015 (Appendix Table A26). That year, the average intensity-adjusted price of an ER visit (\$240) was similar, due to 8.7% average annual price growth over the study period.

od. Over that period, the average intensity-adjusted price of an outpatient surgical visit grew just \$16 to \$130.

Outpatient-Other Services

HCCI examined spending, utilization, price, intensity, and intensity-adjusted price trends for the ESI study population’s outpatient-other services. HCCI’s subcategories of these services include ancillary services (e.g., ambulance, home health), laboratory and pathology (lab/path) services, radiology services, and “miscellaneous” outpatient services. Of these four detailed categories), the highest per capita spending was on outpatient radiology services. In 2015, spending on radiology services was \$196 per person, and spending grew just \$9 per person from 2012 (Appendix Table A20). Spending on the miscellaneous category of services was similar (\$189 per person in 2015 but saw a faster average annual growth rate per capita than did radiology services: 6.1% compared to 1.4%, respectively). In comparison, spending per capita on lab/path and

Figure 12
Utilization of Detailed Categories of Outpatient-Other Services per 1,000 Insureds, 2012-2015



Source: HCCI, 2016.
Notes: All data weighted to reflect the national, younger than age 65 ESI population. Data from 2014 and 2015 adjusted using actuarial completion.

ancillary services was half that of spending on radiology and the miscellaneous services, and changed little over the study period. In 2015, spending on ancillary services was \$83 per person and \$70 per person on lab/path services.

The highest utilization rate among outpatient-other services was for lab/path (1,087 lab/path services per 1,000 insured in 2015); radiology had the lowest utilization rate (375 radiology services per 1,000; Figure 12 and Appendix Table A23). Between 2012 and 2014, the use of outpatient-other services generally declined. However, in 2015, the utilization rates of ancillary, lab/path, and the miscellaneous services increased slightly. These increases in use led, in part, to higher growth in total spending in 2015 (4.6%) compared with the two previous years (3.0% and 2.6%). For the category of miscellaneous services, the utilization rate in 2015 (619 services per 1,000 insured) was higher than in 2012 (605 services per 1,000). For lab/path and ancillary services, the rise in utilization in 2015 did not offset the declines in the prior years; as a result, the utilization rates in 2015 were lower than those in 2012. The use of radiology services dropped slightly in each year, an average annual 0.9% decline.

While radiology services had the lowest utilization rate of the detailed categories of outpatient-other services, it had the highest average price per service (\$522 per radiology service in 2015; Appendix Table A24). This higher average price led to the highest per capita spending (\$196 per person), as discussed above. The average price of a radiology service grew modestly over the study period, increasing an average annual 2.4%. Comparatively, the average price of a lab/path service was much lower

(\$64 in 2015), and grew by just \$4 between 2012 and 2015. Over those years, the average price of an ancillary service increased from \$179 to \$200.

The average intensity of a lab/path and a radiology service was relatively stable over the study period. Between 2012 and 2015, average intensity for lab/path services rose just 0.02, remained the same for a radiology service, but rose moderately for ancillary services (0.16; Appendix Table A25). In comparison, the average intensity of an ancillary service increased moderately, by 0.16, over the study period. After adjusting for intensity, the average intensity-adjusted price of a radiology service was similar to that of a lab/path service: in 2015, \$251 and \$206, respectively (Appendix Table A26). The average intensity-adjusted price of both types of services generally increased each year studied. Only lab/path services in 2015 saw a decline in the average intensity-adjusted price: 2.4%, or a \$5 per service decline. Over the study period, the average intensity-adjusted price of an ancillary service increased from \$54 per service \$58 per service.

Outpatient Service Trends by Age-Gender Groups

For the two youngest age groups (ages 0-18 and ages 19-24), for both genders, the highest spending per capita on a detailed category of outpatient services was on ER visits. In 2015, spending on ER visits was \$224 per boy and \$220 per girl (Appendix Table A9), and was \$281 per 19-24 year old man and \$432 per 19-24 year old woman (Appendix Table A11). For the three older adult age groups (ages 24-44, 45-54, and 55-64), the highest spending per capita on a detailed category of outpatient services for both men and women in each age group was on outpatient

surgery. In 2015, spending on outpatient surgery for 25-44 year olds was \$311 per man and \$562 per woman (Appendix Table A13); for 45-54 year olds, it was \$667 per man and \$914 per woman (Appendix Table A15); and for 55-64 year olds, \$1,089 per man and \$1,073 per woman (Appendix Table A17).

For both genders in every age group studied, lab/path services had the highest utilization rate of the outpatient services. In contrast, use rates for ER visits, which had increased for all adult age groups in 2014, declined for some in 2015. Previously, HCCI reported an increase in use rates for ER visits by the adult age groups in 2014. Under the current analytic dataset (see Data and Methods), this utilization increase observation remained unchanged (Appendix Tables A27-A36). However, for men and women in the 19-24, 25-44, and 45-54 age groups, this increase in the use of ER visits was not observed for 2015, and the largest decline in use was for men and women ages 19-25 (a 10 visit per 1,000 men or women decline; Appendix Table A29). In contrast, for both men and women in the oldest adult age group (ages 55-64), the utilization rate of ER visits remained stable in 2015: 144 ER visits per 1,000 55-64 year old men in 2014 and 2015, and 164 ER visits per 1,000 55-64 year old women (Appendix Table A35).



Acute Inpatient Admissions

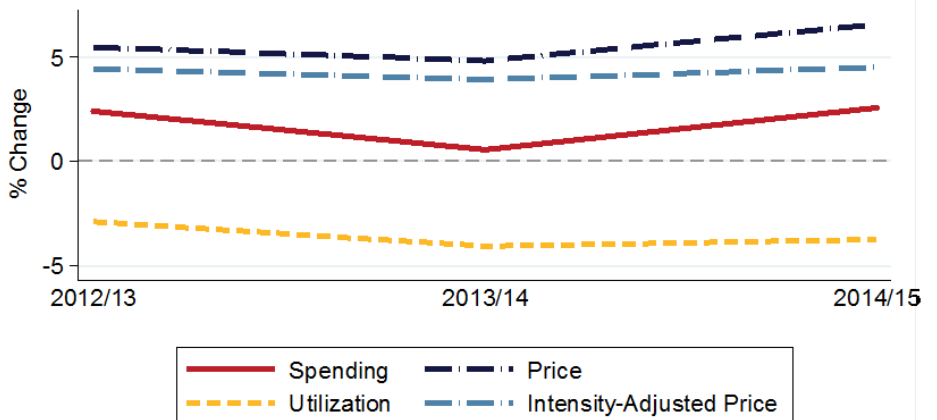
Spending on acute inpatient admissions made up about 20% of total per capita spending for the ESI population during the study period. In 2015, spending on acute admissions was \$997 per person (Table 1). Between 2012 and 2015, spending per capita increased by \$53 – less than half of the spending increase on outpatient services and professional services over that same period. Spending per capita on acute admissions increased by an average annual 1.9%, a slower average growth rate than found for all other subservice categories.

Use rates for acute admissions were much lower than rates for the other medical services categories. Between 2012 and 2015, acute admissions per 1,000 insured fell from 56 admissions to 50 admissions (Table 3). Comparatively, in 2015, the use rate for outpatient visits was 6 times higher than the rate for acute admissions.

In contrast to low use rates, the average price per service was highest for acute admissions among the medical services categories. In 2015, the average price for an acute admission was \$19,967. The average price increased each year studied, by an average annual \$1,006. Between 2012 and 2015, the average intensity of an acute admission was relatively stable. After adjusting for intensity, the average intensity-adjusted price of an acute admission in 2015 was \$14,889. The average intensity-adjusted price of an acute admission increased each year studied by an average annual \$587, compared with an average \$1,006 a year for the unadjusted price.

Figure 13

Annual Percentage Changes in Per Capita Spending, Utilization per 1,000 Insureds, and Price of Acute Inpatient Admissions, 2012-2015



Source: HCCI, 2016.

Notes: All data weighted to reflect the national, younger than age 65 ESI population. Data from 2014 and 2015 adjusted using actuarial completion.

Inpatient admissions to hospice or skilled nursing facilities (SNFs) and admissions that were ungroupable are not discussed here, as they are relatively rare in the younger than 65 ESI population (combined, there were 2 admissions per 1,000 insured in each year of the study period).

Spending on Acute Admissions

HCCI examined spending, utilization, price, intensity, and intensity-adjusted price trends for the ESI population's acute admissions services. HCCI's subcategories of these services include medical admissions, surgical admissions, mental health and substance use (MHSU) admissions, labor and delivery (LD) admissions, and newborn admissions. Of these types of acute admissions, surgical admissions had the highest per capita spending: \$513 per person in 2015, or 51.5% of the dollars spent on acute

admissions (Appendix Table A20). Surgical admissions also saw the largest increase in per capita spending over the study period: \$25 per person, or 1.7% spending growth. Medical admissions had the second highest per capita spending: \$296 in 2015. Per capita spending on medical admissions was relatively stable over the study period, rising by just \$4 per capita between 2012 and 2015.

The other three admissions categories – LD, MHSU, and newborn – each had spending below \$100 per capita (Appendix Table A20). The highest spending was on LD admissions (\$95 per person in 2015), followed by spending on newborn admissions (\$55 per person), and spending on MHSU admissions (\$38 per person). Spending per capita on these categories of acute admissions increased over the study period. Between 2012 and 2015, spending increased by \$9

per capita for LD and newborn admissions, and by \$5 per capita for MHSU admissions.

Utilization of Acute Admissions

As with per capita spending, utilization rates were highest for surgical admissions and medical admissions. In every year studied, the rate of use was slightly higher for medical admissions than for surgical admissions. In 2015, there were 17 medical admissions per 1,000 insured and 13 surgical admissions per 1,000 (Appendix Table A23). The use rates for both admission types declined slightly over the study period: medical admissions declined by 3 admissions per 1,000 insured and surgical admissions declined by 2 admissions per 1,000 insured.

The next highest use rates among acute admissions were for LD admissions. In 2015, there were 11 LD admissions per 1,000 insured, compared with 5 newborn admissions per 1,000 insured and 4 MHSU admissions per 1,000 insured (Appendix Table A23). The rate of use of LD, newborn, and MHSU admissions remained stable between 2012 and 2015.

Average Price and Intensity

Among acute admissions, surgical admissions had the highest average price and the largest average price increase. Between 2012 and 2015, the average price of a surgical admission rose by more than \$7,000 to \$39,671, a 7.4% average annual increase (Appendix Table A24). In comparison, the average price of a medical admission, the second highest price among acute admissions, was less than half that observed for surgical admissions, at \$17,689 in 2015. The average price of a medical admission increased over the study period by an average annual 7.2%, similar to the 7.4% increase for a surgical admission. However, in dol-

lar terms, the increase in a surgical admission's average price – \$7,605 – was nearly twice as high as for a medical admission at \$3,314.

Surgical admissions and medical admissions also had the highest and second highest average intensity, respectively, among acute admissions. The average intensity of a surgical admission (2.58) was over twice as high as for a medical admission (1.06) in 2015 (Appendix Table A25). Over the study period, average intensity for both types of admissions increased slightly.

Notable, after intensity was adjusted for, the average intensity-adjusted price of a medical admission was higher than that of a surgical admission: \$16,697 for a medical admission versus \$15,370 for a surgical admission in 2015 (Appendix Table A26). For both types of admissions, the intensity-adjusted price rose in every year studied. However, on an average annual basis, the intensity-adjusted price for medical admissions compared with surgical admissions rose faster (4.9% versus 4.6%) and increased more in dollar terms (\$2,230 versus \$1,953).

Of the three less common types of admissions, the highest average price was for newborn admissions: \$10,320 in 2015 (Appendix Table A24). Over the study period, the average price of a newborn admission saw moderate – as compared to the growth observed for medical (7.2%) and surgical admissions (7.4%) – 4.8% average annual growth; the average price increased by \$1,362. In 2012, the average price of a LD admission was the same as for a MHSU admission: \$7,872. However, by 2015, the average price of a LD admission was slightly higher than for a MHSU admission, due to faster price growth for LD admissions. Between 2012 and

2015, the average price of a LD admission and a MHSU increased by \$1,065 and \$960, respectively, and grew at an average annual 4.3% and 3.9%, respectively.

Compared to medical and surgical admissions, the other types of admissions had lower levels of average intensity (Appendix Table A25). In 2015, average intensity among the three remaining admission types was highest for newborn admissions (0.90), followed by MHSU admissions (0.87), and LD admissions (0.69). Over the study period, average intensity changed little or not at all for these types of admissions.

After intensity was adjusted for, the average intensity-adjusted price of LD, newborn, and MHSU admissions were higher than their unadjusted average price (Appendix Table A26). Of these types of admissions, LD admissions had the highest average intensity-adjusted price. Both LD and MHSU admissions saw moderate average annual intensity-adjusted price growth over the study period: 4.3%. Comparatively, the average intensity-adjusted price of a newborn admission between 2012 and 2015 grew much slower, at an average annual 1.8%.

Acute Admission Trends by Age-Gender Groups

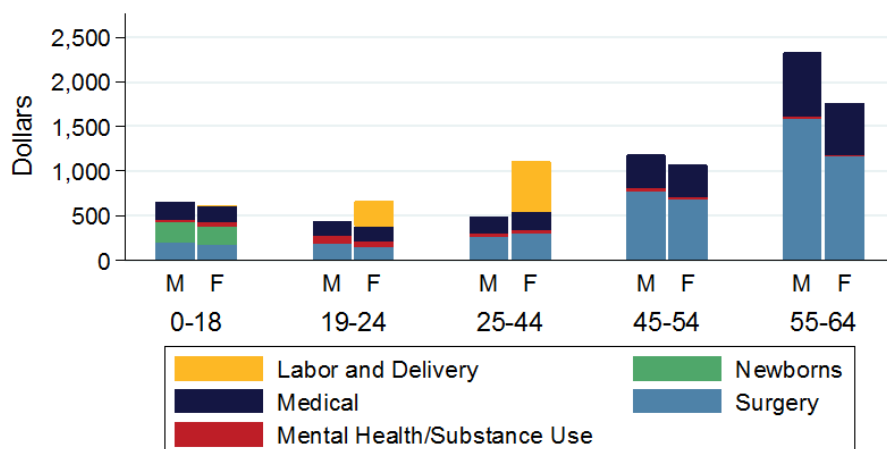
Of all acute admissions, only LD and newborn admissions, by their inherent nature, are limited to certain age and gender cohorts. LD admissions for women in the two oldest adult age groups were 0 per 1,000 women (Appendix Table A33 and A35). For the two younger adult age groups (ages 19-24 and 25-44), LD admissions had the highest rate of use of any type of acute admission. In 2015, there were 35 LD admissions per 1,000 19-24 year old women

(Appendix Table A29) and 61 LD admissions per 1,000 25-44 year old women (Appendix Table A31). LD admissions also accounted for the largest share of per capita spending on acute admissions for these two groups of women (Figure 14): for women ages 19-24, 41.7% (\$276 per woman; Appendix Table A11) and for women ages 25-44, 50.0% (\$553 per woman; Appendix Table A13). LD admissions spending accounted for much of the difference between men and women in those age groups in spending on acute admissions.

Use of newborn admissions is limited, by definition, to the children’s cohort. Newborn admissions made up the bulk of acute admissions use and spending per child. These admissions were slightly higher in use and per capita spending for boys (Appendix Tables A9 and A27). In 2015, spending on newborn admissions was \$226 per boy and \$199 per girl (Figure 14 and Appendix Table A9). This \$27 spending difference accounts for over 60% of the total difference in per capita spending between boys and girls on acute admissions.

Among the other acute admissions in 2015, MHSU admissions for men ages 19-25 had the highest use rate (11 MHSU admissions per 1,000 men in 2015), followed by women ages 19-25 (8 MHSU admissions per 1,000 women; Appendix Table A29). Utilization rates of both medical and surgical admissions increased with age, with the highest rates for the oldest adult age group (Appendix Table A35). In the three youngest age groups, utilization rates of medical and surgical admissions were similar with women’s rates often slightly higher (Appendix Tables A27-A32). For both these admissions, men’s use rates were higher in the two oldest adult groups (Appendix Tables A33-A36).

Figure 14
Per Capita Spending by Acute Inpatient
Detailed Service Categories, Gender, and Age Group, 2015



Source: HCCI, 2016.
 Notes: All data weighted to reflect the national, younger than age 65 ESI population.
 Data from 2014 and 2015 adjusted using actuarial completion.



Prescriptions

Over the study period, spending on prescriptions accounted for just under 20% of total per capita spending, making prescription spending the lowest in the four major health service categories (Table 1). In 2015, \$964 per person was spent on prescriptions and per capita spending on prescriptions increased every year of the study. During this time, spending growth on prescriptions was generally higher than spending growth for the medical service categories. Between 2012 and 2015, spending per capita on prescriptions grew an average annual 6.2% (compared with 3.9% for outpatient services, the highest spending growth rate among the medical admissions categories) and rose by \$159 per person (compared with \$153 for outpatient services, the highest dollar increase among the medical admissions categories).

Of the \$964 spent per capita on pre-

scriptions in 2015, 67.3% was spent on brand prescriptions and the rest was spent on generic prescriptions (Table 1).⁵ Spending per capita on both brand and generic prescriptions increased in every year of the study period. Average annual spending growth rates were faster for brand prescriptions than for generic prescriptions: 7.1% compared to 4.5%, respectively.

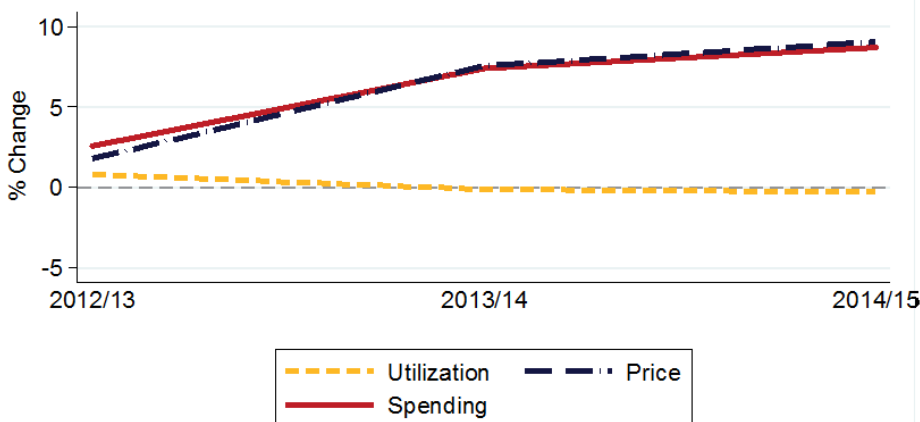
Use rates for prescriptions are measured in filled days per 1,000 insured. Between 2012 and 2015, the use rates for generic prescriptions increased by an average annual 3.0% (Table 3). At the same time, use rates for brand prescriptions declined by an average annual 14.2%. In 2013, the increase in use of generic prescriptions was larger than the decline in the use of brand prescriptions. The result was a net increase in the use of total prescriptions (brand plus generic). In 2014

and 2015, the increase in generic prescription use did not offset the decline in brand prescription use. In these years, net declines occurred in the use of prescriptions in total. However, the use rate of total prescriptions was higher in 2015 (283,430 filled days of prescriptions per 1,000 insured) than in 2012 (282,447 filled days per 1,000).

The average price of a filled day of a brand prescription nearly doubled over the study period, increasing from \$10 per filled day to \$19 per filled day, or 24.8% average annual growth (Table 3). In contrast, the average price of a filled day of a generic prescription remained stable at \$1 per day. HCCI does not calculate intensity or intensity-adjusted price metrics for prescriptions.

HCCI examined the ESI population's spending, utilization, and price trends for the detailed categories of brand prescriptions and generic prescriptions. Detailed categories are the same for both brand and generic prescriptions, and are based on the American Hospital Formulary System (AHFS) pharmacologic-therapeutic classification categories. They include: anti-infective agents; cardiovascular drugs; central nervous system (CNS) agents; eye, ear, nose, throat (EENT) preparations; gastrointestinal ("gastro") drugs; hormones and synthetic substitutes ("hormones"); respiratory drugs; skin and mucous membrane ("skin") agents; and a category of the remaining "other" therapeutic categories of prescriptions.

Figure 15
Annual Percentage Changes in Per Capita Spending, Utilization of Filled Days per 1,000 Insureds, and Price of Total Prescriptions, 2012-2015



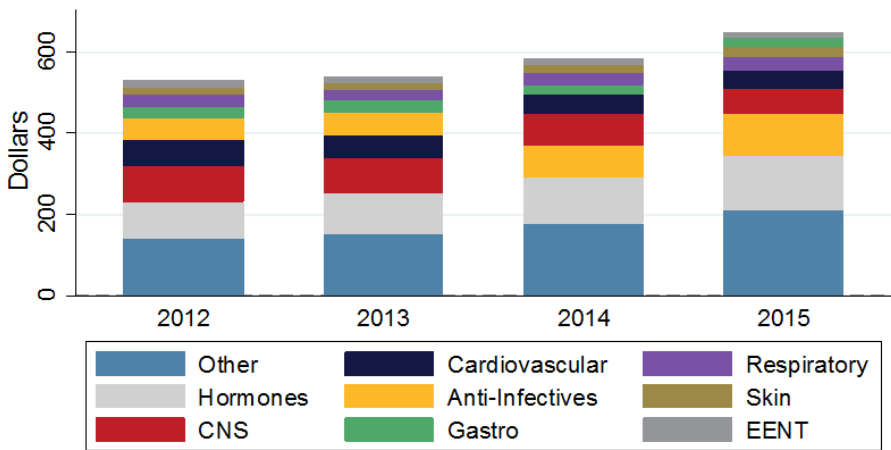
Source: HCCI, 2016.
Notes: All data weighted to reflect the national, younger than age 65 ESI population. Data from 2014 and 2015 adjusted using actuarial completion.

Brand Prescriptions

Of the detailed categories of brand prescriptions, the highest per capita spending was on the “other” category: \$211 in 2015 (Appendix Table A20). Of the single classification categories, the highest spending was on brand hormones and brand anti-infective agents: \$134 per person and \$101 per person, respectively. The annual spending per capita on the remaining categories of brand prescriptions were less than \$100. For half of the detailed categories of brand prescriptions, per capita spending increased over the study period. Between 2012 and 2015, the highest spending per capita increase was for brand anti-infective agents: from \$53 per person to \$101 per person. For cardiovascular drugs, CNS agents, EENT prescriptions, and gastro drugs, per capita spending declined over the study period. The largest spending decline over the study period was for brand CNS agents at \$24 per person.

Use rates for all brand prescription categories but one declined in all years studied (Appendix Table A23). The exception was in the use of brand respiratory drugs in 2015 – a small increase of 127 filled days per 1,000 insured. The smallest decline in use between 2012 and 2015 was for brand anti-infective agents, by 310 filled days per 1,000 insured to 1,214 filled days per 1,000 insured. The

Figure 16
Per Capita Spending on Detailed Categories of Brand Prescriptions, 2012-2015



Source: HCCI, 2016.
Notes: All data weighted to reflect the national, younger than 65 ESI population.
Data from 2014 and 2015 adjusted using actuarial completion.

largest declines in use over that period was for brand cardiovascular drugs and brand CNS agents. Use of brand cardiovascular drugs fell from 13,385 filled days per 1,000 insured to 6,646 filled days per 1,000 insured, while use of brand CNS agents fell from 9,901 filled days per 1,000 insured to 4,738 filled days per 1,000 insured. Brand hormones had the highest use rate in 2015: 10,702 filled days per 1,000 insured. By contrast, at the beginning of the study period in 2012, brand cardiovascular drugs had the highest use rate.

As utilization of the categories of brand prescriptions generally declined, the average price of a filled day

of a brand prescription increased in each year (Appendix Table A24). Mirroring the increase in per capita spending on detailed categories of brand prescriptions, the largest increase in the average price per filled day was for brand anti-infective agents. Between 2012 and 2015, the average price per filled day of a brand anti-infective agent more than doubled, from \$35 per filled day to \$83 per filled day, an average annual price increase of 35.7%. The average price per filled day for the “other” category of brand prescriptions also more than doubled over they study period, increasing by \$26 per filled day to \$53 in 2015. The average price per filled

GROWTH IN SPENDING PER CAPITA ON BRAND ANTI-INFECTIVE AGENTS BETWEEN 2012 AND 2015

Between 2012 and 2015, spending on brand anti-infective agents nearly doubled, rising from \$53 per person to \$101 per person (Figure 16 and Appendix Table A37). In 2012, the highest spending per capita on types of brand anti-infective agents was on brand antiretrovirals (\$27 per person; AHFS 08:18.08) followed by brand tetracyclines (\$7 per person; AHFS 08:12.24). Antiretrovirals are medications used to treat retroviral infections, often HIV. Tetracyclines are antibiotics used to treat bacterial infections. By 2015, per capita spending on tetracyclines had declined slightly, to \$5 per person. Spending on antiretrovirals, in contrast, increased steadily each year to \$39 per person. Additionally, the highest spending per capita on a type of brand anti-infectives was on protease inhibitors. In 2012, spending on brand protease inhibitors (AHFS 08:18.40) was \$5 per person; by 2015, spending had increased to \$48 per person. Spending per capita on brand antiretrovirals and protease inhibitors in 2015 made up 86.1% of the spending on all brand anti-infective agents.

day for the other brand prescription categories saw comparatively modest price increases—less than \$15 per filled day between 2012 and 2015.

Only for generic skin agents was this increase in price a large percentage of the total price, as the average per day doubled between 2012 and 2015.

Generic Prescriptions

Of the detailed categories of generic prescriptions, the highest spending per capita was on CNS agents (\$97 per person in 2015), followed by the “other” category (\$62 per person; Appendix Table A20). Spending on the rest of the generic prescription categories was under \$40 per person in 2015, and generally increased over the study period. The largest increase in spending was for generic skin agents, for which spending more than doubled from \$14 per person in 2012 to \$30 in 2015. Per capita spending on cardiovascular drugs and EENT prescriptions both declined slightly over the study period.

The generic prescription categories with the highest utilization rates in all years studied were generic CNS agents (67,336 filled days per 1,000 insured) followed by generic cardiovascular drugs (66,745 filled days per 1,000 insured; Appendix Table A23). These two categories also had the largest increase in utilization rates over the study period. Between 2012 and 2015, use of generic CNS agents and generic cardiovascular drugs increased by 5,563 filled days per 1,000 insured and by 6,756 filled days per 1,000 insured, respectively. Also, use of generic hormones was high compared to use of the other generic prescription categories. Between 2012 and 2015, use of generic hormones increased by 4,412 filled days per 1,000 individuals to 43,557 filled days per 1,000 in 2015. Use of generic

EENT prescriptions declined slightly each year studied, and use of generic anti-infective agents declined between 2012 and 2014, with a slight increase in the utilization rate in 2015.

Compared to the average price per filled day for categories of brand prescriptions, their generic counterparts had much lower average prices (Appendix Table A24). Only generic skin agents had an average price per filled day greater than \$3 in any year studied. Generally, for any type of generic prescription, the average price per filled day was either \$1 or \$2 and remained that price in every year of the study period.

Prescription Trends for Age-Gender Groups

For the youngest age group (ages 0-18) and the oldest age group (ages 55-64), boys and men had higher spending per capita on prescriptions than girls and women in these age groups (Appendix Tables A9 and A17). For boys, per capita spending was higher than for girls on both brand and generic prescriptions (Appendix Table A7). For boys and girls, the highest per capita spending on detailed categories of prescriptions (both brand and generic) was on generic CNS agents, followed by brand hormones and brand CNS agents (Appendix Table A9). In 2015, spending on generic CNS agents was \$79 per boy and \$42 per girl. Spending on brand hormones was \$75 per boy and \$41 per girl, while spending on brand CNS agents was \$55 per boy and \$31 per girl. Generic CNS agents also had the highest use rate for both boys and girls: 20,833 filled days per 1,000 boys and 16,647 filled days per 1,000 girls (Appendix Table A27).

For the oldest adult age group (ages 55-64), men had higher spending per

capita on brand prescriptions, while women had higher spending per capita on generic prescriptions (Appendix Table A17). This trend mirrors that for utilization of prescriptions. Men in this age group had a higher utilization rate for brand prescriptions, while women had a higher utilization rate for generic prescriptions (Appendix Table A35). For the oldest adult men, the highest spending per capita on a single detailed category of prescriptions was on brand anti-infective agents (\$379 per man in 2015) followed by brand hormones (\$352 per man; Appendix Table A17). Interestingly, in 2012, the highest spending per capita on a detailed category of prescriptions was on brand cardiovascular drugs (\$277 per man). Spending per capita on brand cardiovascular agents declined each year studied, while per capita spending on brand anti-infective agents and brand hormones increased each year (see “Growth in spending per capita on brand anti-infective agents between 2012 and 2015”). For the oldest adult women, the highest spending on a single detailed category of prescriptions in 2015 was on brand hormones (\$297 per woman) followed by generic CNS agents (\$195 per woman). The detailed category of prescriptions with the highest utilization rate in 2015 was generic cardiovascular drugs: 264,619 filled days per 1,000 men and 187,561 filled days per 1,000 women (Appendix Table A35).

For the three middle adult age groups of adults (ages 19-24, ages 25-44, and ages 45-54), spending per capita and utilization of prescriptions was higher for women than for men (Appendix Tables A11-A16 and A29-34). Prescription per capita spending increased with age, as did the utilization of prescriptions. For men in the youngest adult age group (ages 19-24), the highest per capita spending

and utilization of a single detailed category of prescriptions was for generic CNS agents: \$63 per man and 27,842 filled days per 1,000 men in 2015 (Appendix Tables A11 and A29). For women, the 19-24 age group, the highest spending per capita on a single detailed category of prescriptions was \$71 per woman on brand hormones, while the highest utilization rate was for generic hormones (85,705 filled days per 1,000 women; Appendix Tables A11 and A29).

For men in the 25-44 and 45-54 age groups, the highest per capita spending on a single detailed category of prescriptions in 2015 was on brand anti-infective agents: \$109 per man and \$237 per man in 2015, respectively (Appendix Tables A13 and A15). For men ages 25-44, as with men ages 19-24, the highest utilization rate was for generic CNS agents: 44,074 filled days per 1,000 men (Appendix Table A31). For men ages 45-54, as with the oldest age group of men ages 55-64, the highest utilization rate was for generic cardiovascular drugs: 135,872 filled days per 1,000 men (Appendix Table A33). For women in the 25-44 and 45-54 age groups, the highest per capita spending on a detailed category of prescriptions in 2015 was on brand hormones: \$113 per 25-44 year old woman and \$172 per 45-54 year old woman (Appendix Tables A13 and A15). The highest utilization rate for women in both age groups was for generic CNS agents: 81,508 filled days per 1,000 25-44 year old women and 135,339 filled days per 1,000 45-54 year old women (Appendix Tables A31 and A33).

Spending Per Capita in Selected States in 2015

For the first time, HCCI presents per capita health care spending and per capita out-of-pocket spending trends by state. We have chosen 18 states (including the District of Columbia) that meet our reporting criteria and public reporting rules. The selected states are geographically distributed, and indicate variation in per capita spending. These states are not meant to be a representative sample of all states or of the population in the states. Spending is attributed to insured based on their zip code in the member enrollment data file. Trends are presented for: Arizona, Colorado, District of Columbia (DC), Florida, Georgia, Illinois, Kentucky, Maryland, Nevada, New York, Ohio, Oklahoma, Oregon, Tennessee, Texas, Virginia, Washington, and Wisconsin.

In 2015, of these states, 11 had lower per capita spending than the national average and 7 had higher per capita spending than the national average (Table 4). Of these 18 states, Maryland (\$4,559 per person) and Arizona (\$4,528 per person) had the lowest spending, while Texas (\$5,676 per person) and Wisconsin (\$5,773 per person) had the highest.

In 2015, average out-of-pocket spending for the ESI population nationally was \$813 per person (Table 4). In contrast to total per capita spending, just eight of the selected states had lower than the national average out-of-pocket spending. Colorado, Tennessee, Kentucky, and Oklahoma had total per capita spending that was lower than the national average, but their out-of-pocket per capita spending was higher than the national average. In contrast, New York had higher than the national average total per capita spending (\$5,593) and lower than the national average out-of-pocket spending (\$812), the only selected state where we observed this trend. Of the selected states, the lowest per capita out-of-pocket spending was in DC (\$636) followed by Maryland (\$682), while the highest was in Texas (\$983).

Table 4: Annual Spending and Out-of-Pocket Spending Per Capita in Selected States (2015)

Selected States	Per Capita Spending	Out-of-Pocket Per Capita Spending
Arizona	\$4,528	\$795
Colorado	\$5,119	\$873
District of Columbia	\$5,091	\$636
Florida	\$5,280	\$881
Georgia	\$5,194	\$942
Illinois	\$5,164	\$828
Kentucky	\$5,093	\$941
Maryland	\$4,559	\$682
Nevada	\$4,610	\$785
New York	\$5,593	\$812
Ohio	\$5,364	\$886
Oklahoma	\$4,951	\$948
Oregon	\$4,738	\$760
Tennessee	\$5,041	\$928
Texas	\$5,676	\$983
Virginia	\$5,089	\$771
Washington	\$4,980	\$751
Wisconsin	\$5,773	\$946
National Average	\$5,141	\$813

Source: HCCI, 2016.

Notes: All data weighted to reflect the state population ages 0-64. Data for 2015 adjusted using actuarial completion. All per capita dollars from allowed amounts. All figures rounded.

Data & Methods

Data

The subset of HCCI's data holdings used here contains de-identified commercial health insurance claim lines for the years 2012 through 2015. For the first time, four major health insurers contributed data to HCCI for the purposes of producing a national, multi-payer, commercial health care claims database. Data used for this report include claims for individuals covered by group insurance through an employer (fully insured and administrative services only). The claims data include prices paid to providers by both insurers and insureds and details about the services used. HCCI's claims data are compliant with the Health Insurance Portability and Accountability Act (HIPAA).

For this report, HCCI analyzed a subset of data totaling about 4 billion claim lines for approximately 39 million insured per year (2012–2015). This analytic dataset consisted of all claims for insureds younger than age 65 and covered by ESI and represented about 26% of the national ESI population. It is one of the largest datasets on the privately insured ever assembled.

Methods

The analytic subset was weighted using U.S. Census Bureau age-gender-geographic-based estimates of the ESI population to make the analytic subset representative of the national ESI population younger than age 65. Claims from 2014 and 2015 were actuarially completed to account for claims that had been incurred but not adjudicated. Claims for years 2012

through 2014 from the original three data providers, though refreshed over time, were considered 100% adjudicated in 2014. Additionally, HCCI added health care claims from a fourth major health insurer for the years 2012 through 2015.

HCCI used the weighted, actuarially completed dataset to estimate per capita health expenditures, average prices, utilization of services, average intensity, and average intensity-adjusted prices for 2012 through 2015. HCCI did not adjust dollar figures for inflation; thus, all reported expenditures and prices were in nominal dollars.

HCCI analyzed four major categories of services, several subservice categories, and detailed service categories (see “Key definitions”). Inpatient facility claims were from hospitals, skilled nursing facilities (SNFs), and hospices for which detail was sufficient to identify an overnight stay by an insured. Outpatient facility claims did not entail an overnight stay, and included observation and ER services. Both outpatient and inpatient claims consisted of only the facility charges associated with such claims. Professional services included claims billed by physicians and non-physicians according to the industry's standard procedure-coding practices. Prescription data reflected prescriptions filled at both retail and mail-order pharmacies.

For a more detailed description of HCCI's methodology, dataset, and changes made for this report, see the Analytic Methodology on HCCI's Website.¹

Limitations

This report had several limitations that affect the generalizability and interpretation of the findings. For this reason, HCCI considers the work a starting point for analysis and research on individuals covered by ESI rather than a conclusive analysis of the ESI population's effect on health care in the United States.

First, our findings were estimates for the U.S. ESI population ages 0 through 64, based on a sample of approximately 26% of these insureds.

Second, the analysis and results were descriptive, and the findings were not causal and cannot be used to determine causal relationships.

Third, the effect of individual or population health status, such as existence of chronic conditions, was not specifically investigated or discussed in the report.

Fourth, HCCI does not report on premiums or their determinants.

Changes in 2015/2016

HCCI's analytic methodology underwent a number of changes to enhance reporting for the *2015 Health Care Cost and Utilization Report*. (See the methodology document available on HCCI's Website for details on these changes.)¹ Two of those changes are notable. First, health care claims data from a fourth insurer was included in the analytic dataset, which limits the direct comparability of this report with previous *Care Cost and Utilization Reports*. Second, In October 2015, the health care system transitioned from using ICD-9 codes to ICD-10

codes. To maintain consistent classification of health care claims, claims that had ICD-10 codes were matched to the old ICD-9 codes. HCCI's methodology document provides lists of the classification schemes used for both ICD-9 and ICD-10 codes.

Endnotes

1. Health Care Cost Institute. 2015 Health Care Cost and Utilization Report Analytic Methodology v.5.0. Health Care Cost Institute, Nov. 2016 Web.
2. McEvoy, Gerald K., ed. AHFS Drug Information. Bethesda, MD: American Society of Health-System Pharmacists, 2015. PEP-ID. Web.
3. Yamamoto, Dale H. "Health Care Costs from Birth to Death." Health Care Cost Institute, 2013:1-39. Society of Actuaries. Web.
4. U.S. Census Bureau. 2015 American Community Survey 1-Year Estimates, Median Age by Sex. 2016.
5. Per capita spending on brand prescriptions plus spending on generic prescriptions does not add up to the total per capita spending due to a small percentage of the prescriptions claims that are not identifiable as either brand or generic, these totaled to \$2 per capita in 2015. These "ungroupable" prescriptions are eliminated from the discussion here.

Trends in Per Capita Spending for Children (2012–2015)

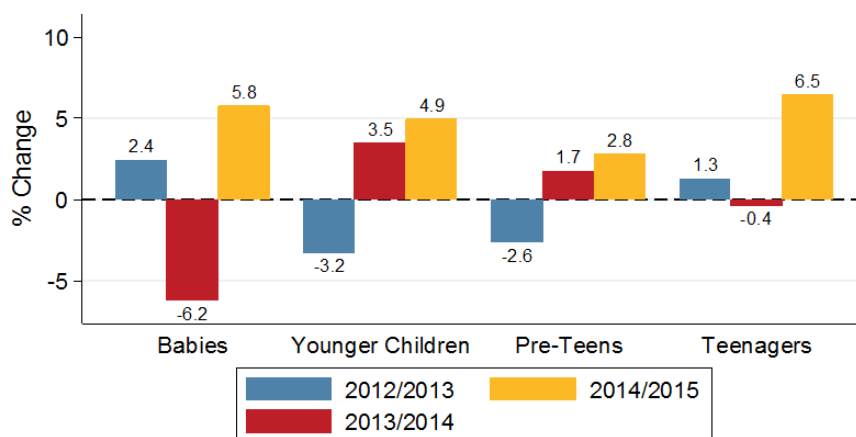
Children have unique health care needs, which change over different stages of life. Variations in per capita health care spending across children’s age groups in part reflect these changes. In this section, HCCI provides a brief overview of the 2015 per capita spending and growth in spending trends for children. In addition, we present a notable trend in utilization, which helped to drive the rising growth of per capita spending among children in 2015. These trends are reported for five age groups of children covered by employer-sponsored insurance (ESI): infants and toddlers (“babies,” ages 0–3), younger children (ages 4–8), pre-teens (ages 9–13), and teenagers (ages 14–18).

Health care spending per capita for children varied with age. In 2015, per capita spending for babies was \$5,095 (Appendix Table A38). This was the highest spending per capita among any children’s age group. Per capita health care spending for younger children was \$1,866; the lowest spending among any children’s age group (Appendix Table A39). Beginning with younger children, health care spending per capita increased with age. Among the two older children’s age groups, per capita spending was \$2,017 for pre-teens and \$3,002 for teenagers (Appendix Tables A40 and A41).

Across each children’s age group, per capita spending increased at a faster rate in 2015 than in the previous year. Younger children had the fastest per capita spending growth rate among any children’s age group in 2015, rising by 6.9% (Appendix Table A39). This per capita spending growth rate was faster than the growth rate observed for the entire ESI population (ages 0–64) in 2015, which rose by 4.6% (Table 1). Pre-teens had the slowest growth rate of per capita spending among any children’s age group in 2015 (4.6%), equal to the spending growth rate for the total ESI population (Appendix Table A40).

One reason that children’s per capita health care spending grew faster in 2015 than in the prior year was due to an increase in spending on administered drugs. This increase in spending per capita was observed for every children’s age group (Appendix Table A42). Higher utilization was a key driver for increased spending on administered drugs. In 2015, use of administered drugs rose for each age group of children (Figure 17). This was the first year during the study period where we observed utilization growth across every children’s age group. The largest increase in use was observed for teenagers (6.5%), an increase in use of 11 administered drugs per 1,000 teenagers. Pre-teen children had the smallest increase in administered drug utilization (2.8%), an increase of 7 administered drugs per 1,000 pre-teens. In contrast, utilization of administered drugs by the entire ESI population (ages 0–64) fell in 2015, by 3.4% (Appendix Table A23).

Figure 17
Changes in Utilization Of Administered Drugs
By Age Groups of Children, 2012-2015



Source: HCCI, 2016.
 Notes: All data weighted to reflect the national, 0-18 ESI population.
 Data from 2014 and 2015 adjusted using actuarial completion.