Quality of Health Insurance Coverage and Access to Care for Children in Low-Income Families

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Abstract

IMPORTANCE—An increasing diversity of children's health coverage options under the US Patient Protection and Affordable Care Act, together with uncertainty regarding reauthorization of the Children's Health Insurance Program (CHIP) beyond 2017, merits renewed attention on the quality of these options for children.

OBJECTIVE—To compare health care access, quality, and cost outcomes by insurance type (Medicaid, CHIP, private, and uninsured) for children in households with low to moderate incomes.

DESIGN, SETTING, AND PARTICIPANTS—A repeated cross-sectional analysis was conducted using data from the 2003, 2007, and 2011–2012 US National Surveys of Children's Health, comprising 80 655 children 17 years or younger, weighted to 67 million children nationally, with household incomes between 100% and 300% of the federal poverty level. Multivariable logistic regression models compared caregiver-reported outcomes across insurance types. Analysis was conducted between July 14, 2014, and May 6, 2015.

EXPOSURES—Insurance type was ascertained using a caregiver-reported measure of insurance status and each household's poverty status (percentage of the federal poverty level).

MAIN OUTCOMES AND MEASURES—Caregiver-reported outcomes related to access to primary and specialty care, unmet needs, out-of-pocket costs, care coordination, and satisfaction with care.

RESULTS—Among the 80 655 children, 51 123 (57.3%) had private insurance, 11 853 (13.6%) had Medicaid, 9554 (18.4%) had CHIP, and 8125 (10.8%) were uninsured. In a multivariable logistic regression model (with results reported as adjusted probabilities [95% CIs]), children insured by Medicaid and CHIP were significantly more likely to receive a preventive medical (Medicaid, 88% [86%–89%]; $P < .01$; CHIP, 88% [87%–89%]; $P < .01$) and dental (Medicaid, 80% [78%–81%]; $P < .01$; CHIP, 77% [76%–79%]; $P < .01$) visits than were privately insured children (medical, 83% [82%–84%]; dental, 73% [72%–74%]). Children with all insurance types experienced challenges in access to specialty care, with caregivers of children insured by CHIP reporting the highest rates of difficulty accessing specialty care (28% [24%–32%]), problems obtaining a referral (23% [18%–29%]), and frustration obtaining health care services (26% [23%– 28%]). These challenges were also magnified for privately insured children with special health care needs, whose caregivers reported significantly greater problems accessing specialty care (29% [26%–33%]) and frustration obtaining health care services (36% [32%–41%]) than did caregivers of children insured by Medicaid, and a lower likelihood of insurance always meeting the child's needs (63% [60%–67%]) than children insured by Medicaid or CHIP. Caregivers of privately insured children were also significantly more likely to experience out-of-pocket costs (77% [75%– 78%]) than were caregivers of children insured by Medicaid (26% [23%–28%]; $P < .01$) or CHIP (38% [35%–40%]; $P < .01$).

CONCLUSIONS AND RELEVANCE—This examination of caregiver experiences across insurance types revealed important differences that can help guide future policymaking regarding coverage for families with low to moderate incomes.

Until the Patient Protection and Affordable Care Act (hereafter Affordable Care Act) was enacted in 2010, children in families with low to moderate incomes could receive subsidized health insurance through either Medicaid or the Children's Health Insurance Program (CHIP). The Affordable Care Act added a third option through the creation of qualified health plans (QHPs), which are sold on the federal and state exchanges and subsidized for individuals and families with incomes of up to 400% of the federal poverty level (FPL). This new insurance option for children in families with low to moderate incomes has stimulated a

debate regarding children's health insurance coverage. Some hypothesize that the QHPs, born from the commercial market, might eclipse the need for CHIP coverage although the Affordable Care Act maintained both options. A recent, short-term extension of CHIP funding by Congress through 2017 now prolongs this debate.[1]

The early experience with QHPs has been equivocal. While QHPs are required to include a package of essential health benefits, including pediatric benefits, these benefits are not defined consistently across states.[2] In addition, the QHPs reflect benefit and cost-sharing standards in the private market. Despite the Affordable Care Act's cost-sharing subsidies, families in the private market have experienced higher costs compared with families with CHIP coverage.[3–8] Children enrolled in Medicaid and CHIP also are reported to have more comprehensive benefit packages than privately insured children, which is especially so for children enrolled in Medicaid, while access to dental, vision, and developmental services is mandatory for children under the Medicaid Early and Periodic Screening, Diagnostic, and Treatment program, it is not required in stand-alone CHIP plans.[9] However, lower reimbursement rates in Medicaid have been linked to reduced access to health care providers, particularly for specialty services in pediatrics, compared with private insurance. [10–12] Finally, private insurance can subject families to greater out-of-pocket costs than public insurance[10,13]; while cost-sharing is allowed in CHIP and Medicaid, family contributions to costs cannot exceed 5% of income.[14,15]

In the midst of uncertainty about the future of children's health insurance coverage, we must better understand coverage quality and associated access to care for children in families with low to moderate incomes. Such data are crucial as nearly 40% of children in the United States lived in households with incomes between 100% and 300% of the FPL by 2013.[16] Few studies have explored differences in quality of care for demographically similar families with coverage via CHIP vs Medicaid[10,13,17–20]; therefore, differences in comprehensiveness and quality between these 2 publicly financed programs require clarity. We analyzed the National Surveys of Children's Health (NSCH) from 2003, 2007, and 2011–2012 to provide a comprehensive comparison by insurance coverage type of caregiver-reported experiences with care for children in families with low to moderate incomes.

Methods

Design and Participants

We conducted a repeated cross-sectional analysis using public- and restricted-use data from the 2003, 2007, and 2011–2012 NSCH surveys.[21] Analysis was conducted between July 14, 2014, and May 6, 2015. The NSCH is a nationally representative, telephone-based survey conducted by the National Center for Health Statistics (the 2003 and 2007 surveys were landline-based samples; the 2011–2012 survey included a cellular telephone subsample). The NSCH included questions about children's health status, access to and use of health care, insurance status, demographics, and household information, including household educational level, household income, and family structure. A knowledgeable adult, typically a parent, provided information about the sampled children. Analysis of deidentified data from the survey is exempt from federal regulations for the protection of human research participants.

The analysis focused on families with incomes between 100% and 300% of the FPL because within this income segment, children could qualify for either Medicaid or CHIP depending on their state's eligibility thresholds.[22] Children from Vermont were excluded owing to special eligibility rules that made determination of public coverage type difficult. Children from Tennessee were excluded owing to unavailable Medicaid-to-Medicare fee index data. Children with functional limitations were excluded because they were more likely to have non–income-based eligibility for Medicaid (eg, disability), making classification of public insurance type difficult. Subgroup analyses were performed among young children (aged 5 years) and children with special health care needs; these analyses provide additional context regarding the experience of groups likely to have greater needs for health care services.

Classification of Insurance Status

Using caregiver-reported measures of current insurance status from the NSCH, children were classified as uninsured, publicly insured, or privately insured. The NSCH does not separately ascertain enrollment in Medicaid vs CHIP. Thus, to disaggregate children likely to be enrolled in Medicaid vs CHIP, we obtained restricted income and household size data through an agreement with the National Center for Health Statistics Research Data Center. Using these data, we calculated each household's poverty status as a percentage of FPL. We then linked that poverty status to the public insurance income eligibility thresholds relevant to the child's state and age group within the given survey year, using eligibility information from the Kaiser Family Foundation.[23–25] To examine possible misclassification of coverage type, we compared our state-level, NSCH-derived enrollment estimates with administrative enrollment data from the Centers for Medicare & Medicaid Services for each year.[19,26] Estimates of Medicaid enrollment were consistently lower than rates reported by the Centers for Medicare & Medicaid Services, consistent with prior research.[27] However, we obtained high correlation coefficients between simulated and actual enrollment totals across states and time within programs (Medicaid, 0.90; CHIP, 0.98). Uninsured children were included in the analyses as a reference point with which to interpret the level of access and use of health care services experienced by insured children.

By including data across 3 years of NSCH surveys, we sought to exploit differences within and across states in income-based eligibility requirements over time. Many states changed these requirements between 2003 and 2012. For example, a 7-year-old child in Missouri with a household income of 175% of the FPL would have been eligible for Medicaid in 2003 but by 2007 would instead have been eligible for CHIP. A similar child in Arizona would have qualified for CHIP in 2007 but would not have been eligible for any public insurance after the state froze CHIP enrollment in 2010.[7]

Outcomes

We assessed the following family-reported outcomes: access to and use of primary and specialty care, unmet health care needs, out-of-pocket costs, care coordination, and satisfaction with care. Measures of access to and use of care included receipt of a preventive medical and dental visit within the last 12 months, having a personal physician or nurse, and having a usual source of health care (excluding multiple health care providers or emergency department visits). Specialty care outcomes, including caregiver-reported problems, seeing a

specialist, or obtaining a referral in the last 12 months, were assessed for children who required these services. Unmet health care needs included any unmet medical or dental needs. Caregiver-reported measures of satisfaction with care included whether the child's insurance always met his or her needs, whether the insurance always allowed the child to see necessary health care providers, and whether the caregiver was ever frustrated in obtaining health care services for the child. The out-of-pocket cost measure included the presence of any out-of-pocket costs (not including health insurance premiums). We also included derived measures of whether the child received effective care coordination (inclusive of care coordination and communication across healthcare providers) and family-centered care (caregiver reported a trusting, collaborative, working partnership with child's health care providers during a recent visit).[28,29] For more information on outcome measures, see the eAppendix in the Supplement.

Statistical Analysis

Multivariable logistic regression models compared child-level outcomes across insurance types. All models adjusted for calendar year, income strata (100%–150%, >150%–200%, and >200%–300% of the FPL), child-level demographic and household characteristics (age, sex, race/ethnicity, special health care needs, household educational level, family structure, and urbanicity as measured by residence in a metropolitan statistical area), and state-level characteristics (Medicaid-to-Medicare fee index, poverty rate, and unemployment rate). State-level characteristics were included to adjust for the generosity of public insurance and account for other state-specific economic factors that could affect the access environment. Within each income stratum there were children who were enrolled in Medicaid and CHIP, both within and across states. Subanalyses were conducted to examine outcomes stratified by income; these subanalyses included an interaction term between insurance type and income strata. A robust variance estimator accommodated the correlation due to clustering of children within states. Models were properly weighted to accommodate the complex survey design and nonresponse. Model estimates were used to generate predicted probabilities of each outcome by insurance type, standardized by child and state characteristics. Important differences were identified based on a combination of several criteria: statistically significant differences in odds ratio contrasts between Medicaid, CHIP, and private insurance ($P < .05$); clinically relevant differences across insurance types in the adjusted marginal probabilities of the outcome; and consistency in results across outcome domains to mitigate the problem of multiple comparisons. All analyses were performed in Stata, version 13 (StataCorp), including the svy suite of commands.

Results

The study sample was 80 655 children, weighted to 67 million children nationally. Among the 80 655 children, 51 123 (57.3%) had private insurance, 11 853 (13.6%) had Medicaid, 9554 (18.4%) had CHIP, and 8125 (10.8%) were uninsured. Privately insured children were more likely than other children to be white, come from 2-parent households, and come from households where a caregiver's educational level was higher than high school (Table 1). Medicaid-insured children were younger, on average, and publicly insured children were more likely to have special health care needs than other children.

Predicted probabilities of outcomes by insurance type, standardized by child and state characteristics, are presented in Table 2. For ease of interpretation, these predicted probabilities are described as predicted percentages below. Results stratified by FPL are presented in eTables 1 through 9 in the Supplement.

Standardized Estimates of Preventive and Specialty Care

In a multivariable logistic regression model (with results reported as adjusted probabilities [95% CIs]), 88% (86%–89%) of children insured by Medicaid and 88% (87%–89%) of those insured by CHIP had a preventive medical visit compared with 83% (82%–84%) of privately insured children ($P < .001$ for both contrasts). In addition, publicly insured children were more likely than privately insured children to receive a preventive dental visit: 80% (78%–81%) of children insured by Medicaid and 77% (76%–79%) of those insured by CHIP had such a visit compared with 73% (72%–74%) of privately insured children ($P < .001$ and $P = .001$, respectively). Uninsured children were substantially less likely than insured children to receive preventive care visits, have a personal physician or nurse, or have a usual source of care ($P < .001$ for all contrasts).

In contrast to preventive care, children with all insurance types experienced challenges in specialty care access, but those insured by CHIP had more difficulty accessing specialty care than did privately insured children. For example, 15% (13%–18%) of privately insured children and 18% (14%–23%) of Medicaid-insured children had difficulty obtaining a referral when needed compared with 23% (18%–29%) of those insured by CHIP ($P = .01$ and $P = .11$, respectively). Similarly, across all insurance types, more than 1 in 5 families needing specialty care had difficulty obtaining access, with children insured by CHIP having modestly higher rates of difficulty (28% [24%–32%]) compared with children enrolled in Medicaid ($P = .06$) and private insurance ($P = .03$).

Standardized Estimates of Perception of Unmet Needs

Unmet medical and dental needs were uncommon for insured children: only 2% (2%–2%) of privately insured children, 2% (2%–3%) of those insured by Medicaid, and 3% (3%–4%) of those insured by CHIP had unmet medical needs compared with 10% (8%–12%) of uninsured children ($P < .001$ for all 3 contrasts). This pattern was similar for unmet dental needs. However, children insured by Medicaid and CHIP were more likely to have insurance that always met their needs (Medicaid, 78% [76%–80%]; CHIP, 78% [75%–80%]) than were privately insured children (73% [72%–75%]) ($P = .002$ and $P = .004$, respectively). The caregivers of more than 80% of children across all insurance types reported satisfaction with the ability to see needed health care providers (Medicaid, 82% [80%–84%]; CHIP, 84% [82%–86%]; and private insurance, 83% [82%–84%]).

Standardized Estimates of Care Coordination, Satisfaction With Care, and Out-of-Pocket Costs

Twenty percent (17%–23%) of caregivers of children enrolled in Medicaid reported frustration obtaining health care services compared with 23% (21%–24%) for privately insured children and 26% (23%–28%) for those insured by CHIP. Respondents insured by CHIP were significantly more likely to report such frustration than those with Medicaid

plans (P = .004). Approximately 70% of insured respondents received care coordination when needed across all plan types (Medicaid, 72% [68%–75%]; CHIP, 68% [65%–72%]; and private insurance, 70% [68%–72%]) compared with less than half (47% [41%–53%]) of uninsured respondents (P < .001 for all 3 contrasts). A similar pattern was found for receipt of family-centered care. In contrast, caregivers of privately insured children had the highest prevalence of out-of-pocket costs (77% [75%–78%]) compared with caregivers of children insured by Medicaid (26% [23%–28%]; P < .001) and CHIP (38% [35%–40%]; P < .001).

Young Children and Children With Special Health Care Needs

The analysis of children with special health care needs revealed additional challenges for privately insured children (Table 3). For example, 29% (26%–33%) of caregivers of privately insured children reported a problem accessing a specialist compared with caregivers of children insured by CHIP (25% [20%–31%]; P = .25) and Medicaid (20% [15%–25%]; P = .007). In addition, only 63% (60%–67%) of respondents with privately insured children reported that their insurance always met their needs, well below that observed in CHIP (73% [68%–77%]; P = .006) and Medicaid (76% [71%–81%]; P < .001). Thirty-six percent (32%–41%) of respondents with privately insured children expressed frustration obtaining health care services compared with 28% (21%–34%) of those insured by Medicaid (P = .05). Finally, caregivers of privately insured children were most likely to experience out-of-pocket costs (80% [78%–83%]) compared with caregivers of children insured by CHIP (40% [35%–46%]; P < .001) and Medicaid (23% [18%–27%]; P < .001).

In contrast, caregivers of younger children (aged 5 years) reported access challenges for specialty care that were similar to the aggregate responses reported above, with an exception: caregivers of younger children with both private insurance (18% [13%–22%]; P = .01) and CHIP (19% [12%–26%]; P = .01) reported greater problems obtaining referrals than did those insured by Medicaid (9% [5%–13%]) (Table 4). In addition, less than half of children aged 5 years or younger with private insurance received a preventive dental visit (48% [46%–50%]) compared with those insured by Medicaid (56% [52%–59%]; P = .001) and CHIP (60% [56%–64%]; P < .001). Caregivers of privately insured children (21% [19%–24%]; P = .05) and those with children insured by CHIP (27% [22%–32%]; P = .001) had higher rates of frustration obtaining health care services than did those with children insured by Medicaid (16% [13%–20%]). Similar to other families, caregivers with young children experienced the highest likelihood of out-of-pocket costs with private insurance (71% [68%–74%]) compared with children insured by CHIP (27% [22%–32%]; P < .001) and Medicaid (21% [17%–25%]; P < .001).

Discussion

This study examined the experiences with health insurance coverage for families with incomes between 100% and 300% of the FPL and found consistently high levels of preventive care receipt for all insured children. However, preventive medical and dental visits were more prevalent for children insured by Medicaid and CHIP than for privately insured children. These findings are consistent with other published studies and demonstrate reassuringly high rates of access to dental care for children insured by Medicaid and CHIP.

[10,13,17,18] However, as many as 1 in 4 caregivers reported difficulty accessing specialty care and frustration obtaining health care services, with some evidence of greater difficulty among those enrolled in CHIP. In addition, nearly one-third of caregivers of privately insured children with special health care needs reported such challenges. This finding is consistent with a recent study of children with special health care needs that found greater adequacy of coverage in public insurance than in private insurance.[31] Finally, caregivers of privately insured children were substantially more likely to experience out-of-pocket costs than were those with children insured by Medicaid or CHIP, with the lowest likelihood of out-of-pocket costs being for those covered by Medicaid.

The implications of our findings are best considered within the shifting landscape of children's insurance coverage. Under the Affordable Care Act, QHPs are expanding the availability of private insurance for families with low incomes, but the early experiences with QHPs have been mixed. First, QHPs are required to include 10 essential health benefits. However, a recent review of state bench-mark plans (on which QHPs are based) revealed that no plan included a definition of pediatric services, one of the required benefits.[2] Second, cost sharing has been found to be higher in QHPs, mirroring trends in the private insurance market.[5] Third, new practices in the private market (specifically, tiering of provider networks) are a concern in QHPs. These practices could adversely affect specialty access in pediatrics due to unique shortages of specialty health care providers and concentrations of such providers in children's hospital networks.[2,8]

Our findings provide empirical data for the ongoing debate about subsidized coverage for children. The high reported rates of preventive care receipt and perception of Medicaid and CHIP coverage meeting children's needs, together with concerns about limited access and increased cost sharing in private plans, might caution against calls for expanded private (ie, QHP) coverage for children and substantiate advocacy for extending CHIP coverage beyond 2017. However, this study uncovered some challenges in access to services and specialty care for both children with CHIP coverage and privately insured children with special health care needs. Although the etiology of these challenges is not well understood, these findings suggest that Medicaid might serve children in families with low to moderate incomes better than other coverage types.

Nonetheless, strengthened insurance exchanges could provide an option for families with low to moderate incomes to purchase coverage. The goal would be the creation of a continuum of family coverage, from Medicaid plans to QHPs, but concerns about access to specialty care, affordable dental coverage, and cost sharing would require attention. One way to ensure the comprehensiveness of coverage currently available in states' Medicaid programs would be to require QHPs to match those programs' benefit and cost-sharing provisions. Finally, creating protections in the QHP market by limiting tiering of regionally scarce specialty pediatric health care providers could curtail the concerns about access to specialty care reported for children with special health care needs in this study.

We acknowledge the following limitations. First, the survey reported point-in-time insurance measures coupled with income and coverage quality measures from the prior 12 months. It is possible that coverage and eligibility at the time of the survey was not reflective of

families' experiences throughout the year. Second, there was potential for misclassification of insurance type. We attempted to minimize misclassification by excluding children with functional limitations, whose Medicaid eligibility might have been based on disabilities. In addition, while our methods for classifying children into Medicaid and CHIP coverage have not been externally validated, we were reassured that the correlations between our NSCH-derived enrollment estimates for CHIP and Medicaid and administrative estimates across states and time were very high. Nevertheless, the extent to which some children's insurance type was misclassified might have biased results toward the null. Third, the amount of out-of-pocket expenses would have been preferable to the binary variable for any out-of-pocket costs used in our analysis. Others have reported much higher out-of-pocket expenses among families with private insurance vs CHIP coverage.[7] Fourth, while we adjusted for state-by-state differences in Medicaid payments and poverty, we acknowledge that there might have been systematic unmeasured differences across states (eg, strength of the safety net) that could limit the generalizability of our national estimates and overstate the influence of insurance type on access to health care within some geographic areas.

Conclusions

The findings of this study reveal important differences between insurance coverage options for families with low to moderate incomes in preventive care, access to specialty care, and cost sharing. Ongoing evaluation is needed to ensure that policy decisions are responsive to these differences so that historical strides made in pediatric health coverage do not recede.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

Funding/Support:

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At a Glance

- Data from the National Survey of Children's Health were used to derive public insurance eligibility status and compare access to and use of health care across 4 insurance coverage types (Medicaid, the Children's Health Insurance Program [CHIP], private insurance, and uninsured) for children in households with low to moderate incomes.

- Children insured by Medicaid or CHIP experienced greater access to preventive medical (Medicaid and CHIP, 88%) and dental (Medicaid, 80%; CHIP, 77%) care than did privately insured children (medical, 83%; dental, 73%).

- Children with all types of insurance experienced challenges in accessing specialty care, with as many as 1 in 4 children having difficulty seeing a specialist; however, these challenges were amplified for children insured by CHIP (28%) and for privately insured children with special health care needs (29%).

- Caregivers of privately insured children were much more likely to experience out-of-pocket costs (77%) than were caregivers of children insured by Medicaid (26%) or CHIP (38%).

Table 1.

Demographic and Household Characteristics of Children From the National Survey of Children's Health[a]

Characteristic	Unweighted No. (Weighted %)[b]			
	Uninsured (n = 8125)	Medicaid (n = 11853)	CHIP (n = 9554)	Private Insurance (n = 51123)
Age, y				
5	2143 (27.6)	5602 (53.8)	2731 (27.0)	15 811 (31.5)
6–11	2598 (32.8)	3197 (24.0)	3529 (38.2)	16 239 (33.1)
12–17	3384 (39.6)	3054 (22.2)	3294 (34.7)	19 073 (35.4)
Female sex	3856 (46.2)	5893 (50.0)	4622 (49.1)	24 924 (49.1)
Race/ethnicity				
White	4589 (44.1)	5592 (44.0)	5089 (39.6)	37 348 (65.7)
Black	644 (13.6)	2098 (21.3)	1606 (19.7)	3884 (11.0)
Hispanic	2136 (36.4)	2628 (25.1)	2051 (33.0)	5483 (15.1)
Other	756 (5.9)	1535 (9.6)	808 (7.7)	4408 (8.2)
Special heath care needs	824 (9.8)	2139 (17.0)	1967 (17.5)	7399 (14.3)
Household educational level[c]				
Less than high school	890 (13.9)	1244 (12.9)	894 (13.6)	1292 (3.5)
High school	2484 (36.2)	4012 (38.5)	3058 (38.4)	9862 (24.3)
More than high school	4751 (49.9)	6597 (48.6)	5602 (47.9)	39 969 (72.2)
Household income				
>100% to 150% of FPL	2615 (38.3)	8407 (77.7)	3516 (39.0)	6697 (15.9)
>150% to 200% of FPL	2390 (29.2)	2757 (19.0)	4404 (43.9)	11 702 (24.2)
>200% to 300% of FPL	3120 (32.5)	689 (3.3)	1634 (17.1)	32724 (59.8)
Family structure				
Two parent-biological or adopted	5206 (63.3)	5917 (51.9)	4689 (52.5)	36 263 (69.8)
Two parent-stepparent	745 (10.2)	1000 (9.1)	981 (10.7)	4106 (9.4)
Single mother-no father present	1584 (20.2)	3809 (31.3)	2802 (27.4)	8482 (16.4)
Other	590 (6.3)	1127 (7.7)	1082 (9.3)	2272 (4.4)

Characteristic	Unweighted No. (Weighted %)[b]			
	Uninsured (n = 8125)	Medicaid (n = 11853)	CHIP (n = 9554)	Private Insurance (n = 51123)
Resides in an MSA [d]	5265 (80.2)	7822 (74.7)	6536 (83.1)	34111 (78.5)

Abbreviations: CHIP, Children's Health Insurance Program; FPL, federal poverty level; MSA, metropolitan statistical area.

[a] Includes all children surveyed in the National Surveys of Children's Health in 2003, 2007, and 2011–2012 for whom insurance type could be reliably classified and who were eligible for the study (ie, between 100% and 300% of the FPL and did not have functional limitations).

[b] Percentages are weighted to represent the population of noninstitutionalized children 17 years and younger in 48 states and the District of Columbia.

[c] Highest educational level achieved by any member of the household.

[d] Measure of urbanicity.

Table 2.

Adjusted Probability of Outcomes for Entire Cohort[a]

Outcome	Adjusted Probability (95% CI)			
	Uninsured	Medicaid	CHIP	Private Insurance
Preventive and specialty care				
Reported receiving ≥1 preventive medical visit	0.67 (0.65–0.69)	0.88 (0.86–0.89)[b]	0.88 (0.87–0.89)[b]	0.83 (0.82–0.84)
Reported having a personal physician or nurse	0.73 (0.70–0.75)	0.89 (0.88–0.90)	0.89 (0.88–0.91)	0.89 (0.89–0.90)
Reported receiving ≥1 preventive dental visit[c]	0.54 (0.52–0.57)	0.80 (0.78–0.81)[b]	0.77 (0.76–0.79)[b]	0.73 (0.72–0.74)
Reported having a usual source of health care[d]	0.80 (0.78–0.83)	0.93 (0.92–0.95)	0.94 (0.93–0.95)	0.94 (0.93–0.95)
Reported a problem seeing a specialist[e]	0.33 (0.25–0.40)	0.23 (0.19–0.26)	0.28 (0.24–0.32)[f]	0.22 (0.20–0.24)
Reported a problem obtaining a referral[d,e]	0.27 (0.16–0.37)	0.18 (0.14–0.23)	0.23 (0.18–0.29)[f]	0.15 (0.13–0.18)
Unmet health care needs				
Reported an unmet medical need	0.10 (0.08–0.12)	0.02 (0.02–0.03)[g]	0.03 (0.03–0.04)[b]	0.02 (0.02–0.02)
Reported an unmet dental need[c]	0.12 (0.10–0.13)	0.04 (0.03–0.04)[g]	0.05 (0.04–0.06)	0.04 (0.04–0.05)
Reported insurance always meets child's health care needs[d]	NA	0.78 (0.76–0.80)[b]	0.78 (0.75–0.80)[b]	0.73 (0.72–0.75)
Reported insurance always allows child to see needed health care providers[d]	NA	0.82 (0.80–0.84)	0.84 (0.82–0.86)	0.83 (0.82–0.84)
Care coordination, satisfaction, and out-of-pocket costs				
Reported frustration obtaining health care services[h]	0.61 (0.56–0.66)	0.20 (0.17–0.23)[i]	0.26 (0.23–0.28)	0.23 (0.21–0.24)
Received effective care coordination when needed[d,e]	0.47 (0.41–0.53)	0.72 (0.68–0.75)	0.68 (0.65–0.72)	0.70 (0.68–0.72)
Received family-centered care[d]	0.49 (0.45–0.53)	0.67 (0.64–0.69)	0.66 (0.64–0.69)	0.66 (0.65–0.68)
Reported out-of-pocket costs for child's health care[d,j]	NA	0.26 (0.23–0.28)[b,i]	0.38 (0.35–0.40)[b]	0.77 (0.75–0.78)[b]

Abbreviations: CHIP, Children's Health Insurance Program; NA, not applicable.

[a]Derived from National Survey of Children's Health data from 2003, 2007, and 2011–2012. Predicted probabilities were estimated from a logistic regression model with a robust variance estimator. All models adjusted for calendar year, child-level demographic and household characteristics (age, sex, race/ethnicity, special health care needs, household income, household educational level, family structure, urbanicity as measured by metropolitan statistical area), and state-level characteristics (Medicaid-to-Medicare fee index, poverty rate, and unemployment rate). Estimates were weighted to represent the population of noninstitutionalized children 17 years and younger in 48 states and the District of Columbia.[30]

[b]Significantly different from private insurance; $P < .01$.

[c]Models for dental health outcomes excluded children younger than 1 year.

[d]These questions were asked only in the 2007 and 2011–2012 National Surveys of Children's Health.

[e]These questions were asked only for the subset of children who needed the service (ie, needed to see a specialist, needed a referral, or needed care coordination).

[f]Significantly different from private insurance; $P < .05$.

[g]Significantly different from CHIP; $P < .05$.

[h]This question was asked only in the 2011 National Survey of Children's Health.

[i]Significantly different from CHIP; $P < .01$.

[j]Out-of-pocket costs do not include premiums or costs paid by insurance.

Table 3.

Adjusted Probability of Outcomes for Children With Special Health Care Needs[a]

Outcome	Adjusted Probability (95% CI)			
	Uninsured	Medicaid	CHIP	Private Insurance
Preventive and specialty care				
Reported receiving ≥1 preventive medical visit	0.76 (0.70–0.82)	0.92 (0.90–0.94)	0.91 (0.89–0.94)	0.90 (0.89–0.92)
Reported having a personal physician or nurse	0.80 (0.75–0.85)	0.93 (0.91–0.95)	0.93 (0.91–0.95)	0.94 (0.92–0.95)
Reported receiving ≥1 preventive dental visit[b]	0.63 (0.55–0.71)	0.86 (0.83–0.89)[c]	0.83 (0.80–0.86)	0.81 (0.78–0.83)
Reported having a usual source of health care[d]	0.84 (0.77–0.90)	0.97 (0.95–0.98)	0.94 (0.92–0.96)[c]	0.97 (0.96–0.98)
Reported a problem seeing a specialist[e]	0.53 (0.39–0.67)	0.20 (0.15–0.25)[f]	0.25 (0.20–0.31)	0.29 (0.26–0.33)
Reported a problem obtaining a referral[d,e]	0.49 (0.28–0.71)	0.20 (0.13–0.27)	0.22 (0.16–0.29)	0.20 (0.15–0.24)
Unmet health care needs				
Reported an unmet medical need	0.17 (0.12–0.23)	0.04 (0.02–0.06)	0.06 (0.04–0.07)[c]	0.03 (0.02–0.04)
Reported an unmet dental need[b]	0.17 (0.13–0.22)	0.05 (0.03–0.06)[g]	0.08 (0.05–0.10)	0.06 (0.05–0.08)
Reported insurance always meets child's health care needs[d]	NA	0.76 (0.71–0.81)[f]	0.73 (0.68–0.77)[f]	0.63 (0.60–0.67)
Reported insurance always allows child to see needed health care providers[d]	NA	0.81 (0.77–0.86)	0.77 (0.73–0.82)	0.76 (0.72–0.79)
Care coordination, satisfaction, and out-of-pocket costs				
Reported frustration obtaining health care services[h]	0.76 (0.65–0.88)	0.28 (0.21–0.34)[c]	0.33 (0.27–0.39)	0.36 (0.32–0.41)
Received effective care coordination when needed[d,e]	0.43 (0.29–0.57)	0.65 (0.59–0.72)	0.64 (0.58–0.70)	0.62 (0.58–0.66)
Received family-centered care[d]	0.48 (0.38–0.58)	0.74 (0.69–0.79)[g]	0.67 (0.62–0.72)	0.67 (0.64–0.71)
Reported out-of-pocket costs for child's health care[d,i]	NA	0.23 (0.18–0.27)[f,j]	0.40 (0.35–0.46)[f]	0.80 (0.78–0.83)

Abbreviations: CHIP, Children's Health Insurance Program; NA, not applicable.

[a] Derived from National Survey of Children's Health data from 2003, 2007, and 2011–2012. Predicted probabilities were estimated from a logistic regression model with a robust variance estimator. All models adjusted for calendar year, child-level demographic and household characteristics (age, sex, race/ethnicity, household income, household educational level, family structure, urbanicity as measured by metropolitan statistical area), and state-level characteristics (Medicaid-to-Medicare fee index, poverty rate, and unemployment rate). Estimates were weighted to represent the population of noninstitutionalized children 17 years and younger in 48 states and the District of Columbia.[30]

[b]Models for dental health outcomes excluded children younger than 1 year.

[c]Significantly different from private insurance; $P < .05$.

[d]These questions were asked only in the 2007 and 2011–2012 National Surveys of Children's Health.

[e]These questions were asked only for the subset of children who needed the service (ie, needed to see a specialist, needed a referral, or needed care coordination).

[f]Significantly different from private insurance; $P < .01$.

[g]Significantly different from CHIP; $P < .05$.

[h]This question was asked only in the 2011 National Survey of Children's Health.

[i]Out-of-pocket costs do not include premiums or costs paid by insurance.

[j]Significantly different from CHIP; $P < .01$.

Table 4.

Adjusted Probability of Outcomes for Children 5 Years and Younger[a]

Outcome	Adjusted Probability (95% CI)			
	Uninsured	Medicaid	CHIP	Private Insurance
Preventive and specialty care				
Reported receiving ≥1 preventive medical visit	0.80 (0.76–0.83)	0.94 (0.93–0.95)	0.94 (0.93–0.96)	0.93 (0.92–0.94)
Reported having a personal physician or nurse	0.79 (0.75–0.82)	0.90 (0.88–0.92)	0.91 (0.89–0.93)	0.91 (0.89–0.92)
Reported receiving ≥1 preventive dental visit[b]	0.35 (0.30–0.39)	0.56 (0.52–0.59)[c]	0.60 (0.56–0.64)[c]	0.48 (0.46–0.50)
Reported having a usual source of health care[d]	0.87 (0.83–0.91)	0.93 (0.91–0.95)[e]	0.96 (0.95–0.98)	0.94 (0.93–0.96)
Reported a problem seeing a specialist[f]	0.31 (0.16–0.47)	0.19 (0.14–0.24)[e]	0.29 (0.20–0.38)[g]	0.20 (0.17–0.23)
Reported a problem obtaining a referral[d,f]	0.31 (0.15–0.48)	0.09 (0.05–0.13)[e,g]	0.19 (0.12–0.26)	0.18 (0.13–0.22)
Unmet health care needs				
Reported an unmet medical need	0.08 (0.05–0.11)	0.02 (0.01–0.03)[e]	0.04 (0.02–0.06)	0.03 (0.02–0.04)
Reported an unmet dental need[b]	0.06 (0.04–0.08)	0.02 (0.01–0.03)	0.03 (0.02–0.04)	0.03 (0.02–0.03)
Reported insurance always meets child's health care needs[d]	NA	0.82 (0.78–0.85)	0.83 (0.79–0.87)[g]	0.78 (0.76–0.80)
Reported insurance always allows child to see needed health care providers[d]	NA	0.86 (0.82–0.89)	0.89 (0.87–0.92)	0.87 (0.85–0.89)
Care coordination, satisfaction, and out-of-pocket costs				
Reported frustration obtaining health care services[h]	0.57 (0.46–0.67)	0.16 (0.13–0.20)[g,i]	0.27 (0.22–0.32)	0.21 (0.19–0.24)
Received effective care coordination when needed[d,f]	0.55 (0.41–0.69)	0.74 (0.69–0.80)	0.65 (0.58–0.73)	0.71 (0.66–0.75)
Received family-centered care[d]	0.62 (0.55–0.70)	0.72 (0.68–0.75)	0.69 (0.65–0.74)	0.72 (0.70–0.75)
Reported out-of-pocket costs for child's health care[d,j]	NA	0.21 (0.17–0.25)[c,e]	0.27 (0.22–0.32)[c]	0.71 (0.68–0.74)

Abbreviations: CHIP, Children's Health Insurance Program; NA, not applicable.

[a] Derived from National Survey of Children's Health data from 2003, 2007, and 2011–2012. Predicted probabilities were estimated from a logistic regression model with a robust variance estimator. All models adjusted for calendar year, child-level demographic and household characteristics (age, sex, race/ethnicity, special health care needs, household income, household educational level, family structure, urbanicity as measured by metropolitan statistical area), and state-level characteristics (Medicaid-to-Medicare fee index, poverty rate, and unemployment rate). Estimates were weighted to represent the population of noninstitutionalized children 17 years and younger in 48 states and the District of Columbia.[30]

[b]Models for dental health outcomes excluded children younger than 1 year.

[c]Significantly different from private insurance; $P < .01$.

[d]These questions were asked only in the 2007 and 2011–2012 National Surveys of Children's Health.

[e]Significantly different from CHIP; $P < .05$.

[f]These questions were asked only for the subset of children who needed the service (ie, needed to see a specialist, needed a referral, or needed care coordination).

[g]Significantly different from private insurance; $P < .05$.

[h]This question was asked only in the 2011 National Survey of Children's Health.

[i]Significantly different from CHIP; $P < .01$.

[j]Out-of-pocket costs do not include premiums or costs paid by insurance.