

Trends in Pediatric Private Insurance and Medicaid Spending: A Repeated Cross-Sectional Analysis of Data from 2002 to 2014

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Abstract

Given increased focus on health spending, this investigation aims to compare trends in pediatric Medicaid and private insurance spending on type of service from 2002 to 2014 in order to inform policy and research. A repeated cross-sectional analysis of 2002 to 2014 National Health Expenditure Accounts data was conducted. Total spending, per capita spending, and compounded annual growth rates for type of service were determined for children ages 0 to 18 at the national level. Per capita spending growth was higher for private insurance than for Medicaid, and the areas of high per capita spending growth differed for private insurance and Medicaid. While Medicaid spent more per capita on hospital care than private insurance, private insurance demonstrated greater per capita spending growth on hospital care than Medicaid (8.49% vs 1.99%, respectively). Conversely, per capita spending on home health care grew more for Medicaid (6.79%) than for private insurance (3.18%). Trends in private insurance and Medicaid overall and per capita spending differ. Medicaid experienced higher annual growth in total spending than per capita spending, while private insurance had greater annual growth in per capita spending than total spending. Growth in private insurance per capita spending was higher than growth in Medicaid per capita spending, but growth in Medicaid total spending was higher than growth in private insurance total spending. These data suggest that Medicaid and private insurance may have different drivers of spending growth, highlighting the need for policy makers to examine spending patterns by payer. Further research to determine why such differences in spending growth exist will better inform efforts to increase health care value.

Keywords

child, medicaid, cross-sectional studies, health expenditures, private insurance

What do we already know about this topic?

Children are among the groups with the highest rise in Medicaid use, but their use of private insurance continues to decrease.

How does your research contribute to this field?

It identifies and compares trends in pediatric Medicaid and private insurance spending from 2002 to 2014, including the fact that spending growth per capita was higher for private insurance than for Medicaid, and the areas of high per capita spending growth differed between private insurance and Medicaid.

What are your research's implications toward theory, practice, or policy?

Identifying trends in service-specific per capita spending by private insurance and Medicaid payers, particularly throughout the course of the Great Recession, may help policy makers understand and anticipate future spending needs of children insured by each of these payers, including during another time of economic downturn.

Introduction

From 2000 to 2014, the proportion of children with private insurance decreased from 71% to 61% while the proportion of children with Medicaid increased from 21% to 40%,

making children one of the groups with the highest rise in Medicaid use.^{1,2} Throughout this period, pediatric private insurance enrollment remained higher than pediatric Medicaid enrollment, but the gap in enrollment decreased significantly. However, much remains unknown about trends in pediatric



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per capita spending by Medicaid and private insurance on types of services (eg, hospital care, physician care, home health) and how changes in enrollment have impacted these trends. One study showed a decrease in Medicaid per capita inpatient and emergency department spending and increases in outpatient spending, but this study was limited by a lack of comparable private insurance data.³ A study of children with employer-sponsored insurance showed consistent growth of spending in all categories of service, but this study did not include data on children with Medicaid or non-employer sponsored private insurance.⁴

Although Medicaid programs vary significantly by state, Medicaid is a state/federal partnership, and federal trends in spending are key to budgetary decisions and policy about payment models. Thus, access to National Health Expenditure Accounts (NHEA) data provides a valuable opportunity to compare national-level per capita spending trends for children with Medicaid versus private insurance. Children with Medicaid, including but not limited to children with chronic illness, tend to be less healthy than children with private insurance coverage due to their families' lower income and access to healthcare. Thus, children with Medicaid often require higher rates of more intensive services.⁵ One study suggests that children with chronic conditions are more likely to migrate from private insurance to Medicaid than children without chronic conditions.³ A more recent study suggests that low-income families may opt for public rather than private insurance coverage because it leads to fewer cost barriers and greater access to healthcare.⁶ Thus, the simultaneous decrease in private health insurance coverage and increase in Medicaid enrollment during our study period may represent the migration of low-income patients with chronic conditions. As such, we hypothesized that as more low-income patients and patients with chronic conditions (and therefore higher intensity service needs) transition to Medicaid, there would be an increase in overall, as well as per-enrollee, spending on services needed by children with chronic illness (eg, home health services, inpatient services, medications, durable medical equipment). To test this hypothesis, we conducted an analysis of US NHEA data from 2002 to 2014. The objective of this study was to compare trends in pediatric Medicaid and private insurance spending from 2002 to 2014 in terms of specific services. Data on such trends may help policy makers to better understand how changes in Medicaid and private insurance enrollment have impacted pediatric Personal Health Care (PHC) spending. These data may also help policy makers

understand differences in how payers distribute funds in order to anticipate future spending needs of children with Medicaid and private insurance. Finally, these data have the potential to inform policy decisions related to high value care initiatives to optimize resources, including the extent to which private payers are required to cover specific services.

Methods

Data

Centers for Medicare & Medicaid Services collects and makes available Age and Gender Tables for PHC spending, based on NHEA data. NHEA data is a large ongoing data effort that aims to present spending data reflecting economic activity within the health sector. NHEA uses data from all states to estimate spending on individuals with specific medical conditions (personal health care, or PHC) as well as spending on government public health activity, government administration and cost of health insurance, and investments in medical sector infrastructure and research intended to further develop healthcare delivery. The Age and Gender Tables include only data for PHC. Other categories that comprise NHEA data are excluded because they are not broken down by age and gender. PHC expenditures include spending on "hospital care, physician and clinical services, dental care, other professional services, home health care, nursing care facilities, and continuing care retirement communities, other health residential and personal care, and retail sales of medical products (such as prescription drugs or over-the counter medicines sold in pharmacies or eyeglasses sold in optical goods stores)."⁷ Because no comprehensive source of health spending by age and gender exists, CMS uses a number of different data sets to estimate PHC. Medicaid spending estimates are based on data from Medicaid Analytic eXtract System (MAX). Private insurance spending estimates are calculated via 1 of 2 methods using Medical Expenditure Panel Survey data, utilization counts by age and gender from the National Ambulatory Medical Care Survey, Medicare Current Beneficiary Survey, and other private surveys. All estimates are scaled to match control totals in the NHEA data by type of service and source of funding. A more detailed explanation of the methodology behind NHEA data and the CMS Age and Gender Tables can be found in the CMS methodology paper.^{7,8}

In 2019, CMS published Age and Gender Tables with biennial data from 2002 to 2014 containing PHC spending

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categorized by age (0-18, 19-44, 45-64, 65-84, and ≥ 85 years) and by gender.⁹ Data beyond 2014 has not yet been made available by CMS. Expenditures are also organized by source of funding (payer) and service provided. We conducted a repeated cross-sectional analysis focused on total and per capita Medicaid and private insurance spending for pediatric populations, ages 0 to 18 years. The Medicaid category includes fee for service and managed care data which are not able to be separated in this dataset. This analysis does not include Children's Health Insurance Program (CHIP) data which is grouped with other payers and designated as an "other payer or program."¹⁰ Because the remainder of pediatric healthcare spending was comprised of Medicare, other payers and programs, and out of pocket spending but constituted a relatively low proportion of spending, we chose to focus on Medicaid and private insurance.

Data Analysis

Overall 12-year growth rates in private insurance and Medicaid spending were calculated by dividing the difference between the 2002 and 2014 spending amounts by the 2002 spending amount. Annualized growth rates were determined by calculating the compounded annual growth rate. 2014 spending was adjusted for medical cost inflation (Medical CPI) using Bureau of Labor Statistics methodology, and adjusted annual growth rates were calculated.^{11,12} Adjusted rates can be found the online tables Because per capita spending data was only provided for total PHC, we had to calculate per capita spending for type of service. We determined the number of Medicaid and private insurance enrollees each year and divided total service-specific spending by the total number of Medicaid enrollees and the total number of private insurance enrollees (regardless of whether they used the given service) to get service-specific per capita spending for private insurance and Medicaid, respectively. Overall growth, annual growth rates, and adjusted spending rates were calculated in the same manner for per capita spending data as total spending data. We used Microsoft Excel to carry out this analysis. This analysis was exempt from IRB oversight as it did not involve human subjects research.

Results

During the study period, our calculated number of private insurance enrollees ranged from 51.8 million in 2002 to 44.0 million in 2014, and our calculated number of Medicaid enrollees grew from 20.6 million in 2002 to 40.0 million in 2014 (Supplemental Table 1). In 2002, overall pediatric personal health care spending was \$155.8 billion (\$51.3 billion in private insurance spending vs \$53.5 billion in Medicaid spending), but by 2014 it was \$291.2 billion dollars (\$98.9 billion in private insurance spending vs

\$109.4 billion in Medicaid spending). Thus, throughout this period, total pediatric private insurance spending and total pediatric Medicaid spending were comparable in terms of total dollar amounts. Overall pediatric per capita spending grew from \$2020 (\$1008 in private insurance spending vs \$2602 in Medicaid spending) to \$3749 in 2014 (\$2245 in private insurance spending vs \$3536 in Medicaid spending). While Medicaid experienced higher annual growth in total spending (\$53.5 billion to \$109.4 billion; 6.14%) than per capita spending (\$2602 to \$3536; 2.59%), private insurance had greater annual growth in per capita spending (\$1008 to \$2245; 6.90%) than total spending (\$52.3 billion to \$98.9 billion; 5.46%). Private insurance per capita spending experienced significantly higher annual growth than Medicaid per capita spending, but the Medicaid per capita dollar amount was consistently higher than the private insurance per capita dollar amount from 2002 to 2014. Full biennial data for total pediatric private insurance and total pediatric Medicaid spending are available online (Supplemental Table 2).

Total pediatric service-specific spending also differed by payer. Full biennial data can be found in Supplemental Table 3, and detailed definitions of each category of service have been published by Centers for Medicare and Medicaid Services (CMS) and can be found in the associated reference.¹³ "Durable medical equipment" (8.13%), "other health residential and personal care" (7.37%) including ambulance care, "hospital care" (7.02%), and "prescription drugs (5.85%) saw the greatest annual growth in private insurance spending from 2002 to 2014, while "home health care" (10.49%), "dental services" (8.09%), "other professional services" (7.60%), and "nursing care facilities and continuing care retirement communities" (7.48%) saw the greatest annual growth in Medicaid spending. Meanwhile, private insurance spending on "home health care" saw little growth (1.79%), and private insurance spending on "nursing care facilities and continuing retirement communities" was the only example of a service that saw negative annual growth for any payer (-0.93%). Private insurance and Medicaid also differed in their distribution of funds among the different services (Supplemental Table 3). Hospital care constituted half of Medicaid's PHC spending but accounted for little more than one-third of private insurance PHC spending. Physician and clinical services made up almost one-third of private insurance PHC spending but constituted less than one-fifth of Medicaid spending. Of note, 4% to 6% of Medicaid spending was directed to home health care from 2002 to 2014, while less than 2% of private insurance spending was directed to home health care during the same period.

Figure 1 compares Medicaid and private insurance service-specific per capita spending. Full biennial data are available online (Supplemental Table 4) [insert Figure 1]. During the study period, Medicaid consistently demonstrated higher per-enrollee spending for hospital care (\$1346-\$1704) than did private insurance (\$344-\$914). Medicaid also regularly spent more per-enrollee on physician and clinical

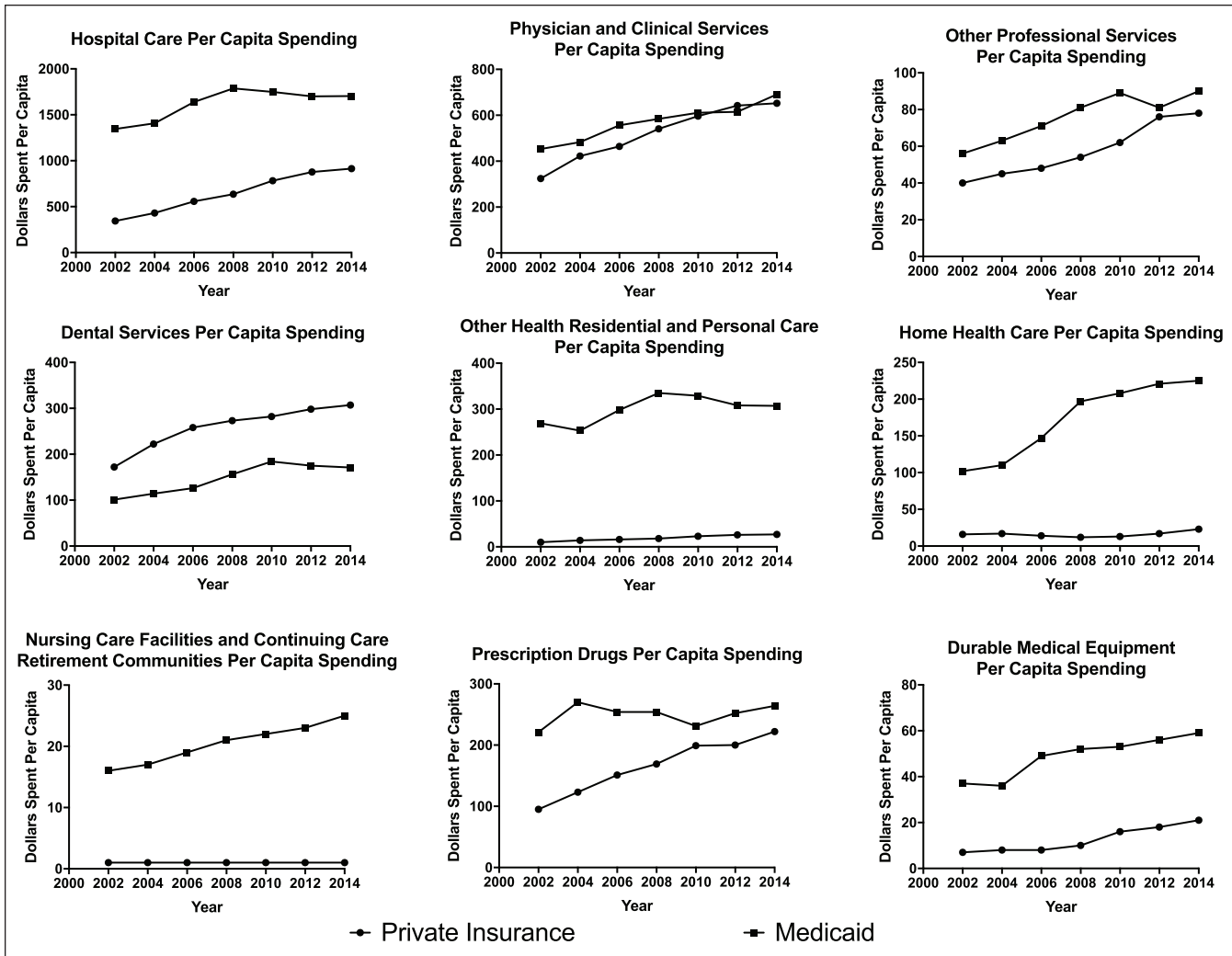


Figure 1. Trends in pediatric private insurance and Medicaid per capita spending by service.

services (\$453-\$691 vs \$324-\$652), other health residential and personal care (\$56-\$90 vs \$10-\$27), home health care (\$102-\$225 vs \$16-23), nursing care facilities (\$16-\$25 vs \$1-\$1), prescription drugs (\$221-\$264 vs \$95-\$222), and durable medical equipment (\$37-\$59 vs \$7-\$21) than did private insurance. Private insurance consistently spent more on dental services (\$172-\$307 vs \$101-\$171).

Annual growth in per capita private insurance spending was the greatest for “durable medical equipment” (9.61%), “other health residential and personal care” (8.84%) including ambulance services, and “hospital care” (8.49%), while annual growth in Medicaid per capita spending was the greatest for “home health care” (6.79%), “dental services” (4.48%), and “other professional services” (4.00%). Similar to the growth in total per capita spending, many service-specific per capita growth rates were greater for private insurance payers than for Medicaid. For example, private insurance per capita spending on “hospital care” increased by 8.49% annually while Medicaid per capita spending on

the same service only increased by 1.99% annually. “Physician and clinical services” also showed a greater annual increase in per capita spending for private insurance payers (6.02%) than for Medicaid (3.58%). Conversely, annual growth in per capita spending on “home health care” remained higher for Medicaid (6.79%) than for private insurance payers (3.18%).

Discussion

Our study resulted in 3 main findings. First, the percentage of children with Medicaid increased compared to the percentage of children with private insurance. Second, spending growth per capita was higher for private insurance than for Medicaid. And third, the areas of high per capita spending growth differed for private insurance (inpatient services) and Medicaid (home health care).

The trends in private insurance versus Medicaid enrollment are consistent with other data, and may be the results of

job losses during the recession leading to a decline in employer-sponsored insurance, less availability and affordability of private insurance options, and reliance on the safety net provided by public insurance options including Medicaid and CHIP.¹⁴⁻¹⁶ There is also some evidence to suggest that Medicaid expansions under the Affordable Care Act led to gains in public coverage for children, possibly due to increasing eligibility and a shift in pediatric patients from private to public insurance.^{17,18}

Spending growth can be driven by increases in prices or increases in utilization. These data do not tell us which is contributing to the growth, but other investigations have pointed to price increases as a driving force of growth in pediatric private insurance spending.^{19,20} Meanwhile, providers of Medicaid generally have less ability to increase prices for Medicaid, as Medicaid provider reimbursement rates are set by the state,²¹ possibly explaining the lesser growth in spending for Medicaid compared to private insurance. Medicaid provider reimbursement rates are also generally lower than Medicare and private insurance provider reimbursement rates, further contributing to the divergence in trends.^{22,23}

The services contributing most to spending growth also differed between private insurance and Medicaid. During our study period the growth of spending on hospital care was higher for private insurance than for Medicaid. In fact, if we isolate the data from 2008 through 2014, per capita Medicaid hospital spending *decreased*, while per capita private insurance hospital spending *increased* (Figure 1). Children with Medicaid have lower incomes and are more likely than privately insured children to be less healthy, have a chronic health condition, visit the emergency department, and have higher rates of more intensive health service utilization.²⁴ It is also possible that the overall prevalence of children with chronic conditions has increased, leading to greater utilization of services covered by both private insurance and Medicaid.²⁵ Given these considerations, it is not clear why total hospital spending did not increase at a greater rate for Medicaid than for private insurance. It is possible that that cost containment strategies within Medicaid, such as reimbursement reductions, utilization management techniques, outpatient coordination of care, and other initiatives, have been relatively successful compared to similar approaches in private insurance. Another possibility is cost-shifting, or the phenomenon where private payments increase in response to lower public (Medicaid) payments,²⁶ which would explain why growth in private insurance spending surpassed growth in Medicaid spending for services such as hospital care. Conversely, the cost-shifting could be a result of price increases related to market dynamics. Increased costs in the private sector may have occurred in the setting of flat or decreased per capita utilization rates to compensate for rising healthcare costs. Either form of cost-shifting may also partially explain why private insurance also experienced higher per capita spending growth in physician and clinical services

compared with Medicaid. At the beginning of the study period, per capita spending on these services was higher for Medicaid, but by end of the study period, per capita spending in these services was higher for private insurance. There is some research, however, that suggests the ability of hospitals to shift costs is limited.^{26,27}

The divergence in trends between Medicaid and private insurance spending in home health care and nursing facility care was also notable. It has long been known that children with Medicaid who use home health services often suffer from more chronic conditions compared to children with employer-sponsored insurance.²⁴ Many private insurance plans do not even cover home health care or impose monetary or visit caps and limits on such services.²⁸ We found that total and per capita private insurance spending on home health care and nursing facility care increased minimally or even declined during the study period, while total and per capita Medicaid spending experienced substantial growth for the same services. Given the potential increased enrollment of children with chronic illness into Medicaid,³ it may be that children with home health care needs have disproportionately transitioned from private insurance to Medicaid, which covers home health services for eligible individuals through the Early and Periodic Screening, Diagnostic, and Treatment provision, as well as through optional state programs like Home and Community Based Waivers and Katie Beckett Programs.²⁹ It may also be that private coverage of home health care, which was already low, has been reduced further in response to pressures to reduce spending. An alternative possibility is that children whose families were previously covered by private insurance have spent down their resources, necessitating a shift to Medicaid coverage. Nursing facility care spending also grew more for Medicaid than for private insurance payers, suggesting that Medicaid is taking increasing responsibility for the long-term care needs of children over time.

It is important to note this study's limitations. First, the NHEA data published by CMS represent aggregated national data from a variety of sources, since there is no single comprehensive source of health care spending data by age and gender.⁶ This means our analysis does not account for state variation in Medicaid and private insurance coverage patterns and payments. The NHEA data also does not include individual-level patient data or a breakdown of populations within pediatrics (e.g. newborns and infants), so we cannot compare demographics or clinical characteristics between private insurance and Medicaid enrollees. This is particularly notable because other data suggest inpatient newborn costs are rising and continue to be the largest inpatient driver of healthcare spending for children.³⁰ Additionally, the lack of separate CHIP data limits our ability to fully explain the study's findings, as CHIP is a large source of public insurance for children. CHIP and Medicaid eligibility are closely linked in some states, and changes in enrollment and expenditures in one may affect the other. NHEA data also excludes spending

for uninsured children, limiting our analysis, as there is evidence to suggest that uninsured children have poorer outcomes compared to public and privately insured children.³¹

NHEA data does not take into account the number of pediatric patients with chronic conditions, patients who utilize more than 1 method of payment (eg, both Medicaid and private insurance), or whether patient insurance plans utilize a managed care or fee-for-service structure. Furthermore, the data does not account for other individual characteristics during the study period that might affect spending, like socioeconomic status, age distribution, and urbanicity of enrollees. Finally, NHEA data from beyond 2014 have not yet been made available. While we would have liked to include data from after 2014 in our analysis, especially to understand the effects of the Affordable Care Act, we do believe there is value in examining a time period that encompassed the great recession.

Notably, distinctions between Medicaid and private insurance and the interplay between these 2 coverage systems are not emphasized in discussion of strategies to manage health spending and promote value in children's health. A more nuanced view informed by such data may better inform policy. For example, control of hospital spending has been a policy priority in Medicaid. Our data show that low annual hospital per capita spending growth in Medicaid (1.99%) is occurring at the same time as large hospital per capita spending growth in private insurance (8.49%). Further investigation should examine the reasons for such differences. On the other hand, with home health, there is much more spending growth in Medicaid than private insurance. Indeed, there has even been litigation in 1 state, joined by the US Department of Justice, over private insurance attempts to deny home health coverage and pass costs to Medicaid.³² Health policy aiming to control increased home health care spending by Medicaid would be better informed by further investigation into the reasons behind the discrepancies in private insurance versus Medicaid home health spending growth.

In conclusion, these data highlight the needs for policy makers to separately examine spending growth in private insurance and Medicaid and for further research to determine why such differences in spending growth exist in order to better inform efforts to increase health care value. Thoughtful and targeted service and payer specific policies may be necessary to ensure that children receive the services they need across the continuum of care.

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Supplemental Material

Supplemental material for this article is available online.

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