

Utilization of Well-Child Care Among Medicaid-Enrolled Children

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The American Academy of Pediatrics (2008) recommends multiple well-visits per year for children less than three and an annual well-child visit for children ages 3-21. Despite these recommendations and the availability of coverage for well-child visits in Medicaid and many commercial insurance plans, several recent studies have documented underutilization of preventive care for children. In this issue brief, we estimate current rates of utilization for well-child care among Medicaid-enrolled children in nine states. Then, we evaluate how a child's personal and community characteristics impact the likelihood that they utilize well-child services.

Introduction

The Affordable Care Act has focused attention on insurance coverage for and access to preventive services. Through Medicaid's Early and Periodic Screening, Diagnostic, and Treatment (EPSDT) program, Medicaid children are entitled to medical screening services. Many of these screening services are typically provided as part of a well-child visit. The American Academy of Pediatrics (2008) recommends multiple well-visits per year for children less than three and an annual well-child visit for children ages 3-21.

Despite the recommendation of the American Academy of Pediatrics and the availability of coverage for well-child visits in Medicaid and many commercial insurance plans, several recent studies have documented underutilization of preventive care for children. Thompson et al. (2003) studied the quality of care for children in commercial and Medicaid managed care plans, and found that only 27 and 48 percent of Medicaid children less than 15 months and ages 3-6, respectively, received a well-child visit. Mangione-Smith et al. (2007) analyzed the quality of care provided to a random sample of children from 12 metropolitan areas and found that they had received only 41 percent of the indicated preventive care. The National Committee for Quality Assurance (NCQA, 2011) estimated the percentage

About This Series

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of Medicaid children enrolled in a Health Maintenance Organization (HMO) with a well-child visit in 2008 was 70 percent for children ages 3-6 and only 46 percent for adolescents ages 12-21. The NCQA analysis studied Medicaid children enrolled in HMOs. It did not include Medicaid children who receive services through fee-for-service (FFS) providers. Among commercially insured children ages 3-6, 70 and 64 percent enrolled in an HMO or Preferred Provider Organization (PPO), respectively, received a well-child visit (NCQA, 2011). Utilization of well-child visits was substantially lower for older children. Among children ages 12-21, 43 percent of commercial HMO and 36 percent of commercial PPO enrollees received a well-child visit (NCQA, 2011).

There are several reasons that Medicaid enrollees may have trouble accessing services or choose not to utilize covered services. First, according to the Health Resources and Services Administration (HRSA), 54.4 million people, or about 17 percent

of the population nationally, live in areas where there is a shortage of primary care providers (HRSA, 2012). These shortages are most pervasive in urban and rural areas, in contrast to suburban areas, which generally have a larger supply of providers. In addition, accessing treatment may be difficult for Medicaid enrollees because of financial, transportation, language, or other barriers. Medicaid enrollees may choose not to utilize covered well-child services because of time constraints, lack of knowledge about the value of the services, or lack of connection perhaps as a result of cultural differences with an available provider community.

This study analyzes utilization of well-child care services among Medicaid-enrolled children receiving care through FFS Medicaid in nine states (Alabama, Alaska, Arkansas, Illinois, Iowa, Louisiana, Mississippi, New Hampshire, and Oklahoma) and analyzes the features of each state that may influence the differences in utilization observed across the states.

Methods

The findings from this study are based on analysis of Mini-MAX 2008, which is a 5 percent sample of the Medicaid Analytic eXtract (MAX) files. MAX files are research-friendly Medicaid administrative files, including data from all 50 states and the District of Columbia. Mini-MAX was developed by the Centers for Medicare & Medicaid Services (CMS) to reduce the processing requirements for MAX data analyses. Mini-MAX is substantially smaller than MAX, since it is a sample and excludes infrequently used variables. Only claims data from the Mini-MAX other services (OT) file were used in this analysis. Inpatient, long-term care, and prescription drug claims were not included in this analysis.

MAX data have not historically included comprehensive utilization data for managed care enrollees. Thus, we excluded states with more than 10 percent enrollment of full-benefit children in managed care from our analysis. In addition, we identified well-child visits based on procedure and diagnosis codes. We thus excluded states with incomplete reporting of procedure and diagnosis codes from our analysis. These two exclusions resulted in nine analysis states. The states included and the study population are shown in Table 1. Illinois and Iowa had a small percentage of children enrolled in a comprehensive managed care plan. These children were excluded from our analysis, as were children who were dually enrolled in Medicare or had restricted benefits.

The enrollee characteristics used in our analysis were derived from the Mini-MAX person summary (PS) file. Date of birth was used to calculate age on December 31, 2008. Enrollees with Medicaid basis of eligibility reported as disabled in any month of 2008 were assigned to the disabled category. All others were assigned to the non-disabled category. The PS file includes indicators of Medicaid enrollment for each month of 2008. These indicators were used to count months of Medicaid enrollment for each enrollee and assign the enrollee to one of three length-of-enrollment categories. These categories are one to 6 months, 7 to 11 months, or a full year. A county of residence is identified in the Mini-MAX PS file for each Medicaid enrollee. Descriptive data on each enrollee's county of residence were obtained by linking the enrollee's Mini-MAX records to the Area Resource File (ARF) based on this county. ARF is a database of health-related county characteristics. The county characteristics reflect information about the county in which the enrollee resides, not characteristics of the individual enrollee.

In addition to state differences in Medicaid policy, characteristics of each state, such as the availability of primary care providers, the level of urbanicity, and the degree of racial/ethnic diversity, may result in differences in well-child visit utilization rates. Illinois had a large proportion of its Medicaid children in large metro areas (71 percent) in contrast to New Hampshire, where the population was concentrated in small metro areas (32 percent) or rural areas adjacent to metro areas (43 percent). The counties in New Hampshire in which the Medicaid-enrolled children resided were much less racially and ethnically diverse than those in Illinois. For example, all of the Medicaid enrolled children in New Hampshire were in counties where less than 15 percent of the population was foreign-born while 55 percent of Medicaid-enrolled children in Illinois were in counties where more than 15 percent of the population was foreign-born. None of the Medicaid enrolled children in New Hampshire were in a county where more than 10 percent of the population was Hispanic, whereas 56 percent of children in Illinois were in such a county.

Well-child visits were identified based on the procedure and diagnosis codes listed in the Initial Core Set of Children's Health Care Quality Measures (2011) developed by CMS for Medicaid and the Children's Health Insurance Program (CHIP) and listed in Table 2.

Table 1. Characteristics of Analysis Population

	Alabama	Alaska	Arkansas	Illinois	Iowa	Louisiana	Mississippi	New Hampshire	Oklahoma
Age¹									
Less than 3	21%	22%	18%	21%	22%	19%	23%	21%	22%
3 to 6	24%	23%	25%	24%	24%	23%	23%	24%	24%
7 to 11	27%	26%	28%	26%	26%	28%	26%	26%	27%
12 to 17	28%	29%	29%	28%	28%	31%	28%	29%	27%
Gender									
Male	54%	51%	54%	51%	55%	54%	54%	52%	53%
Female	46%	49%	46%	49%	45%	46%	46%	48%	47%
Basis of Eligibility									
Non-Disabled	72%	93%	78%	96%	77%	74%	77%	99%	86%
Disabled	28%	7%	22%	4%	23%	26%	23%	1%	14%
Length of Medicaid Enrollment (in Months)									
1 to 6	15%	25%	16%	15%	20%	11%	18%	20%	20%
7 to 11	20%	25%	22%	10%	18%	8%	19%	20%	20%
12	65%	50%	62%	76%	63%	81%	63%	60%	61%
Urbanicity									
Large metro area	21%	0%	3%	71%	0%	23%	5%	25%	31%
Small metro area	26%	50%	41%	8%	30%	26%	18%	32%	27%
Non-core adjacent to metro area or micropolitan area	52%	42%	53%	21%	68%	51%	73%	43%	41%
Non-core non-adjacent area	1%	9%	3%	0%	3%	1%	4%	0%	2%
Racial/Ethnic Diversity of County									
30% or More Black	47%	0%	36%	0%	0%	54%	66%	0%	0%
10% or More Hispanic	0%	0%	2%	56%	4%	0%	0%	0%	2%
15% or More Foreign-Born	0%	2%	0%	55%	0%	0%	0%	0%	1%
Number of Observations	17,819	8,823	19,731	50,136	10,398	23,281	15,803	7,959	19,114

¹ Age is defined as of December 31, 2008.

Table 2. Codes Used to Identify Well-Child Visits

CPT-4 ¹	ICD-9 ²
99381, 99382, 99383, 99384, 99385, 99391, 99392, 99393, 99394, 99395, 99432, 99461	V20.2, V20.3, V70.0, V70.3, V70.5, V70.6, V70.8, V70.9

¹ Current Procedural Terminology, 4th Edition.

² International Classification of Disease, 9th Revision.

Findings

In this section, we first provide descriptive statistics on utilization of well-child visits in the nine analysis states. We then report findings from the multivariate regression analysis which identifies factors that have a significant influence on the observed utilization rates.

Utilization of Well-Child Care

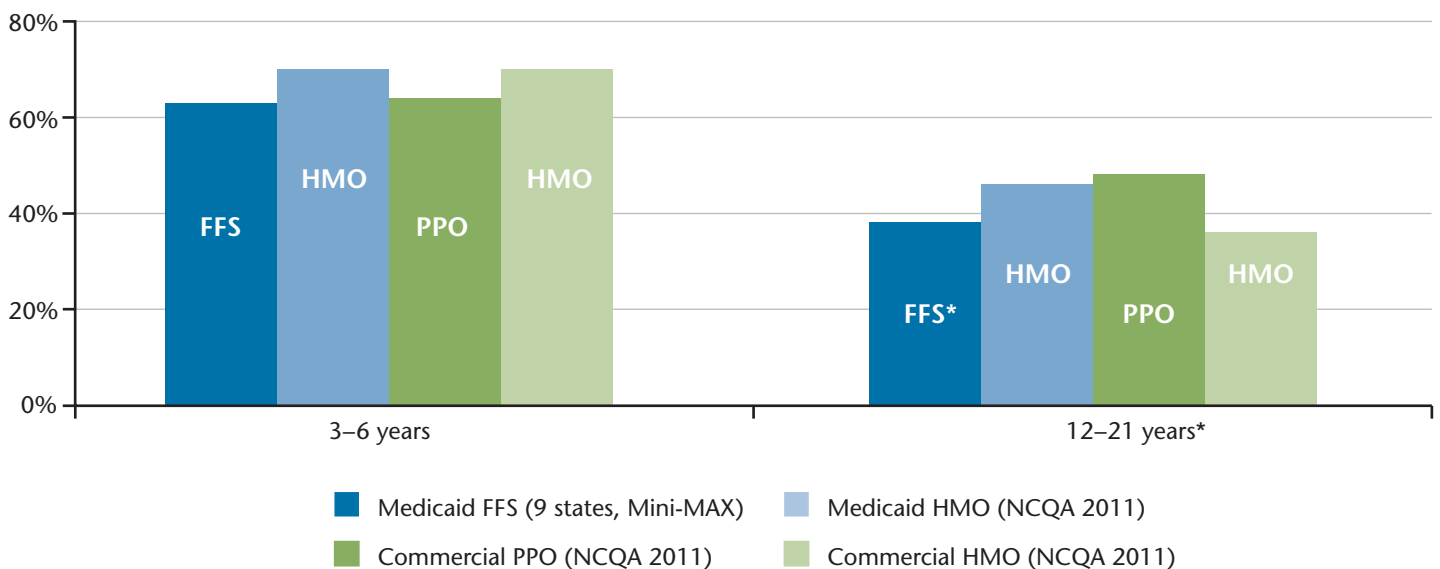
On average across all Medicaid-enrolled children in these nine states, the share of full-year enrolled children under 3 who received a well-child visit was 84 percent. The percentage receiving a well-child visit was lower for children age 3–6. On average across the nine FFS states, 63 percent of children age 3–6 received a well-child visit. Figure 1 compares this average for FFS Medicaid children age 3–6 to averages for children in the same age group, but different insurance types, developed by NCQA (2011). This FFS average is slightly below estimates developed by NCQA (2011) of 70 percent for Medicaid HMOs, 70 percent for commercial HMOs, and 64 percent for commercial Preferred Provider Organization (PPO) enrollees. Based on the NCQA estimates, HMO-enrolled children have a higher utilization rate for well-child visits compared to the commercial PPO and FFS Medicaid children. Thus, HMO structure and care management activities may encourage receipt of well-child visits.

Utilization of well-child visits for the FFS Medicaid population in this study was substantially lower for children age 7 or older relative to their younger counterparts. Among the older children, 34 and 38 percent of children age 7–11 and 12–17, respectively, in the nine FFS states received a well-child visit. Looking at a broader age range, these estimates can be compared to NCQA (2011) estimates for children in Medicaid HMOs and commercial health plans (Figure 1). These estimates indicate that among children age 12–21, 46 percent of Medicaid HMO, 43 percent of commercial HMO, and 36 percent of commercial PPO enrollees received a well-child visit. Again, the children enrolled in HMOs have a higher well-child visit utilization rate compared to those in FFS Medicaid or a commercial PPO. The FFS Medicaid children 12 and older from this study have a slightly higher average utilization rate than the commercial PPO enrollees aged 12–21.

Figure 2 displays the percentage of full-year enrolled children in each state that received a well-child visit in CY 2008. There was substantial variation in this rate across the states, with more than 90 percent of children under 3 receiving a well-child visit in Alabama, Iowa, and New Hampshire, while only 69 and 76 percent, respectively, received a well-child visit in Arkansas and Alaska.

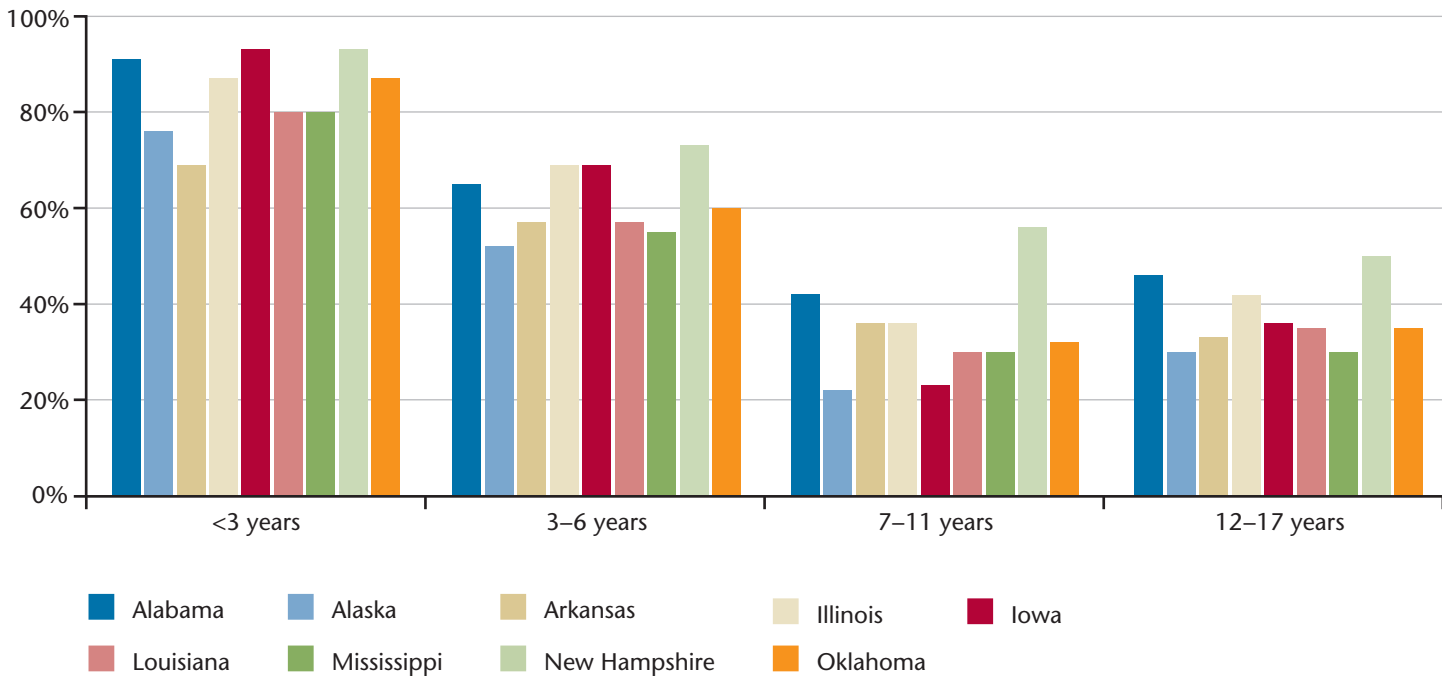
Among children ages 3–6, the rate of receipt varied across the states, from a low of 52 percent in Alaska to a high of 73 percent in New Hampshire. The FFS Medicaid children in

Figure 1. Percentage of Children Receiving a Well-Child Visit, CY 2008



* Medicaid FFS estimate from Mini-MAX only includes children through age 17.

Figure 2. Percentage of Full-Year FFS Enrolled Medicaid Children Receiving a Well-Child Visit, CY 2008



Alabama, Illinois, Iowa, and New Hampshire had rates of utilization similar to commercial percentages; however, the children in the other five states had lower utilization rates than the national percentages for commercially insured children.

Among children ages 7–11, rates of well-child visit utilization varied from a low of 22 percent in Alaska to a high of 56 percent in New Hampshire. Utilization rates for children 12–17 were slightly higher, ranging from a low of 30 percent in Alaska and Mississippi to a high of 50 percent in New Hampshire. The well-child visit rates for Medicaid HMO and commercial health plan enrollees are higher than those observed for the Medicaid-enrolled children in the FFS analysis states, with the exception of those in Alabama, Illinois, and New Hampshire.

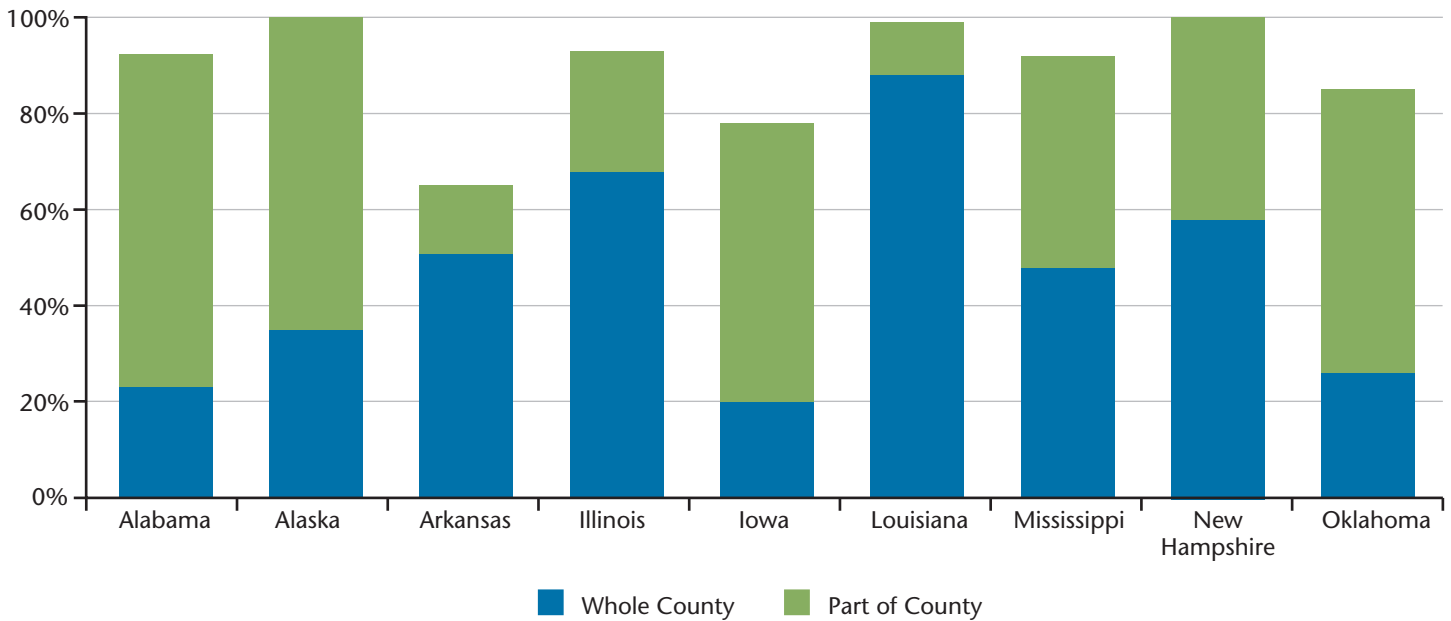
The availability of primary health care providers is a particularly important factor in accessing treatment. HRSA’s Bureau of Primary Health Care (BPHC) designates primary medical care professional shortage areas. These areas have (1) a full-time equivalent (FTE) primary care physician ratio of at least 3,500 residents to one primary care physician, or (2) an FTE primary care physician ratio of less than 3,500 residents to one physician but greater than 3,000 residents to one physician, and either an unusually high need for primary care physician services or insufficient capacity of primary care physician providers. In addition, primary care physicians in contiguous areas must be overutilized, excessively distant, or inaccessible to the population in the area. An entire county or some part of it may be designated as a primary care physician shortage area.

Based on county designations obtained from ARF, Figure 3 displays the proportion of Medicaid children in each state that live in a county fully or partially designated as a primary medical care professional shortage area. The majority of Medicaid enrollees in the nine states lived in a county in which the whole county or some part of the county was so designated. Louisiana (88 percent), followed by Illinois (68 percent) and New Hampshire (58 percent), had the highest percentage of Medicaid enrollees residing in counties where the whole county was designated as a primary medical care shortage area.

Factors Influencing Utilization

We used multivariate regression analysis to explore the factors that may have influenced these differences in utilization of well-child services holding other factors constant (Table 3). The dependent variable is receipt of a well-child visit. The regression controls for personal and demographic characteristics that may influence receipt of treatment. These variables were obtained from the MAX PS file. They include age, gender, basis of eligibility, length of Medicaid enrollment, and state. In addition, the logistical regression also controls for variables that indicate characteristics of the county in which the enrollee lives. Each enrollee’s county of residence is indicated in the MAX PS file. The county characteristics were developed based on the ARF. These variables include urbanicity, education, median household income, health insurance coverage rates, race/ethnicity, and supply of providers.

Figure 3. Percentage of Medicaid Enrollees Residing in a Primary Medical Care Professional Shortage Area, CY 2008



Odds ratios are used to interpret the results of the logistic regression. For an indicator variable the “odds ratio” compares the odds of receiving treatment for someone with the given characteristic relative to someone who does not have the characteristic. Thus, an odds ratio greater than one implies that the presence of the characteristic results in an increase in the odds of treatment receipt. In contrast, an odds ratio of less than one implies that an increase in the variable or the presence of the characteristic will decrease the odds of receiving treatment.

Looking at the personal characteristics of the Medicaid enrollee, females were more likely to receive treatment than their male counterparts, but the difference was small. As noted in the descriptive statistics, children less than age 3 were the most likely to receive treatment, followed by children ages 3–6. Children 12–17 were somewhat more likely to have a well-child visit than those 7–11. Not surprisingly, individuals enrolled in Medicaid for only part of the year were substantially less likely to receive treatment than individuals enrolled for the full year. There was no significant difference in utilization of well-child visit between children eligible for Medicaid based on disability and their counterparts who were eligible based on income.

The state indicator variables were intended to capture difference in the Medicaid program policies and administration across the states, but they may also capture variation in other features of the state, such as provider practice patterns that may not be fully captured by the other variables included in the

regression. Illinois was selected as the reference group because it had the largest number of enrollees. Children in Alabama, Iowa, and New Hampshire were more likely to receive a well-child visit than those in Illinois. Children in Alaska, Arkansas, Louisiana, Mississippi, and Oklahoma were less likely to receive a well-child visit than those in Illinois.

When county socioeconomic characteristics are considered, enrollees in a large urban area were the most likely to have a well-child visit. There were no other significant differences related to urbanicity. Children living in counties where 25 percent or more of residents did not have a high school diploma or equivalent were just as likely to have a well-child visit. Children residing in communities with a higher median household income (greater than \$65,000 per year) were nine percent more likely to receive a well-child visit than their counterparts in communities with median household income between \$50,000–\$64,999. Also in counties where more than 20 percent of residents under age 65 did not have health insurance, children were 8 percent less likely to receive a well-child visit.

When the racial/ethnic composition of the enrollee’s community was considered, the only significant difference identified was a slightly lower rate of utilization for children in counties with 2–14 percent foreign-born residents. Children residing in counties where the whole county or only part of the county was a primary medical care professional shortage area were equally likely to receive a well-child visit as their counterparts in counties with no shortage.

Table 3. Logistic Regression Results for Receipt of Well-Child Care

	Odds Ratio	95% Confidence Limits	
		Lower	Upper
Enrollee-Level Data			
Gender (reference group: male)			
Female	1.03*	1.01	1.06
Age (reference group: ages 7 to 11)			
Less than 3	13.20*	12.69	13.73
3 to 6	2.98*	2.89	3.07
12 to 17	1.16*	1.13	1.20
Basis of Eligibility (reference group: non-disabled)			
Disabled	0.98	0.95	1.01
Length of Medicaid Enrollment (reference group: 12 months)			
1 to 6 months of enrollment	0.22*	0.22	0.23
7 to 11 months of enrollment	0.64*	0.62	0.66
State of Enrollment (reference group: Illinois)			
Alabama	1.21*	1.14	1.27
Alaska	0.62*	0.56	0.70
Arkansas	0.80*	0.76	0.85
Iowa	1.17*	1.11	1.24
Louisiana	0.84*	0.78	0.91
Mississippi	0.66*	0.62	0.71
New Hampshire	1.49*	1.39	1.58
Oklahoma	0.90*	0.82	0.98
County-Level Data			
Urbanicity (reference group: small metro area)			
Large metro area	1.09*	1.05	1.14
Noncore adjacent to metro area or micropolitan area	1.04	1.00	1.08
Noncore non-adjacent area	0.94	0.85	1.04
Low Education (reference group = no)¹			
Yes	1.01	0.96	1.06
Median Household Income (reference group = \$50,000 - \$64,999)			
<\$35,000	0.99	0.93	1.06
\$35,000 - \$49,999	1.00	0.96	1.04
\$65,000+	1.09*	1.03	1.16
Percent under 65 without Health Insurance (reference group = <20%)			
20%+	0.92*	0.88	0.95
Percent Black (reference group = <15%)			
15% - 29.99%	1.03	0.99	1.08
30%+	0.99	0.94	1.04
Percent Hispanic (reference group = <10%)			
10%+	1.07	0.99	1.14
Percent with Two or More Races (reference group = <2.5%)			
2.5%+	0.96	0.88	1.04
Percent Foreign-Born (reference group = <2%)			
2% - 14.99%	0.94*	0.91	0.97
15%+	1.01	0.93	1.10
Health Professional Shortage Area, Primary Care (reference group = no)²			
Whole County	0.98	0.93	1.02
Part of County	1.01	0.97	1.06

* Statistically different from 1.00 at the 95 percent confidence level.

¹ “Yes” implies 25 percent or more of residents 25 through 64 years old had neither a high school diploma nor a GED in 2000.

² As designated by the Health Resources and Services Administration (HRSA), Bureau of Primary Health Care (BPHC), a primary care health professional shortage area has (1) an FTE primary care provider ratio of at least 3,500:1, or (2) an FTE primary care provider ratio of less than 3,500:1 but greater than 3,000:1 and an unusually high need for primary medical care services or insufficient capacity of primary health care providers. In addition, primary health care professionals in contiguous areas must be overutilized, excessively distant, or inaccessible to the population in the area.

Discussion

Overall, in this study we found that, while utilization rates of well-child visits among FFS-enrolled Medicaid children are similar or better in some states to rates seen in commercial health plans and Medicaid HMOs, in the majority of the states analyzed, FFS Medicaid children had lower utilization than national averages for the commercially insured children. The observed utilization rates are well-below recommended levels particularly for older children.

Socioeconomic conditions in the enrollee's community did have a significant impact on visit use rates with children residing in communities with lower median household income or lower health insurance rates being less likely to receive well-child care. The resources available to support providers may be more limited in these communities, and thus, these providers may be less able to provide services to Medicaid enrollees. Children in large urban areas were the most likely to receive treatment. There may be transportation or other access issues in more rural areas.

State Medicaid policies appear to have a significant role in well-child utilization. Even when controlling for enrollee demographics and county characteristics, substantial differences in utilization existed by state. Children in New Hampshire were 49 percent more likely to receive a well-child visit than children in Illinois. Meanwhile, children in Alaska were 38 percent less likely to receive a well-child visit than children in Illinois. Some of these disparities may be related to differences in the states that are not controlled for in the model, however further examination of Medicaid program characteristics that may be associated with higher well-child visit utilization is warranted.

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