

Children's Health Care Spending Report: 2007–2010

July 2012

www.healthcostinstitute.org

Executive Summary

The *Children's Health Care Spending Report: 2007–2010* is the first report of its kind to track changes in expenditure and utilization of health care services by beneficiaries age 18 and younger ("children") covered by employer-sponsored, private health insurance (ESI).¹ The report does not include information about uninsured children, children covered by individual health insurance, or children insured through a public program. As a result, the levels and changes in spending, prices, utilization, and service mix are generalizable only for children covered under ESI.

In the *Health Care Cost and Utilization Report: 2010*, HCCI found that the health expenditure for children with ESI grew faster than any other age group.²

This report begins to explore why health care spending for commercially insured children rose so quickly, and whether growing expenditure on children's health care represents a potential long-term trend. HCCI assessed the levels and changes in prices and utilization for children (including changes in the mix of services) focusing on 2007–2010.

Spending on Children Rose Faster than Inflation

HCCI found that in 2010, ESI covered approximately 41.4 million children. Estimated total health care expenditure on children rose 4.0 percent between 2009 and 2010, and 11.9 percent between 2007 and 2010.

Per capita spending on children rose by 4.5 percent between 2009 and 2010 and by 18.6 percent between 2007 and 2010. Per capita spending for children

was \$2,123 in 2010.

HCCI also examined per capita spending by age group and region in 2010. Children under age 4 had the highest per capita spending (\$3,896), even though costs for normal childbirth are generally attributed to the mother. Children in the West had the lowest per capita expenditure (\$1,969) which was \$311 less than the per capita expenditure in the Northeast (\$2,280).

Distribution of Health Care Spending on Children Varied by Age Group

In 2010, Americans spent the largest proportion of children's health care dollars (40.3 %) on professional procedures — such as primary care provider visits, immunizations, and preventive medicine. Between 2007 and 2010, children under age 4 had a higher proportion of per capita spending on inpatient facility services than the other age groups, even though most claims for childbirth are assigned to the mother. Children age 9-18 experienced an over 20 percent increase in prescription drug expenditure (20.5% for age 9-13 and 31.2% for age 14-18). At the same time, the fastest growing category of health care spending was outpatient facility costs (28.4%).

Out-of-Pocket Spending on Children Rose

In 2010, the share of spending paid out of pocket for children was 17.5 percent of total health care dollars spent on children in 2010. This represented a 0.3 percentage point increase from 2009 in the share of out-of-pocket spending. Per capita out-of-pocket costs rose by 6.8 percent and were highest for children under age 4

BY THE NUMBERS

\$2,123 & 4.5%

Per capita health care spending and one year growth in per capita spending for children covered by ESI in 2010.

40.3% & \$855

Share of health expenditure and per capita health care dollars spent on professional procedures in 2010.

3.4% & 7.1%

One year growth in per capita spending and per capita out-of-pocket payments on professional procedures (2009–2010).

9.2%, 6.7%, & -1.6%

Three year growth in price paid per service, utilization, and intensity for professional procedures (2007–2010).

35.0%

Three year growth in price paid per emergency room visit (2007–2010).

23.8%

Three year growth in utilization of mental health and substance abuse admissions (2007–2010).

Executive Summary

(\$491). Out-of-pocket spending grew the fastest for children over the age of 13 (8.8%). The highest out-of-pocket payments per capita for a major service category were for professional procedures (\$182).

Prices Drove Expenditure

The acceleration of spending on children occurred mostly due to rising prices. Growth of prices paid to providers surpassed growth in utilization and intensity of services.

Between 2007 and 2010, utilization of inpatient admissions and outpatient visits by children declined. However, inpatient mental health and substance abuse (MHSA) admissions increased 23.8 percent. Within the MHSA subcategory, utilization grew the most for children age 9 to 18.

In the same time period, utilization of outpatient other facility services and professional procedures increased for children (10.5% and 6.7%, respectively).

Children's utilization trends for prescription drugs were mixed. Between 2007 and 2010, brand name drug use declined, whereas generic drug use rose. During that period, the fastest growing subcategories of drug use were cardiovascular drugs (24.8%), hormones (20.8%), and central nervous system drugs (10.4%). In 2010, central nervous system drugs, drugs that affect neural functions, had the second highest level of utilization for prescription drugs (692 scripts per 1,000 children) and one of the highest utilizations by 14-18 year olds (1,191 scripts per 1,000 children).³

Intensity of services increased for inpatient facility services and outpatient visit facility services between 2007 and 2010. Intensity declined for out-

patient other facility services and professional procedures, despite administered drug claims, which had the highest increase in intensity (12.5%). The three year trend (2007–2010) and the one year trend (2009–2010) differed somewhat. Between 2009 and 2010 all major categories of services increased in intensity.

Unlike the shifting trends in utilization and intensity by service category, the prices paid to providers rose. Prices paid for outpatient visit facility services grew the most —13.3 percent between 2009 and 2010, and 34.4 percent between 2007 and 2010. In 2010, the average outpatient visit facility claim price was \$1,468 per visit. Within this category, emergency room costs increased by 35.0 percent, outpatient surgery prices by 27.8 percent and observation prices by 14.4 percent between 2007 and 2010.

Summary

This report summarizes trends in health care spending by children who have ESI coverage as a dependent. Between 2007 and 2010, spending differed by region, with the highest per capita expenditure observed in the Northeast and the lowest in the West. Spending on children for all health care service categories increased and outpaced inflation between 2007 and 2010. Infants and toddlers had the highest per capita expenditure of any children's age group in 2010.

As HCCI found in the *Health Care Cost and Utilization Report: 2010*, changes in prices were the driving force of changes in spending on children between 2007 and 2010. Prices grew more than increases in utilization, even after adjusting prices for service mix.

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1. See "Data, Methods, and FAQs" for more details.
 2. Health Care Cost Institute. Health Care Costs and Utilization Report: 2010. [Internet] Washington (DC): HCCI 2012.
 3. Central nervous system drugs may include but are not limited to: analgesics, anti-anxiety, anti-convulsant, anti-depressant, anti-histamines, sedatives/hypnotics, and anti-psychotics.

Annual Spending on Children

HCCI's analysis of expenditure on children finds that despite the decline in the number of children covered by ESI, total health care expenditure on children outpaced inflation between 2007 and 2010.

In 2010, per capita spending on children increased to \$2,123. Spending by region was highest in the Northeast (\$2,280), and spending by age group was highest for infants and toddlers (\$3,896). The fastest growing category of per capita spending was outpatient (5.8% from 2009; 28.4% from 2007). By service category, the greatest share of health care expenditure on children was spent on professional procedures (40.3%). By age group, payers and beneficiaries spent the most health care dollars on children age 0-3 and 14-18 years (31.4% and 31.1%, respectively). Out of pocket per capita spending was \$371, and the share of total children's expenditure paid out-of-pocket was 17.5%. By major service category, per capita out-of-pocket spending was the highest for professional procedures (\$182) and grew the fastest for outpatient facility services

(11% from 2009).

Per Capita Spending

HCCI found that per capita spending on children rose 4.5 percent between 2009 and 2010 and 18.6 percent between 2007 and 2010 (Table 1).

The growth in per capita spending on children varied across census regions (Table 1). Spending grew over 25 percent in the Northeast, and 14.8 percent in the West (Figure 1). The spending difference between the most costly and least costly regions (\$2,280 in the Northeast and \$1,969 in the West) has been widening; it was \$105 in 2007 and was \$311 in 2010.

Expenditure on professional procedures, including office visits, dominated health spending between 2007 and 2010 (Table 1). Per capita spending on procedures was \$855 in 2010 and comprised 40.3 percent of all health care dollars spent on children, a slight decline from 41 percent in 2007.

The fastest growing category of per capita spending was outpatient facility

KEY FINDINGS

Health spending on children with ESI increased between 2007 and 2010

4.5% and 18.6%

One year (2009–2010) and three year (2007–2010) growth in per capita children's health care expenditure.

\$3,896

Per capita spending in 2010 on healthcare for children younger than 4 years of age.

\$311

Per capita expenditure difference in spending on children in the Northeast (\$2,280) compared to the West (\$1,969).

\$855

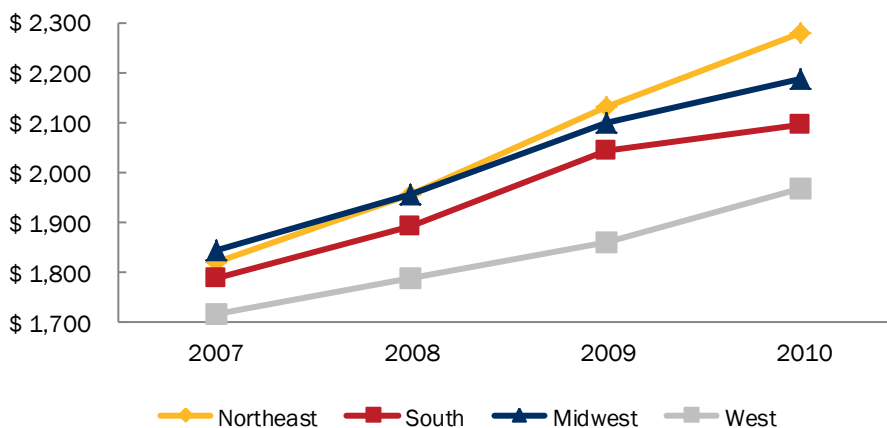
Per capita expenditure on children's professional procedures.

20.5% & 31.2%

Three year growth in per capita spending on prescription drugs for children ages 9-13 and 14-18, respectively.

FIGURE 1

Per Capita Spending by Region: 2007–2010



Annual Spending on Children

services, including emergency room visits (Table 1). In 2010, the per capita expenditure on an outpatient claim was \$507, a 5.8 percent increase since 2009, and a 28.4 percent increase since 2007.

Estimated Total Expenditure

HCCI estimated that ESI covered 41.4 million children in 2010 (Table 1). Since 2007, the population of children covered by ESI declined 5.7 percent. HCCI found that insurers and beneficiaries spent \$87.9 billion on health care for children in 2010. Since 2007, total health care expenditure on children grew 11.9 percent.

Out-of-Pocket Spending

In 2010, the share of children's expenditure paid by the insurer declined by almost half a percentage point, while the total share paid by the beneficiaries out of pocket grew 2.2 percent (Table 2). Beneficiaries paid 17.1 percent of total children's expenditure out-of-pocket in 2009, and 17.5 percent in 2010.

Spending by Age Group

The distribution of spending by services changed markedly as children age, reflecting the different health needs of infants and teens. HCCI also analyzed health care spending by four age groups: 0-3 years ("infants and toddlers"), 4-8 years, 9-13 years, and 14-18 years ("teenagers"). As seen in Table 3, infants and toddlers had the highest overall per capita expenditure in 2010 (\$3,896) and the highest rates of per capita spending growth between 2009 and 2010 (6.2%). Teenagers had the highest rates of per capita spending growth between 2007 and 2010 (22.3%).

Only 17 percent of the population of children with ESI were infants or toddlers (Table 3 and Figure 2). Twenty-nine percent of these children were teenagers, 25.5 percent were age 4-8, and about 28 percent were age 9-13. However, spending on children was not distributed across age groups proportionate to their presence in the population. Americans spent over 31.1 percent of their health care dollars for children on teenagers and 31.4 percent on infants and toddlers (Figure 3).

Professional procedures dominated spending, whereas the fewest health care dollars went to inpatient services (Figure 4). However, of health care dollars spent on infants and toddlers, a greater share was spent on inpatient services (38.3%) than on outpatient facility services (16.7%) between 2007 and 2010.

One potential cause of higher inpatient facility services is the delivery of children in hospitals. For the purposes of this report, HCCI split deliveries and perinatal inpatient services between

mother and child. Most claims for normal childbirth and perinatal stay were assigned to the mother, not the child. Extraordinary services, such as longer inpatient stays due to complications for newborns, are associated with the newborns, thus delivery and newborn utilization for the neonates and toddlers generally reflects the stay of the newborn in the hospital after the mother's discharge.

While the growth in per capita spending varied by age groups, it was always positive over the period for all major service categories (Figure 5). Growth in spending increased as the population aged for outpatient facility services and prescription drugs.

Per capita, out-of-pocket payments rose for all age groups between 2009 and 2010 (Table 2). The highest per capita out-of-pocket expenditure was for infants and toddlers at \$491 in 2010, a 6.1 percent increase over 2009. Growth in out-of-pocket per capita payments was highest for teenagers at 8.8 percent to \$433 in 2010.

FIGURE 2
Distribution of Children with ESI by Age: 2010

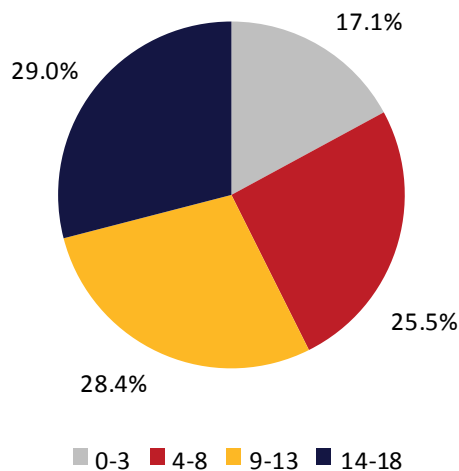
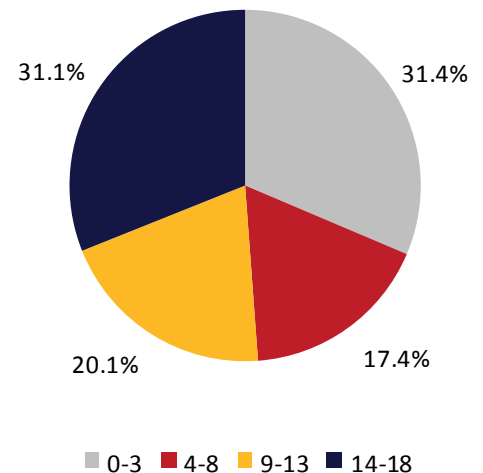


FIGURE 3
Distribution of Spending on Children by Age: 2010



Annual Spending on Children

As seen in Appendix 4 and Figure 5, for children age 4-8, inpatient facility services expenditure grew at rates similar to outpatient facility services (24.7% and 26.0%, respectively). For children over the age of nine, the rates of growth for prescription drug expenditure grew more than 20 percent between 2007 and 2010. Within that group, prescription drug spending rose 20.5 percent for 9-13 year olds, and 31.2 percent for teenagers.

Summary

Per capita and aggregate spending grew for children between 2007 and 2010. Differences in spending were observed by region and by age group. For all children, most health care dollars per capita and out of pocket were spent on professional procedures. The share of health care dollars spent on inpatient admissions for infants and toddlers, unlike other children, was also high. Of major service categories, outpatient facility services costs grew the fastest between 2007 and 2010.

FIGURE 4
Distribution of Health Expenditures by Age: 2010

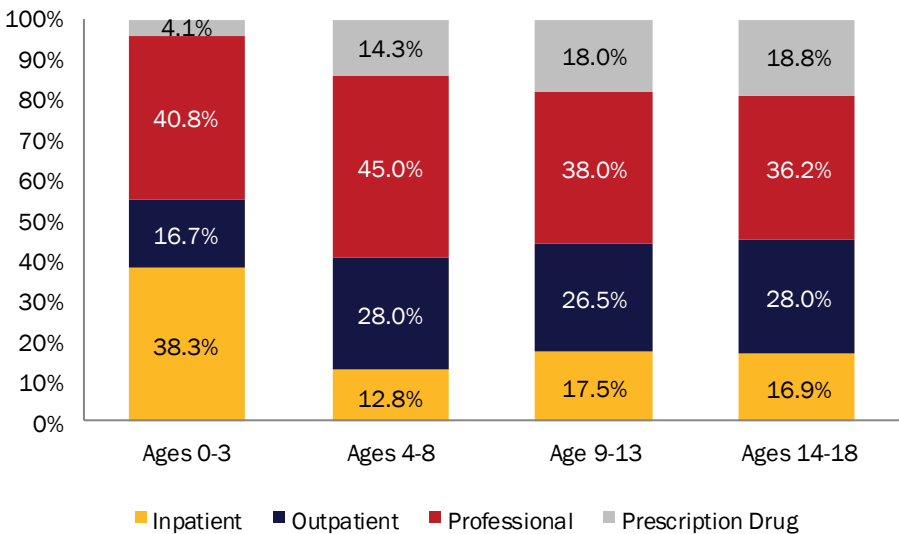


FIGURE 5
Change in Per Capita Spending by Major Service Category and Age: 2007–2010

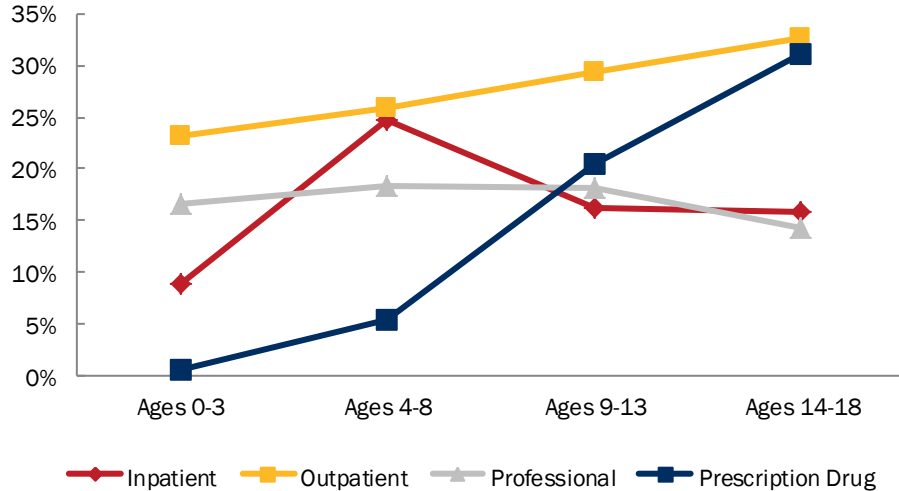


TABLE 1

Estimated Annual Expenditure: 2007–2010¹

	2007	2008	2009	2010	Percent Change 2009-2010	Percent Change 2007-2010
Per Capita Expenditure						
All categories	\$1,790	\$1,893	\$2,031	\$2,123	4.5%	18.6%
Inpatient	\$419	\$431	\$448	\$472	5.3%	12.7%
Outpatient ²	\$395	\$432	\$479	\$507	5.8%	28.4%
Professional	\$733	\$776	\$826	\$855	3.4%	16.5%
Prescription Drugs	\$242	\$255	\$278	\$289	4.0%	19.2%
Per Capita Expenditure by Geographic Region						
Northeast	\$1,820	\$1,954	\$2,132	\$2,280	6.9%	25.3%
South	\$1,787	\$1,890	\$2,043	\$2,095	2.5%	17.3%
Midwest	\$1,842	\$1,954	\$2,101	\$2,190	4.2%	18.9%
West	\$1,715	\$1,786	\$1,860	\$1,969	5.9%	14.8%
Estimated National Aggregates						
Estimated Privately Insured Children Population (Millions)	43.9	43.3	41.6	41.4	-0.5%	-5.7%
Percentage Change in Consumer Price Index for All Urban Consumers (CPI-U): U.S. City Average ³					1.6%	5.2%
Estimated Total Expenditure (\$Billions)	\$78.5	\$81.9	\$84.5	\$87.9	4.0%	11.9%

Notes: All per capita expenditures weighted to reflect the national, younger than 65 ESI population. All figures rounded to the nearest integer, except for percentage changes and estimated national aggregates. Please refer to methodology and glossary for an explanation of terms at www.healthcostinstitute.org/report.

1. Calculation of children's per capita, population, national aggregates, prices, and intensity followed the same methods used in *Health Care Cost and Utilization Report: 2010*. Utilization was calculated per 1,000 insured children, not 1,000 insured. For more details see "Data, Methods, and FAQs" for more details on this report. Please see www.healthcostinstitute.org/methodology.

2. Outpatient Facility services include outpatient visits (emergency room, observation, outpatient surgery), and outpatient other (lab/pathology, home health, etc.). In the *Health Care Cost and Utilization Report: 2010*, the term "outpatient procedures" was used. HCII renamed that category to "outpatient other". The categorization of facility services has not changed.

3. United States Department of Labor, Bureau of Labor Statistics. Consumer Price Index Detailed Report, Tables Annual Averages 2010 [Internet]. Washington (DC): BLS; [cited 2012 May 7]. Available from: <http://www.bls.gov/cpi/cpid10av.pdf>

TABLE 2

Estimated Out-of-Pocket Expenditure: 2009–2010

	2009	2010	Percent Change 2009-2010
Per Capita Out-of-Pocket by Major Service Category			
All Categories	\$347	\$371	6.8%
Inpatient	\$21	\$23	6.3%
Outpatient	\$85	\$94	11.0%
Professional	\$170	\$182	7.1%
Prescription Drugs	\$72	\$73	1.3%
Per Capita Out-of-Pocket by Age			
All Ages	\$347	\$371	6.8%
0-3 Years	\$463	\$491	6.1%
4-8 Years	\$283	\$297	4.9%
9-13 Years	\$282	\$301	6.7%
14-18 Years	\$399	\$433	8.8%
Out-of-Pocket as Percent of Total Expenditure			
All Categories	17.1%	17.5%	2.2%
Per Capita-Payer (Net) by Major Service Category			
All Categories	\$1,684	\$1,752	4.0%
Inpatient	\$427	\$450	5.3%
Outpatient	\$394	\$413	4.7%
Professional	\$657	\$673	2.5%
Prescription Drugs	\$206	\$216	4.9%
Payer as Percentage of Total Expenditure			
All Categories	82.9%	82.5%	-0.5%

Notes: All per capita expenditures weighted to reflect the national, younger than 65 ESI population. All figures rounded to the nearest integer, except for percentage changes. Please refer to methodology and glossary for an explanation of terms at www.healthcostinstitute.org/report.

TABLE 3

Estimated Annual Expenditure by Age Group: 2007–2010

	2007	2008	2009	2010	Percent Change 2009-2010	Percent Change 2007-2010
Per Capita Expenditure						
All Ages	\$1,790	\$1,893	\$2,031	\$2,123	4.5%	18.6%
0-3 Years	\$3,426	\$3,520	\$3,670	\$3,896	6.2%	13.7%
4-8 Years	\$1,219	\$1,297	\$1,419	\$1,451	2.3%	19.1%
9-13 Years	\$1,245	\$1,342	\$1,457	\$1,506	3.4%	21.0%
14-18 Years	\$1,858	\$1,998	\$2,160	\$2,272	5.1%	22.3%
Estimated Privately Insured Children Population (Millions)						
All Ages	43.9	43.3	41.6	41.4	-0.5%	-5.7%
0-3 Years	7.5	7.4	7.1	7.1	-0.8%	-5.8%
4-8 Years	11.2	11.1	10.6	10.6	-0.2%	-5.6%
9-13 Years	12.4	12.2	11.7	11.7	-0.1%	-5.5%
14-18 Years	12.8	12.6	12.1	12	-0.9%	-5.9%
Estimated Total Expenditure (\$ Billions per year)						
All Ages	\$78.5	\$81.9	\$84.5	\$87.9	4.0%	11.9%
0-3 Years	\$25.7	\$26.1	\$26.2	\$27.6	5.3%	7.2%
4-8 Years	\$13.6	\$14.3	\$15.0	\$15.3	2.0%	12.4%
9-13 Years	\$15.5	\$16.4	\$17.1	\$17.7	3.3%	14.4%
14-18 Years	\$23.7	\$25.1	\$26.2	\$27.3	4.2%	15.1%

Notes: All per capita expenditures weighted to reflect the national, younger than 65 ESI population. All figures rounded to the nearest integer, except for percentage changes and estimated national aggregates. Please refer to methodology and glossary for an explanation of terms at www.healthcostinstitute.org/report.

Components of Spending

HCCI defines the components of health care spending as service utilization, price paid, and the service mix. Utilization is the count of services delivered to patients. Prices paid, or allowed costs, are the actual payments made to health care providers for services rendered. Service mix, otherwise known as intensity, is a metric representing the resources used to perform health care services.

Calculation of intensity allows HCCI to also calculate an intensity-adjusted price. This price is never seen by the patient or provider directly, and was used to assess whether overall price, utilization, or intensity drove spending trends. The intensity-adjusted price, or “unit price”, was calculated by dividing the price paid for the service by the intensity of the service. A comparison between the two rates of growth is required to determine whether the mix of services drove overall price changes.

HCCI examined services with high expenditure, high growth in prices, and

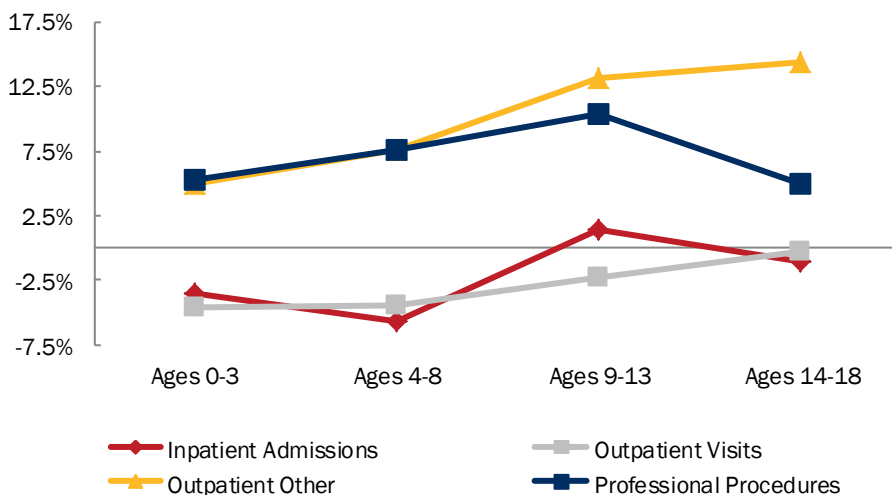
high growth in utilization to help assess the drivers of price growth. An examination of children’s use of professional procedures revealed that insurers and beneficiaries paid more for less intense services (2007–2010). HCCI also observed that for pre-teens and teenagers, use of mental health and substance abuse services, including prescription drugs, increased despite price growth.

Utilization

Between 2007 and 2010, the use by children of inpatient facilities, outpatient visit facilities, and prescriptions declined (Table 4). At the same time, outpatient other facility use and the number of procedures increased.

Inpatient admissions declined 2.8 percent between 2007 and 2010, dropping from 40.5 to 39.4 hospitalizations per 1,000 insured children (Table 4). One exception to declining inpatient use was the rise in mental health and substance abuse services (MHSA).¹ MHSA

FIGURE 6
Changes in Utilization for Facility Services and Professional Procedures by Age Group: 2007–2010



KEY FINDINGS

Prices drove spending trends, despite some increases in intensity and utilization.

34.4%

Three year (2007–2010) growth in prices paid per outpatient visits.

\$923 & 35.0%

Average price in 2010 and growth in price for an emergency room facility claim between 2007 and 2010.

-2.9%

Three year decline in outpatient visits per 1,000 children insured.

7.3%

Three year growth in outpatient visit intensity.

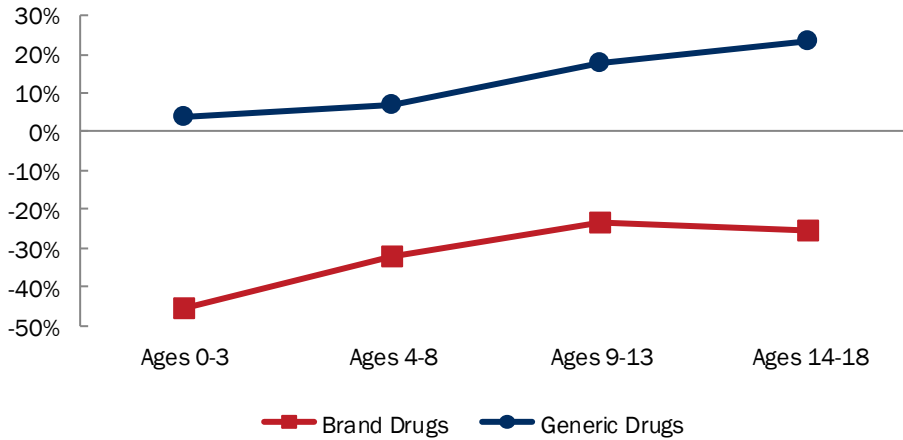
\$8,002 & 23.8%

Average price in 2010 and growth in utilization for a mental health and substance abuse facility claim between 2007 and 2010.

Components of Spending

FIGURE 7

Changes in Utilization for Prescription Drugs by Age Group: 2007–2010



utilization rose 23.8 percent during this period. Deliveries and newborn admissions increased about 0.2 percent.

Visits to ambulatory care units also declined 2.9 percent from 232 visits in 2007 to 226 visits in 2010 per 1,000 insured children (Table 4). The greatest decline in ambulatory care visits was for emergency room use (-4.7%).

During the same period, the average child experienced 10.6 professional procedures per year (Table 4). In 2010, the average child visited their primary care provider 1.7 times per year, and had 1.6 laboratory or pathology tests. Over the four-year period, the number of primary care office visits per 1,000 insured children declined by 3.6 percent. At same time laboratory and pathology use increased 8.7 percent.

In 2010, the average insured child filled about 3.3 prescriptions, which after rounding, was a small decline of 1.6 percent from 2007 levels (Table 4). Between 2007 and 2010, the categories of prescription drugs with the most growth were cardiovascular

drugs (24.8%, 50 scripts per 1,000 insured children), hormones (20.8% growth resulting in 382 scripts per 1,000 insured children in 2010) and central nervous system drugs, 692 prescriptions per 1,000 insured children (10.4% growth). Utilization of brand name drugs declined 29.2 percent during this period, while use of generics increased 14 percent.

Utilization by Age Group

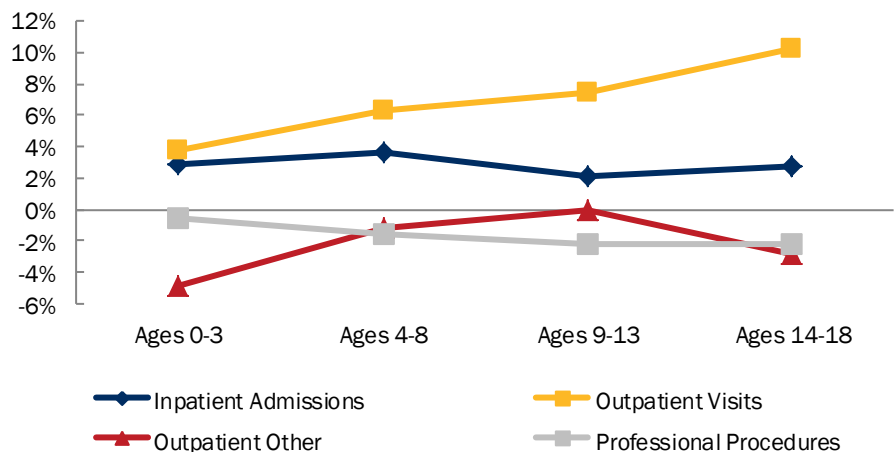
For each age group during the four-year period (2007–2010), utilization grew for outpatient other facility services, professional procedures, and for generic drugs (Appendix 1, Figure 6, and Figure 7). For infants and toddlers professional procedures grew the most (5.3%). Outpatient other facility services grew the fastest for children age 4-8 at 7.7 percent. Generic drug utilization increased by 18.0 percent for children age 9-13, and 23.3 percent for teenagers.

Intensity of Services

Intensity, or mix of services, rose for some major service categories and fell for others between 2007 and 2010 (Table 5). Intensity for inpatient admissions and outpatient facility services rose during this period, while intensity for outpatient other facility services and professional procedures fell.

FIGURE 8

Changes in Intensity for Facility Services and Professional Procedures by Age: 2007–2010



Components of Spending

Intensity of Services by Age Group

Intensity increased for inpatient admissions (2.9%) and outpatient visit facility services (7.3%) for all age groups between 2007 and 2010. For inpatient admissions the increases in intensity were highest for age 4-8 (3.6%) and for outpatient visit facility services, the increases in intensity were highest for teenagers (10.2%) (Appendix 3 and Figure 8). Intensity of other outpatient facility services for toddlers declined the greatest amount (4.9%) compared to other age groups during this period.

Prices

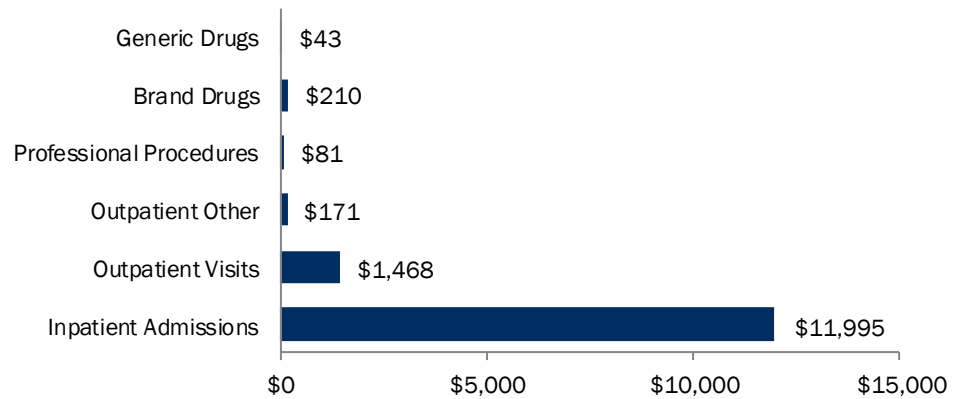
Prices paid per service increased for all major service categories for children between 2007 and 2010 (Table 6). During this period, prices grew by 34.4 percent for outpatient visits and by 21.1 percent for prescription drugs. Prices increased by 16 percent for inpatient admissions, 12.8 percent for outpatient other facility services, and 9.2 percent for professional procedures. The price per inpatient admission was \$11,995 in 2010 (Figure 9). The price per outpatient facility visit was \$1,468. Brand name drug prices were \$167 higher per prescription than generic drug prices in 2010.

Prices by Age Group

Between 2007 and 2010, prices per service increased. For most categories of health care services, prices grew more for older children than for younger children (Appendix 2, Figure 10, and Figure 11). For all children the highest prices paid per service were inpatient facility services, followed by outpatient visit facility services. The price for an inpatient facility claim was lowest for infants and toddlers in 2010

FIGURE 9

Average Price per Service: 2010



(\$10,588), and highest for ages 9-13 (\$15,378). Outpatient visit facility services were the lowest for infants and toddlers (\$1,257) and highest for teenagers (\$1,751). Brand name drug use had the fastest growth in prices for most ages, with the exception of children age 4-8. Of the non-drug related prices, outpatient facility prices grew the fastest for all age groups.

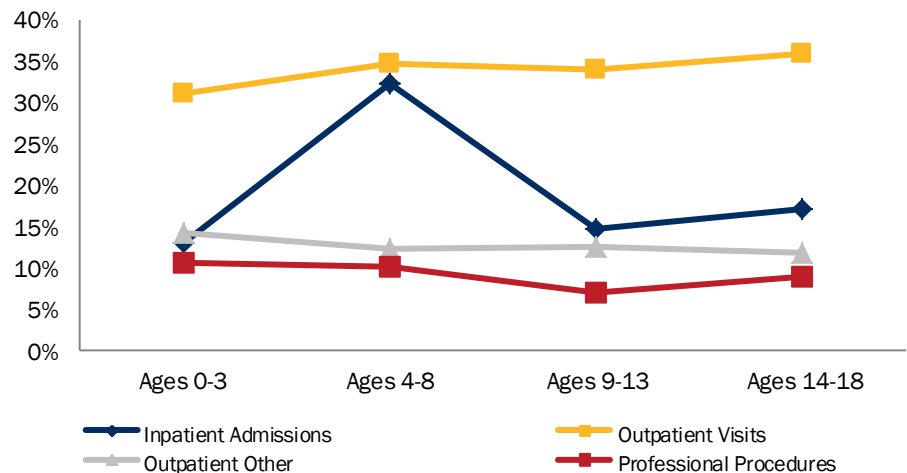
mix of services, unit prices increased for all major service categories during the four years of this study (Table 7). Unit prices for inpatient admissions, adjusted for intensity, grew 13 percent between 2010 and 2007. Unit prices for outpatient visits grew 25.2 percent, 15 percent for outpatient other facility services, and 11 percent for professional procedures. Even when intensity increased, unit price growth was faster at the major service category level.

Unit Prices

After controlling for the intensity, or

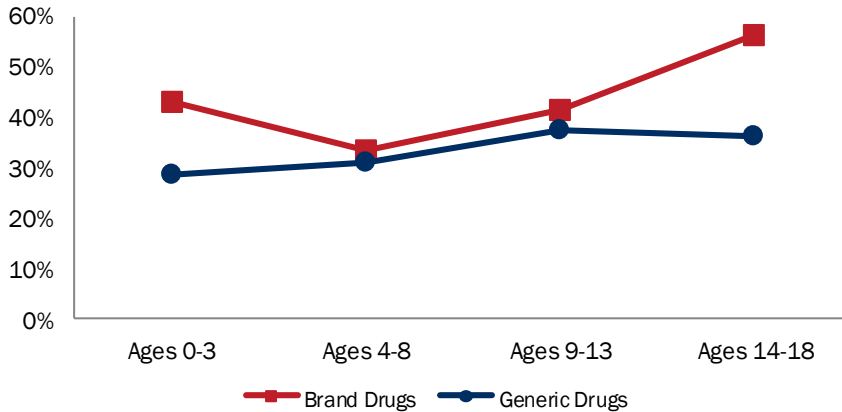
FIGURE 10

Changes in Price per Service for Facility and Professional Services by Age Group: 2007–2010



Components of Spending

FIGURE 11
Changes in Price for Prescription Drugs by Age Group: 2007–2010



Decomposition of Spending

Table 8 summarizes the components of spending (utilization, unit price, intensity) across the four years of this study and compares them to per capita trends for the same period. For all services in this period, unit price growth outpaced both inflation (4.9%) and growth in utilization.

Figure 12 graphs price, utilization, unit price, and intensity of services. For inpatient services between 2007 and 2010, the overall trend was growth in prices paid, growth in intensity (resulting in growth in unit price), and declines in utilization. Utilization for outpatient other facility services and professional procedures rose between 2007 and 2010, but at lower levels than price growth.

Potential Trends for Concern

The increases in prices and utilization for professional procedures led to a per capita spending growth trend of 16.5% between 2007 and 2010 (Table 8). Professional procedures had the lowest average price for a major service category (\$81) in 2010 (Table 6). However, high utilization (10.6 proce-

dures per child in 2010) made per capita spending on professional procedures higher (\$855 in 2010) than spending on other major service categories (Table 1 and Table 4).

Between 2007 and 2010, emergency rooms (ERs) were an increasingly expensive place for children's care. The fastest growing per capita spending was in outpatient facility services (Table 1). The most costly outpatient facility services were for emergency room visits. ER visits per capita expe-

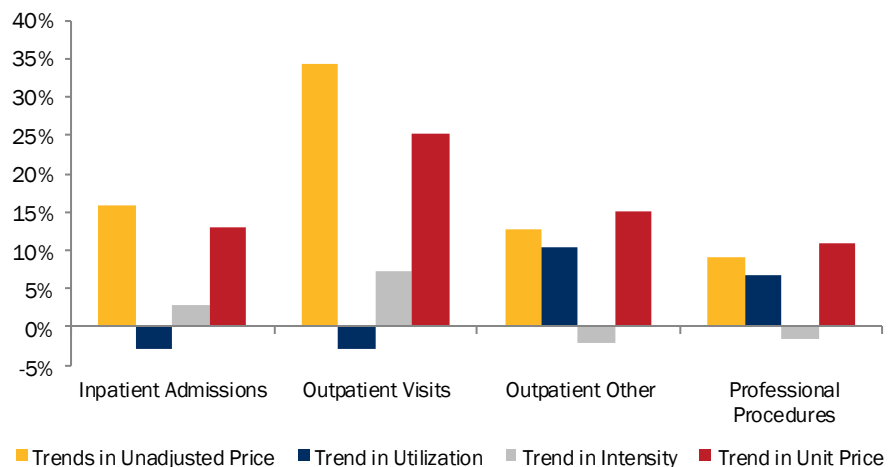
rienced high price growth (35%) offset in part by declines in utilization between 2007 and 2010 (Table 4 and Table 6). Children visiting the ER in 2010 used a higher intensity of services than children visiting the ER in 2007 did.

For teenagers, both prices and utilization rose for mental health and substance abuse (MHSA) services between 2007 and 2010. During the same period, prices and utilization of central nervous system drugs, a drug category associated with mental health disorders and diseases, also rose, 6.8 percent and 10.4 percent respectively.

Summary

Between 2007 and 2010, growth of prices paid to providers surpassed the limited growth in utilization and intensity of services for children. Both prices paid and the unit price for all major service categories grew faster than inflation during this period. Utilization by children declined for inpatient admissions and outpatient visits during the period. However, the use of MHSA inpatient services increased during this period for teenagers, as did the

FIGURE 12
Components of Spending: 2007–2010



Components of Spending

prescription drugs associated with them. The three-year trend in professional procedure utilization showed growth. Although the growth in spending on professional procedures was driven by rising prices, the high levels of utilization helped make these low cost services the largest spending category for children. Intensity, or mix of services, increased for inpatient services and outpatient visits and declined for outpatient other services and professional procedures. This was reflected in the increased intensity of services for children in the ER, despite rising prices and falling utilization.

-
1. Skilled nursing visits grew by 80 percent in the four-year period (2007–2010), however, the small sample size (less than 1 admission per 10,000 children) precludes further analysis.

TABLE 4

Utilization of Services: 2007–2010

	2007	2008	2009	2010	Percent Change 2009-2010	Percent Change 2007-2010
Inpatient Admissions per 1,000 Insured Children						
All Categories	40.5	40.5	40.5	39.4	-2.7%	-2.8%
Medical	13.9	13.2	13.5	12.3	-8.4%	-11.6%
Surgical	4.7	4.7	4.5	4.4	-3.5%	-6.7%
Deliveries & Newborns	19	19.5	19.2	19.1	-0.6%	0.2%
Mental Health & Substance Abuse	2.8	3	3.2	3.4	7.7%	23.8%
Skilled Nursing Facility ¹	0.1	0.1	0.1	0.2	40.3%	80.1%
Outpatient Visits per 1,000 Insured Children						
All Categories	232	230	242	226	-6.9%	-2.9%
Emergency Room	185	182	194	176	-9.2%	-4.7%
Outpatient Surgery	41	42	42	43	2.1%	4.5%
Observation	6	6	6	7	2.6%	1.5%
Outpatient Other per 1,000 Insured Children						
All Categories	930	980	1,008	1,027	1.9%	10.5%
Lab/Pathology	366	393	415	415	-0.1%	13.3%
Radiology Services	104	107	110	109	-0.7%	5.1%
Ancillary Services	191	195	198	197	-0.5%	3.2%
Other Categories	268	286	284	306	7.5%	13.9%

Notes: All per capita expenditures weighted to reflect the national, younger than 65 ESI population. All figures rounded to the nearest integer except for percentage changes and admissions per 1,000 values. Please refer to methodology and glossary for an explanation of terms (www.healthcostinstitute.org/report).

1. The percentage change for SNF is the result of low utilization of SNFs by children.

HOW IS CHILDREN'S UTILIZATION MEASURED?

Utilization is measured by admissions, length of stay, visits, procedures, and prescriptions. Utilization rates shown in this report are expressed as average rates per child multiplied by 1,000, rather than the absolute quantity of services provided.

TABLE 4 (CONTINUED)

Utilization of Services: 2007–2010

	2007	2008	2009	2010	Percent Change 2009-2010	Percent Change 2007–2010
Professional Procedures per 1,000 Insured Children						
All Categories	9,932	10,261	10,758	10,597	-1.5%	6.7%
Office Visits - Primary Care Provider	1,755	1,734	1,851	1,692	-8.6%	-3.6%
Office Visits - Specialist	550	583	625	652	4.3%	18.6%
Preventive Visits - Primary Care Provider	654	676	692	716	3.4%	9.3%
Preventive Visits - Specialist	27	28	30	31	4.6%	16.6%
Surgery	259	261	252	259	2.6%	-0.1%
Administered Drugs	82	82	87	88	1.7%	7.3%
Anesthesia	54	55	55	56	2.9%	4.7%
Pathology/Lab	1,458	1,522	1,703	1,585	-7.0%	8.7%
Radiology	461	464	468	459	-2.0%	-0.5%
Other Procedures	4,633	4,855	4,996	5,060	1.3%	9.2%
Prescriptions Drug per 1,000 Insured Children by Major Therapeutic Class						
All Classes	3,316	3,211	3,369	3,263	-3.2%	-1.6%
Anti-infective	934	915	999	897	-10.2%	-4.0%
Cardiovascular	40	42	45	50	10.8%	24.8%
Central Nervous System	626	653	668	692	3.5%	10.4%
Gastrointestinal	89	86	91	91	0.9%	2.1%
Hormones	316	338	375	382	1.9%	20.8%
Other Therapeutic Classes	1,310	1,176	1,193	1,152	-3.4%	-12.1%
Prescription Drugs per 1,000 Insured Children by Type						
All Types	3,316	3,211	3,369	3,263	-3.2%	-1.6%
Brand	1,241	1,078	911	878	-3.6%	-29.2%
Generic	2,068	2,093	2,434	2,358	-3.1%	14.0%

Notes: All per capita expenditures weighted to reflect the national, younger than 65 ESI population. All figures rounded to the nearest integer except for percentage changes. Please refer to methodology and glossary for an explanation of terms (www.healthcostinstitute.org/report).

TABLE 5

Intensity per Service: 2007–2010

	2007	2008	2009	2010	Percent Change 2009-2010	Percent Change 2007-2010
Inpatient Admissions¹						
All Categories	0.98	1.00	0.99	1.00	1.4%	2.9%
Medical	0.77	0.81	0.82	0.82	1.1%	7.3%
Surgical	2.20	2.21	2.21	2.24	1.7%	1.9%
Deliveries & Newborns	0.85	0.86	0.85	0.87	1.8%	1.6%
Mental Health & Substance Abuse	0.77	0.82	0.83	0.83	0.0%	6.8%
Outpatient Visits						
All Categories	10.50	10.93	10.40	11.27	8.4%	7.3%
Emergency Room	4.58	4.71	4.72	4.91	4.1%	7.3%
Outpatient Surgery	37.91	38.66	37.39	38.26	2.3%	0.9%
Observation	6.66	6.76	6.32	6.59	4.1%	-1.1%
Outpatient Other						
All Categories	1.24	1.21	1.20	1.21	1.2%	-2.0%
Lab/Pathology	0.21	0.21	0.21	0.21	0.8%	1.9%
Radiology Services	1.71	1.72	1.72	1.75	1.5%	1.9%
Ancillary Services	3.22	3.22	3.20	3.30	3.0%	2.6%
Other Categories	1.05	1.01	1.05	1.04	-0.9%	-1.3%
Professional Procedures						
All Categories	1.55	1.53	1.50	1.52	1.3%	-1.6%
Office Visits - Primary Care Provider	1.97	1.99	2.00	2.02	1.0%	2.3%
Office Visits - Specialist	2.12	2.13	2.14	2.17	1.2%	2.5%
Preventive Visits - Primary Care Provider	2.32	2.32	2.32	2.32	0.1%	0.3%
Preventive Visits - Specialist	2.34	2.34	2.34	2.32	-0.8%	-0.6%
Surgery	5.31	5.35	5.33	5.28	-1.0%	-0.7%
Administered Drugs	0.50	0.54	0.56	0.57	1.5%	12.5%
Anesthesia	5.89	5.84	5.80	5.75	-0.8%	-2.5%
Pathology/Lab	0.40	0.41	0.42	0.42	-0.3%	4.1%
Radiology	1.22	1.22	1.22	1.22	-0.1%	0.2%
Other Procedures	1.36	1.32	1.30	1.31	1.0%	-3.6%

1. No SNF intensity information is available in this report.

TABLE 6

Price per Service: 2007–2010

	2007	2008	2009	2010	Percent Change 2009-2010	Percent Change 2007-2010
Price per Inpatient Admission						
All Categories	\$10,342	\$10,646	\$11,081	\$11,995	8.2%	16.0%
Medical	\$9,412	\$10,327	\$10,764	\$11,733	9.0%	24.7%
Surgical	\$29,852	\$30,297	\$32,327	\$35,496	9.8%	18.9%
Deliveries & Newborns	\$6,769	\$6,766	\$6,993	\$7,589	8.5%	12.1%
Mental Health & Substance Abuse	\$6,637	\$6,964	\$7,154	\$8,002	11.9%	20.6%
Skilled Nursing Facility ¹	\$10,427	\$5,133	\$4,894	\$3,360	-31.3%	-67.8%
Price per Outpatient Visit						
All Categories	\$1,092	\$1,209	\$1,295	\$1,468	13.3%	34.4%
Emergency Room	\$684	\$756	\$832	\$923	11.0%	35.0%
Outpatient Surgery	\$2,907	\$3,162	\$3,435	\$3,715	8.2%	27.8%
Observation	\$1,293	\$1,356	\$1,357	\$1,478	9.0%	14.4%
Price per Outpatient Other						
All Categories	\$152	\$156	\$164	\$171	4.4%	12.8%
Lab/Pathology	\$57	\$59	\$62	\$66	5.7%	15.9%
Radiology Services	\$397	\$421	\$437	\$464	6.2%	16.8%
Ancillary Services	\$173	\$184	\$192	\$202	5.5%	16.6%
Other Categories	\$171	\$172	\$188	\$190	1.1%	10.9%

Notes: All per capita expenditures weighted to reflect the national, younger than 65 ESI population. All figures rounded to the nearest integer except for percentage changes. Please refer to methodology and glossary for an explanation of terms (www.healthcostinstitute.org/report).

1. The percentage change for SNF reflects the rate use of these services by children.

TABLE 6 (CONTINUED)

Price per Service: 2007–2010

	2007	2008	2009	2010	Percent Change 2009-2010	Percent Change 2007-2010
Price per Professional Procedure						
All Categories	\$74	\$76	\$77	\$81	5.0%	9.2%
Office Visits - Primary Care Provider	\$70	\$74	\$77	\$82	5.8%	16.9%
Office Visits - Specialist	\$84	\$88	\$91	\$96	5.0%	13.6%
Preventive Visits - Primary Care Provider	\$97	\$98	\$101	\$104	3.2%	7.6%
Preventive Visits - Specialist	\$119	\$120	\$120	\$125	4.0%	4.6%
Surgery	\$281	\$292	\$307	\$311	1.6%	11.0%
Administered Drugs	\$276	\$288	\$273	\$278	2.1%	0.6%
Anesthesia	\$532	\$559	\$585	\$603	3.1%	13.3%
Pathology/Lab	\$18	\$19	\$20	\$20	1.3%	8.2%
Radiology	\$70	\$70	\$72	\$74	1.9%	5.3%
Other Procedures	\$68	\$69	\$71	\$73	3.9%	7.9%
Price per Prescription by Major Therapeutic Class						
All Classes	\$73	\$80	\$82	\$88	7.4%	21.1%
Anti-infective	\$40	\$41	\$44	\$45	2.3%	11.5%
Cardiovascular	\$31	\$29	\$33	\$46	39.3%	47.7%
Central Nervous System	\$104	\$110	\$108	\$111	2.4%	6.8%
Gastrointestinal	\$96	\$106	\$105	\$99	-5.7%	3.5%
Hormones	\$115	\$126	\$130	\$138	5.9%	20.0%
Other Therapeutic Classes	\$71	\$79	\$86	\$94	9.6%	31.2%
Price per Prescription by Type						
All Types	\$73	\$80	\$82	\$88	7.4%	21.1%
Brand	\$142	\$168	\$185	\$210	13.5%	48.1%
Generic	\$32	\$34	\$43	\$43	-1.2%	35.6%

Notes: All per capita expenditures weighted to reflect the national, younger than 65 ESI population. All figures rounded to the nearest integer except for percentage changes. Please refer to methodology and glossary for an explanation of terms (www.healthcostinstitute.org/report).

TABLE 7

Unit Price per Service: 2007–2010

	2007	2008	2009	2010	Percent Change 2009-2010	Percent Change 2007-2010
Inpatient Admissions¹						
All Categories	\$10,604	\$10,704	\$11,214	\$11,986	6.9%	13.0%
Medical	\$12,247	\$12,734	\$13,205	\$14,234	7.8%	16.2%
Surgical	\$13,564	\$13,714	\$14,654	\$15,822	8.0%	16.6%
Deliveries & Newborns	\$7,917	\$7,890	\$8,195	\$8,735	6.6%	10.3%
Mental Health & Substance Abuse	\$8,578	\$8,464	\$8,660	\$9,685	11.8%	12.9%
Outpatient Visits						
All Categories	\$104	\$111	\$125	\$130	4.6%	25.2%
Emergency Room	\$149	\$161	\$176	\$188	6.6%	25.8%
Outpatient Surgery	\$77	\$82	\$92	\$97	5.7%	26.6%
Observation	\$194	\$201	\$214	\$224	4.6%	15.7%
Outpatient Other						
All Categories	\$123	\$129	\$137	\$141	3.2%	15.0%
Lab/Pathology	\$272	\$282	\$295	\$309	4.9%	13.8%
Radiology Services	\$232	\$244	\$254	\$265	4.6%	14.5%
Ancillary Services	\$54	\$57	\$60	\$61	2.4%	13.7%
Other Categories	\$162	\$169	\$178	\$182	2.0%	12.3%
Professional Procedures						
All Categories	\$48	\$49	\$51	\$53	3.7%	11.0%
Office Visits - Primary Care Provider	\$35	\$37	\$39	\$41	4.7%	14.3%
Office Visits - Specialist	\$40	\$41	\$43	\$44	3.7%	10.8%
Preventive Visits - Primary Care Provider	\$42	\$42	\$43	\$45	3.1%	7.3%
Preventive Visits - Specialist	\$51	\$51	\$51	\$54	4.8%	5.2%
Surgery	\$53	\$55	\$58	\$59	2.6%	11.8%
Administered Drugs	\$550	\$530	\$489	\$492	0.5%	-10.6%
Anesthesia	\$90	\$96	\$101	\$105	3.9%	16.1%
Pathology/Lab	\$46	\$47	\$47	\$47	1.6%	3.9%
Radiology	\$57	\$57	\$59	\$60	2.0%	5.1%
Other Procedures	\$50	\$52	\$54	\$56	2.9%	12.0%

Notes: All per capita expenditures weighted to reflect the national, younger than 65 ESI population. All figures rounded to the nearest integer except for percentage changes. Please refer to methodology and glossary for an explanation of terms (www.healthcostinstitute.org/report).

1. No unit price information is available in this report for Skilled Nursing Facilities.

TABLE 8

Decomposition of Spending Trends: 2007–2010

	Trend Per Capita	Components of Trend Per Capita 2007–2010		
		Utilization	Unit Price	Intensity
Inpatient Admissions ¹	12.7%	-2.8%	13.0%	2.9%
Outpatient				
Outpatient Visits	30.5%	-2.9%	25.2%	7.3%
Outpatient Other	24.6%	10.5%	15.0%	-2.0%
Professional Procedures	16.5%	6.7%	11.0%	-1.6%

Notes: All per capita expenditures weighted to reflect the national, younger than 65 ESI population. Please refer to methodology and glossary for an explanation of terms (www.healthcostinstitute.org/report).

1. Trends for per capita inpatient expenditure and inpatient utilization included data for skilled nursing facilities (SNF). Trends for inpatient unit price and inpatient intensity did not include SNF data.

WHAT IS INTENSITY?

Intensity is a metric designed to weigh the resource use of patients with different diagnoses and different procedures. HCCI based the intensity weights on the type and place of service.

Data, Methods, and FAQs

This report is also the first of what will be an ongoing series of small research projects from HCCI. Future reports will focus on other questions raised by the HCCI *Health Care Costs and Utilization Reports* (www.healthcostinstitute.org/report).

Data

HCCI has access to roughly 3 billion health insurance claims for more than 33 million individuals covered by ESI from 2007 to 2010 (including both fully insured and self-funded benefit programs). This data was contributed to HCCI by a set of large health insurers who collectively represent almost 40 percent of the US private health insurance market. The claims used in this report represent about 20 percent of all individuals younger than 65 with ESI, making this one of the largest collections of data on the privately insured ever assembled.

HCCI received from the data contributors de-identified, Health Insurance Portability and Accountability Act (HIPAA) compliant information that included the allowed cost, or actual prices paid to providers for services. The numbers in this report reflect the actual expenditure on health care by payers and beneficiaries who filed claims with their group ESI.

Methods

HCCI used its claims database to estimate per capita health expenditures. To make our findings representative of the entire younger than 65 population with ESI, HCCI weighted the data. HCCI used United States Census Bureau data to create age, gender, and geographic weights

that allowed HCCI to extrapolate the raw data into national estimates.

The statistics in this report focus on health care expenditures and their components of price, utilization and intensity at the regional and national levels. We do not report on premiums or their determinants.

Categories of Service

HCCI divided claims into four categories of service: inpatient facility, outpatient facility (visits or procedures), professional procedure (including physician and non-physician services), and prescription drug. Inpatient claims are from hospitals, skilled nursing facilities (SNF), and hospices where there is evidence that the insured stayed overnight. Outpatient facility services are claims that did not require an overnight stay and include observation and emergency room claims. Both outpatient and inpatient claims comprise only the facility charges associated with such claims.

HCCI classified professional services provided by health professionals according to procedure codes commonly used in the industry. HCCI also categorized professional claims into primary care or specialist care.

HCCI coded prescription drug claims into thirty therapeutic classes and to simplify analysis, HCCI grouped them as either generic or brand name prescriptions.

Methods Special to this Report

HCCI calculated the utilization of children's services per 1,000 insured children, not per 1,000 insured

population. Thus utilization numbers in this report are only comparable to each other, not to other reports produced by HCCI.

More Information

HCCI provides a full methodology, supplemental data dictionaries, and glossaries at www.healthcostinstitute.org/report.

HCCI's reports provide insight into the changing trends in health care expenditure, utilization, prices, and intensity of services.

Health Care Cost and Utilization Report: 2011

Coming in September 2012

HCCI's next report, *Health Care Costs and Utilization: 2011* will provide the first look at healthcare spending in 2011:

- ◆ Update trend information for per capita and total expenditure
- ◆ Track price increases between 2010 and 2011
- ◆ Address the growing trend in outpatient facility services and use of emergency medicine

Health Care Cost and Utilization Trends Report: 2007-2011

Coming in October 2012

HCCI's upcoming five-year trends report will track changes in the spending and the components of spending between 2007 and 2011:

- ◆ Track aggregate and per capita spending trends
- ◆ Decompose costs by unit prices, intensity, and utilization
- ◆ Focus on mental health services, prescription drug, and out-of-pocket trends