
Data Watch

Medicaid Physician Fee Levels And Children's Access To Care

by Joel W. Cohen and Peter J. Cunningham

Abstract: This study examines the effects of physician fees on children's use of preventive and illness-related ambulatory physician services under the Medicaid program. Using data from the 1987 National Medical Expenditure Survey (NMES), we examine the effects of Medicaid fee generosity on physician service use and overall ambulatory physician spending. The results indicate that more generous fees are associated with a greater likelihood of having a doctor's office as a usual source of care and a higher number of preventive visits at office-based sites of care. Having a doctor's office as a usual source of care is associated with lower overall ambulatory physician expenditures.

Access to care, particularly for children, has been an important issue for the Medicaid program in recent years. This interest stems from the belief that lack of access leads not only to adverse outcomes but also to inefficient use of medical resources. Although expanding Medicaid eligibility is one method of trying to increase the provision of preventive care to poor and uninsured children, it is not clear that it is sufficient to achieve that objective. Research on Medicaid physician payment policies has shown that payment levels are a primary determinant of office-based doctors' participation in the Medicaid program: The lower the Medicaid payments are relative to private or Medicare fees, the less office-based doctors participate in the program.¹

Medicaid recipients can obtain care, however, in nonoffice settings. Research on use of physician services suggests that lower reimbursement is associated with where physicians are seen, rather than whether or not they are seen at all.² This has implications both for continuity of care, which is likely to be important for receiving preventive services, and the overall cost to the program of providing care, because people would seek care in the hospital, which is more expensive. Research also has shown that Medicaid beneficiaries tend to use hospital-based sites as a usual source of care much more often than other insured persons do.³ To examine these issues, we present descriptive data on the effect of various levels of Medicaid fees on the site of usual source of care, on use of preventive and illness-related

Joel Cohen is senior research manager, Division of Medical Expenditure Studies, Agency for Health Care Policy and Research (AHCPR), in Rockville, Maryland. Peter Cunningham is a senior researcher in AHCPR's Center for General Health Services Intramural Research.

physician services, and on ambulatory physician expenditures. We then show results from multivariate models that examine the effects of fees and usual source of care on medical care use and spending.

Data sources. The primary source of data for this study is the household component of the 1987 National Medical Expenditure Survey (NMES), conducted by the Agency for Health Care Policy and Research (AHCPR). NMES looks at health status, health insurance, and medical care use and spending for a national probability sample of the U.S. civilian noninstitutionalized population over an entire year.⁴ The sample for this study consisted of 1,333 children under age eighteen who were covered by Medicaid for all of 1987. Information on Medicaid physician fees and policies is from a database of Medicaid and insurance regulations developed specifically for use with NMES.⁵ Fee generosity is calculated as the ratio of the Medicaid fee to the Medicare allowed charge for an office visit.⁶ Data for the market supply and demand variables used in the multivariate analysis were obtained primarily from the area resource file (ARF) and the National Planning Council's census tract-level demographic database.⁷

Study Findings

Most children with Medicaid coverage live in states where the Medicaid reimbursement level is less than that for other payers (Exhibit 1). In fact, more than one-fifth of Medicaid children live in states where the ratio of Medicaid to Medicare fees is less than 50 percent, and only about one-fourth of Medicaid children live in states where the Medicaid reimbursement rate is at least 90 percent that of Medicare.

Fee generosity and site of care. There appears to be a strong association between the relative generosity of Medicaid reimbursement and the place where Medicaid children usually receive their medical care. In general, the higher the fee ratio (indicating more generous Medicaid reimbursement), the more likely children are to use a doctor's office for their usual source of care and the less likely they are to use a hospital-based or other health care facility. In the least generous states (fee ratios less than 50 percent) about 60 percent of Medicaid children used a doctor's office for their usual source of care in 1987, and about 20 percent used hospital-based facilities. This gap begins to widen substantially for children in states where the fee ratio is about 80-89 percent. In the most generous states 80 percent of Medicaid children used a doctor's office in 1987, and only 6 percent used hospital-based facilities.

Fee generosity and use of physician services. Despite the strong association between fee ratios and site of usual source of care, there appears to be only a weak association between fee generosity and use of physician

Exhibit 1**Usual Source Of Care, Use Of Ambulatory Physician Services, And Expenditures For Ambulatory Physician Services For Children Covered By Medicaid, 1987**

	Ratio of Medicaid to Medicare fees					
	All	50%	50-59%	60-79%	80-89%	90% or more
Population (thousands)	6,850	1,457	951	1,530	1,000	1,912
Percent of total	100.0	21.3	13.9	22.3	14.6	27.9
Usual source of care site						
Physician office	69.6%	59.2%	63.9%	59.6%	87.6%	79.9%
Hospital based	11.2	19.8	11.7	14.1	2.7	6.0
Other	17.3	18.6	24.4	23.0	9.7	11.6
Physician visit						
Any	72.2%	70.1%	72.7%	74.7%	69.5%	72.9%
Preventive	35.6	38.9	26.9	44.2	29.7	33.9
Illness-related	59.8	54.7	64.9	57.8	59.8	62.8
Average number of physician visit ^a						
All types	3.2	3.4	3.3	3.1	3.1	3.3
Preventive office-based	1.7	1.5	1.9	1.5	1.8	2.1
Illness-related office-based	3.0	2.8	3.3	2.9	3.0	3.0
Average physician expenditures ^b	\$268.0	\$344.5	\$329.7	\$233.1	\$182.3	\$252.0

Source: National Medical Expenditure Survey (NMES), 1987.

^a Conditioned on one or more visits of that type.

^b For those with expenditures greater than zero.

services. The probability of using any ambulatory physician services increased only slightly for children living in the most generous states, compared with children in the least generous states. The probability of an illness-related visit increased somewhat. Although there was considerable fluctuation in the probability of a preventive visit across the various fee ratios, no discernable pattern emerges, and the probability of a preventive visit in the most generous states was slightly less than the probability in the least generous states.

Fee generosity appears to have virtually no meaningful association with the total number of physician visits or the number of illness-related physician visits. Medicaid children who used physician services averaged more than three visits (of all types) across all levels of reimbursement. Similarly, no discernable pattern in the average number of illness-related visits was detected across the fee ratio categories. There does, however, appear to be an association between the level of fees and the average number of preventive visits in doctors' offices in 1987.

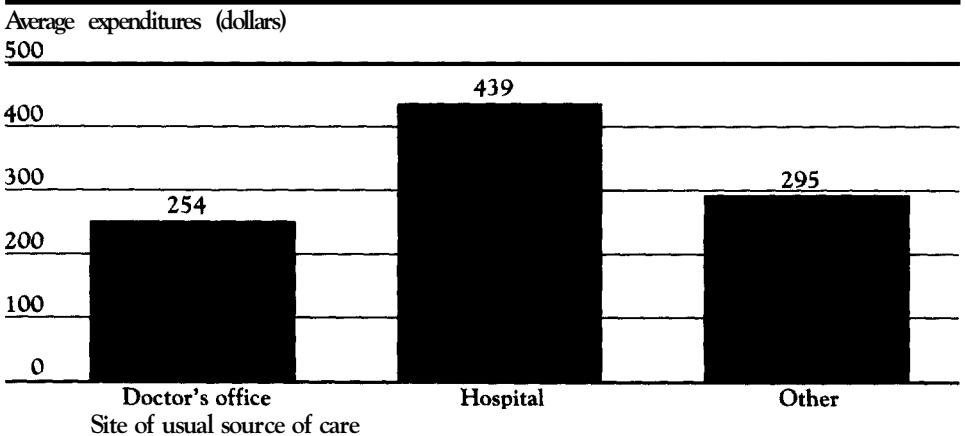
Fee generosity and ambulatory physician spending. Average total expenditures for ambulatory physician visits generally decreased as the

generosity of Medicaid reimbursement increased. Average expenditures for Medicaid children were highest in the least generous states and decreased substantially for children in states where fee ratios were in the 60-79 percent range. Although average spending for children in the most generous states was somewhat higher than in states with fee ratios in the 80-89 percent range, expenditures for children in the most generous states were still only about three-fourths those in the least generous states.

One explanation for this may be the place where Medicaid children usually receive their medical care. Services provided in hospital emergency rooms and outpatient clinics are typically much more costly than similar services provided in doctors' offices.⁸ Average ambulatory physician expenditures for children who had a doctor's office for their usual source of care in 1987 were only about 58 percent those for children who were seen in a hospital-based facility (Exhibit 2). Furthermore, use of the hospital as a usual source of care is likely to engender costs beyond those attributable to higher emergency room fees, because emergency room patients are more likely to be admitted to the hospital than are patients who are seen in a physician's office.⁹

Multivariate analysis. It is possible that the relationship between Medicaid fee generosity and physician use and spending patterns can be explained by other beneficiary characteristics, as well as by other state and local area characteristics. To test whether Medicaid fees affect children's use and spending patterns after controlling for these other factors, we conducted multivariate analyses on the probability of having any physician visits, having preventive and illness-related office and hospital visits, hav-

Exhibit 2
Ambulatory Physician Expenditures For Children With Medicaid Coverage



Source: National Medical Expenditure Survey (NMES), 1987.

ing a usual source of care, and having a doctor's office as the usual source of care (Exhibit 3). We also tested the effect of fee generosity and usual source of care site on total spending for ambulatory physician services.¹⁰

The results indicate that fees are not significantly associated with the probability of having a usual source of care, any ambulatory physician visits in general, or preventive or illness-related physician visits at an office-based site. Moreover, fees are not significantly associated with the probability of visiting a hospital-based doctor for either preventive or illness-related care.

Fees are significantly associated with the probability of having an office-based doctor as a usual source of care and with the number of preventive visits to office-based doctors for children who have at least one such visit. The results suggest that a ten percentage point increase in the Medicaid fee ratio is associated with a 3 percent increase in the probability of having a doctor's office as a usual source of care, and an approximately 5 percent increase in the number of preventive visits received in office-based sites.

We found no significant direct association between Medicaid fee levels and total ambulatory physician expenses, all else being equal. This is true even when usual source of care is not included in the expenditure equation. The results do indicate, however, that having an office-based doctor as the usual source of care is associated with lower total ambulatory physician expenditures. The magnitude of this association was relatively large, which indicates that controlling for other factors, children with a doctor's office as a usual source of care had 33 percent lower total expenses, compared with children whose usual source of care was a hospital emergency room or outpatient department or a clinic.

Exhibit 3
Effect Of Medicaid Fee Generosity On Probability And Level Of Use Of Ambulatory Physician Services, Controlling For Other Factors

Type of use	10 percent increase in fee ratio	
	Probability of use	Number of visits ^a
Any visits	NS ^b	NS
Office-based preventive visits	NS	+5%
Office-based illness-related visits	NS	NS
Hospital-based preventive visits	NS	- ^c
Hospital-based illness-related visits	E	- ^c
Any usual source of care	NS	- ^c
Doctor's office as usual source of care	+3%	- ^c

Source: Analysis from the National Medical Expenditure Survey (NMES), 1987.

^a Conditioned on one or more visits of that type.

^b No significant association.

^c Not applicable.

Discussion And Policy Implications

The results of this analysis are consistent with previous findings that Medicaid physician fee levels affect site of use more than probability of use or number of visits. Although fees were not associated with whether or not Medicaid-covered children had any physician visits or a usual source of care, they were significantly related to a usual source of care site. Where fee levels were higher, Medicaid-covered children were more likely to have a doctor's office as a usual source of care. Similarly, the findings indicate that higher fee levels are associated with greater numbers of office-based preventive visits for those children who were able to obtain such care. To the extent that greater use of preventive care at noninstitutionalized sites is considered an indication of better-quality care, these findings reinforce the desirability of relatively generous Medicaid fees.

Interestingly, although the descriptive analysis suggests that lower Medicaid fees were associated with higher overall ambulatory physician expenses, this relationship was not confirmed by the multivariate analysis. The difference is likely a function of the fact that market characteristics and fee levels tend to be related. Therefore, the association between fees and expenses is attenuated when market variables are taken into account. Although this implies that there is no significant association between fees and expenses after market characteristics are accounted for, the direction of the relationship was negative, and it simply may be that it is difficult to isolate the impact of fees from that of market variables and thus difficult to find a statistically significant result. Moreover, at a minimum, these results suggest that low-fee states could raise their fees without raising their Medicaid spending or, looked at another way, that keeping fees low is not actually generating savings.

The bivariate relationship between site of usual source of care and total expenses remained after controlling for other factors. Having a doctor's office as a usual source of care was associated with a reduction of about one-third in total expenses. Thus, policies that encourage use of doctors' offices as usual sources of care may have cost-saving potential.

These results have important implications for the Medicaid program. First, they suggest that recently mandated eligibility expansions for children may not accomplish the goals of encouraging preventive care and discouraging use of emergency rooms for routine care if fees are set too low relative to fees for other payers. Although federal law requires states to set fees for pediatric and obstetric services at levels that are sufficient to ensure access for Medicaid beneficiaries, a recent report by the Physician Payment Review Commission (PPRC) concluded that although the gap between Medicaid fees and fees paid by other insurers has narrowed somewhat in

recent years, average Medicaid fees are still less than 75 percent those of Medicare and less than 50 percent those paid by private insurers.¹¹

Perhaps more important, particularly in light of recent state efforts to use Medicaid Section 1115 waivers to cover the uninsured, these results have implications for the use of Medicaid managed care. Under Section 1115 waivers, states can shift to managed care arrangements in an effort to expand coverage without increasing total Medicaid spending. The success of this approach hinges on the ability to provide services under managed care at a lower per capita cost than would be the case with unrestricted choice of providers. Because managed care programs typically assign primary care providers to serve as gatekeepers who direct the provision of services to enrollees, this approach is comparable to having an office-based doctor as a usual source of care. Thus, the results presented here support the view that managed care in Medicaid can lead to lower expenses without reducing the quantity of primary care services that beneficiaries receive.

This paper was presented at the Annual Meeting of the American Public Health Association, San Francisco, California, 25 October 1993. The opinions expressed are solely those of the authors. No official endorsement by the Agency for Health Care Policy and Research or the Department of Health and Human Services is intended or should be inferred.

NOTES

1. P. Held and J. Holahan, "Containing Medicaid Costs in an Era of Growing Physician Supply," *Health Care Financing Review* (Fall 1985): 49-60; F. Sloan, J. Cromwell, and J. Mitchell, *Private Physicians and Public Programs* (Lexington, Mass.: Heath and Company, 1978); J. Mitchell, "Medicaid Participation by Medical and Surgical Specialists," *Medical Care* (September 1983): 929-938; J. Mitchell and R. Schurman, "Access to Private Obstetrics/Gynecology Services under Medicaid," *Medical Care* (September 1984): 1026-1037; J. Gabel and T. Rice, "Reducing Public Expenditures for Physician Services: The Price of Paying Less," *Journal of Health Politics, Policy and Law* (Winter 1985): 595-609; J. Perloff, P. Kletke, and K. Neckerman, "Recent Trends in Pediatrician Participation in Medicaid," *Medical Care* (August 1986): 749-760; J. Perloff, P. Kletke, and K. Neckerman, "Physicians' Decisions to Limit Medicaid Participation: Determinants and Policy Implications," *Journal of Health Policy, Politics and Law* (Summer 1987): 221-235; and B. Yudkowsky, J. Carlland, and S. Flint, "Pediatrician Participation in Medicaid: 1978 to 1989," *Pediatrics* 85, no. 4 (1990): 567-577.
2. M. Gold, "The Demand for Hospital Outpatient Services," *Health Services Research* (August 1984): 384-412; S. Long, R. Settle, and B. Stuart, "Reimbursement and Access to Physicians' Services under Medicaid," *Journal of Health Economics* (September 1986): 235-251; J. Cohen, "Medicaid Policy and the Substitution of Hospital Outpatient Care for Physician Care," *Health Services Research* (Spring 1989): 33-66; and J. Cohen, "Medicaid Physician Fees and Use of Physician and Hospital Services," *Inquiry* (Fall 1993): 281-292.
3. L. Cornelius, K. Beauregard, and J. Cohen, *Usual Sources of Medical Care and Their Characteristics*, AHCPR Pub. no. 91-0042, National Medical Expenditure Survey

Research Findings 11 (Rockville, Md.: Agency for Health Care Policy and Research, September 1991).

4. For detailed descriptions of the NMES methods and questionnaires, see W.S. Edwards and M. Berlin, *Questionnaires and Data Collection Methods for the Household Survey and the Survey of American Indians and Alaska Natives*, DHHS Pub. no. (PHS)89-3450, National Medical Expenditure Survey Methods 2 (Rockville, Md: AHCPR, 1989).
5. These data are based on information gathered primarily from the Health Care Financing Administration (HCFA), the Commerce Clearing House Medicare and Medicaid Guides, the National Governors' Association, and, in some cases, directly from states.
6. This ratio consists of the statewide average Medicaid fee for a brief office exam (CPT4 code 90040) as the numerator and the Medicare average allowed charge in a locality (as defined by Medicare) for the same procedure as the denominator. Although using only one procedure to create the fee ratio is not ideal, the brief office visit fee is often used as an indicator for the program. In addition, because this study focuses on ambulatory physician services, the ratio need not be representative of fees paid for services such as surgical procedures or inpatient hospital or nursing home visits. The study does assume, however, that the brief office visit fee ratio is representative of other types of ambulatory care procedures. The information on Medicare allowed charges used to calculate fee ratios is from HCFA's administrative (BMAD) files.
7. The area resource file (ARF) contains an extensive array of county-level health-related information derived from such sources as the American Medical Association's Physician Masterfile, the American Hospital Association's Annual Survey of Hospitals, and various data sets compiled by the Census Bureau and HCFA.
8. Cohen, "Medicaid Physician Fees and Use of Physician and Hospital Services."
9. M. Gold and M. Greenlick, "Effect of Hospital-Based Primary Care Setting on Internists' Use of Inpatient Hospital Resources," *Medical Care* 19 (1981): 160-171.
10. The multivariate analysis for this study is based on a conventional model of use of health services, which takes into account state Medicaid policies, market factors, and individual and family characteristics. See, for example, J.P. Acton, "Demand for Health Care among the Urban Poor, with Special Emphasis on the Role of Time," in *The Role of Health Insurance in the Health Services Sector*, ed. R. Rosett (New York: National Bureau of Economic Research, 1976); R. Andersen, *A Behavioral Model of Families' Use of Health Services* (Chicago: University of Chicago, Center for Health Administration Studies, 1968); and Long et al., "Reimbursement and Access to Physicians' Services under Medicaid." Estimation was based on a two-part model, which separates medical care utilization into a two-stage process, the first determining probability of use and the second determining the level of use (or expenses). For details of this method, see N. Duan et al., "A Comparison of Alternative Models for the Demand for Medical Care," *Journal of Business and Economic Statistics* (April 1983): 115-126; N. Duan et al., "Choosing between the Sample-Selection Model and the Multi-Part Model," *Journal of Business and Economic Statistics* (July 1984): 283-289; and W.G. Manning et al., *Health Insurance and Demand for Medical Care: Evidence from a Randomized Experiment* (Santa Monica, Calif.: The RAND Corporation, 1988).

All equations were weighted using sampling weights that adjust for disproportionate selection probabilities in NMES. In addition, standard errors were adjusted to account for the complex design of the survey using the Taylor series linearization method. For a description of this method, see B. Cox and S. Cohen, *Methodological Issues for Health Care Surveys: Statistics, Textbooks, and Monograph Series*, vol. 61 (New York: Dekker, 1985). Full descriptions and sources for the independent variables used in the multivariate equations are available from the authors on request.

11. Physician Payment Review Commission, *Annual Report to Congress*, 1994 (Washington: PPRC, 1994).