

Children's Health Spending: 2010–2014

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Executive Summary

In 2014, about half of children (ages 18 and younger) in the United States were covered by employer-sponsored health insurance (ESI) at some point during the year.¹ Their numbers underscore the importance of understanding trends in health care spending for these children and their use of medical services. This report, *Children's Health Spending: 2010–2014*, is the fourth in a series of annual reports from the Health Care Cost Institute (HCCI) on trends in spending, utilization, and price for children's health care.

For this study, we analyzed a population that averaged 10.2 million ESI children per year between 2010 and 2014, the "study period" (see "About the Data and Methodology").² The analytic dataset was weighted to be representative of the national population of children covered by ESI. As in previous studies, HCCI examined the per capita health care spending and the drivers of health care costs for this population of children. This report proceeds in six sections. The first section describes the trends for all children (ages 0–18) as a group. Sections two through five examine the health care trends for each of the children's age groups: infants and toddlers (ages 0–3), also called "babies"; younger children (ages 4–8); pre-teens (ages 9–13); and teenagers (ages 14–18), also called "teens". The final section in this report is new to HCCI Children's Health Spending reports, and details the high-level spending per capita and out-of-pocket spending per capita trends in ten selected states (which includes the District of Columbia, here referred to as a

"state"). Additionally, spending for each state is compared to the national average and interesting trends in children's health care are explored.

Drivers of Health Care Costs for Children

In 2014, per capita health care spending for children (see "Key definitions") covered by ESI was \$2,660. This was a \$90 increase in spending over the previous year, an increase of 3.5%. Over the study period, spending per capita for children rose by \$477, increasing an average annual 5.1% (Table 1).

As observed in previous reports, the highest per capita spending in 2014 was for babies (\$4,879), followed by teenagers (\$2,856), then pre-teens (\$1,940), with the lowest spending per capita for younger children (\$1,745). Spending per boy (\$2,785) also continued to be higher than spending per girl (\$2,529), although spending for girls rose at a faster average annual rate between 2010 and 2014: 5.3% for girls and 5.0% for boys.

In every year of the study period, per capita spending on each of the sub-service categories of health care services increased (see "Service categories analyzed in this report"). The largest dollar increase between 2010 and 2014 was observed for professional services (\$171 per capita; Appendix Table A1). The highest average growth rate across the study period was for generic prescriptions, which grew an average 8.3% per year.

When analyzing spending trends for children, HCCI examined two compo-

BY THE NUMBERS: 2014 ALL CHILDREN (0–18)

3,228

The number of doctor visits per 1,000 children, a slight decrease over the previous year

8%

The percentage of the spending per capita spent on ER visits

72,439

Filled days of prescriptions per 1,000 children, fewer filled days than the previous year

\$17,949

The increase in the average price of a surgical admission between 2010 and 2014

5.5%

The average annual increase in out-of-pocket spending per capita

-6.8%

The average annual decline in per capita out-of-pocket spending on brand prescriptions between 2010 and 2014

nents that drive changes in expenditure: price and utilization. The average price per service for each of the medical subservice categories increased in each year studied. However, the trends in utilization of medical services varied over the study period; use increased in some years and declined in others. In 2011, use of all medical service categories increased (Appendix Table A2). In 2012 and 2013, use of acute inpatient admissions and outpatient visits declined, while use of professional services and outpatient-other services increased. In 2014, use of all medical service categories declined. In combination, the effects of the price and utilization trends on the trends in spending differed during the study period. In 2010, increases in both price and utilization drove up health care spending. In 2011 and 2012, increased spending was mainly due to increases in average price, but increases in the use of some medical services also contributed. By 2014, the largest influence on the increased spending per capita for children was increases in average prices, as the use of all medical subservice categories had declined.

Trends in price and utilization – and their effect on spending – for prescriptions looked different than the trends for medical services. The use of brand prescriptions declined in every year studied. At the same time, the average price per filled day more than doubled (from \$7 per filled day in 2010 to \$16 in 2014). In all years, changes in the average price per filled day of a brand prescription, rather than utilization drove increases in spending per capita on brand prescriptions. For generic prescriptions, the average price per filled day remained stable at \$2 in every year. At the same time, use of generic pre-

scriptions increased each year, from 45,996 filled days of generic prescriptions per 1,000 children in 2010 to 58,409 filled days in 2014. For generic prescriptions, increases in both price and use contributed to rising spending. (Trends for both brand and generic prescriptions were influenced by many factors, including the expiration of brand patents and the introduction of new brand and generic prescriptions into the market, which were not controlled for here.)

In general, the trends in spending, price, and utilization described here were also observed for each of the children's age groups. The following sections detail the specific health care trends for each of the age groups, focusing on total spending per capita, out-of-pocket spending per capita, utilization of services, and average price of services.

Notable Trends in Children's Health Care

The following sections of this report detail the trends for groups of children. While in some ways, the various age groups of children are unique with their own patterns, a few trends are present across the groups. Below are a brief discussion of a few of the important health care trends observed for children covered by ESI.

Doctor visits: Of all of the detailed categories of medical services (see "Service categories analyzed in this report"), visits to the doctor (both office and preventive visits to all provider types combined) was the single type of service with the highest use by children during the study period. In 2014, there were 3,228 visits to the doctor per 1,000 children, down slightly from the previous year (a 41 visit per 1,000 children decline) (Appendix Table A5). This was also where many of the health care dollars were spent, on average. In 2014,

spending on visits to the doctor made up 13% of the total per capita spending for children: \$339 per child on doctor visits and \$2,660 per child on all health care services (Appendix Table A4).

ER visits: ER visits are one of the highest spending types of services for children, and comprised 8% of total health care spending per capita for children in 2014. Spending on ER visits increased in every year, from per capita spending of \$165 in 2010 to \$214 in 2014 (Appendix Table A4). At the same time, the number of visits declined in 2013 and 2014, to 177 ER visits per 1,000 children in 2014 (Appendix Table A5).

Prescription use: For the second year in a row, the use of prescriptions by children declined; the number of filled days of prescriptions used by children was lower in 2014 than at the beginning of the time period in 2010. There were 72,832 filled days per 1,000 children in 2010 and 72,439 filled days in 2014 (Appendix Table A2). The exception to this trend of declining prescription use was teenagers: use of filled days of prescriptions by teenagers increased in every year studied (Appendix Table A33).

Average price of surgical admission: In general, the average price per service for medical services have increased each year that HCCI has studied. In this report, the most notable example of this – the medical service with the largest dollar increase across the study period – was the increase in the average price of a surgical admission. In 2010, the average price was \$35,423 per surgical admit for children, increasing to \$53,372 per surgical admit in 2014 (Appendix Table A7). This was a 50% increase in the average price in five years. At the same time, two things about surgical admissions for children should be

noted. First, surgical admissions for children are relatively rare. For example, a use rate of 3 admissions per 1,000 children in 2014, as compared to 10 medical admissions per 1,000 children that same year (Appendix Table A5 and A7). And second, the number of these surgical admissions declined slightly over the study period, from 4 per 1,000 children in 2010 to 3 in 2014.

Out-of-pocket spending on brand prescriptions: Total out-of-pocket spending per capita increased each year of the study period, at an average annual rate of 5.5%. During the study period, out-of-pocket spending on brand prescriptions declined each year, from \$40 per child in 2010 to \$30 in 2014 (Appendix Table A3). This decline in out-of-pocket spending tracks the decline in the use of brand prescriptions: use declined by 12,816

filled days per 1,000 children between 2010 and 2014 (Appendix Table A2). However, during the same time period total spending per capita on brand prescriptions increased (by \$27 per capita; Appendix Table A1). These two trends, increasing total per capita spending on brand prescriptions and declining out-of-pocket brand prescription spending meant that parents were paying a smaller percentage of spending on brand prescriptions out of pocket in 2014 than they were in 2010. Specifically, in 2010, 21% of all per capita spending on brand prescriptions was paid out of pocket, by 2014, this percentage had fallen to 14% (Appendix Tables A1 and A3).

KEY DEFINITIONS

Per capita spending:

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

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 of children.

SERVICE CATEGORIES ANALYZED IN THIS REPORT

In this report, HCCI analyzed medical and prescription claims for children (ages 0–18) covered by ESI. As in prior reports, HCCI grouped these claims into distinct service categories for analytic

purposes. See the *2014 HCCI Analytic Methodology* for a detailed description of HCCI's claims categorization methods.²

Medical service, subservice, and detailed service categories in this report

Three medical service categories were identified: inpatient facility, outpatient facility, and professional procedures. HCCI also reported on three medical subservice categories: acute inpatient admissions, which included labor and delivery (LD), newborn, surgery, medical, mental health and substance use (MH/SU) admissions; outpatient visits; and outpatient other services. These are further classified into "detailed service" categories.²

Prescription service, subservice, detailed service categories, and therapeutic subclasses in this report

HCCI analyzed prescription claims from retail and mail order pharmacies. The prescription service category was further classified as branded and generic subservice categories. These are further classified into "detailed service" categories and further into therapeutic subclasses.² In this report, HCCI also examined several therapeutic subclasses of prescriptions, as defined by the American Hospital Formulary Service (AHFS).^{2,3}

Health Care Trends: Children (Ages 0-18)

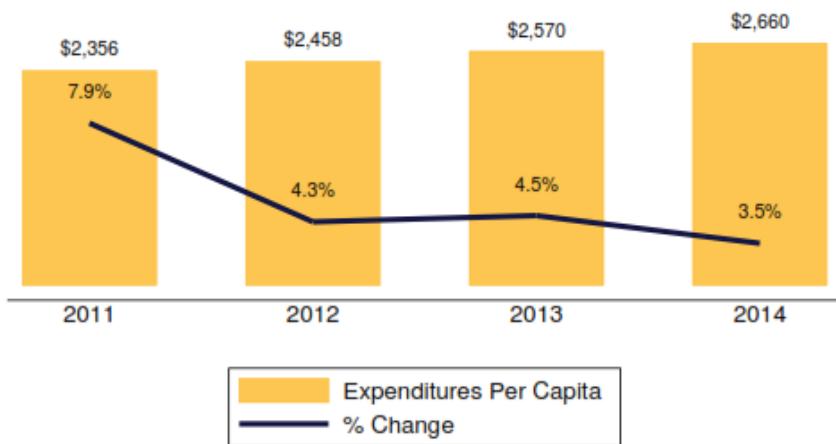
In 2014, per capita spending on children (ages 0-18) was \$2,660, up 3.5% (\$90) over the previous year (Table 1 and Figure 1). During the study period (2010–2014), spending grew an average annual 5.1%, with the fastest growth rate observed in 2010 (7.9%) and the slowest in 2014 (3.5%; Appendix Table A1).

Among the children's age groups in 2014, the highest per capita spending (\$4,879) was for babies (ages 0-3). The lowest spending per capita (\$1,745) was for younger children (ages 4-8; Appendix Table A1 and Figure 2). These trends, of highest and lowest spending, were also observed in every year studied. In 2014, the highest growth in spending per capita (4.9%) was for pre-teens (ages 9-13); pre-teens also had the highest average annual growth (5.9%) during

the time period. The largest dollar increase in spending per capita in 2014 was for teenagers, whose spending grew by \$123 to \$2,856.

In all years studied, per capita spending for boys was higher than for girls. For example, in 2014, spending per capita for boys was \$2,785 compared to \$2,529 for girls (Appendix Table A1). However, spending for girls grew at a faster average annual rate across the study period: 5.3% average annual growth for girls, as compared to 5.0% for boys. Conversely, between 2010 and 2014, there was a slightly larger increase in the dollars spent per capita for boys (\$488) than those spent for girls (\$466).

Figure 1
**Per Capita Spending for Children,
Ages 0-18: 2011-2014**



KEY FINDINGS: 2014 ALL CHILDREN (0-18)

\$2,660

Per capita spending for children

3.5%

Increase in spending for children

\$472

Out-of-pocket per capita spending for children

4.0%

Increase in out-of-pocket spending for children

-2.0%

Decrease in the utilization of outpatient visits by children

6.4%

Increase in the average price per outpatient visit for children

Spending Per Capita

More dollars were spent on professional services – 39% of total per capita spending (\$1,039 in 2014) – than on any other category of health services (Appendix Table A1). Professional services had the largest increase in the dollars spent per capita both in 2014 (\$31) and across the study period (\$171). In 2014, the highest per capita spending on a detailed category of services was for visits to the doctor: \$339 (Appendix Table A4). In this report, “visits to the doctor” refers to all visits for both

office and preventive visits to primary care providers (PCPs) and specialists.

Spending per capita on acute inpatient admissions, outpatient-other services, and outpatient visits increased at around an average annual 5% between 2010 and 2014 (Appendix Table A1). Spending on acute admissions (which include medical, surgical, newborn, labor and delivery, and mental health and substance use (MH/SU) admissions) comprised 23% of total spending per child, the second highest spending category.

Spending per capita on acute inpatient admissions, outpatient-other services, and outpatient visits increased at around an average annual 5% between 2010 and 2014 (Appendix Table A1). Spending on acute inpatient admissions (which included medical, surgical, newborn, labor and delivery, and mental health and substance use (MH/SU) admissions) comprised 23% of total spending per child, the second highest spending category (\$612 in 2014; Table 1).

Spending on outpatient visits in 2014 was \$414 per capita, comprising 16% of total spending on children. ER visits comprised 52% of the spending on outpatient visits, or \$214 in 2014 (Appendix Table A4). This spending on ER visits was the second highest per capita spending of all of the detailed service categories.

Spending per capita on brand prescriptions also increased in 2014, by 6.8% (\$14 per capita; Table 1). This 6.8% was the fastest spending growth rate observed for any service category in that year. In 2013, however, spending growth for brand prescriptions was negative, as per capita spending on brand prescriptions declined slightly. Much of the 2014 in-

crease in spending on brand prescriptions can be attributed to an increase in spending on brand hormones and synthetic substitutes, which increased by \$7 per capita to \$53 (Appendix Table A4). The hormones and synthetic substitutes category (AHFS class 68:00) includes a wide variety of prescription types including oral contraceptives, parathyroid and pituitary medications, and antidiabetic agents including insulin.

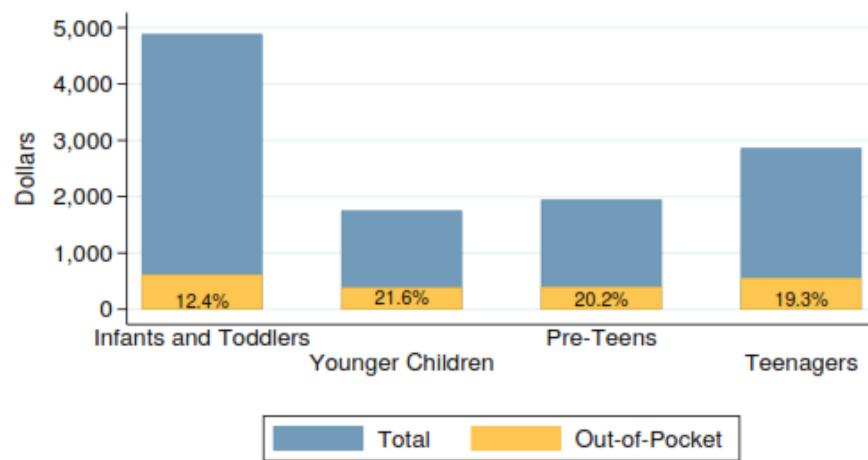
The highest average annual growth observed during the study period was for generic prescriptions, which grew an average annual 8.3% (Appendix Table A1). Spending increased from \$105 in 2010 to \$145 in 2014. The largest portion of this spending in 2014 was for generic central nervous system (CNS) agents (\$46 per capita, or 32% of total spending on generic prescriptions, in 2014) followed by generic skin and mucous membrane agents (\$24 per capita, or 17% of total spending on generic prescriptions; Appendix Table A4).

Out-of-Pocket Spending Per Capita

In 2014, per capita out-of-pocket spending on children (see "Key definitions") was \$472, up 4.0% (\$19) over the previous year (Appendix Table A3). Spending out of pocket rose each year in the study period, an average annual 5.5%, or \$91 between 2010 and 2014. The highest out-of-pocket spending was for babies: \$607 per baby in 2014 (Figure 2). But this age group had the lowest share of costs (also called out-of-pocket spending burden). Out-of-pocket payments for babies comprised just 12.4% of total spending for babies (Appendix Table A1). In comparison, out-of-pocket payments for younger children comprised 21.6% of their total spending, the highest out-of-pocket spending burden, even as the lowest per capita out-of-pocket spending was observed for younger children (Appendix Tables A3 and A1).

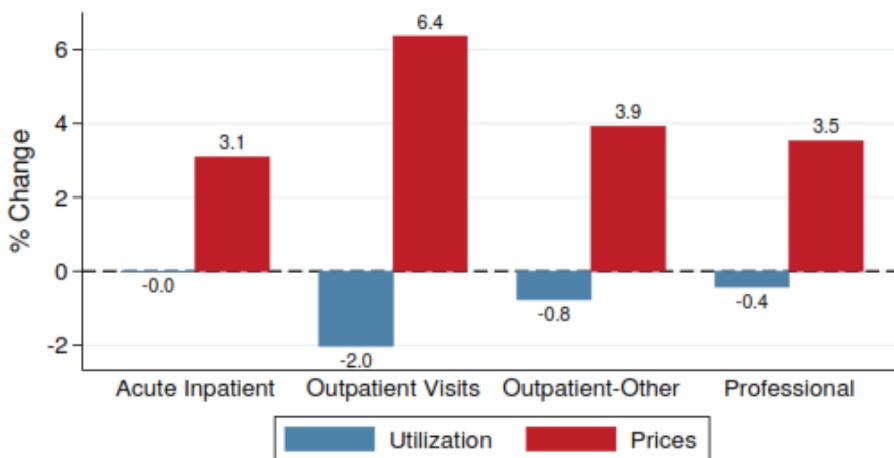
This difference in the cost sharing burden between babies and younger children could partially be due to the difference in services that these age

Figure 2
Total and Out-of-Pocket Spending Per Capita for Age Groups of Children: 2014



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

Figure 3
Changes in Utilization and Prices of Medical Subservice Categories: 2014



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

groups use. For babies, the most dollars are spent on newborn admissions (\$1,219 per baby in 2014), while out-of-pocket payments on these admissions are just \$68 per baby, or 6% of the total on newborn admissions (Appendix Tables A3 and A13). For younger children, the most dollars are spent on ER visits and outpatient surgical visits (both \$164 per younger child in 2014), while the out-of-pocket spending is \$50 per younger child (30% of the total spending on ER visits for younger children) and \$29 (or 18% of the total spending on surgical visits), respectively Appendix Tables A20 and A3).

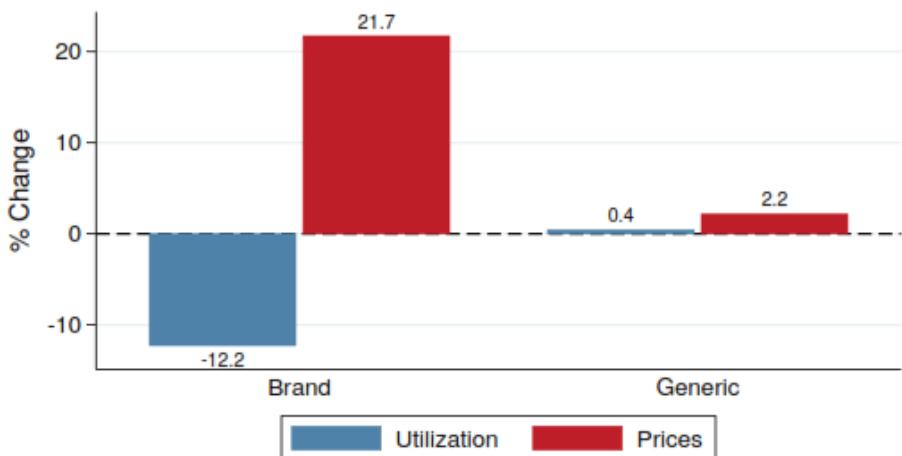
As with total spending, the most dollars spent out-of-pocket were on professional services: \$231 per capita in 2014, or nearly 50% of the out-of-pocket per capita spending. Around 42% of the dollars spent out of pocket on professional services were for visits to the doctor (\$97 in 2014; Appendix Table A6). This is the largest portion of the total dollars spent out of pocket; 21% of the out-of-pocket spending per capita was on visits to the doctor.

During the study period, spending out of pocket on professional services has seen more moderate growth as compared to the other service categories. For example, out-of-pocket spending on professional services grew an average annual 5.5%, as compared to average annual growth of 9.6% for outpatient visits and 9.0% for outpatient-other services (Appendix Table A3). The high growth in out-of-pocket

spending on outpatient visits is largely attributable to growth in spending out of pocket on ER visits, which increased an average annual 11.7% or \$21 per capita between 2010 and 2014 (Appendix Table A6). Comparatively, out-of-pocket spending on outpatient surgery visits rose just \$6 per capita during the study period.

In comparison to the high growth in out-of-pocket spending on the medical services, spending out of pocket declined every year for brand prescriptions. This spending declined an average annual 6.8%, falling by \$10 per capita over the study period (Appendix Table A3). Mirroring this trend in 2014 was generic prescriptions. For the first time in the study period, out-of-pocket spending on generic prescriptions declined, falling from \$43 per capita in 2013 to \$41 in 2014. Contributing to this decline in spending were \$1 per capita decreases in out-of-pocket spending on both generic anti-infective agents and generic respiratory drugs (Appendix Table A6).

Figure 4
Changes in Utilization and Prices of Prescription Subservice Categories: 2014



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

Utilization

Utilization of outpatient-other services, outpatient visits, and brand prescriptions declined in 2013 and 2014 (Appendix Table A2 and Figures 3 and 4). The number of acute admissions remained stable between 2011 and 2014. For the first time in the study period, the use of professional services by children declined in 2014. This decrease in the use of professional services was largely attributable to fewer visits to the doctor (-41 visits per 1,000 children to 3,228 visits in 2014), radiology services (-11 per 1,000 children to 438 services), and surgery services (-9 per 1,000 children to 247 services; Appendix Table A5).

A slight increase in use was observed for generic prescriptions; use increased a modest 0.4% in 2014 (Appendix Table A2 and Figure 4). While there was an increase in the use of generic prescriptions in all years studied, in 2013 and 2014 the decline in the use of brand prescriptions was larger than the increase in generic prescriptions, leading to a net decline in total prescription use in those years: total prescription use declined by 233 filled days per 1,000 children in 2013 and 1,691 filled days in 2014.

The most used types of prescriptions by children were generic CNS agents (17,008 filled days per 1,000 children in 2014) and generic anti-infective agents (8,537 filled days per 1,000 children; Appendix Table A5). Use of generic CNS agents increased in every year studied, an average annual 11.7%. For generic anti-infective agents, however, use declined between 2012 and 2014.

Average Price Per Service

The average price per service increased for all of the medical service

categories in all years of the study period (Appendix Table A2 and Figure 3). The highest average annual growth was for outpatient visits (6.5%) followed by acute admissions (5.3%). The high growth in average price for outpatient visits was not limited to one type of visit. All three types of outpatient visits (ER visits, outpatient surgery, and observation visits) had at least 7% average annual growth in the average price of a visit (Appendix Table A7). For acute admissions, surgical admissions had the highest growth, an average annual 10.8%, followed by medical admissions with 8.8% average growth.

Comparatively, the lowest growth in the average price per service for the medical service categories during the study period was for professional services, an average annual 3.1% growth (Appendix Table A2). Price growth was moderate for the relatively high priced surgery and anesthesiology professional services; the average price per service grew an average annual 3.4% for professional surgery services and 3.1% for anesthesiology professional services (Appendix Table A7). Higher growth in price was observed for administered drugs, which grew an average annual 8.0%, an increase of \$102 per service between 2010 and 2014.

For both brand and generic prescriptions, the average price per filled day increased in nearly every year of the study period (Appendix Table A2 and Figure 4). The average price of a filled day of a brand prescription more than doubled, from \$7 per day in 2010 to \$16 per day in 2014. Brand hormones and synthetic substitutes had the largest observed increase in the average price for a class of brand prescription. The average price of a brand hormones and synthetic substitute nearly tripled over the study period, rising from \$9 per filled day in 2010 to \$26 in 2014 (Appendix Table A7).

The average price per filled day of a generic prescription changed little over the study period. While it increased in every year between 2011 and 2014, the average price stayed between \$2 and \$2.49 in every year (Appendix Table A2). The highest price growth was observed for generic skin and mucous membrane agents, which increased from \$3 per filled day in 2010 to \$5 in 2014 (Appendix Table A7).

Table 1: Per Capita Health Care Spending for Children (Ages 0-18): 2012–2014

	2012	2013	2014	Percent Change 2011/2012	Percent Change 2012/2013	Percent Change 2013/2014
Per Capita, Children	\$2,458	\$2,570	\$2,660	4.3%	4.5%	3.5%
Age Group						
Infants and Toddlers (Ages 0-3)	\$4,541	\$4,818	\$4,879	3.8%	6.1%	1.3%
Younger Children (Ages 4-8)	\$1,658	\$1,697	\$1,745	3.0%	2.4%	2.9%
Pre-Teens (Ages 9-13)	\$1,775	\$1,850	\$1,940	4.5%	4.2%	4.9%
Teenagers (Ages 14-18)	\$2,628	\$2,733	\$2,856	5.6%	4.0%	4.5%
Gender						
Boys	\$2,593	\$2,713	\$2,785	4.3%	4.6%	2.7%
Girls	\$2,316	\$2,420	\$2,529	4.4%	4.5%	4.5%
Service Category						
Inpatient	\$560	\$596	\$614	2.0%	6.3%	3.1%
Acute Inpatient	\$558	\$594	\$612	2.0%	6.4%	3.1%
Outpatient	\$592	\$619	\$643	5.8%	4.6%	3.8%
Visits	\$381	\$397	\$414	5.8%	4.3%	4.2%
Other	\$211	\$222	\$229	5.8%	5.2%	3.1%
Professional Procedures	\$970	\$1,008	\$1,039	3.8%	3.9%	3.1%
Prescriptions	\$335	\$347	\$365	7.2%	3.4%	5.1%
Brands	\$206	\$206	\$220	3.4%	-0.2%	6.8%
Generics	\$129	\$141	\$145	13.7%	9.4%	2.6%

Source: HCCI, 2016.

Notes: All data weighted to reflect the national population ages 0-18 and covered by ESI. Data for 2013 and 2014 adjusted using actuarial completion. All per capita dollars from allowed amounts. All figures rounded.

Health Care Trends: Infants and Toddlers (Ages 0–3)

Snapshot 2014:

In 2014, the average baby (aged 0–3)...

- ◆ Incurred \$4,879 in health care costs
 - ◊ The most dollars were spent on newborn hospital admissions followed by doctor visits
- ◆ Had 6 doctor visits
- ◆ Had 4 immunizations/injections
- ◆ Used 45 filled days of prescriptions
 - ◊ 3 days fewer than the previous year
 - ◊ The most filled days were generic anti-infectives, specifically generic penicillins (~6 filled days)
- ◆ Their parents spent \$607 out of pocket
 - ◊ The most out-of-pocket dollars were spent on doctor visits and ER visits



Spending for infants and toddlers (“babies”, ages 0–3) was \$4,879 per capita in 2014, an increase of \$61 per baby over spending in 2013 (Table 2 and Figure 5). Per capita spending increased from \$4,041 in 2010 to \$4,879 in 2014, growing an average annual 4.9% per year (Appendix Table A1).

Babies had the highest per capita health care spending of any children’s age group. In 2014, spending for babies was \$4,879 per capita compared to \$2,856 for teenagers, the age group with the second highest per capita spending (Appendix Table A1). The difference in spending between babies and other chil-

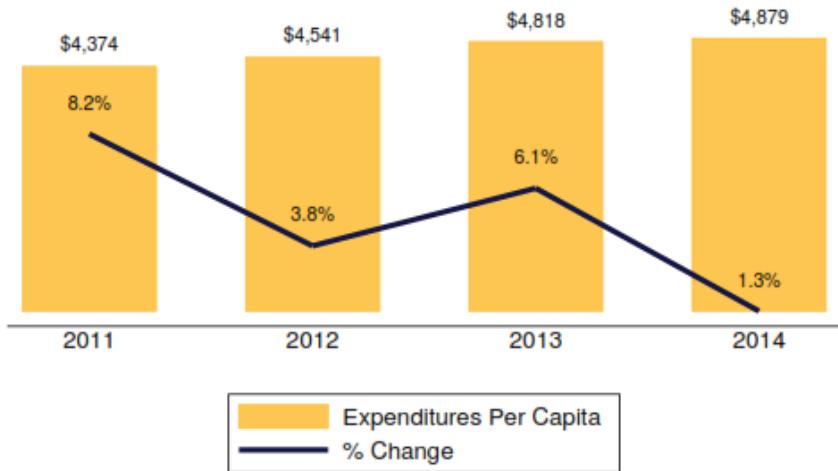
dren’s age groups seems to be largely due to higher utilization of medical services by babies, specifically acute inpatient admissions. For example, there were 152 acute inpatient admissions per 1,000 babies in 2014 compared to 26 per 1,000 teenagers.

In each study year, more dollars per capita were spent for baby boys than baby girls (Appendix Table A8). In 2014, spending for baby boys was \$5,323 compared to \$4,411 for baby girls. While spending for baby boys was greater than for baby girls in each year, boys and girls had similar average annual spending growth. Average annual spending growth for baby boys was 5.1% compared to 4.6% for baby girls.

Spending Per Capita

Unlike for other children, where more dollars per capita were spent on professional services than other types of services, the most dollars per capita for babies were spent on acute inpatient admissions (Appendix Table A8 and Figure 6). Higher spending per capita on

Figure 5
Per Capita Spending for Infants and Toddlers,
Ages 0-3: 2011-2014



Source: HCCI, 2016.
Notes: All data weighted to reflect the national, ESI population ages 0-18.
Data from 2013 and 2014 adjusted using actuarial completion.

newborn admissions accounted for the higher acute inpatient spending, as compared to inpatient spending for other age groups (Appendix Table A11).

Between 2010 and 2014, acute inpatient admissions had the highest average annual growth in spending (5.7%) and largest increase in dollars spent (\$394), as compared to the other major subservice categories of health care services (Appendix Table A8). The majority of the dollars spent for acute admissions and the reason for much of the growth in acute inpatient spending was largely due to newborn admissions. In 2014, spending on newborn admissions was \$1,219 per baby, and between 2010 and 2014, there was average annual spending growth of 6.9% and an increase of \$286 (Appendix Table A11).

The subservice category with the second highest per capita spending for babies was professional services: \$1,912 per capita in 2014 (Appendix Table A8 and Figure 6). Professional services also had the second largest increase in dollars spent per capita between 2010 and 2014 (\$305), after acute admissions (\$394). About one third of the dollars spent on professional services were for doctor visits (Appendix Table A11). Spending was \$631 per baby in 2014, and increased by \$77 per baby over the study period.

Spending per capita on all outpatient services for babies was \$801 in 2014, \$537 of which was spent on outpatient visits and \$264 on outpatient-other services (Appendix Table A8 and Figure 6). Similarly, over the study period, spending on babies' outpatient visits increased by \$89, while spending on outpatient-other services increased by \$49. Of the \$537 per baby spent on outpatient visits in 2014,

\$265 was spent on ER visits and \$254 was spent on outpatient surgery visits, while just \$19 was on observation visits (Appendix Table A11).

In 2014, prescription per capita spending was \$168, of this amount \$85 was on brand prescriptions and \$83 on generics. Spending on brand prescriptions increased slightly between 2010 and 2014, by \$7 per capita; however, spending per capita on generic prescriptions declined over the study period, by \$2 per capita to \$83 per baby (Appendix Table A8).

Out-of-Pocket Spending Per Capita

Out-of-pocket per capita spending for babies was \$607 in 2014, and increased by \$104 from 2010 to 2014 (Appendix Table A10). During this same period, out-of-pocket spending grew an average annual 4.8% per year, a slightly slower average rate than for total spending (4.9%; Appendix Table A8).

While the most dollars per capita for babies were spent on inpatient services (Appendix Table A8), the most out-of-pocket dollars were spent on

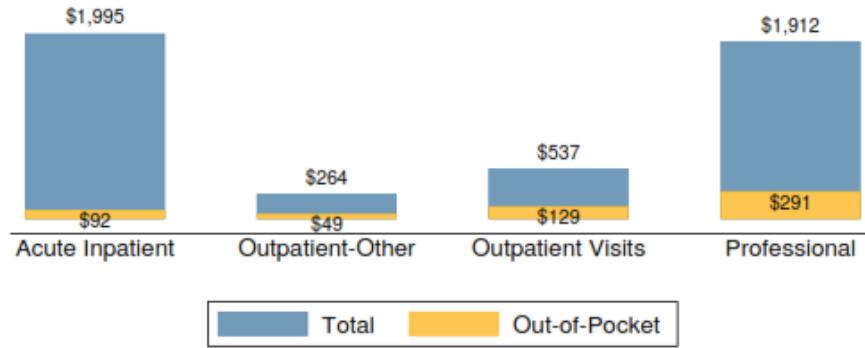
professional services (\$291 in 2014; Appendix Table A10 and Figure 6). Of the out-of-pocket spending for babies on professional services, nearly half was spent on doctor visits (\$144 in 2014).

Out-of-pocket per capita spending for babies on acute inpatient admissions was largely driven by newborn admissions, the same driver of acute inpatient per capita spending. Of the \$92 per baby spent out of pocket on acute inpatient admissions in 2014, \$68 was spent on newborn admissions (Appendix Table A13).

Total outpatient out-of-pocket spending was \$178 per baby in 2014, \$129 of which was for outpatient visits and \$49 for outpatient-other services (Appendix Table A10 and Figure 6). Most of the outpatient out-of-pocket spending was on ER visits (\$80 in 2014). ER visits had the second highest out-of-pocket spending of all of the detailed categories after visits to the doctor (Appendix Table A13).

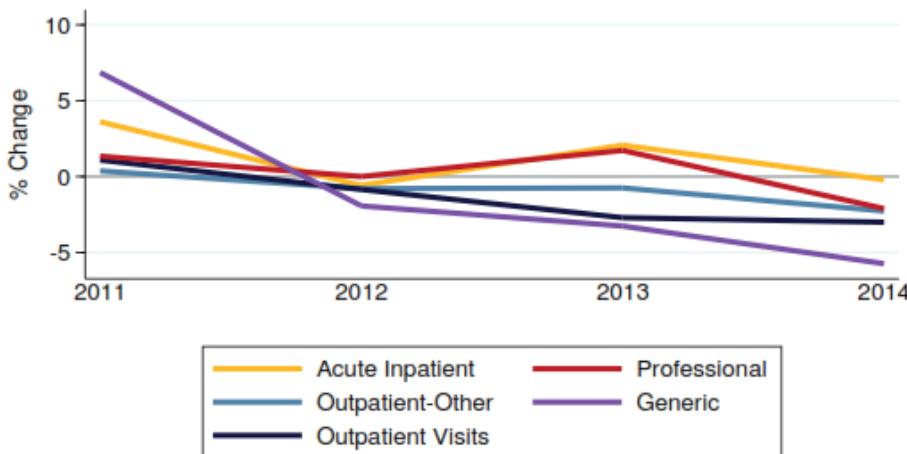
Across the study period, the fewest dollars spent out of pocket on a subservice category were for prescrip-

Figure 6
Total and Out-of-Pocket Spending Per Capita by Medical Subservice Categories for Infants and Toddlers, Ages 0-3: 2014



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

Figure 7
Annual Percentage Changes in Utilization by Subservice Category for Infants and Toddlers, Ages 0-3: 2011-2014



Source: HCCI, 2016.
Notes: All data weighted to reflect the national, ESI population ages 0-18.
Data from 2013 and 2014 adjusted using actuarial completion.

tions. In 2014, out-of-pocket spending on prescriptions was \$46, of this amount \$15 was spent on brand prescriptions compared to \$32 on generics (Appendix Table A10). Out-of-pocket spending on brand prescriptions declined in every year of the study period, from \$20 per baby in 2010 to \$15 in 2014. Spending out of pocket on generic prescriptions increased between 2010 and 2012 (from \$35 per baby to \$37), before declining in 2013 and 2014 (from \$37 per baby to \$32).

Utilization

Acute inpatient admissions increased over the study period from 145 admissions per 1,000 babies in 2010 to 152 admissions per 1,000 babies in 2013, and were steady in 2014 (Appendix Table A9 and Figure 7). Of the 152 admissions per 1,000 babies in 2014, 125 were for newborn admissions (Appendix Table A12). While medical admissions were the most common type of acute inpatient admissions for younger children (medical admissions comprised

72.7% of total acute admissions by younger children in 2014; Appendix Table A19) and pre-teens (50.0% of total acute admissions in 2014; Appendix Table A26), medical admissions were just 14.5% of total acute admissions for babies (Appendix Table A12).

Between 2011 and 2014, the use of outpatient services by babies declined (Appendix Table A9 and Figure 7). Outpatient-other service use declined from 1,401 services per 1,000 babies in 2011 to 1,348 in 2014, and the utilization of most types of outpatient-other services also declined (i.e., outpatient radiology and outpatient laboratory/pathology; Appendix Table A12). Between 2011 and 2014, the number of outpatient visits declined from 365 visits per 1,000 babies to 341 visits (Appendix Table A9). ER visits declined in each year after 2012, declining from 285 per 1,000 babies in 2012 to 272 per 1,000 babies in 2014 (Appendix Table A12).

There were 20,242 professional services per 1,000 babies in 2014 (Appendix Table A9). Visits to doctors

accounted for nearly 30% of these professional services for babies, 6,032 doctor visits per 1,000 babies in 2014 (Appendix Table A12). The total number of doctor visits declined slightly over the study period, from 6,210 visits per 1,000 babies in 2010 to 6,032 in 2014. However, this decline was only for office visits to primary care providers (PCPs), which declined from 3,359 visits per 1,000 babies in 2010 to 2,868 in 2014. Over the same time period, preventive visits and visits to specialists increased slightly. Another frequently used service during the study period for babies was the administration of drugs, or the injections administered to babies. While the number of services fell slightly in 2014 (by 61 injections per 1,000 babies), there were 3,686 injections per 1,000 babies in 2014.

Babies had the lowest prescription use of all of the children's age groups and use appeared to increase with age. In 2014, babies had the lowest use at 45,351 filled days per 1,000 babies (Appendix Table A9), compared to 50,594 filled days for younger children (Appendix Table A16), 68,265 for pre-teens (Appendix Table A23), and 111,654 for teenagers (Appendix Table A33).

In each year of the study period, babies had more filled more days of generic prescriptions than brand prescriptions. In 2014, of the 45,531 filled days per 1,000 babies, 39,651 filled days were generic prescriptions compared to 5,664 filled days that were brand prescriptions (Appendix Table A9). Babies had the most filled days of generic anti-infective agents (11,416 filled days per 1,000 babies; Appendix Table A12), compared to other age groups, such as pre-teens, who had the most days filled days of generic central nervous system (CNS) agents (Appendix Table A26). The

most common type of generic prescription used by babies was generic penicillins (AHFS class 08:12.16) with 6,395 filled days per 1,000 babies in 2014 (Appendix Table A51). The second most common in 2014 was generic histamine H-2 antagonists (AHFS class 56:28.12; gastrointestinal drugs, for example famotidine, which is used to treat excess stomach acid) with 3,636 filled days per 1,000 babies.

Average Price Per Service

The average price per service increased across all major medical and brand prescriptions between 2010 and 2014 (Appendix Table A9). The highest average price per service was for acute admissions at \$13,122 per admission in 2014, followed by outpatient visits at \$1,575 per visit. The lowest average price per service was for professional services (\$94 per service) and brand prescriptions (\$15 per filled day). Similarly, over the study period, the largest increase in

the average price per service was for acute admissions (an increase of \$2,069 per admission) followed by outpatient visits (an increase of \$334 per visit).

The average price per acute inpatient admission grew in each year of the study period. The highest average price and the largest increase in average price was observed for surgical admissions (Appendix Table A14). The average price per surgical admission was \$76,405 in 2014, an increase of \$18,076 over the average price in 2010.

The average price per professional service was \$94 in 2014, an increase of \$14 per service over 2010 (\$80; Appendix Table A9). The highest average price per service within the professional services was for anesthesia, with an average price of \$631 per service in 2014 (Appendix Table A14).

As with other major medical categories, the average price for an outpatient visit increased in each year studied, growing from \$1,241 in 2010 to \$1,575 in 2014 (Appendix Table A9). Of the three types of outpatient visits, the highest average price and the largest increase in average price over the study period were for outpatient surgical visits. The average price per surgical visit was \$4,333 in 2014, and increased by \$1,082 over 2010 (Appendix Table A14).

The average price per filled day of a brand prescription grew disproportionately to that of generic prescriptions during the study period. The average annual growth in brand prescriptions was 24.7% with the average price per filled day more than doubling from \$6 per filled day in 2010 to \$15 in 2014 (Appendix Table A9). For generic prescriptions, the average annual price growth was just 0.6%.

Table 2: Per Capita Health Care Spending for Infants and Toddlers (Ages 0-3): 2012–2014

	2012	2013	2014	Percent Change 2011/2012	Percent Change 2012/2013	Percent Change 2013/2014
Per Capita, Infants and Toddlers	\$4,541	\$4,818	\$4,879	3.8%	6.1%	1.3%
Gender						
Boys	\$4,929	\$5,314	\$5,323	3.3%	7.8%	0.2%
Girls	\$4,135	\$4,296	\$4,411	4.5%	3.9%	2.7%
Service Category						
Inpatient	\$1,831	\$1,985	\$1,997	3.7%	8.4%	0.6%
Acute Inpatient	\$1,828	\$1,981	\$1,995	3.7%	8.4%	0.7%
Outpatient	\$736	\$782	\$801	4.2%	6.2%	2.5%
Visits	\$498	\$527	\$537	4.6%	5.7%	2.0%
Other	\$238	\$255	\$264	3.4%	7.3%	3.4%
Professional Procedures	\$1,803	\$1,880	\$1,912	3.9%	4.3%	1.7%
Prescriptions	\$170	\$171	\$168	2.8%	0.3%	-1.6%
Brands	\$84	\$83	\$85	5.4%	-1.4%	2.6%
Generics	\$86	\$88	\$83	0.2%	2.2%	-5.6%

Source: HCCI, 2016.

Notes: All data weighted to reflect the national population ages 0-3 and covered by ESI. Data for 2013 and 2014 adjusted using actuarial completion. All per capita dollars from allowed amounts. All figures rounded.

Health Care Trends: Younger Children (Ages 4–8)

Snapshot 2014:

In 2014, the average younger child (aged 4–8)...

- ◆ Incurred \$1,745 in health care costs
 - ◊ The most dollars were spent on doctor visits, ER visits, and outpatient surgery
- ◆ Had 3 doctor visits
- ◆ Had 1 immunizations/injections
- ◆ Used 51 filled days of prescriptions
 - ◊ 3 days fewer than the previous year
 - ◊ The most filled days were generic anti-infectives
- ◆ Their parents spent \$377 out of pocket
 - ◊ The most out-of-pocket dollars were spent on doctor visits and ER visits



During the study period (2010–2014), younger children (ages 4–8) had the lowest per capita spending of any children’s age group: \$1,745 in 2014 (Table 3, Appendix Table A15, and Figure 8). Younger children also had lower growth in spending as compared to the other groups: average annual growth of 4.1%. This trend of

lower per capita spending for younger children than for the other age groups is mainly due to lower medical service utilization, as compared to other children. For example, younger children used 11 acute inpatient admissions and 1,054 outpatient services in 2014 (Appendix Table A16), while teenagers used 26 admissions

and 1,398 outpatient services (Appendix Table A33).

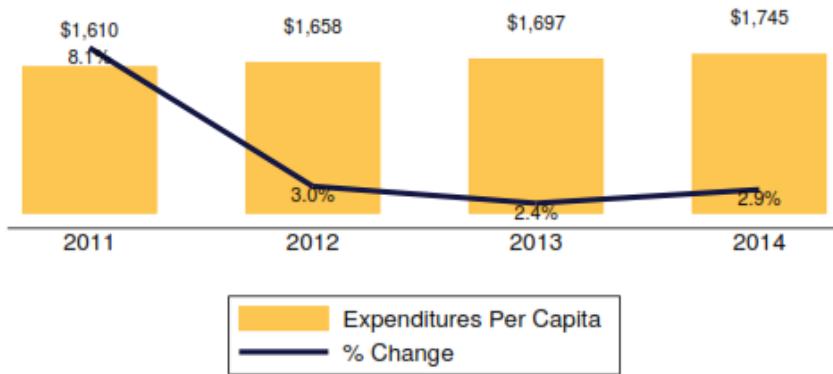
Spending Per Capita

In 2014, the most spending per capita for younger children was on professional services followed by outpatient visits (Table 3). Of the total spending per capita for these children, 45% (\$779) was on professional services, while just 19% (\$338) was on outpatient visits. Spending on professional services also saw the largest increase in per capita dollars spent on younger children both in 2014 (an increase of \$21) and across the study period (an increase of \$112).

Of the \$779 dollars spent per capita on professional services in 2014, \$290 (37% of professional spending) was spent on visits to the doctor (Appendix Table A18). In 2014, \$338 was spent on outpatient visits. Of this outpatient visits spending, \$164 was spent on both ER visits and outpatient surgery.

The lowest spending subcategories of health care services for younger chil-

Figure 8
Per Capita Spending for Younger Children, Ages 4-8: 2011-2014



Source: HCCI, 2016.
Notes: All data weighted to reflect the national, ESI population ages 0–18.
Data from 2013 and 2014 adjusted using actuarial completion.

dren were prescriptions in all years of the study period. For example, in 2014, \$132 per capita was spent on brand prescriptions, a \$2 increase over the previous year (Appendix Table A15). For generic prescriptions, \$98 was spent per capita, the same amount as the previous year.

For brand prescriptions, in 2014 \$30 per capita (23% of the dollars spent on brand prescriptions) was spent on brand CNS agents, while \$22 per capita (17% of the dollars spent on brand prescriptions) was spent on brand respiratory agents (Appendix Table A18). Of the \$98 spent per younger child in 2014 on generic prescriptions, the most dollars (\$24 per capita) were spent on both generic CNS agents and generic anti-infective agents.

Out-of-Pocket Spending Per Capita

During the study period, younger children had the lowest per capita out-of-pocket spending of any of the children's age groups. For example, \$377 was spent out of pocket per younger child in 2014 (Appendix Table A17). However, younger children had the

highest out-of-pocket burden, as measured through the percentage of total spending per capita that was paid out of pocket (Appendix Tables A15 and A17). Parents of younger children paid 21.6% of the total spending out-of-pocket, a higher share than for any other age group.

Out-of-pocket spending for younger children per capita grew faster during the study period than did total spending for younger children: an average annual 5.3% and 4.1%, respectively (Appendix Tables A15 and A17). Out-of-pocket per capita spending increased by \$70 between 2010 and 2014, as compared to an increase of \$256 in total spending. As with total spending per capita, the most out of pocket dollars were spent on professional services: \$194 in 2014. Of that amount, \$89 per younger child, or 46% of the out-of-pocket spending on professional services in 2014, was on visits to the doctor (Appendix Table A20).

We observed high growth in out-of-pocket spending on outpatient visits during the study period, an average annual 10.3% growth (Appendix Ta-

ble A17). Spending out of pocket on outpatient visits per younger child grew from \$55 in 2010 to \$81 in 2014 (Figure 9). Nearly half of those out-of-pocket dollars on visits (43%) were on ER visits (\$50 per capita in 2014; Appendix Table A20). Comparatively, out-of-pocket spending on outpatient surgery visits was \$29 per capita in 2014.

The least spending during the study period out-of-pocket for younger children was on acute admissions. In 2014, \$11 per younger child was spent out of pocket on acute admissions (Appendix Table A17). Growth of out-of-pocket spending on acute admissions was fairly flat during the study period, increasing from \$9 to \$11 per capita (Figure 9).

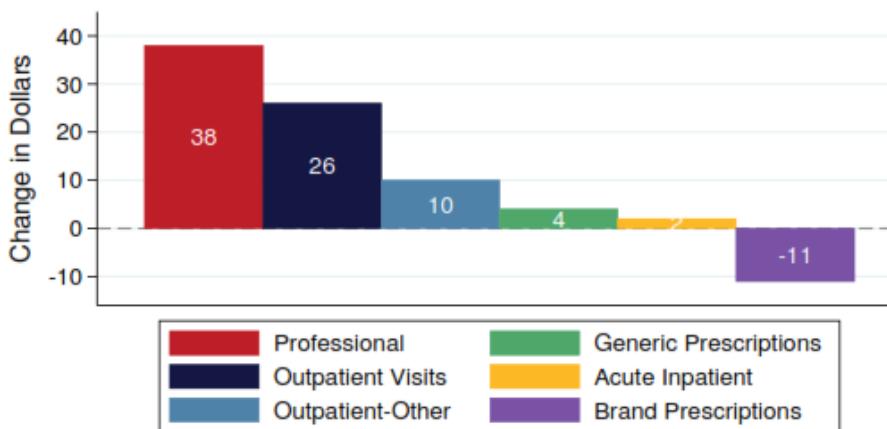
During every year of the study period for brand prescriptions, and in 2014 for generic prescriptions, out-of-pocket spending for younger children declined. Spending out of pocket on brand prescriptions declined from \$33 per younger child in 2010 to \$22 in 2014.

Utilization

The utilization trends for younger children resembled those observed for babies during the study period. In 2014, utilization of outpatient services, professional services, and prescriptions declined, and the number of acute admissions was the same as the previous year (Appendix Table A16).

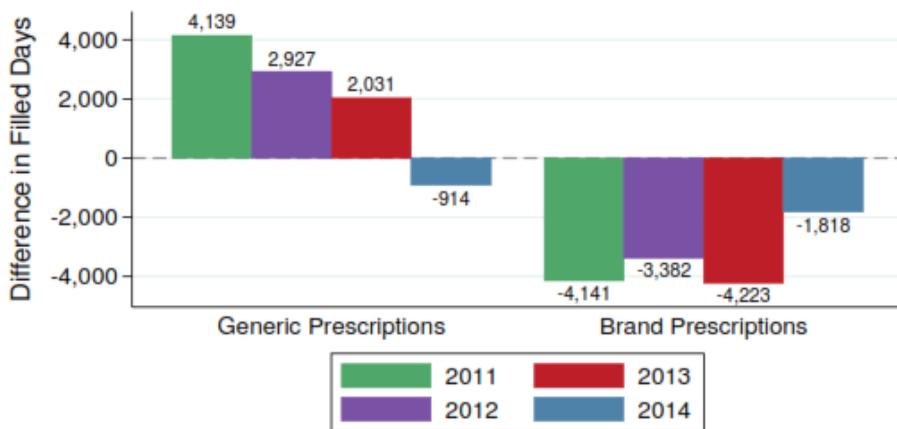
Across the medical services in 2014, the declines in use were fairly small. The largest decline in use was observed for visits to the doctor; in 2014, the number of visits to the doctor declined by 53 to 2,788 visits per 1,000 younger children (Appendix Table A19). This was the third year in a row that the number visits to the doctor declined. At the same time, there was a small decline in the num-

Figure 9
Difference in Out-of-Pocket Spending Per Capita Between 2010 and 2014 by Subservice Categories for Younger Children, Ages 4-8



Source: HCCI, 2016.
Notes: All data weighted to reflect the national, ESI population ages 0-18.
Data from 2013 and 2014 adjusted using actuarial completion.

Figure 10
Difference From the Previous Year in Brand and Generic Prescription Filled Days per 1,000 Younger Children, Ages 4-8: 2012-2014



Source: HCCI, 2016.
 Notes: All data weighted to reflect the national, ESI population ages 0-19.
 Data from 2013 and 2014 adjusted using actuarial completion.

ber of injections administered to younger children (“administration of drugs”); in 2014, there were 923 injections per 1,000 younger children, down 10 injections over the previous year.

Across the time period, there was a large decline in the use of brand prescriptions (Appendix Table A16 and Figure 10). Brand prescription use declined by 13,564 filled days per 1,000 younger children between 2010 and 2014. The most used types of brand prescriptions were brand CNS agents (3,003 filled days per 1,000 younger children in 2014) and respiratory drugs (2,832 filled days; Appendix Table A19). Use of all subcategories of brand prescriptions generally declined over the study period. The largest declines in use were for brand respiratory drugs (a decline of 3,447 filled days per 1,000 younger children) and brand CNS agents (a decline of 2,197 filled days).

In 2014, for the first time, the use of generic prescriptions by younger children declined (Appendix Table A16 and Figure 10). Use declined by 914 filled days per 1,000 younger chil-

dren. The most used subcategory of generic prescriptions during the study period was generic anti-infective agents (7,444 filled days per 1,000 younger children in 2010), followed by generic CNS agents (7,137 filled days; Appendix Table A19). Interestingly, use of generic anti-infective agents declined between 2011 and 2014 (a decline of 1,677 filled days per 1,000 younger children between 2011 and 2014), while use of generic CNS agents increased between 2010 and 2013 (an increase of 2,015 filled days between 2010 and 2013).

The most used type of prescriptions by younger children was generic leukotriene modifiers (AHFS class 48:10.24) with 5,341 filled days per 1,000 younger children in 2014 (Appendix Table A52). Leukotriene modifiers are a type of respiratory agent commonly used to manage the symptoms of allergies and mild-to-severe asthma. The second most used type of prescription was generic penicillins (AHFS class 08:12.16) with 4,076 filled days per 1,000 younger children.

While use of generic prescriptions increased between 2010 and 2013, this did not offset the large declines in use of brand prescriptions throughout the study period. The result of this was a net decline in the use of all prescriptions in every year of the study period; use declined from 55,964 filled days of prescriptions per 1,000 younger children in 2010 to 50,594 filled days in 2014 (Appendix Table A16). Much of that decline is attributable to a decline in the use of both brand and generic hormones and synthetic substitutes. Between 2010 and 2014, use of brand and generic hormones and synthetic substitutes prescriptions declined by 3,610 filled days per 1,000 younger children (Appendix Table A19).

Average Price Per Service

The average price per service for each of the medical service categories increased in all years of the study period (Appendix Table A16). The largest dollar increase in average price and the highest average annual growth rate was for acute inpatient admissions. The average price of an acute admission grew an average annual 7.5%, and increased by \$5,196 between 2010 and 2014. The sizable increase in the average price per admission was largely due to the increase in the average price of a surgical admission, which rose from \$29,489 in 2010 to \$42,168 in 2014 (Appendix Table A21).

In contrast to the trend for acute admissions, the average price per service for outpatient-other services and professional services had much smaller increases; the average price per service increased just \$34 for outpatient-other services and \$10 for professional services over the study period (Appendix Table A16). The average price of an outpatient visit rose by \$337 during the study period. Much of this increase was due to a \$1,005 in-

crease in the average price per outpatient surgery during that time.

The average price per filled day of a brand prescription more than doubled over the course of the study period: rising from \$6 in 2010 to \$13 in 2014. This increase in the average price was partially attributable to increases in the average price per day of brand anti-infective agents – which doubled during the study period (from \$13 in 2010 to \$26 in 2014) – and brand hormones and synthetic substitutes, which nearly quadrupled (from \$7 to \$27; Appendix Table A21).

The average price per filled day of a generic prescription, however, moved very little during the study period. The average price per filled day remained between \$2 and \$2.49 in each year (Appendix Table A16). The average price per filled day of most sub-categories of generic prescriptions stayed between \$1 and \$3 during the

study period. However, the average price per filled day of generic hormones and synthetic substitutes declined by \$4: from \$6 per filled day in 2010 to \$2 in 2014 (Appendix Table A21).

Table 3: Per Capita Health Care Spending for Younger Children (Ages 4-8): 2012–2014

	2012	2013	2014	Percent Change 2011/2012	Percent Change 2012/2013	Percent Change 2013/2014
Per Capita, Younger Children	\$1,658	\$1,697	\$1,745	3.0%	2.4%	2.9%
Gender						
Boys	\$1,844	\$1,872	\$1,918	4.3%	1.5%	2.5%
Girls	\$1,462	\$1,513	\$1,564	1.4%	3.5%	3.4%
Service Category						
Inpatient	\$212	\$216	\$229	-0.6%	2.1%	5.9%
Acute Inpatient	\$211	\$215	\$228	-0.6%	2.2%	6.0%
Outpatient	\$473	\$494	\$507	5.1%	4.4%	2.6%
Visits	\$315	\$329	\$338	5.1%	4.6%	2.4%
Other	\$158	\$165	\$170	4.9%	4.2%	2.9%
Professional Procedures	\$737	\$758	\$779	2.0%	2.8%	2.7%
Prescriptions	\$235	\$228	\$230	5.3%	-3.1%	0.9%
Brands	\$140	\$130	\$132	2.5%	-7.1%	1.4%
Generics	\$95	\$98	\$98	9.7%	2.8%	0.3%

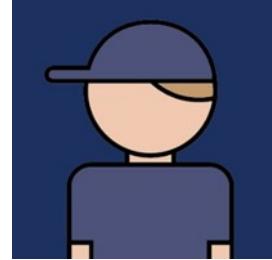
Source: HCCI, 2016.

Notes: All data weighted to reflect the national population ages 4-8 and covered by ESI. Data for 2013 and 2014 adjusted using actuarial completion. All per capita dollars from allowed amounts. All figures rounded.

Health Care Trends: Pre-Teens (Ages 9–13)

Snapshot 2014:

In 2014, the average pre-teen (aged 9–13)...



- ◆ Incurred \$1,940 in health care costs
 - ◊ The most dollars were spent on doctor visits and ER visits
- ◆ Had 2 doctor visits
- ◆ Had 1 laboratory or pathology procedure
- ◆ Used 68 filled days of prescriptions
 - ◊ 2 days fewer than the previous year
 - ◊ The most filled days were generic central nervous system and cerebral stimulants
- ◆ Their parents spent \$392 out of pocket
 - ◊ The most out-of-pocket dollars were spent on doctor visits and ER visits

In 2014, per capita spending for pre-teens (ages 9–13) was \$1,940, an increase of \$90 over 2013 (Table 4 and Figure 11). Pre-teens had the second lowest spending of any of the children's age groups. However, pre-teen spending exhibited the largest average annual growth (growing an average 5.9% per year) over the study period as compared to other age

groups (Appendix Table A1).

While spending per capita grew across the study period for both pre-teen girls and boys, spending per boy was higher than spending per girl in each year. For example, in 2014, spending was \$2,051 per boy compared to \$1,825 per girl (Appendix Table A22). Even with higher spend-

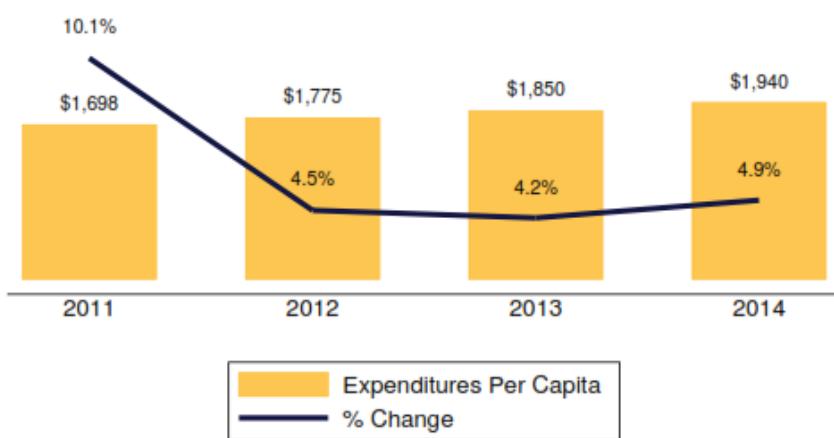
ing for boys, spending for girls grew at a faster average annual rate: 6.5% per year for girls and 5.5% per year for boys.

Over the study period, pre-teen per capita spending increased each year for all major categories of health care services. These spending increases were due to increases in average price per service, and price increases were not offset by changes in utilization, as explored below.

Spending Per Capita

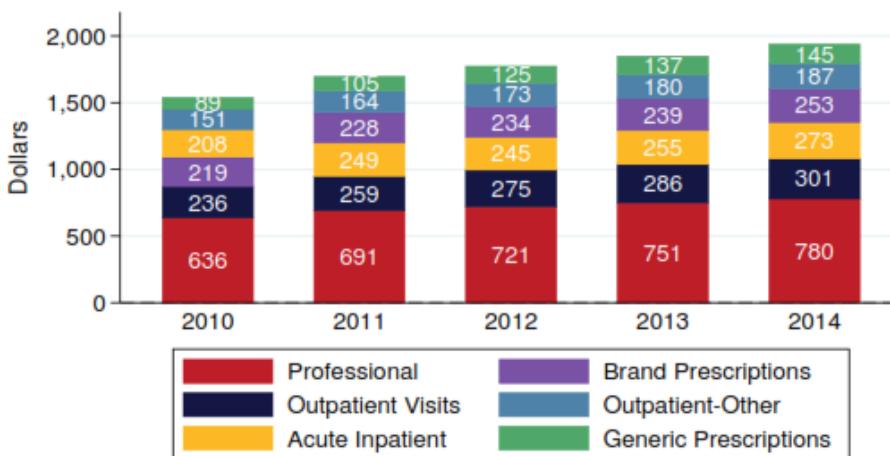
Professional services represented the largest spending category out of all the major categories in all years (Figure 12). For example, per capita spending in 2014 on professional services was \$780, or 40% of total spending for pre-teens. Spending on these services increased across the study period, an increase of \$144 per pre-teen between 2010 and 2014. Within professional services, the largest portion of spending was on miscellaneous services (e.g., physical therapy), which was 39% of spending on all professional services in 2014.

Figure 11
Per Capita Spending for Pre-Teens,
Ages 9-13: 2011-2014



Source: HCCI, 2016.
Notes: All data weighted to reflect the national, ESI population ages 0-18.
Data from 2013 and 2014 adjusted using actuarial completion.

Figure 12
Spending Per Capita by Subservice Category
for Pre-Teens, Ages 9-13: 2010-2014



Source: HCCI, 2016.
Notes: All data weighted to reflect the national, ESI population ages 0-18.
Data from 2013 and 2014 adjusted using actuarial completion.

(Appendix Table A25). This was followed by spending on doctor visits, which comprised 34% of professional spending. Spending on doctor visits increased over the study period by \$52 per pre-teen to \$263 in 2014.

In 2014, spending for pre-teens on acute admissions was \$273, the lowest per capita spending on acute admissions for any children's age group (Appendix Table A22 and Figure 12). Acute inpatient spending per capita increased by \$65 over the study period, growing an average annual 7.4%. The majority of inpatient acute spending was on surgical (\$128 per pre-teen) and medical (\$115) admissions (Appendix Table A25).

Spending per capita on all outpatient services in 2014 was \$488. Of the spending on outpatient services, \$301 was spent on outpatient visits and \$187 on outpatient-other services (Appendix Table A22 and Figure 12). Per capita spending on outpatient visits increased by \$15 in 2014. Of this \$15 increase, \$13 was on ER visits and \$2 on outpatient surgery

(Appendix Table A25).

Prescription per capita spending was \$398 in 2014, of this 64% (\$253) was on brand prescriptions and 36% (\$145) was on generic prescriptions (Appendix Table A22 and Figure 12). Spending on both brand and generic prescriptions increased in each year studied, with a larger increase over the study period in spending on generic prescriptions (\$56) than brand prescriptions (\$34).

The most dollars spent on a drug class for both generic and brand prescriptions was on CNS agents: \$65 on generic CNS agents and \$81 on brand CNS agents in 2014 (Appendix Table A25). A CNS agent is a drug category which includes central nervous system stimulants (which may be used to treat attention deficit hyperactivity disorder (ADHD)), antidepressants, and anti-anxiety medications.

Out-of-Pocket Spending Per Capita

Out-of-pocket spending for pre-teens was \$392 in 2014, and increased in

each year studied (Appendix Table A24). As with total spending, pre-teens had higher growth in out-of-pocket spending across the study period than the other age groups. Out-of-pocket spending for pre-teens grew an average annual 6.1% during the study period.

Of the \$392 spent out of pocket for pre-teens in 2014, \$12 was on acute inpatient admissions, \$109 on all outpatient services, \$196 on professional services, and \$74 on prescriptions. Professional services represented the largest proportion (50%) of out-of-pocket dollars spent. The most professional out-of-pocket dollars were spent on visits to the doctor (\$81 in 2014), and spending on doctor visits grew by \$17 per pre-teen over the study period (Appendix Table A27).

Acute inpatient out-of-pocket spending was fairly stable during the study years, growing just \$2 over the time period (Appendix Table A24). The largest share of acute admission out-of-pocket spending was attributed to medical admissions (Appendix Table A27). On average in 2014, pre-teens spent \$12 out-of-pocket on inpatient care, and \$6 of this was spent on medical admissions (Appendix Table A24).

Out-of-pocket spending on outpatient services grew each year studied, and both outpatient visits and outpatient-other services had higher growth than other medical service categories. Out-of-pocket spending grew an average annual 10.2% for outpatient visits and 9.6% for outpatient-other services. The most outpatient out-of-pocket dollars were spent on ER visits. In 2014, \$46 per pre-teen was spent out of pocket on ER visits, which comprised 42% of all outpatient out-of-pocket spending (Appendix Table A27).

Brand and generic out-of-pocket expenditures followed opposing trends across the study period. Brand out-of-pocket spending decreased in each year, declining by \$11 across the study period. Between 2010 and 2013, generic out-of-pocket spending increased (by \$13) before declining by \$1 in 2014 (Appendix Table A24). In 2010, out-of-pocket spending was higher on brand prescriptions (\$45) than on generic prescriptions (\$28). Conversely, in 2014, out-of-pocket spending on generic prescriptions (\$40) was higher than on brand prescriptions (\$34). Similar to the total spending on prescriptions, the most dollars spent out of pocket for both brand and generic prescriptions was attributable to spending on CNS agents (Appendix Table A27).

Mirroring trends in total prescription spending per capita, out-of-pocket expenditures on prescriptions were higher for pre-teen boys than girls. For example, in 2014, out-of-pocket spending on all prescriptions for pre-teen girls was \$28 as compared to \$60 for boys, this gender difference was also true for both brand and generic prescriptions (Appendix Table A24).

Utilization

Trends in the utilization of services by pre-teens varied by major medical category. For example, over the study period use of inpatient admissions remained stable, while outpatient visits declined, and use of professional services increased (Appendix Table A23).

As observed for the other children's age groups, the number of acute inpatient admissions were fairly consistent across the study period. Between 2010 and 2012, there were 13 inpatient acute admissions per 1,000 pre-teens, compared to 12 acute admissions in 2013 and 2014 (Appendix Table A23). Of the 12 admissions per

1,000 pre-teens in 2014, 6 were medical admissions, while 3 each were MH/SU admissions and surgical admissions (Appendix Table A26).

Over the study period, there was a slight decline in outpatient visits, a trend also observed in the other age groups (Appendix Table A23). Within outpatient visits, ER utilization saw the greatest decline of 6 visits per 1,000 pre-teens between 2010 and 2014, as compared to a decline of 2 outpatient surgical visits (Appendix Table A26).

Pre-teens used more professional services than any other type of medical service, and use increased in each year studied (Appendix Table A23). This trend of increasing use was not true for all children's age groups, as both babies and younger children saw declining professional service utilization in recent years. However, while pre-teens' use of professional services increased each year, the rate of utilization growth slowed with each passing year.

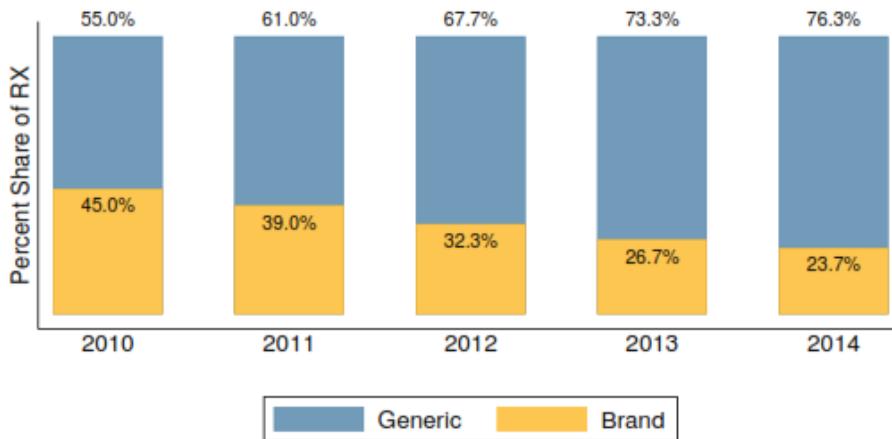
Pre-teens had more visits to the doctor than use of any other type of professional service: 2,481 visits per

1,000 pre-teens in 2014 (Appendix Table A26). The number of visits increased slightly over the study period, by 145 visits per 1,000 pre-teens.

In 2014, the number of filled days of prescriptions was 68,265 per 1,000 pre-teens, a small decrease (-2,022) in use over the previous year (Appendix Table A23). Each year between 2010 and 2014, the proportion of generic to brand prescription filled days increased (Figure 13). In 2010, 45% of all filled days per 1,000 pre-teens were brand prescriptions as compared to 55% that were generic. In 2014, 24% of all filled days per 1,000 pre-teens were brand prescriptions as compared to 76% that were generics. One reason for this trend was declining use of brand prescriptions over the study period (-14,352 filled days between 2010 and 2014). At the same time, use of generics increased by 14,964 filled days per 1,000 pre-teens over the study period.

While pre-teen boys and girls had similar utilization of medical services, boys had more filled days of prescriptions per 1,000 pre-teen boys than

Figure 13
Percentage Share of Total Prescription Use that was Generic and Brand Prescriptions for Pre-Teens, Ages 9-13: 2010-2014



Source: HCCI, 2016.
Notes: All data weighted to reflect the national ESI population ages 0-18.
Data from 2013 and 2014 adjusted using actuarial completion.

pre-teen girls: 79,833 filled days per 1,000 boys in 2014 as compared to 56,140 filled days per 1,000 girls (Appendix Tables A30 and A31). This trend was also true of use of CNS agents; in 2014, boys used twice as many filled days of CNS agents (38,368 filled days per 1,000 boys) than girls (18,939 filled days).

The most used type of prescriptions for pre-teens were generic respiratory and cerebral stimulants (AHFS class 28:20.32; a class of drugs that includes ADHD drugs, such as Ritalin) with 7,516 filled days per 1,000 pre-teens (Appendix Table A53). The second most used type of prescription was generic antidepressants (AHFS class 28:16.04) with 5,129 filled days per 1,000 pre-teens.

Average Price Per Service

Over the study period, the average price per service increased across all medical service categories in each year (Appendix Table A23). The larg-

est change in average price was for acute inpatient admissions, the average price of which grew from \$16,327 in 2010 to \$22,218 in 2014. The smallest change in average price per medical service was for professional services, a change of \$8 per service over the study period.

The average price per outpatient visit was \$1,837 in 2014, an increase of \$451 since 2010 (Appendix Table A23). This increase was influenced by a \$325 increase in the average price per ER visit over the study period and a \$1,162 increase in the average price of a surgical visit (Appendix Table A28).

Over the study period, the average price per filled day of a prescription increased more for brand prescriptions than for generics (Appendix Table A23). While the average price paid per filled day for a generic prescription remained relatively constant across years (\$2 in 2010 and \$3 in 2011 through 2014; numbers round-

ed to nearest whole dollar), the average price paid per filled day of a brand prescription more than doubled from \$7 in 2010 to \$16 in 2014.

Table 4: Per Capita Health Care Spending for Pre-Teens (Ages 9-13): 2012–2014

	2012	2013	2014	Percent Change 2011/2012	Percent Change 2012/2013	Percent Change 2013/2014
Per Capita, Pre-Teens	\$1,775	\$1,850	\$1,940	4.5%	4.2%	4.9%
Gender						
Boys	1904	\$1,987	\$2,051	4.5%	4.4%	3.2%
Girls	\$1,639	\$1,707	\$1,825	4.5%	4.1%	6.9%
Service Category						
Inpatient	\$246	\$256	\$274	-1.5%	3.9%	7.2%
Acute Inpatient	\$245	\$255	\$273	-1.7%	4.2%	7.1%
Outpatient	\$448	\$467	\$488	5.9%	4.1%	4.6%
Visits	\$275	\$286	\$301	6.3%	4.2%	5.0%
Other	\$173	\$180	\$187	5.4%	4.1%	3.9%
Professional Procedures	\$721	\$751	\$780	4.3%	4.2%	3.9%
Prescriptions	\$360	\$377	\$398	7.7%	4.7%	5.8%
Brands	\$234	\$239	\$253	2.6%	2.2%	5.8%
Generics	\$125	\$137	\$145	18.9%	9.5%	5.9%

Source: HCCI, 2016.

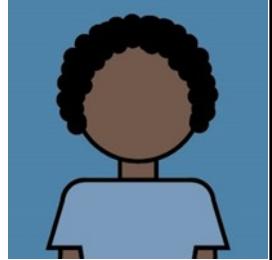
Notes: All data weighted to reflect the national population ages 9-13 and covered by ESI. Data for 2013 and 2014 adjusted using actuarial completion. All per capita dollars from allowed amounts. All figures rounded.

Health Care Trends: Teenagers (Ages 14-18)

Snapshot 2014:

In 2014, the average teen (aged 14-18)...

- ◆ Incurred \$2,856 in health care costs
 - ◊ The most dollars were spent on doctor visits and ER visits
- ◆ Had 3 doctor visits
- ◆ Had 2 laboratory or pathology procedure
- ◆ Used 112 filled days of prescriptions
 - ◊ ~1/2 day more than the previous year
 - ◊ For boys, the most filled days were generic antidepressants
 - ◊ For girls, the most filled days were generic oral contraceptives
- ◆ Their parents spent \$551 out of pocket
 - ◊ The most out-of-pocket dollars were spent on doctor visits and ER visits



Teenagers (ages 14–18) had the second highest per capita spending of any children's age group: \$2,856 per teenager in 2014 (Table 5 and Figure 14). Also in 2014, spending increased by 4.5%, or \$123 per teenager. This was the largest dollar increase for any age group in that year. Over the whole study period, spending for teenagers

grew an average annual 5.2%, and increased \$527 between 2010 and 2014 (Appendix Table A32).

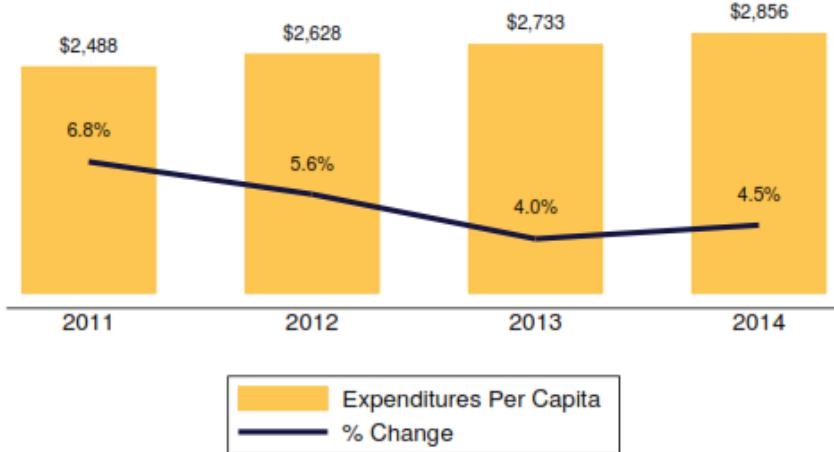
Teenagers are the only group of children for whom per capita spending is higher for girls than for boys. In 2014, spending was \$2,949 for girls and \$2,766 for boys (Table 5). This differ-

ence was largely due to higher utilization of all service categories by teen girls as compared to teen boys, specifically use of generic prescriptions and professional services (Appendix Table A40). Only spending on brand prescriptions was higher for boys than for girls: \$412 per teen boy and \$273 per teen girl (Appendix Table A39). At the same time, utilization of brand prescriptions was slightly higher for girls than for boys: 21,098 filled days per 1,000 teen girls and 19,481 filled days per 1,000 teen boys (Appendix Table A40). The higher per capita spending on brand prescription for boys was due to a higher average price per filled day, \$21 per day for teen boys as compared to \$13 per day for teen girls.

Spending Per Capita

For teenagers, spending per capita on all subservices categories increased in all of the years studied. In 2014, spending per teenager on professional procedures was nearly double spending on any other subservice

Figure 14
Per Capita Spending for Teenagers,
Ages 14-18: 2011-2014



Source: HCCI, 2016.
Notes: All data weighted to reflect the national, ESI population ages 0-18.
Data from 2013 and 2014 adjusted using actuarial completion.

category (\$1,005 per teen), and made up 35% of the total spending for teenagers (Appendix Table A32). Professional services also had the highest dollar growth over the previous year (\$33). The second most spending was on outpatient visits (\$518 per teen), which was the subservice category that also had the second highest dollar growth over the previous year (\$28). Within these two high-spending categories of services, the most dollars were spent on visits to doctors (\$283 per teen in 2014), ER visits (\$271 per teen), and outpatient surgical visits (\$233 per teen; Appendix Table A35).

We also observed small year-on-year dollar increases and steady growth throughout the study period in spending on outpatient-other services and acute admissions. Spending per teen on outpatient-other services increased from \$237 in 2010 to \$300 in 2014, while spending on acute admissions increased over that time period by \$82. Of the types of acute admissions, the most dollars were spent on surgical admissions: \$190 per teenager in 2014 (Appendix Table A32). Spending on surgical admissions rose throughout the time period, from \$161 in 2010 to \$190 in 2014 (Appendix Table A35).

Spending per capita on brand and generic prescriptions was lower than spending on most other categories of services. Spending on brand and generic prescriptions comprised just under 20% of the total per capita spending for teenagers (\$344 on brand prescriptions and \$221 on generics in 2014; Appendix Table A32). For both brand and generic prescriptions, spending increased in every year studied; increasing an average annual 4.6% for brand and 9.4% for generics.

Among the types of brand prescriptions, in 2014, the most dollars were spent on brand hormones and synthetic substitutes (\$96 per teen), followed by brand CNS agents (\$83; Appendix Tables A35). For generic prescriptions, spending per capita was highest for generic CNS agents (\$73 per teen), followed by generic skin and mucous membrane agents (\$58 per teen). An example of a commonly used generic skin and mucous membrane agent would be topical antibiotics, such as those used to treat acne (e.g., dapson).

Out-of-Pocket Spending Per Capita

Out-of-pocket spending for teens increased in every year studied, increasing \$106 per teen between 2010 and 2014 (Appendix Table A34). This was the largest dollar increase in out-of-pocket spending observed for any of the children's age groups. Out-of-pocket spending grew an average annual 5.5% during the study period, rising to \$551 per capita in 2014.

As with total spending for teenagers, the most out-of-pocket dollars per capita were spent on professional services and outpatient visits. Between 2010 and 2014, out-of-pocket spending on professional services grew by \$56 per capita (an average annual 6.2% growth; Appendix Table A34). There was also high out-of-pocket spending growth on outpatient visits during the study period, an average annual 9.1% growth or \$29 over the study period. Within these categories, the highest out-of-pocket spending was on visits to the doctor (\$91 per teenager in 2014) and ER visits (\$66; Appendix Table A37). Spending out of pocket on both of these services was higher for girls than for boys (Appendix Table A41). Out-of-pocket spending in 2014 on

doctor visits was \$101 per teen girl and \$81 per teen boy (Appendix Tables A43 and A48). Out-of-pocket spending on ER visits was \$72 per teen girl and \$60 per teen boy.

Compared to professional services and outpatient visits, there was slower growth in out-of-pocket spending on acute inpatient admissions during the study period (Appendix Table A34). Out-of-pocket spending on acute admissions grew an average annual 5.0%, or just \$4 per capita during the study period. Of the types of acute admission, only out-of-pocket spending on mental health and substance use (MH/SU) admissions increased, growing from \$7 per capita in 2010 to \$12 per capita in 2014 (Appendix Table A37). While out-of-pocket spending on MH/SU admissions increased for both teenage boys and girls during the study period, this increase was larger for girls. Between 2010 and 2014, out-of-pocket spending on MH/SU admissions increased by \$2 per teen boy and by \$6 per teen girl (Appendix Tables A43 and A48).

Out-of-pocket spending on generic prescriptions grew during the study period, from \$47 in 2010 to \$55 in 2014 (Appendix Table A34). However, this spending declined between 2013 and 2014, by \$2 per teenager, to \$55 per teenager. During the study period, the most out-of-pocket dollars spent on generic prescriptions were for CNS agents (\$19 per teen in 2014; Appendix Table A37).

Out-of-pocket spending on brand prescriptions declined throughout the study period, by an average annual 5.6%, from \$55 per teen in 2010 to \$44 in 2014 (Appendix Table A34). As with generic prescriptions, more out-of-pocket dollars were spent on brand CNS agents than any other type of brand prescriptions (\$14 per teenag-

er in 2014; Appendix Table A37). For boys, spending on brand CNS agents was \$18 per teen boy in 2014, and this spending declined by \$6 per teen boy between 2010 and 2014 (Appendix Table A43). For girls, spending on brand CNS agents was \$10 per teen girl, the same as spending on brand hormones and synthetic substitutes. Out-of-pocket spending on both of these types of brand prescriptions declined throughout the study period, by \$5 per teen girl for brand CNS agents and \$7 for brand hormones and synthetic substitutes (Appendix Table A48).

Utilization

Similar to trends observed for pre-teens, use of professional services and generic prescriptions by teenagers increased slightly in 2014 (Appendix Table A33). Use of professional services increased in every year studied, but the smallest increase occurred in 2014, as use increased by just 9 services per 1,000 teenagers to 10,831 per 1,000 teens. In 2014, there were also small increases in the use of laboratory/pathology services (an increase of 45 services per 1,000 teenagers to 2,217 services) and administered drugs (an increase of 1 service to 128 services per 1,000 teens; Appendix Table A36). At the same time the number of visits to doctors – the most used type of professional service by teenagers – declined slightly, by 16 visits to 2,689 visits per 1,000 teenagers.

As with professional services, utilization of generic prescriptions increased slightly in 2014, by 2,557 filled days per 1,000 teenagers (Appendix Table A33). This was the smallest year-on-year increase in use of generics observed during the study period. By 2014, use of generic prescriptions increased to 91,353 filled

days per 1,000 teenagers. Only the use of generic anti-infective agents declined in 2014, by 5.3% to 11,084 filled days per 1,000 teens (Appendix Table A36). Use of all other types of generic prescriptions by teens increased in 2013 and 2014.

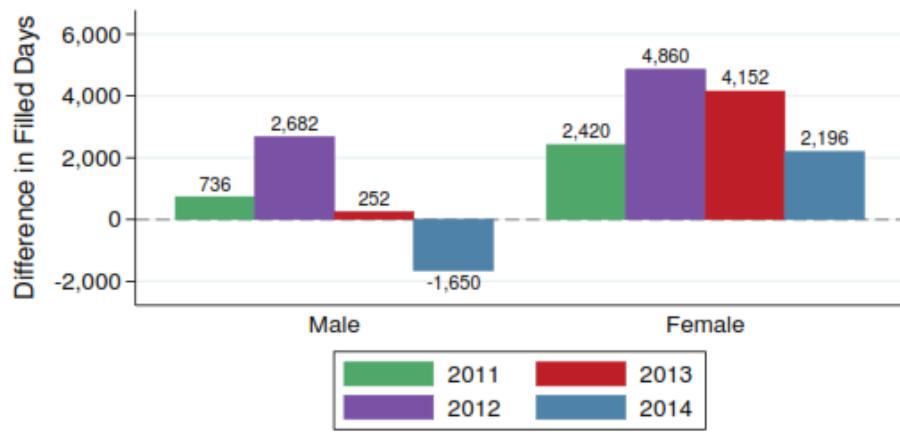
Use of all of the other medical sub-service categories declined in 2014. This was the third year in a row that we observed a decline in acute admissions (by 1 admission per 1,000 teenagers in 2014 to 26; Appendix Table A33). This was the second year of declining use of outpatient visits (3 visits per 1,000 teenagers in 2014 to 230) and outpatient-other services (5 services per 1,000 teenagers in 2014 to 1,398).

The decline in acute inpatient admissions in 2014 was observed for both teenage boys and girls, but the decline was larger for girls: a decline of 1 admission per 1,000 teen boys as compared to 2 admissions for girls (Appendix Table A44). Unlike for the other age groups where there were more admissions for boys than girls, there were many more acute inpa-

tient admissions for teen girls than for teen boys. The difference is due to labor and delivery admissions for teen girls (4 per 1,000 teen girls in 2014) and more MH/SU admissions for teen girls. In 2014, there were 14 MH/SU admissions per 1,000 teen girls compared to 9 per 1,000 teen boys (Appendix Tables A44 and A47). There was also a larger increase in the use of MH/SU admissions by girls; MH/SU admissions by girls increased by 4 admissions per 1,000 teen girls over the study period, as compared to an increase of 1 admission for boys.

The decline in use of outpatient visits in 2014 was due to declines in the use of all types of visits. Use of ER visits, outpatient surgery visits, and observation visits each declined by 1 visit per 1,000 teenagers (Appendix Table A36). However, this decline in use of ER visits in 2014 was only observed for boys, whose use declined by 4 visits per 1,000 teen boys to 163 visits (Appendix Table A44). At the same time, ER visits by girls increased by 2 visits per 1,000 teen girls to 202 visits (Appendix Table A47).

Figure 15
Difference From the Previous Year in Total Prescription Filled Days per 1,000 Teenagers, Ages 14-18: 2011-2014



The use of brand prescriptions declined in every year studied: by 14,336 filled days per 1,000 teenagers between 2010 and 2014 (Appendix Tables A33). In 2013 and 2014, use of all subcategories of brand prescriptions declined. In 2014, the largest decline was in the use of brand CNS agents (-970 filled days per 1,000 teenagers to 7,290) and brand hormone and synthetic substitutes (-396 per 1,000 teenagers to 4,691; Appendix Tables A36).

Between 2010 and 2014, use of brand prescriptions declined, while use of generic prescriptions increased. This year-on-year increase in generic use was larger than the decline in use of brand prescriptions, which led to a small net increase in prescription use in every year of the study period. However, in 2014, this increase in prescription use was only observed for girls (an increase of 2,196 filled days per 1,000 teen girls; Appendix Table A40 and Figure 15). Prescription use by boys declined slightly in 2014, by 1,650 filled days per 1,000 teen boys.

The net increase in prescription use between 2010 and 2014 was largely driven by net increases in the use of both CNS agents and hormones and synthetic substitutes (Appendix Tables A44 and A47). The net increase over the study period in use of CNS agents was observed for both boys (an increase of 4,240 filled days per 1,000 teen boys to 39,042) and girls (8,145 filled days per 1,000 teen girls to 38,436). However, the net increase in use of hormones and synthetic substitutes was only observed for girls: an increase of 4,945 filled days per 1,000 teen girls over the study period to 48,175 filled days in 2014. Over the same period, net use of hormones and synthetic substitutes by boys declined

slightly, by 439 filled days per 1,000 teen boys to 4,438 filled days in 2014.

For girls, prescription use was dominated by generic oral contraceptives (AHFS class 68:12.00). In 2014, teen girls used 34,405 filled days per 1,000 teen girls, which was 25% of their total prescription use in that year (Appendix Table A56). The second most used type of prescription were generic antidepressants (AHFS class 28:16.04), which made up 12% of girls' total prescription use (16,545 filled days per 1,000 teen girls in 2014). Between 2010 and 2014, use of generic oral contraceptives increased by 37% (9,283 filled days per 1,000 teen girls) and use of generic antidepressants increased by 85% (7,624 filled days).

For boys, the most used type of prescription in 2014 was generic antidepressants (9,854 filled days per 1,000 teen boys), which comprised 11% of their total prescription use (Appendix Table A56). Use of generic antidepressants by teen boys increased by 52% between 2010 and 2014, which increased by 3,386 filled days per 1,000

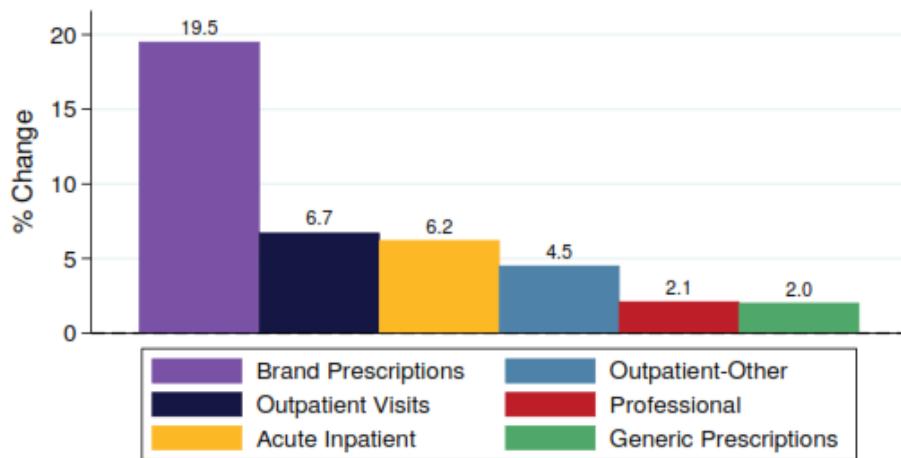
teen boys. The second most used type of prescription by boys was generic respiratory and cerebral stimulants (AHFS class 28:20.32; a class of drugs that includes ADHD drugs, such as Ritalin), which comprised 7% of boys' total prescription use (6,540 filled days per 1,000 teen boys).⁴

Average Price Per Service

The average price per service category rose in every year studied for all of the medical service categories and for brand prescriptions (average price per filled day; Appendix Table A33 and Figure 16).

Outpatient-other services saw a modest increase in the average price per service, just \$34 per service between 2010 and 2014 (Appendix Table A33). During the same time period, the average price of an outpatient visit increased by over \$515. This increase was largely due to an increase in outpatient surgical visits (an increase of \$1,282), although there were also increases in the average price of both ER visits (\$365) and observation visits (\$482; Appendix Table A38).

Figure 16
Average Annual Change in Prices of Subservice Categories for Teenagers, Ages 14-18: 2010-2014



Source: HCCI, 2016.
Notes: All data weighted to reflect the national, ESI population ages 0-18.
Data from 2013 and 2014 adjusted using actuarial completion.

The average price of a professional service increased only slightly – from \$85 in 2010 to \$93 in 2014 (an average annual 2.1% increase; Appendix Table A33 and Figure 16). Within the professional services category, the largest price increase was observed for administered drugs (Appendix Table A38). The average price increased by \$154 during that period, while use of these drugs increased only slightly (from 121 per 1,000 teenagers in 2010 to 128 in 2014; Appendix Table A36). We also observed a \$72 increase in the average price of anesthesia (Appendix Table A38). Over the same period, the average price increases observed for laboratory/pathology and radiology professional services were small: average dollar increases of \$1 and \$4, respectively.

During the study period, the average price per filled day of brand prescriptions more than doubled, increasing

from \$8 per filled day in 2010 to \$17 in 2014, an average annual increase of 19.5% (Appendix Table A33 and Figure 16). The average price per filled day also more than doubled for brand hormones and synthetic substitutes (a \$12 per day increase), brand cardiovascular drugs (a \$13 per day increase), and brand respiratory agents (a \$7 per day increase; Appendix Table A38). All other types of brand prescriptions also saw increases in the average price per filled day, but these increases were more moderate.

For generic prescriptions, the average price per filled day remained steady at \$2 throughout the study period (Appendix Table A33). Only generic skin and mucous membrane agents saw a sizable average price increase, from \$4 per filled day in 2010 to \$7 in 2014 (Appendix Table A38).

Table 5: Per Capita Health Care Spending for Teenagers (Ages 14-18): 2012–2014

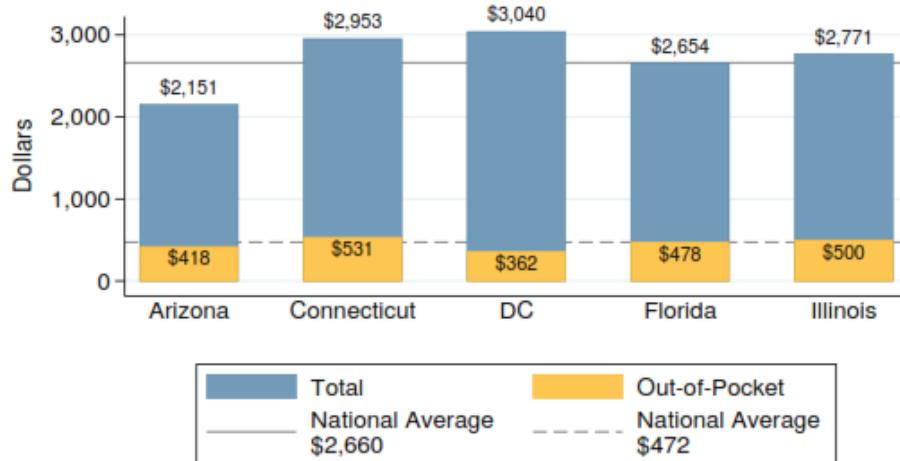
	2012	2013	2014	Percent Change 2011/2012	Percent Change 2012/2013	Percent Change 2013/2014
Per Capita, Teenagers	\$2,628	\$2,733	\$2,856	5.6%	4.0%	4.5%
Gender						
Boys	\$2,577	\$2,647	\$2,766	5.5%	2.7%	4.5%
Girls	\$2,681	\$2,822	\$2,949	5.8%	5.3%	4.5%
Service Category						
Inpatient	\$439	\$454	\$467	1.5%	3.5%	2.9%
Acute Inpatient	\$435	\$451	\$465	1.7%	3.8%	2.9%
Outpatient	\$754	\$782	\$818	7.2%	3.7%	4.6%
Visits	\$476	\$490	\$518	6.9%	3.0%	5.8%
Other	\$279	\$293	\$300	7.9%	5.0%	2.5%
Professional Procedures	\$936	\$972	\$1,005	4.8%	3.8%	3.5%
Prescriptions	\$499	\$525	\$565	8.7%	5.2%	7.7%
Brands	\$311	\$311	\$344	4.3%	0.2%	10.5%
Generics	\$188	\$214	\$221	16.8%	13.5%	3.6%

Source: HCCI, 2016.

Notes: All data weighted to reflect the national population ages 14-18 and covered by ESI. Data for 2013 and 2014 adjusted using actuarial completion. All per capita dollars from allowed amounts. All figures rounded.

Health Care Trends: Selected States

Figure 17
Total and Out-of-Pocket Spending Per Capita in Selected States for Children, Ages 0-18: 2014



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

For the first time, HCCI is presenting trends in the costs and utilization of health care for children (ages 0–18) by state. We have chosen ten states for which we have sufficient data to analyze trends at the state-level. The states discussed in this section are: Arizona, Connecticut, District of Columbia (DC), Florida, Illinois, Maryland, Ohio, Texas, Virginia, and Wisconsin. We limited the selected states to ten that are relatively geographically distributed across the country, and these are for discussion purposes only. These states are not meant to be a representative sample of all states or of children in the states.

Health Care Spending in Selected States

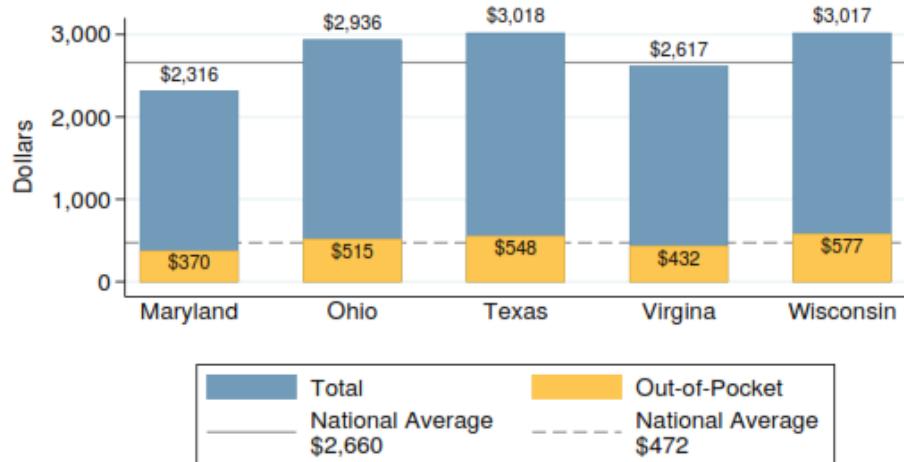
Nationally, spending per child on health care in 2014 was \$2,660 (Appendix Table A57). The ten states studied skew slightly towards the higher end of per capita spending

trends, and only four of the ten had per capita spending below the national average in 2014 (Figures 17 and 18). Of the ten states analyzed, in 2014, the lowest per capita spending

was in Arizona: \$2,151 per capita, or 81% of national per capita spending. Arizona had the lowest per capita spending in each year studied. The highest per capita spending in 2014 was observed for DC: \$3,040 in 2014, or 114% of the national average. In comparison to other states in the DC area, Maryland had per capita spending of \$2,316 (the second-lowest per capita spending in every year) and Virginia had spending of \$2,617, \$724 and \$423 per capita lower than spending in DC, respectively. However, of these ten states DC only had the highest per capita spending in 2013 and 2014. Prior to 2013, DC had the third lowest per capita spending, after Arizona and Maryland. In 2012, the highest spending per capita was observed for Texas. In 2010 and 2011 the highest spending per capita was observed for Wisconsin.

Even though DC had the highest per capita spending in 2013 and 2014 of

Figure 18
Total and Out-of-Pocket Spending Per Capita in Selected States for Children, Ages 0-18: 2014



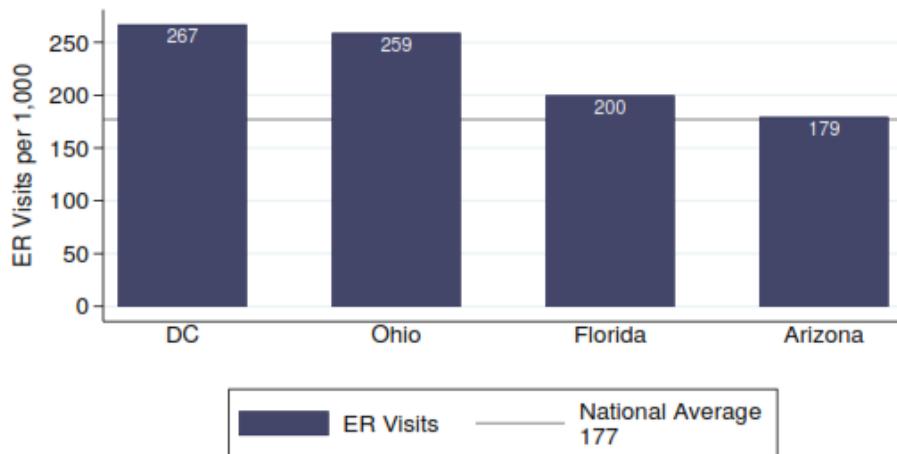
Source: HCCI, 2016.
Notes: All data weighted to reflect the national, ESI population ages 0-18.
Data from 2014 adjusted using actuarial completion.

the ten states studied, it had the lowest out-of-pocket spending per capita in every year of the study period (\$362 per capita in 2014; Appendix Table A58). Due to the low out-of-pocket spending, DC also had the lowest out-of-pocket burden (measured as the percentage of total spending that is paid out of pocket) of any state: 12% in 2014 as compared to the national average of 18%. Comparatively, Wisconsin had highest per capita out-of-pocket spending of the ten states in every year. In 2014, the out-of-pocket burden was highest in Wisconsin and Arizona at 19%, exceeding the national average by 1%.

Trends in Selected States

Arizona: Arizona had the lowest per capita spending for children of all of the states studied in all years of the study period (Appendix Table A57 and Figure 17). The most dollars per capita were spent on ER visits (\$206 per capita in 2014) followed by surgical inpatient admissions (\$159 in 2014; Appendix Table A59). Fewer dollars than the national average per capita were spent on those services in that year: \$214 on ER visits and \$182 on surgical admissions nationally. Despite lower spending in Arizona on those two services, the utilization rates were quite similar to the national usage per 1,000 children. There were 179 ER visits per 1,000 children in Arizona (the lowest ER utilization rate of the 10 states examined; Figure 19) compared to 177 nationally in 2014 (Appendix Table A5). Arizona met the national average with 3 surgical admissions per 1,000 children (Appendix Tables A59 and A5). The lower spending in Arizona seems to be related to lower average prices for those two services rather than lower than average utilization rates. The price of an average ER visit in Arizona was 95% of the national average (or

Figure 19
**Emergency Room Visits per 1,000 Children
in Selected States, Ages 0-18: 2014**



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

\$57 lower in Arizona), and the price of an average surgical admission was 91% of the national average (or \$4,891 lower; Appendix Tables A59 and A7).

Connecticut: Spending per child in Connecticut tended to be slightly higher than the national average per child spending: \$2,953 in Connecticut as compared to \$2,660 nationally in 2014 (Appendix Tables A57 and A1, Figure 17). Interestingly, the difference between Connecticut's spending and the national average increased over the study period; spending in Connecticut was 104% of the national average in 2010 and 111% in 2014. Compared to the other states examined, children in Connecticut had more visits to the doctor (Appendix Table A60). There were 3,817 doctor visits per 1,000 children in 2014, about 18% more visits than the national average of 3,228 visits per 1,000 children (Appendix Table A5). Connecticut also had higher prescription use than the other states studied. In 2014, there were 84,800 filled days of prescriptions per 1,000 children (Appendix Table A60), 17% higher

than the national average (72,439 filled days; Appendix Table A5 and Figure 20).

DC: The per capita spending trends in DC varied across the time period. In 2010 and 2011, DC had spending that was lower than the national average: 91% of the national average in 2010 and 99% in 2011 (Appendix Table A57). However, between 2012 and 2014, spending per capita in DC rose above the national average. By 2014, per capita spending in DC rose to 114% of the national average (Figure 17). An increase in the number of acute admissions was one contributing factor to the growth in spending over the study period. Between 2010 and 2014, the number of acute inpatient admissions increased from 50 admits per 1,000 children to 64 (Appendix Table A61). In contrast, of the states studied, the second most admissions in 2014 was in Texas, which had 44 admits per 1,000 children (Appendix Table A66). One reason for the high number of acute admissions in DC as compared to the other states was the higher number of newborn admissions. In 2014, DC had

40 newborn admissions per 1,000 children (Appendix Table A61), nearly double the national average (21 per 1,000 children; Appendix Table A5). DC also saw the number of these admissions increase by over 50% across the study period, from 27 per 1,000 children in 2010 to 40 in 2014 (Appendix Table A61). In comparison, nationally, the number of newborn admissions increased by just 2 admissions per 1,000 children (from 19 to 21, or an about 10% increase; Appendix Table A5). Additionally, DC had the most ER visits per 1,000 children (267) in 2014 as compared to the other states examined (Figure 19; Appendix Table A61). However, DC had the lowest total prescription use of the states studied: 54,253 filled days per 1,000 children in 2014, or about 75% of the national average (72,439 filled days; Figure 20).

Florida: The per capita spending on health care for children in Florida kept pace with the national average per capita spending during the study period; spending in Florida was 100% of the national average in 2013 and 2014 (Appendix Table A57 and Figure 17). Similarly, out-of-pocket spending per capita in Florida was similar to the national average: \$478 in Florida and \$472 nationally in 2014 (Appendix Table A58). In Florida, the number of outpatient laboratory/pathology services used was less than half of the national average use: 207 services per 1,000 children in Florida in 2014 as compared to 428 nationally (Appendix Tables A62 and A5). Conversely, in 2014, Florida had much higher use of professional lab/path services than the national average: 2,524 per 1,000 children in Florida as compared to 1,764 nationally. A similar, although less pronounced, trend was also observed for outpatient versus professional radiology services. These trends may indicate

differences in the provider settings in which children seek care in Florida versus other states, and is an interesting topic for further study. Additionally, children in Florida had higher rates of ER usage than the national average and the third highest of the states examined (after DC and Ohio; Appendix Tables A61 and A65): 200 ER visits per 1,000 children in Florida and 177 visits nationally in 2014 (Figure 19; Appendix Tables A62 and A5).

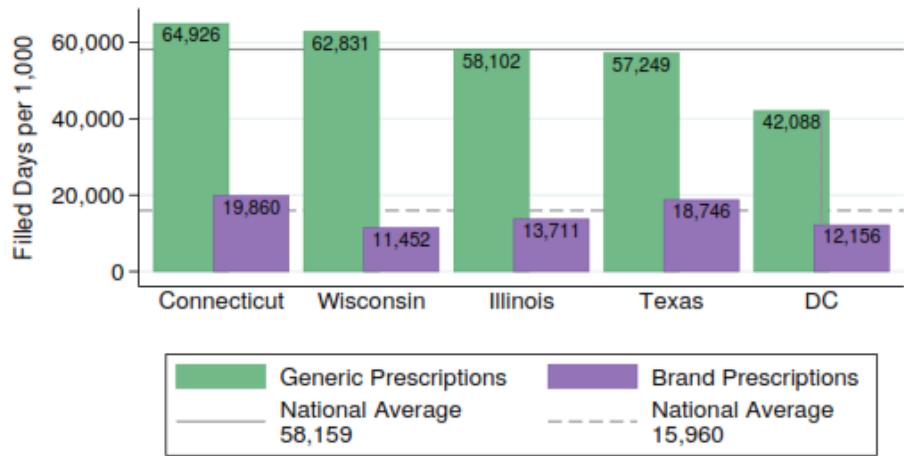
Illinois: For both total spending per capita and out-of-pocket spending per capita, Illinois ranked in the middle of the 10 states studied. In 2014, total spending was \$2,771 per child, or 104% of the national average. Out-of-pocket spending was \$500 per child, with an out-of-pocket burden of 18% of total spending (Appendix Tables A57 and A58, Figure 17). Illinois was also in the middle of the pack for utilization of each of the service categories (Appendix Table A63), and slightly over the national average in use rates for each of the medical service categories (Appendix Table A2). Use of prescriptions in Illinois was slightly below than the national average, with 71,839 filled days per 1,000 children

in Illinois and 72,439 filled days nationally in 2014 (Figure 20; Appendix Tables A63 and A2).

Maryland: Compared to the other nine states analyzed, in Maryland we observed both the second lowest per capita spending and out-of-pocket per capita spending. Maryland had the second lowest per capita spending, after Arizona, in most years studied: \$2,316 per child in 2014, or 87% of the national average (Appendix Tables A57 and Figure 18). The out-of-pocket per capita spending was also the second lowest – after DC – in every year studied: \$370 in 2014, or 16% of total spending paid out of pocket (Appendix Table A58). Specifically, Maryland had comparatively low out-of-pocket spending on ER visits and on visits to the doctor. In 2014, out-of-pocket spending per child in Maryland was \$35 on ER visits (Appendix Table A64), compared to \$67 nationally (Appendix Table A6). For visits to the doctor, in 2014, out-of-pocket spending was \$82 per child in Maryland and \$97 nationally (Appendix Tables A64 and A6).

Ohio: In all years studied, total per

Figure 20
Filled Days per 1,000 Children of Brand and Generic Prescriptions in Selected States, Ages 0-18: 2014



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

capita spending in Ohio was relatively higher than in most of the other states, and exceeded the national average. In 2014, spending was \$2,936 per child, or 110% of the national average spending (Appendix Table A57 and Figure 18). Similarly, out-of-pocket spending per capita was also higher in Ohio than many of the other states studied, with an out-of-pocket burden of 18% in 2014 (Appendix Table A58). Compared to the other states examined, Ohio had the second most number of ER visits after DC (Figure 19). In 2014, there were 259 ER visits per 1,000 children (Appendix Table A65), 46% higher than the national average of 177 visits per 1,000 children (Appendix Table A5). There were also more outpatient surgery visits per 1,000 children in Ohio than any other state studied (Appendix Table A65). In 2014, there were 50 surgical visits per 1,000 children in Ohio as compared to the national average of 39 visits (Appendix Table A5).

Texas: Spending per child in Texas was relatively higher as compared to the other nine states and the national average. In all years studied, Texas had the second highest per capita spending, except in 2012 when it had the highest spending of the states examined. In 2014, spending was \$3,018 per child, or 113% of the national average spending (Appendix Table A57 and Figure 18). Similarly, Texas also had comparatively higher per capita out-of-pocket spending in all years: \$548 per child in 2014 (Appendix Table A58). There were more administered drugs used by children in Texas as compared to the other nine states. In 2014, there were 149 administered drug services per 1,000 children, compared to the national average of 96 administered drug services per 1,000 children (Appendix Table A5). Texas also had

the highest use of prescription drugs by babies (ages 0–3) of any state studied. In 2014, there were 53,304 filled days of prescriptions per 1,000 babies (Appendix Table A66), over 18% higher than the national average use (45,351 filled days; Appendix Table A12). One thing influencing this trend was higher usage of anti-infective agents by babies in Texas than in the other nine states. In Texas in 2014, there were 16,548 filled days of anti-infective agents per 1,000 babies (Appendix Table A66), a use rate nearly 40% higher than the national average (12,088 filled days per 1,000 babies; Appendix Table A12).

Virginia: In nearly all years studied, Virginia's per capita spending for children was below the national average (Figure 18). Only in 2012 was per capita spending in Virginia slightly above the national average (\$2,503 per child in Virginia and \$2,458 nationally; Appendix Table A57). Relatively low spending on acute inpatient admissions contributed to Virginia's relatively lower per capita spending. In 2014, spending on acute admissions was \$527 per child (Appendix Table A67), 14% lower than the national average (\$612 per child; Appendix Table A4). Interestingly, the number of acute admissions in Virginia was the same as the national average: 40 admits per 1,000 children (Appendix Tables A67 and A4). This was the fewest admissions of any state studied here. Virginia also had fewer medical admissions than the other states analyzed, and slightly lower (9 medical admissions per 1,000 children; Appendix Table A67) than the national average (10 medical admissions per 1,000 children; Appendix Table A5).

Wisconsin: Wisconsin had higher per capita spending than the national average in every year (Appendix Table A57 and Figure 18). In 2010 and

2011, Wisconsin had the highest spending of the ten states examined. Wisconsin also had the highest per capita out-of-pocket of the states studied in each year (Appendix Table A58). Contributing to the comparatively higher spending per capita in Wisconsin was higher per capita spending on professional services. In 2014, spending on professional services in Wisconsin was \$1,406 per child (Appendix Table A68), \$200 greater than per child spending in the next highest state (\$1,206 per child in Connecticut; Appendix Table A60). Interestingly, spending trends in Wisconsin seem to be more related to price than to utilization. Wisconsin had the lowest use of professional services (10,448 services per 1,000 children) as compared to the other states, but had the highest average price per service (\$135; Appendix Table A68). One specific example is with visits to the doctor. In 2014, there were 2,899 doctor visits per 1,000 children in Wisconsin, the fewest visits of any state studied. Conversely, per child spending on visits to the doctor was \$454, the second highest spending after Connecticut, which had the most visits to the doctor (\$467 per child and 3,829 visits per 1,000 children; Appendix Table A60). In Wisconsin, use of prescriptions ranked in the middle of the ten states, and slightly (3%) above the national average: 74,290 filled days per 1,000 children in Wisconsin and 72,439 filled days nationally in 2014 (Appendix Tables A68 and A2). Of the ten states studied, Wisconsin had the lowest proportion of their total prescriptions. In 2014, 15% of the filled days of prescriptions in Wisconsin were for brand prescriptions (Appendix Table A68), as compared to 25% in Texas (the highest percentage of the states studied; Figure 20) and 19% nationally (Appendix Table A2).

Data & Methods

Data

HCCI's dataset contains several billion de-identified commercial health insurance claims for the years 2010 through 2014. Three major health insurers contributed data to HCCI for the purposes of producing a national, multipayer, commercial health care claims database. These data include claims for individuals covered by group insurance (fully insured and administrative services only), individual insurance, and Medicare Advantage plans. The claims data include prices paid to providers by both insurers and insureds and details about the services used. Furthermore, HCCI's claims data are compliant with the Health Insurance Portability and Accountability Act (HIPAA).

For *Children's Health Spending: 2010–2014*, HCCI performed analysis on a subset of data for approximately 10.2 million insureds per year (2010–2014). This analytic subset consisted of all claims for insureds ages 0 through 18 and covered by ESI. The data set used for this report represented about 25% of the privately insured children in the United States.

Methods

HCCI weighed the analytic subset using United States Census Bureau age-gender geographic-based estimates of the ESI population to make the analytic subset representative of the national ESI population. Claims in the analytic subset from 2013 and 2014 were actuarially completed to account for claims that had been incurred but not adjudicated. Claims for years 2010 through 2012 were not adjusted and were considered 100% adjudicated. HCCI used the weighted, actuarially completed dataset to estimate per capita health expenditures, average

prices, and utilization of services for 2010 through 2014. HCCI did not correct dollars 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. Inpatient facility claims were from hospitals, skilled nursing facilities (SNFs), and hospices where detail was sufficient to identify an overnight stay by an insured. Outpatient facility claims did not entail an overnight stay and include observation and ER services. Both outpatient and inpatient claims consisted of only the facility charges associated with such claims. Professional services (procedures) included claims billed by physicians and non-physicians according to the industry's standard procedure coding practices. Prescription data are prescriptions filled at both retail and mail order pharmacies.

For a more detailed description of HCCI's methodology and dataset, see the Analytic Methodology on HCCI's Website.³ HCCI's analytic methodology underwent a number of changes to enhance reporting since the previous *Children's Health Spending: 2010–2013* report. See the methodology document and the *2014 Health Care Cost and Utilization Report*, both available on HCCI's Website, for details on these changes.^{3,5}

Limitations

This report, like all research, 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 as a conclu-

sive analysis of the ESI population's effect on health care in the United States.

First, our findings were estimates for the United States ESI population ages 0 through 18 based on a sample of approximately 25% of these insured children. Second, the analysis and results were descriptive, and the findings were not used to determine causal relationships. Third, this report did not discuss the effect of individual or population health status, such as existence of chronic conditions.

Suggested citation for this report:

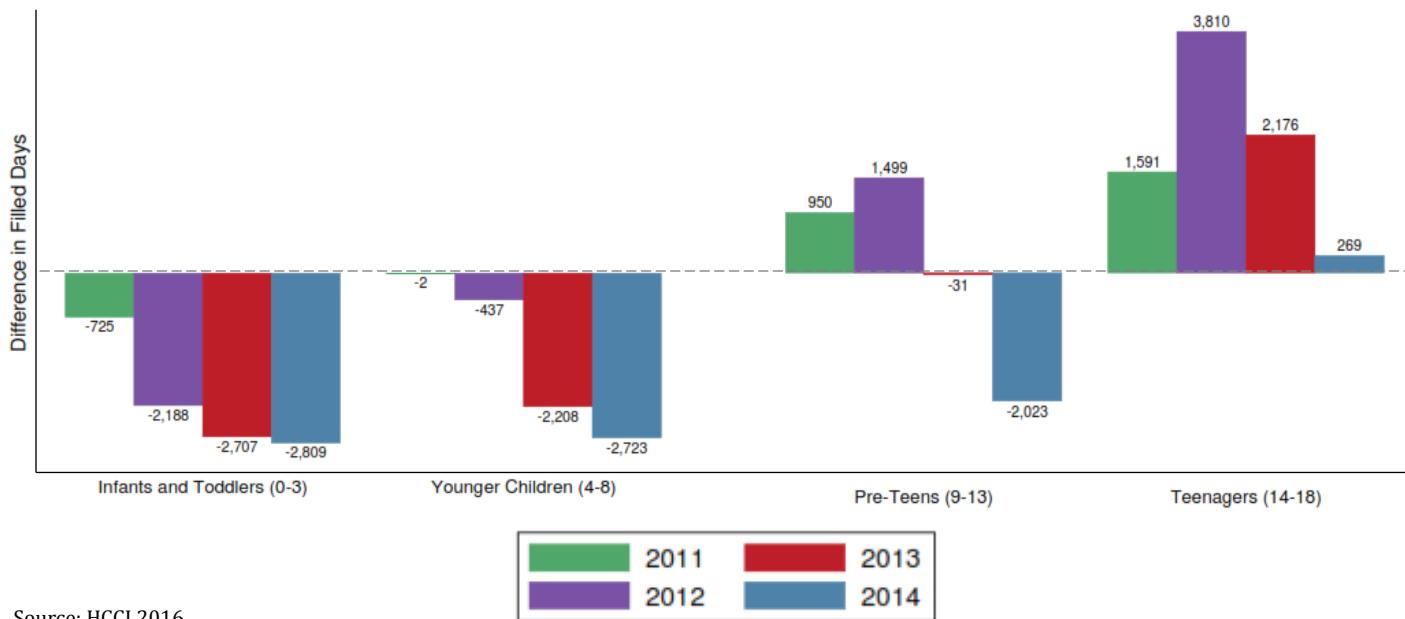
"Children's Health Spending Report: 2010–2014." Health Care Cost Institute, Inc., May 2016. Web.

Endnotes

1. United States; Dept. of Commerce; Census Bureau; Current Population Survey, 2014 Annual Social and Economic Supplement. Health Insurance Coverage Status and Type of Coverage by Selected Characteristics: 2013. US Census Bureau. 2014. Web. May 6, 2015; Table HI01.
2. Health Care Cost Institute. 2014 Health Care Cost and Utilization Report Analytic Methodology V4.0. Washington, DC: Health Care Cost Institute. 2015.
3. McEvoy, Gerald K., Ed. AHFS Drug Information 2010. Bethesda, MD: American Society of Health-System Pharmacists, 2010. Print.
4. This specific AHFS classification of drugs did not exist before 2012, so no data is available on change in use over time.
5. Health Care Cost Institute. 2014 Health Care Cost and Utilization Report. Washington, DC: Health Care Cost Institute. 2015.

Trend to Note: Change in Prescription Utilization by Children

Year-on-Year Difference in Total Prescription Utilization Filled Days per 1,000 Children, by Age Group:



Source: HCCI 2016

Notes: All data weighted to reflect the national, ESI population ages 0-18.

Data from 2013 and 2014 adjusted using actuarial completion.

Between 2010 and 2014, the utilization of prescriptions by infants and toddlers ("babies", ages 0–3) and younger children (ages 4–8) declined. This decline was initially small but accelerated over time. By 2014, prescription utilization by babies had declined by 8,429 filled days per 1,000 babies, and by 5,370 filled days per 1,000 younger children. For both babies and younger children, declines in use across the time period were largely influenced in declines in use of hormones and synthetic substitutes and anti-infective agents (Appendix Tables A12 and A19).

For pre-teens (ages 9–13), utilization of prescriptions increased slightly in 2011 and 2012; however, mirroring the trends in the youngest children, use by pre-teens declined in 2013 and 2014. Conversely to the trends for the three youngest age groups, utilization of prescriptions by teenagers (ages 14–18) increased in every year study. However, as seen in Figure 15, the increase in use was only by teenage girls (an increase of 2,196 filled days per 1,000 teenage girls), while use by teenage boys declined in 2014 (a decline of 1,650 filled days per 1,000 teen boys). The decline in use of prescriptions by teenage boys in 2014 was largely influenced by a decline in use of anti-infective agents and central nervous system (CNS) agents (Appendix Table A44). At the same time, the increase in use of prescriptions by teenage girls in 2014 was largely due to increases in use of CNS agents and hormones and synthetic substitutes (Appendix Table A47), specifically an increase in the use of generic antidepressants (a CNS agent) and generic oral contraceptives (a hormone and synthetic substitute; Appendix Table A56).