Preventive Services for Children Under Medicaid, 1989 and 1992

Elicia J. Herz, Ph.D., Anita J. Chawla, Ph.D., and Norma I. Gavin, Ph.D.

Receipt of key preventive services among Medicaid children in four States is examined. Between 1989 and 1992, small-to-moderate improvements in well-child visit and immunization rates were observed. Age, eligibility group, and statewide factors affected these rates. Uniformly low use of preventive dental care was found. These rates were generally higher among children with well-child visits. To understand the full extent of preventive care for children, all Medicaid-financed well-child services should be considered, not just those provided under the Early and Periodic Screening, Diagnostic, and Treatment (EPSDT) services program. Nonetheless, EPSDT is a critical vehicle for outreach and case management.

INTRODUCTION

The goal of providing preventive medical and dental services for children is to improve overall health status by reducing the incidence of avoidable illness and disease. The basic components of preventive care for children include screening services such as well-child visits, immunizations, and regular dental checkups.

Access to and use of such preventive services has been the subject of a number of studies (Herz et al., 1996). By and large, most research points to the importance of financial factors (e.g., insurance coverage, availability of free care, and lower out-of-pocket costs) and sociodemographic characteristics as determinants of the use of preventive care among children. Children in families considered to be disadvantaged[1] generally receive lower levels of preventive care. Other family-related barriers to care include parental knowledge and perceptions of the importance of preventive care for their children and lack of a usual source of care. Finally, provider-driven factors also influence receipt of preventive care among children. These factors include low provider participation in Medicaid, low provider reimbursement rates, perceived administrative burden of Medicaid participation, and missed opportunities for providing care, especially delivery of needed immunizations during office visits initiated for other reasons.

To promote better access to preventive care for Medicaid-enrolled children, the EPSDT program was added to the Medicaid program under Public Law 90-248 in 1967. EPSDT provides screening and preventive care, as well as referral for services necessary to correct health problems identified through screening. Because of concerns over low EPSDT participation rates among both beneficiaries and providers, Congress included provisions to address EPSDT participation in the Omnibus Budget Reconciliation Act of 1989 (OBRA 89). OBRA 89 set standards

Elicia Herz is with the Congressional Research Service; Anita Chawla is with the MEDSTAT Group, Inc.; and Norma Gavin is with the Research Triangle Institute. The research presented in this article was conducted under Contract Number 500-92-066 from the Health Care Financing Administration (HCFA) to The MEDSTAT Group, Inc. The opinions expressed in this article are those of the authors and do not necessarily reflect the views of the Congressional Research Service, The MEDSTAT Group, Inc., the Research Triangle Institute, or HCFA.

[1] Characteristics of disadvantaged families examined in recent studies include relatively low income, membership in a racial or ethnic minority group, having a mother without a high school diploma, having a relatively large number of children under 6 years of age, residence in non-metropolitan areas, and having a single-parent household.

for performance at the State level, created incentives for greater provider participation, and broadened the scope of services covered to include both preventive and illness-related care.

In this article we describe the results of descriptive analyses that investigate trends in the receipt of preventive services among Medicaid-enrolled children, before and after the implementation of OBRA 89. These results are drawn from a study sponsored by HCFA, the Comparative Study of the Use of EPSDT and Other Preventive and Curative Health Care Services by Children Enrolled in Medicaid (Herz et al., 1994; Herz et al., 1996; and Herz, Sredl, and Albers, 1996). As a part of this study, child-level administrative claims from HCFA's Medicaid research files from four States (California, Georgia, Michigan, and Tennessee) for calendar years 1989 and 1992 were analyzed.

Although the Federal legislative initiatives of the late 1980s and early 1990s were aimed at improving the delivery of preventive care through the EPSDT program, the data from preliminary analyses and State-specific case studies conducted as part of the EPSDT study previously mentioned indicated that a considerable amount of Medicaid-financed well-child care was provided outside of the EPSDT program through the regular Medicaid program. The Children's Defense Fund refers to such provision as the "shadow" program. Consequently, the overall study ultimately focused on all Medicaid-financed preventive services, not just those provided under EPSDT.

Conceptual Framework for Analysis

The components of comprehensive well-child care, as defined under the EPSDT program, include several types of basic screening services. During EPSDT full screening visits, providers are required to deliver:

- A comprehensive health and developmental history.
- A comprehensive unclothed physical examination.
- Appropriate immunizations according to age and health history.
- Laboratory tests, including blood lead level assessments, appropriate for age and risk factors.
- Health education, including anticipatory guidance.
- Vision screening.
- Hearing screening.
- Dental screening.

Guidelines for well-child care as delineated by the American Academy of Pediatrics (AAP) are very similar.

Service utilization measures developed for this study capture the essential subset of these components, including the receipt of: the preventive visit as a whole, standard immunizations, and preventive dental care. Selection of these components of well-child care for analysis was also determined by the availability of complete and accurate coding of individual, itemized services, in conjunction with diagnostic information, on Medicaid administrative claims.

DATA AND METHODS

The primary data source for the analyses presented in this article was HCFA's Medicaid research files known as the Tape-to-Tape database. This database includes all enrollment and claims data from the automated Medicaid information systems in four States (California, Georgia, Michigan, and Tennessee) for calendar years 1980-92. Data maintained in this data-

base have been edited and reformatted to produce uniform files that facilitate cross-State and cross-year comparative analyses.

Study Population

The study population included all Medicaid-enrolled children in the four study States who were under 21 years of age during 1989 or 1992, with a few exceptions. For children who reached 21 years of age during each analysis year, only data on enrollment and service use for the months during which they were 20 years of age were analyzed.

Three groups of children were excluded from the analyses: (1) children residing in institutions, (2) children covered under Medicaid capitated health plans, and (3) children with dual Medicare and Medicaid coverage. Institutionalized children included recipients of nursing home care, services in intermediate care facilities for the mentally retarded, or inpatient psychiatric services. These children were excluded because they have dramatically different claims experience compared with those who are not institutionalized. Children who were enrolled in capitated plans and children who were dually enrolled in both Medicare and Medicaid were excluded because they generally have incomplete claims information in Medicaid source files.

Of all Medicaid enrollees under 21 years of age, the study population included (for 1989 and 1992, respectively) 85 and 82 percent of enrolled children in California, nearly 100 percent in Georgia (both years), 84 and 77 percent in Michigan, and 95 and 93 percent in Tennessee. The excluded institutionalized and Medicare-Medicaid children together represented less than 1 percent of the total population of Medicaid child enrollees across study States and analysis years. All other excluded children were enrolled in capitated plans.

Development of the Analytic Files

For this study, child-level records were created that summarized information on eligibility, enrollment duration, demographics, and utilization by category of service as previously described (Herz et al., 1996). Only information based on Medicaid-paid claims that received Federal matching dollars was retained; claims for State-only services were excluded. Medicaid-paid claims for services rendered by out-of-State providers were retained.

Preventive Care Participation and Visit Rates

To accurately assess children's receipt of preventive care visits, a methodology was developed to account for: periodicity guidelines that indicate the ages at which children should receive these services, and Medicaid enrollment duration within each analysis year. Actual use (numerator) is divided by expected use (denominator) to calculate a rate. Adjustments for age, periodicity guidelines, and enrollment duration are applied to the denominator value (see Technical Note; Herz et al., 1996).

This methodology produced two key measures of the receipt of well-child visits. The "participation rate" gives the percent of children with at least one screening visit among those recommended (expected) to have at least one screening visit. The "visit rate" gives the percent of total recommended (expected) screening visits children actually receive. Compared with unadjusted rates, application of this methodology typically increases reported participation and visit rates, sometimes substantially, depending on average enrollment duration coupled with the age distribution, and hence the periodicity guidelines applicable to each subgroup of children.

The periodicity guideline used in this study was the AAP schedule for health supervision visits. For both 1989 and 1992, the AAP recommended a total of 20 well-child visits from birth through age 20 years at the following intervals:

- Children up to 1 year of age should receive a total of six visits at 2-3 month intervals.
- Those age 1-2 years should receive a total of three visits at 15, 18, and 24 months.
- Children 3-5 years of age should have a total of three annual visits.
- Those 6 years of age or over should have a total of eight visits, one every other year.

In several cases, State EPSDT periodicity schedules differed from these AAP guidelines. For both analysis years, Tennessee required two fewer visits than did the AAP for children ages 9-20 years. California's EPSDT visit schedule was the same as that for AAP in both years for younger children but required 50 percent fewer visits than did the AAP for children age 4 years or over. Georgia's schedule was identical to AAP guidelines in both years, as was Michigan's in 1992. However, for 1989, Michigan's EPSDT schedule differed substantially from AAP guidelines across all age groups, requiring many fewer visits and at longer intervals, for a total of 11-12 visits over a child's youth.

In general, for both 1989 and 1992, when State EPSDT periodicity schedules differed from the AAP guidelines previously described, the States recommended fewer visits for selected age groups, usually older children. In separate analyses (data not shown), participation and visit rates based on State schedules were higher than corresponding rates based on AAP guidelines. However, within each State, the pattern of findings overall and by age and eligibility group was similar, regardless of whether rate computations were based on AAP guidelines or State EPSDT periodicity schedules.

Immunization Completion Rates

In this study, group differences in the receipt of standard childhood immunizations were also examined. The same methodological approach used to determine well-child visit rates was applied to the calculation of immunization completion rates. Thus, the "immunization completion rate" gives the percent of total recommended (expected) immunizations children actually receive during each analysis year. Again, this method takes into account Medicaid enrollment duration and periodicity guidelines that indicate the ages at which children should receive standard immunizations (see Technical Note; Herz et al., 1996).

Children who miss receiving immunizations at the recommended age frequently obtain them later, particularly at school entry. The immunization completion rate gives credit for any and all immunizations received, in spite of whether the immunization was in fact age-appropriate. Specifically, all immunizations obtained during the analysis year were counted in the numerator. Older children catching up on missed immunizations appear to have been more compliant with periodicity guidelines than they actually were. Thus, a second completion rate was also computed for which the numerator includes only those immunizations that were in fact "on schedule" or age-appropriate.

Again, AAP periodicity schedules for immunizations were used in this methodology. The immunization schedule recommended by the AAP differed in 1989 and 1992. The guidelines for common childhood immunizations in 1989 contained the following recommendations:

- Infants up to 6 months of age should receive three doses of diphtheria-tetanus-pertussis (DTP) vaccine and two doses of an oral polio vaccine (OPV) at 2-month intervals.
- Between 15 and 18 months of age, toddlers should receive an additional DTP and OPV, plus single doses of the measles-mumps-rubella (MMR) and the Haemophilus influenza type b (Hib) vaccines.
- Children between the ages of 4 and 6 years should receive a fourth dose of DTP and a third OPV.
- Preteens (ages 11 and 12 years) should receive a second MMR.
- Adolescents between the ages of 14 and 16 years should receive a tetanus-diphtheria (Td) booster.

For 1989 there were few variations from AAP guidelines among the four State-specific EPSDT schedules for standard immunizations. Both Georgia and Tennessee followed AAP guidelines. California followed AAP guidelines with one exception—the second MMR vaccination was recommended at school entry (e.g., ages 4 to 6 years) rather than at 11 to 12 years of age. Michigan also followed AAP guidelines, except that the State had no specific recommendation for administration of the Hib vaccine.

In 1992 the AAP made two modifications to its guidelines for common childhood immunizations:

- Of the original set of five common immunizations, the AAP changed its guidelines for only one—the Hib vaccine. Although a single dose of Hib was recommended at 18 months of age in 1989, by 1992 the AAP recommended a three-dose series[2] at 2, 4, and 15 months of age.
- One new immunization—the Hepatitis B vaccine (HBV)—was added to the set of standard vaccinations recommended for all children. Three doses of HBV were to be administered: at birth,[3] 2 months, and 18 months of age.

For 1992 there were several variations between State-specific EPSDT schedules and AAP recommendations on the timing of immunizations. Michigan and Tennessee followed the 1992 AAP guidelines for immunizations. California's schedule differed in two ways: (1) the fourth DTP and third OPV were recommended earlier (at 15 months of age) than AAP guidelines (at 18 months), and (2) as in 1989, the second MMR was scheduled for earlier administration at school entry rather than early adolescence. Georgia's EPSDT immunization schedule differed the most from 1992 AAP guidelines. Several vaccinations of different types were recommended at earlier ages than specified in AAP guidelines.

In general, when differences existed between State EPSDT and AAP guidelines for standard immunizations, States recommended earlier administration of selected vaccines, mostly for children under age 7 years. In separate analyses (data not shown), immunization completion rates based on State schedules were about the same as or lower than corresponding rates based on AAP guidelines.[4] However, within each State, the pattern of findings overall and by age and eligibility group was similar, regardless of whether immunization rate computations were based on AAP guidelines or State EPSDT periodicity schedules.

[2] Two types of Hib vaccines were approved by the AAP for children under 15 months of age. One vaccine required a three-dose series, and the other vaccine required a four-dose series (additional injection at 6 months of age). To simplify the analyses, for all children, use of the three-dose schedule for the Hib in 1992 was assumed.

[3] Although the AAP recommended an HBV injection for newborns during the delivery hospitalization, for analytic purposes, only HBV immunizations by 2 and 18 months of age were examined for 1992. Identification of HBV injections during delivery hospitalizations was beyond the scope of this study.

[4] The opposite pattern was found for Michigan in 1989 among toddlers, because the State's schedule made no recommendation for Hib administration, but the AAP schedule called for one Hib at 18 months of age.

Preventive Dental Care Rates

States are required to provide dental services to Medicaid-eligible children under age 21 to comply with EPSDT requirements. Although the EPSDT program was authorized by Congress in 1967, EPSDT dental guidelines were not developed until 1980 (U.S. Department of Health, Education, and Welfare, 1980).

As part of the EPSDT screen that constitutes the basic health assessment, the program requires that the screening provider refer children for a visit to a dentist, or a dental professional under the supervision of a dentist, for a dental screening. Referrals and a subsequent visit to the dentist are required for Medicaid-eligible children age 3 years, or at a younger age if medically necessary. The initial referral should be made without regard to a State's periodicity schedule, but subsequent referrals and visits are to conform to the periodicity schedule. Given the nature of the regulations for provision of dental care to children enrolled in Medicaid, the analyses presented here focus on dental services in the preventive care category that were billed separately under Medicaid, regardless of whether or not they were provided explicitly through the EPSDT program.

Preventive services[5] include instruction in self-care oral hygiene procedures; oral prophylaxis (cleaning of teeth), both necessary as a precursor to the application of dental caries preventives where indicated, or independent of the application of caries preventives for patients 10 years of age or over; and professional application of dental sealants when appropriate to prevent pit and fissure caries.

[5] In addition to requiring dental screening, the EPSDT program mandates that States provide dental services for the "relief of pain, infections, restoration of teeth, and maintenance of dental health." These services include diagnostic, preventive, therapeutic, and emergency services for dental disease.

In the descriptive analyses for preventive dental care, rates of dental service utilization are presented. These measures include: the percent of Medicaid child enrollees who received any preventive dental services, and the average service use rate, which is represented by the number of claims for any preventive dental care service per person-year-enrolled. In addition, service use rates for specific types of preventive dental care are also presented. The rates are stratified by receipt of a preventive medical care visit during the year of analysis.

RESULTS

Age Distribution

The distribution of Medicaid children by age group was similar across the study States; however, the population shifted to younger ages over time (Table 1). In 1989 across study States, 43-46 percent of children were under 7 years of age. By 1992 this age group had grown, accounting for 47-53 percent of the child Medicaid population.

Patterns of Medicaid Eligibility and Enrollment

The distribution of Medicaid children by eligibility category varied somewhat across the four study States in 1989 and 1992 (Table 2). These variations in eligibility patterns were related to different income thresholds and expansion implementation dates. In all States and both analysis years, the majority of Medicaid children were recipients of cash assistance under Aid to Families with Dependent Children (AFDC). In 1989 AFDC beneficiaries represented 54-74 percent of Medicaid-enrolled children across the four study States. By 1992 the percentage of

Table 1

Percent Distribution of Medicaid Children, by State and Age Group: 1989 and 1992

State	All Children	Age Group				
		Under 12 Months	1-2	3-6	7-12s	13-20
California				Percent		
1989	2,065,719	9.4	14.4	22.2	25.4	28.6
1992	2,923,913	8.9	15.6	22.3	24.5	28.7
Georgia						
1989	358,838	8.7	15.3	22.6	26.3	27.2
1992	597,245	9.6	17.7	25.5	23.6	23.6
Michigan						
1989	598,296	9.0	13.2	21.1	25.2	31.5
1992	624,662	8.9	15.6	22.8	24.2	28.4
Tennessee						
1989	312,570	9.4	15.3	21.5	23.5	30.3
1992	458,588	8.6	16.5	24.3	22.9	27.7

NOTES: Children in capitated Medicaid plans, institutionalized children, and children who were dually enrolled in Medicaid and Medicare are excluded. Otherwise, for each analysis year separately, the study population includes children enrolled in Medicaid for at least 1 month.

SOURCE: Health Care Financing Administration, Office of Strategic Planning: Data from the Medicaid Tape-to-Tape Project, 1989 and 1992.

AFDC cash-assistance children had declined, largely as a result of growth in the poverty-related and, to a lesser extent, the blind/disabled groups. California and Georgia also experienced considerable growth in the medically needy/other eligibility category.

Enrollment duration within eligibility group also varied (data not shown). In 1989 the blind/disabled group had the longest average number of months enrolled (10-11 months) among the eligibility groups. Children in the poverty-related category had the shortest enrollment duration (3-7 months). By 1992 the enrollment duration for each eligibility subgroup had stayed about the same or increased.

State-Level Rates for Well-Child Visits

Tables 3 and 4 display well-child participation and visit rates, respectively, for EPSDT alone and in combination with non-EPSDT services, for each study State and both analysis years. The findings were somewhat mixed with regard to how successful States were in providing children with preventive care visits.

Across States in 1989, unadjusted participation rates for EPSDT alone show that less than one-fourth of Medicaid-enrolled children obtained at least one EPSDT screening visit. In Michigan in particular, the low rate of 16 percent is most likely the result of a restriction on the provider pool that essentially limited certification of EPSDT comprehensive screening providers to local public health departments and a very small number (never more than 50) of private physicians. By 1992 across States, unadjusted EPSDT participation rates had improved only slightly. Michigan's larger gain was primarily the result of an expansion of the EPSDT provider pool to include office-based physicians that continued to provide usual well-child visits classified as "basic" EPSDT screens.

Adjusting for Medicaid enrollment duration and the age-specific AAP guidelines for well-child visits, between 1989 and 1992 in three of four States (excluding California), there were slight-to-moderate improvements in corresponding participation and visit rates for EPSDT screens alone and in combination with well-child visits provided through the regular

Table 2

Percent Distribution of Medicaid Children, by State and Eligibility Group: 1989 and 1992

State	All Children	Eligibility Group				
		Blind/ Disabled	AFDC Cash	Foster Care	Poverty-Related	Medically Needy/Other
California				Percent		
1989	2,065,719	1.8	62.5	4.2	0.7	30.7
1992	2,923,913	2.0	52.0	3.2	4.2	38.7
Georgia						
1989	358,838	3.9	73.9	2.3	9.8	10.1
1992	597,245	4.1	56.3	1.7	25.5	12.4
Michigan						
1989	598,296	2.1	74.0	—	3.4	20.5
1992	624,662	3.7	63.1	—	12.9	20.4
Tennessee						
1989	312,570	4.0	53.7	1.3	18.1	23.0
1992	458,588	4.5	44.3	2.4	31.0	17.9

NOTES: AFDC is Aid to Families with Dependent Children. Children in capitated Medicaid plans, institutionalized children, and children who were dually enrolled in Medicaid and Medicare are excluded. Otherwise, for each analysis year separately, the study population includes children enrolled in Medicaid for at least 1 month. In Michigan, foster care children could not be identified separately from AFDC cash-assistance children.

SOURCE: Health Care Financing Administration, Office of Strategic Planning: Data from the Medicaid Tape-to-Tape Project, 1989 and 1992.

Medicaid program. Rates for California remained basically the same over time.

Nonetheless, by 1992 the study States were still reaching less than one-half (39-42 percent) of the children expected to receive an EPSDT screen and were providing less than one-half (35-42 percent) of the recommended number of screens. When well-child visits rendered outside of EPSDT were also considered, 43-54 percent of children had at least one visit and 36-59 percent of scheduled visits were received.

A considerable number of well-child visits were received and billed through Medicaid but outside of EPSDT in both 1989 and 1992 in the three study States that allowed payment for such visits. The extent to which well-child visits were received outside of EPSDT in Georgia is unknown because the State did not allow payment for these services, and therefore such services do not show up in the Medicaid administrative claims analyzed for this study. However, the provision of unreimbursed well-child care is believed to occur in Georgia.

Overall, the observed gains occurred in spite of the fact that there was considerable growth in the Medicaid child population in three of four study States (excluding

Table 3

EPSDT and Overall Preventive Care Participation Rates: 1989 and 1992

State	Unadjusted EPSDT Only		Adjusted[1] EPSDT Only		Adjusted[1] All Well-Child	
	1989	1992	1989	1992	1989	1992
			Percent			
California	22	24	39	41	47	46
Georgia	24	27	40	42	41	43
Michigan	16	26	27	42	51	54
Tennessee	22	24	37	39	41	45

[1] Adjusted for enrollment duration and age-specific periodicity schedules of the American Academy of Pediatrics.

NOTES: EPSDT is Early and Periodic Screening, Diagnostic, and Treatment services. Children in capitated Medicaid plans, institutionalized children, and children who were dually enrolled in Medicaid and Medicare are excluded. Otherwise, for each analysis year separately, the study population includes children enrolled in Medicaid for at least 1 month.

SOURCE: Health Care Financing Administration, Office of Strategic Planning: Data from the Medicaid Tape-to-Tape Project, 1989 and 1992.

Michigan) by 1992. Enrollment for Medicaid children grew by 42-66 percent in California, Georgia, and Tennessee. Only in Michigan did such enrollment remain relatively stable with a 4-percent increase by 1992.

Well-Child Visits by Age and Eligibility Group

Age

As shown in Table 5, with the exception of Georgia in 1989, children under 3 years