

The funding of dental services among U.S. children 2 to 17 years old

Recent trends in expenditures and sources of funding

THOMAS P. WALL, M.A, M.B.A.; L. JACKSON BROWN, D.D.S., Ph.D.; RICHARD J. MANSKI, D.D.S., M.B.A., Ph.D.

Editor's note: This article is the first in a series of two that look at recent trends in the funding of dental services and sources of funding in the United States. This article presents findings for children 2 to 17 years old. The second article in the series will focus on adults 18 years of age and older.

Utilization of dental services can be measured in terms of visits—for example, the percentage of the population that visits a dentist within a specified time interval. A previous study has shown that utilization of dental services, measured in terms of dental visits,

varies by such factors as income, race, sex and educational level.¹

Much of the increase in dental expenditures among economically disadvantaged children was due to an increase in nonreimbursed care.

Utilization also can be measured in terms of the amount, or intensity, of services received by those who visit a dentist. The intensity of service often is measured in terms of the number of visits per person within a specified time interval (such as visits per year) or expenditures per person. As with the percentage of the population that had had at least one dental visit, a previous study also has shown that the number of visits and the mean expenditure per patient also vary by such factors as income, race, sex and educational level.²

Although important and informative, these measures of dental use and intensity can be

Background. This article is the first of two that focus on recent changes in the funding of dental services in the United States.

Methods. This study is based on analyses of data regarding dental expenditures among children 2 to 17 years of age from the 1987 National Medical Expenditure Survey and the 1996 Medical Expenditure Panel Survey. Both of these surveys were designed to produce national estimates of annual medical expenditures in the United States.

Results. Overall, real per capita dental expenditures among 2- to 17-year-old children who had had a dental visit fell from \$578.05 in 1987 to \$498.57 in 1996. Large increases per patient were reported for the poorest children, while decreases were reported for children from families with higher incomes.

Conclusions. Much of the increase from 1987 to 1996 in dental expenditures among economically disadvantaged children who had had a dental visit was due to an increase in care provided by dentists that was not reimbursed.

Practice Implications. More needs to be done to increase the number of economically disadvantaged children who visit a dentist. All segments of society must cooperate to achieve this result.

refined further. For instance, utilization can be explained further with information about the type of service received. In a similar fashion, expenditures also can be clarified further. For instance, expenditures can be analyzed in terms of the sum of charges, sum of payments or sources of payments. While sum of payments may help to provide an accurate measure of reimbursement received by providers (that is, gross receipts), the sum of charges may provide a more accurate measure of the total resources used to provide all services rendered. In some instances, such as insurance discounts, charges represent the nondiscounted fee. In other cases, such as free care or bad debt, charges also capture the total value of services provided when

the provider is not fully reimbursed.

This article focuses on charges as a measure of dental expenditure. We examine changes in expenditures from 1987 to 1996 among children 2 to 17 years old. To adjust for inflation, dental expenditures (charges) are measured in terms of real, or constant, dollars. We also examine changes in the amount of these services from 1987 to 1996 within major demographic and socioeconomic categories, as well as changes in sources of funding.

METHODS

The 1987 National Medical Expenditure Survey, or NMES, was designed to provide detailed national estimates of health expenditures, utilization, sources of payment and insurance coverage for the civilian noninstitutionalized population of the United States during the period from Jan. 1 through Dec. 31, 1987. It was sponsored by the Agency for Healthcare Research and Quality, or AHRQ (formerly the Agency for Health Care Policy and Research and, before that, the National Center for Health Services Research). NMES was a survey of approximately 34,459 people in 14,000 households; it oversampled certain population groups, including elderly people, people with limitations in activities of daily living, African-Americans, Hispanics and the poor. Data were gathered in five rounds of interviews over an 18-month period during 1987 and 1988. The combined response rate was 79.7 percent. The 1987 NMES data were released for public use in October 1992.^{3,4}

The 1996 Medical Expenditure Panel Survey, or MEPS, also was sponsored by AHRQ and was conducted to provide nationally representative estimates of health care use, expenditures, sources of payment and insurance coverage for the U.S. civilian noninstitutionalized population. However, it differs from the 1987 NMES in that data on household respondents in each panel are collected for two consecutive years and the survey is fielded continuously (that is, a new panel is selected every year). The sample for the 1996 MEPS consisted of 21,571 people in 10,500 households participating in the NCHS's National Health Interview Survey. To collect health expenditure and utilization data for 1996, field researchers interviewed each MEPS household in person three times over an 18-month period. The combined response rate was 70 percent.⁵

All expenditure estimates presented in this article are per capita and are based on people who had had at least one dental visit during the year of the survey. Dental expenditure and source-of-payment information were collected as part of the household survey. In settings that do not normally specify a total charge, AHRQ staff imputed a dollar value to construct a total expense variable. They also designed a series of edits and imputation procedures for missing or inconsistent expense values and addressed three major issues:

- potential copayment amounts;
- potential flat fees;
- missing charges in cases wherein care was delivered free by the provider or under a prepaid arrangement such as a health maintenance organization, was covered by a flat fee or by Medicaid, or was not otherwise reported by the respondent.

AHRQ staff imputed Medicaid expenses using a database consisting of average 1987 or 1996 Medicaid reimbursements for dental care by state, patient age and type of service.

All expenditure estimates contained in the tables and figures in this article are real (base = 1998), to allow for comparisons over time using constant dollars. We used the dental component of the consumer price index to adjust for the effects of inflation. Only one nominal estimate (in other words, current dollars) is presented, at the beginning of the results section, to demonstrate the importance of removing the effects of inflation when making comparisons over time.

In this article, we focus on three main sources of funding—out-of-pocket, private insurance and public sources—and a fourth category called “not reimbursed.” Public sources included Medicare, Medicaid and other federal, state and local government sources.

In the 1987 NMES, expenditure estimates were based on charges.^{3,4} A category defined as “free from provider, including professional courtesy and bad debt” was included in expenditures; here, we have labeled this category as “not reimbursed.” In the 1996 MEPS, unlike the earlier survey, expenditures were defined as the sum of direct payments for care provided during the year, but there also is a variable that captures total charges.⁴ The difference between charges and expenditures in the 1996 MEPS is defined by AHRQ as uncollected liability, bad debt, charitable care and discounting. This difference

TABLE 1

1987 NMES* AND 1996 MEPS† REAL (BASE = 1998) EXPENDITURE DATA FOR CHILDREN 2 TO 17 YEARS OF AGE WITH A DENTAL VISIT.

FACTOR	CHARGES (\$)		CHANGE (\$)	P VALUE
	1987 Charges	1996 Charges		
Overall	578.05	498.57	-79.48	.0475
By Age (in Years)				
2 to 4	126.32	154.72	+28.40	.0970
5 to 17	625.58	536.59	-88.99	.0460
By Race				
White	623.23	509.32	-113.91	.0132
African-American	308.09	351.66	+43.57	.6391
Other	369.92	621.35	+251.43	.0557
By Ethnicity				
Hispanic	348.30	434.17	+85.87	.2610
Non-Hispanic	593.49	505.84	-87.65	.0430
By Poverty Level				
Below FPL‡	219.49	403.73	+184.24	.0256
Above FPL	624.20	513.77	-110.43	.0116
100%-200% of FPL	384.56	275.77	-108.79	.0864
201%-400% of FPL	606.22	507.64	-98.58	.1283
> 400% of FPL	774.97	633.39	-141.58	.1038
By Sex				
Male	530.97	475.30	-55.67	.3285
Female	624.90	522.33	-102.57	.0627

* NMES: National Medical Expenditure Survey.
 † MEPS: Medical Expenditure Panel Survey.
 ‡ FPL: Federal poverty level.

between charges and expenditures in the 1996 MEPS is considered as “not reimbursed” in this article and is used for purposes of comparisons with the 1987 NMES. In both surveys, this category represents dental services rendered for which the dentist had received no payment. The not-reimbursed category makes up a significant percentage of total dollar value of dental services in both surveys; therefore, we included it to provide a complete picture of the total output of the dental delivery system.

To ensure sufficient numbers to produce reliable national estimates, we combined socioeconomic variable categories when necessary. We used the SUDAAN statistical package (Version 7.11, Research Triangle Institute, Research Triangle Park, N.C.) to calculate standard errors and perform statistical tests because it can adjust for the correlation introduced by the complex sample design used for the

1987 NMES and 1996 MEPS surveys.

RESULTS

Per capita dental expenditures among those who had had a dental visit.

Average nominal per capita dental expenditures for children 2 to 17 years of age who had had a dental visit increased from \$315.21 in 1987 to \$456.98 in 1996. However, when the effect of inflation is removed from these numbers, the NMES and MEPS data show a decrease of 13.7 percent in average real expenditures, from \$578.05 to \$498.57 (Table 1).

Real per capita dental expenditures decreased from \$625.58 to \$536.59, or 14.2 percent, for children 5 to 17 years of age, but increased by 22.5 percent among children 2 to 4 years of age, from \$126.32 in 1987 to \$154.72 in 1996.

Expenditures among white children who

All expenditure estimates presented in this article are per capita and are based on people who had had at least one dental visit during the year of the survey.

visited a dentist were higher, on average, than those among black children in both 1987 and 1996. Among white children, expenditures were 18.3 percent less, on average, in 1996 than in 1987. The absolute difference between white and black children fell from \$315.14 in 1987 to \$157.66 in 1996. The same pattern was seen for non-Hispanic vs. Hispanic children. The absolute difference between these two groups fell from \$245.19 in 1987 to \$71.67 in 1996.

Real expenditures increased by 83.9 percent among children in households with incomes below the federal poverty level, or FPL, from 1987 to 1996, from \$219.49 to \$403.73. However, expenditures decreased by 17.7 percent for children living above the FPL, from \$624.20 to \$513.77.

Real dental expenditures tended to increase with the child's level of household income (that is, percentage of poverty level) in both surveys. However, the absolute difference between the highest and lowest income levels fell from \$556 in 1987 to \$230 in 1996 (Figure 1). In 1996, children below the FPL who visited a dentist reported higher expenditures for dental care, on average, than children in the 100 to 200 percent of FPL income category—\$403.73 vs. \$275.77.

Table 2 shows an increase in average real expenditures for preschool children 2 to 4 years of age in households with incomes below the FPL, from \$81.99 in 1987 to \$186.57 in 1996. Among school-aged children 5 to 17 years old, only children in the below-FPL group reported an increase

in real dental expenditures—from \$235.03 in 1987 to \$431.44 in 1996. Those in the above-FPL category reported a decrease from \$675.44 to \$553.16.

Much of the difference related to the income level of children in both surveys was found in 5- to 17-year-old children. However, the gap between the lowest and highest income groups in this age group decreased from \$596.69 in 1987 (\$831.72 – \$235.03) to \$246.31 in 1996 (\$677.75 – \$431.44).

Much of the difference in expenditures on

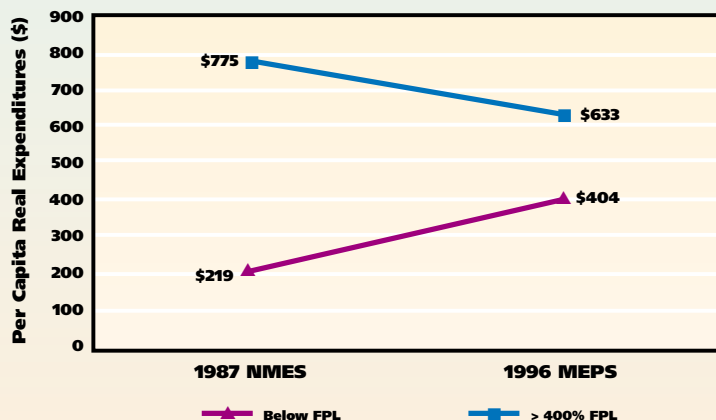


Figure 1. 1987 National Medical Expenditure Survey, or NMES, and 1996 Medical Expenditure Panel Survey, or MEPS, real (base = 1998) dental expenditures by income level among children 2 to 17 years old with a dental visit. FPL: Federal poverty level.

TABLE 2

1987 NMES* AND 1996 MEPS† REAL (BASE = 1998) EXPENDITURE DATA FOR CHILDREN 2 TO 17 YEARS OF AGE WITH A DENTAL VISIT, BY AGE AND POVERTY LEVEL.

AGE AND POVERTY LEVEL	CHARGES (\$)		CHANGE (\$)	P VALUE
	1987 Charges	1996 Charges		
2-4 Years				
Below FPL‡	81.99	186.57	+104.58	.0025
Above FPL	132.45	148.79	+16.34	.3868
100-200% of FPL	131.51	100.22	-31.29	.3511
201-400% of FPL	138.64	171.19	+32.55	.2505
> 400% of FPL	123.40	137.89	+14.49	.6593
5-17 Years				
Below FPL	235.03	431.44	+196.41	.0331
Above FPL	675.44	553.16	-122.28	.0119
100-200% of FPL	419.90	294.57	-125.33	.0815
201-400% of FPL	654.68	549.07	-105.61	.1402
> 400% of FPL	831.72	677.75	-153.97	.1024

* NMES: National Medical Expenditure Survey.

† MEPS: Medical Expenditure Panel Survey.

‡ FPL: Federal poverty level.

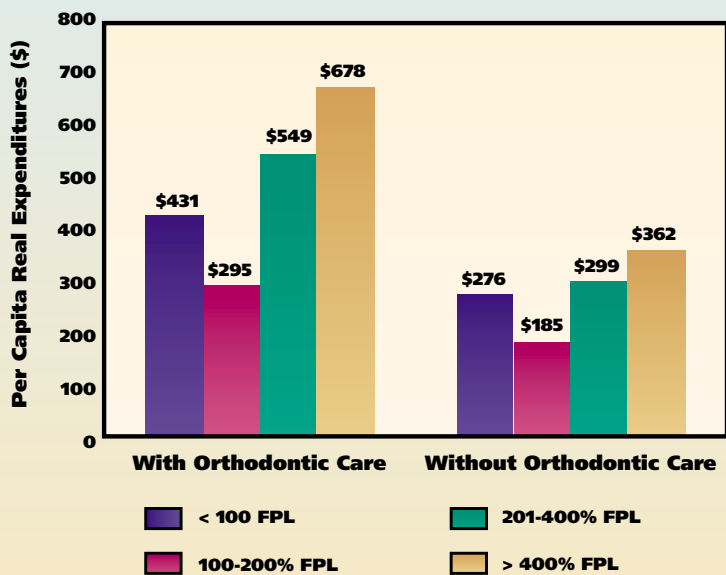


Figure 2. 1996 Medical Expenditure Panel Survey, or MEPS, dental expenditures by income level, with orthodontic care vs. without orthodontic care, among children 5 to 17 years old with a dental visit. FPL: Federal poverty level.

dental services related to income among children in this age group is related to orthodontic services. When these services are excluded, the difference in dental expenditures between the highest and lowest income groups is reduced to about \$86 in 1996 (\$362 – \$276) (Figure 2).

Sources of funding. This section examines three sources of funding for dental services rendered—out-of-pocket, private insurance and public funding—and a fourth category labeled “not reimbursed.” A fifth residual category called “other” is included in Table 3 for completeness, but is not discussed. Figure 3 (page 480) shows how the relative contribution of four categories of funding varied by income level in 1996.

Overall, out-of-pocket payments declined in real dollars from \$303.12 in 1987 to \$189.28 in 1996. As a percentage of total funding, out-of-pocket payments fell from 52.4 percent in 1987 to 38.0 percent in 1996. The contributions from private insurance and public funding declined in real dollars, but held steady in terms of percentage of total funding. Private insurance accounted for

37.4 percent of total funding in 1996 and public funding accounted for 4.4 percent. The not-reimbursed category grew from \$27.64 to \$93.47, or from 4.8 percent of the total in 1987 to 18.7 percent of the total in 1996.

For children below the FPL, the real increase in funding from \$219.49 in 1987 to \$403.72 in 1996 was due in large part to an increase in the “not reimbursed” category, which rose from 6.2 percent of the total in 1987 to 40.7 percent of the total in 1996 (Figure 4, page 480). Out-of-pocket payments for these children fell from 50.4 percent of the total to 23.9 percent in 1996. Public funding doubled in terms of real dollars, from \$57.45 to \$114.12. As a percentage of the total, the increase was from 26.2 percent to 28.3 percent.

As for children whose household incomes were 100 to 200 percent of the FPL, decreases in out-of-pocket payments, public funding and private insurance contributed to a decrease in real expenditures from \$384.56 in 1987 to \$275.77 in 1996. Public funding fell from \$66.61 to \$22.08, or from 17.3 percent of the total to 8.0 percent. Private insurance fell from \$108.89 to \$81.25 but, as a percentage of the total, held steady (28.3 percent in 1987 vs. 29.5 percent in 1996). There was an increase in the not-reimbursed category from \$28.31 to \$60.68, or from 7.4 percent of the total to 22.0 percent.

Decreases in real per capita expenditures among the top two income categories were related mostly to a decrease in out-of-pocket payments.

Decreases in real per capita expenditures among the top two income categories were related mostly to a decrease in out-of-pocket payments. Despite an overall decrease in expenditures, there was an increase in the not-reimbursed category, both in terms of amount and percentage of the total, from 1987 to 1996.

Finally, we have discussed results presented in this article based on sources of funding in terms of per capita average

amounts and as a percentage of total funding. Table 4 (page 481) presents an estimate of the total dollar value of not-reimbursed care provided to children 2 to 17 years of age by income level based on the 1996 MEPS. Also included in Table 4 is an estimate of the total dollar value of dental care provided to children 2 to 17 years of age in 1996 by income level.

Approximately two-thirds of the total value of

TABLE 3

1987 NMES* AND 1996 MEPS† REAL (BASE = 1998) PER CAPITA EXPENDITURE DATA FOR CHILDREN 2 TO 17 YEARS OF AGE WITH A DENTAL VISIT, BY POVERTY AND SOURCES OF FUNDING.

TYPE OF FUNDING, BY HOUSEHOLD INCOME LEVEL	EXPENDITURES			
	1987		1996	
	Per Capita (\$)	% of Total	Per Capita (\$)	% of Total
Overall	578.05		498.57	
Out of Pocket	303.12	52.4	189.28	38.0
Private Insurance	214.52	37.1	186.65	37.4
Public Funding	26.26	4.5	21.73	4.4
Not Reimbursed	27.64	4.8	93.47	18.7
Other‡	6.53	1.1	7.44	1.5
Below FPL§	219.49		403.72	
Out of Pocket	110.58	50.4	96.66	23.9
Private Insurance	37.91	17.3	28.09	7.0
Public Funding	57.45	26.2	114.12	28.3
Not Reimbursed	13.55	6.2	164.38	40.7
Other	0.00	0	.46	.1
100-200% of FPL	384.56		275.77	
Out of Pocket	179.41	46.7	110.15	39.9
Private Insurance	108.89	28.3	81.25	29.5
Public Funding	66.61	17.3	22.08	8.0
Not Reimbursed	28.31	7.4	60.68	22.0
Other	1.34	.3	1.60	.6
201-400% of FPL	606.22		507.64	
Out of Pocket	317.49	52.4	201.26	39.6
Private Insurance	239.10	39.4	226.15	44.6
Public Funding	15.00	2.5	5.86	1.2
Not Reimbursed	30.35	5.0	71.25	14.0
Other	4.27	.7	3.11	.6
> 400% of FPL	774.97		633.39	
Out of Pocket	420.30	54.2	251.92	39.8
Private Insurance	302.51	39.0	255.76	40.4
Public Funding	8.62	1.1	1.13	.2
Not Reimbursed	28.81	3.7	105.86	16.7
Other	14.74	1.9	18.70	3.0

* NMES: National Medical Expenditure Survey.
† MEPS: Medical Expenditure Panel Survey.
‡ Other: Includes sources such as automobile, homeowner's and liability insurance and other miscellaneous or unknown sources.
§ FPL: Federal poverty level.

care not reimbursed was provided to children in the two highest income levels. However, children in those income levels received 80.7 percent of the total dental care provided in 1996. Children in the lowest income group received 11.2 percent of the total dental care delivered, but received 24.3 percent of the care not reimbursed. Children in households with incomes 100 to 200 percent of the FPL received 8.2 percent of the total dental care delivered and 9.6 percent of the care not reimbursed.

DISCUSSION

For children who visited a dentist, these findings

indicate a decline in real per capita expenditures. Overall, among children aged 2 to 17 years, real per capita expenditures (base = 1998) declined by about 14 percent, from \$578 to \$499 over the period from 1987 to 1996. Dental expenditures among children 5 to 17 years old with a visit were less on average in 1996 than in 1987. Children aged 2 to 5 years who had had a dental visit did report an increase, but this increase was from a relatively small base in 1987.

Racial and ethnic disparities in expenditures among children who visited the dentist were dramatically reduced from 1987 to 1996. Comparable reductions in disparities due to income also were found.

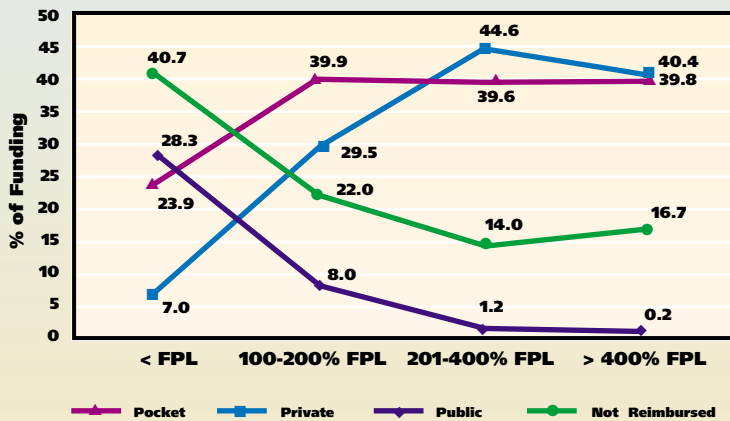


Figure 3. 1996 Medical Expenditure Panel Survey, or MEPS, sources of funding for dental services by income level among children 2 to 17 years old with a dental visit. Pocket: Out-of-pocket funding. Private: Private insurance. Public: Public funding.

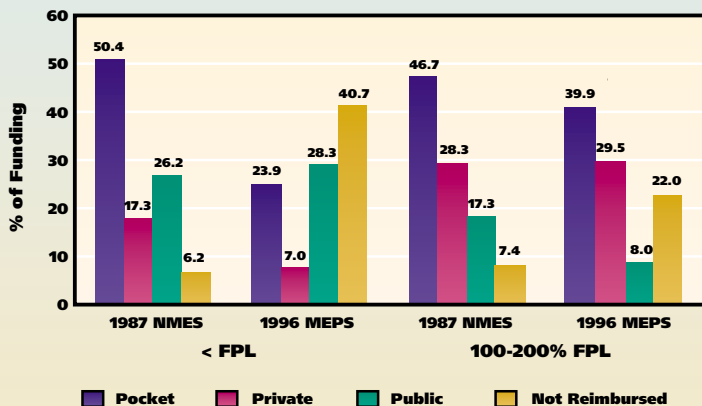


Figure 4. 1987 National Medical Expenditure Survey, or NMES, and 1996 Medical Expenditure Panel Survey, or MEPS, sources of funding for dental services by income level among children 2 to 17 years old with a dental visit. FPL: Federal poverty level. Pocket: Out-of-pocket funding. Private: Private insurance. Public: Public funding.

Large expenditure increases per patient occurred among the poorest children, while expenditure decreases occurred among children from families with higher incomes. The reasons for these results are not completely understood. A possible explanation may lie in the decrease in untreated caries among children. Children in higher-income households have low levels of cumulative caries (both treated and untreated) and almost no untreated caries, and they have had those low levels for some time.⁶⁻⁸ Thus, middle-class children did not need much restora-

tive dentistry. Expenditures for these children largely were for routine diagnostic and preventive services and did not increase between 1987 and 1996. Lower-income children also showed a marked decrease in both cumulative and untreated caries. Nevertheless, these children had a greater need for restorative care, even after the decrease. These findings suggest that lower-income children received more of the care they needed in 1996 than in 1987.

Among children 5 to 17 years of age, most of the gap in expenditures between the highest and lowest income groups in 1996 was due to orthodontic services. When expenditures for orthodontic services were excluded from the analysis, the gap between expenditures between the lowest income and highest income group was reduced to \$86.36 in 1996.

Children below the FPL still are less likely to visit a dentist than their upper-income counterparts.⁹ Nevertheless, once a visit has occurred, it appears that children at different income levels receive similar amounts of care as measured by dental expenditures.

Among children living at 100 to 200 percent of the FPL, real per capita expenditures fell from 1987 to 1996. This is a disturbing trend. The roles played by different funding sources may be part of the explanation. The amount of care paid for by two important sources of funding, out-of-pocket payments and public funding, decreased both in amount and as a percentage of the total during this period. Funding from private insurance declined in amount, but its percentage contribution remained level. Dentists' care that was "not reimbursed" increased in both amount and as a percentage of the total, but could not make up for the declines in other sources of funding.

It should be noted that this trend occurred before the State Children's Health Insurance Program, or SCHIP, was enacted in 1997. We can hope that this program will help reverse this trend in expenditures and increase the amount of dental services these children receive. For that to happen, SCHIP must be funded at adequate levels, and dentists must be adequately reimbursed for their services.

A possible unintended consequence of SCHIP that should be followed closely is the possibility that increased public funding for children eligible for SCHIP could result in a decline in private insurance coverage as children become covered by SCHIP. This would represent a shift from private

TABLE 4

ESTIMATED TOTAL VALUE OF NONREIMBURSED AND TOTAL DENTAL CARE PROVIDED TO CHILDREN 2 TO 17 YEARS OF AGE BY POVERTY, 1996 MEPS* (1996 DOLLARS).

FPL†	VALUE OF DENTAL CARE			
	Care Not Reimbursed		Total Care	
	Total (\$1,000s)	%	Total (\$1,000s)	%
< Below FPL†	630,738	24.3	1,549,074	11.2
100-200% of FPL	249,761	9.6	1,134,994	8.2
201-400% of FPL	788,395	30.4	5,616,950	40.6
> 400% of FPL	927,003	35.7	5,546,430	40.1
TOTAL	2,595,897	100.0	13,847,448	100.0

* MEPS: Medical Expenditure Panel Survey.

† FPL: Federal poverty level.

funding to public funding. To the extent that this occurs, the amount of additional funding for these children would be reduced by the amount that public funding is substituted for private funding.

Nonreimbursed dental care provided to children by dentists is substantial, both in amount and as a percentage of all dental care. In 1996, nonreimbursed care amounted to \$2.6 billion of \$13.8 billion total, or about 19 percent of all children's dental care. In 1987, this percentage was 4.8 percent.

The reasons for this increase cannot be demonstrated with these data. Within the not-reimbursed category, it is not possible to determine the individual contributions of charity care, bad debt, professional courtesy, uncollected liability and discounting. These may vary by the income level of the child receiving the care. Charity care may be more common among lower-income children and discounting more common among higher-income children with dental insurance. In addition, it is not possible to determine if some of the difference may be due to measurement error or differences in design between the two surveys.¹⁰ On the other hand, the increase in this category from 1987 to 1996 is notable, and this category represented a significant portion of care received, charges incurred and resources used by these patients. Consequently, it is important to include the not-reimbursed category as part of these analyses.

An examination of this category shows that the amount not reimbursed may vary by the income

level of the child receiving the care. About two-thirds of the total dollar value of "not reimbursed" care went to children in the top two income categories in 1996. However, children from lower-income families also received a substantial amount of this care. Dentists provided, without reimbursement, a significant percentage (40.7 percent of per capita funding) of all dental care that below-poverty-level children received in 1996. This represents an important contribution by practicing dentists toward maintaining the oral health of these children.

CONCLUSION

Overall, real per-patient dental expenditures among children 2 to 17 years old fell from \$578 in 1987 to \$499 in 1996. Racial and ethnic disparities in dental expenditures were dramatically reduced from 1987 to 1996. In terms of sources of funding, out-of-pocket payments fell from 52.2 percent of the total to 38 percent, contributions from private insurance and public funding held steady at 37 percent and 4.5 percent of the total, respectively, while the not-reimbursed category grew from 4.8 percent to 18.7 percent of the total.

Real per-patient dental expenditures among children living in households below the FPL increased from \$219 in 1987 to \$404 in 1996. While this finding provides the basis for optimism regarding access to dental care for lower-income children, more can and should be done to increase the percentage of these children who visit a den-



Mr. Wall is the manager, Statistical Research, Health Policy Resources Center, American Dental Association, Chicago.



Dr. Brown is the associate executive director, Health Policy Resources Center, American Dental Association, 211 E. Chicago Ave., Chicago, Ill. 60611, e-mail "brownja@ada.org". Address reprint requests to Dr. Brown.



Dr. Manski is a senior scholar, Agency for Healthcare Research and Quality, Rockville, Md. He also is a professor, Department of Oral Health Care Delivery, Dental School, University of Maryland, Baltimore.

tist. All segments of society must

cooperate to achieve this result. The political will must be found to increase public funding for this important segment of our population. ■

1. Brown LJ, Lazar V. Dental care utilization: how saturated is the patient market? *JADA* 1999;130:573-80.

2. Manski RJ, Moeller JF, Maas WR. Dental services: use, expenditures and sources of payment, 1987. *JADA* 1999;130(4):500-8.

3. Edwards WS, Berlin M. National Medical Expenditure Survey: Questionnaire and data collection methods for the household survey and the survey of American Indians and Alaska Natives, methods 2. Rockville, Md.: Agency for Health Care Policy and Research; 1989. U.S. Department of Health and Human Services publication (Public Health Service) 89-3450.

4. U.S. Department of Health and Human Services, Agency for Health Care Policy and Research. National Medical Expenditure Survey, 1987: Household survey, population characteristics and person-level utilization, rounds 1-4 (public use tape 13) (computer file). Rockville, Md.: Agency for Health Care Policy and Research; 1987.

5. Cohen J. Design and methods of the Medical Expenditure Panel Survey household component: Report number 1, 1997. Rockville, Md.: U.S. Department of Health and Human Services; 1997. DHHS publication 97-0026.

6. Brown LJ, Wall TP, Lazar V. Trends in untreated caries in permanent teeth of children 6 to 18 years old. *JADA* 1999;130:1637-44.

7. Brown LJ, Wall TP, Lazar V. Trends in total caries experience: permanent and primary teeth. *JADA* 2000;131:223-31.

8. Brown LJ, Wall TP, Lazar V. Trends in untreated caries in primary teeth of children 2 to 10 years old. *JADA* 2000;131:93-100.

9. U.S. Department of Health and Human Services. Oral health in America: A report of the surgeon general. Rockville, Md.: U.S. Department of Health and Human Services; 2000.

10. Zuvekas S, Cohen J. A guide to comparing health care expenditures in the 1996 MEPS to the 1987 NMES. Inquiry (in press).