Trends and Patterns of Dental Care in an Urban Area Before Medicaid

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EVIDENCE from nationwide studies and its interpretation by students of the delivery of health care indicate that the use of all personal health services—including dental services—by the general population has been steadily increasing (*1, 2*). However, use of dental services is still strongly and positively related to family income (*3–6*), indicating that the cost of such services may be a major deterrent to seeking care. However, recent Federal legislation was designed to offer almost free dental care to low-income groups under a variety of dental care delivery programs (*7*).

Yet experience from several such programs has, so far, suggested that reducing or removing financial barriers does not necessarily lead to increased and optimum use of services among the lowest income groups. For instance, in the defined target area of the neighborhood health center planned by Meharry Medical College, few persons used dental care resources even when care was free or low in cost (*8*). Reports based on studies of dental care in Head Start populations in Boston note that availability of free dental services alone is not enough to stimulate a high rate of use in an indigent population (*9*). Similarly, a study of health defects and treatment needs of adolescents in a summer work program in Boston reveals that the absence of preexisting financial barriers to obtaining dental care did not diminish the amount of untreated severe dental disease (*10*).

Additional evidence that availability of low-cost or free dental care, alone, may not bring about optimum use of care by low socioeconomic groups—who have the greatest dental needs—comes from studies of use of services under various dental prepayment programs. For instance, no more than one-third of the teamster union members and their dependents used the free services of the dental clinic of the Labor Health Institute in St. Louis during a 1-year period (*11*).

Even when dental services were available at the private offices of free-choice dentists at little or no direct cost under Group Health Dental Insurance in New York City, use by blue-collar workers and their families was markedly below that of the average plan members (*12*). There are also indications that with dental insurance under the system of fee for service, a few patients may obtain many services and others may obtain none (*13*). Therefore, an important aspect in assessing a program aimed at bringing dental services to low-income groups must be the extent to which they reach the populations for whom they are intended.

The most important and controversial recent public dental care program is under Medicaid. One of the generalizations considered possible in reports of the early impact of Medicaid on the use of services in Erie County, N.Y., was that the program "did not reach the majority of its eligibles, although the fi-

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nancial impediment to care had been removed for two years" (*14*). Analyses of fiscal records showed that people on welfare obtained disproportionately less care than those who were merely medically indigent. Although a subsequent report on the same county showed an upward shift in the relative proportion of the Medicaid dollar being spent for welfare patients as a consequence of the legal changes enacted in May 1968, welfare recipients still accounted for only one-third of the total patients (*15*).

On the other hand, in New York City—which has the largest concentration of poverty populations—the number of medically indigent who received services was about equal to cash grant recipients (*16*). Furthermore, in the Erie County studies dealing with the early impact of Medicaid on private dental practice, 66 percent of surveyed dentists indicated that the majority of their Medicaid patients were persons they had treated previously, and only 34 percent indicated that the majority were new patients (*17*).

Additional evidence that many Medicaid patients may be former private patients of a dental office comes from dentists in Boston. These dentists responded to a mailed questionnaire regarding differences in no-show behavioral patterns between their Medicaid patients and private patients (*18*). However, in another study done in Boston, rising trends in the use of dental care and a shift from clinic to private care by Head Start families between the summers of 1967 and 1968 were, in part, attributed to the institution of Medicaid in 1966 (*19*).

Likewise, a pilot project of dental services in New York State found that 47 percent of Medicaid patients had not seen a dentist during a minimum of 3 years previously and needed extensive work (*16*). Although such a finding would suggest that the program has been providing care for a large part of a population that formerly did not receive it, hard data on the proportion of eligible persons reached and on the effectiveness of the program are still lacking.

It thus becomes evident that to obtain some measure and understanding of the impact of Medicaid and similar programs on the use of health services, it is important to establish baseline dental care trends and patterns which occurred in relevant segments of the population before these programs became effective. Such data could help determine whether results after implementation of legislation are a continuation of trends or a change.

This paper is a report on an analysis of levels and patterns of dental care in an area in upper Manhattan, New York City, at two points of time, both before Medicaid. It is fitting that this question of the use of dental services under public programs be examined in New York City because the New York State Medicaid program—despite repeated reductions in its scope—is still the broadest and most controversial program of its kind in the nation.

Some data on trends in the use of dental services have relatively recently become available on a nationwide basis through the National Health Survey (*4, 5*) and surveys conducted by the Health Information Foundation and National Opinion Research Center (HIF–NORC) (*3*). However, these national studies do not provide information on patterns of use among the relevant population subgroups, such as poor blacks and Puerto Ricans in metropolitan areas, or according to occupational characteristics.

Furthermore, nationwide data are not appropriate for the evaluation of programs like Medicaid because the implementation of such programs is local, thus resulting in great variations in scope, eligibility requirements, and administration, not only from State to State but also among different parts of the same State. In New York State, for instance, the administration of Medicaid is decentralized into the 64 welfare districts of the State (*14*). Therefore, basic benchmarks of dental care patterns should become available also within local communities.

This report deals primarily with children over 3 years old. Most of the publicly funded, recently launched, and currently planned dental care programs—including Medicaid in New York—aim exclusively at, or give preference to, children (*17, 20–22*). Rates of dental care use over a 5-year interval are considered for various age, income, and ethnoreligious subgroups, and the patterns at two points of time, the years 1960 and 1965, are noted.

The opportunity to examine such baseline dental care trends before Medicaid was provided by the master sample surveys of 1960 and 1965 in the Washington Heights Health District in New York City. This district is an administrative area of the city's department of health, comprising the northern end of the Borough of Manhattan.

According to the 1960 census, the community had approximately 270,000 persons living in 100,000 dwelling units. There is a relatively wide range of income, educational, and occupation statuses and

a great deal of ethnic variation in the area. The population, however, tends to be predominantly lower middle and working class; the largest ethnoreligious groups are Jewish, Negro, Irish, and Puerto Rican. The geographic and demographic communities of the Washington Heights Health District and the characteristics of its residents have recently appeared in an updated community fact book (*23*) and a monograph devoted exclusively to the Washington Heights master sample survey (*24, 25*).

Patterns of use of dental services among the various socioeconomic and ethnic groups in Washington Heights have already been reported by Suchman and Rothman (*26*). The data and analyses in my paper complement those of the earlier report which referred only to adults over 21 years and only to the first survey period (1960).

Methods and Procedures

In two large-scale community surveys conducted in 1960 and 1965, health and sociomedical data on Washington Heights were collected by means of household interviews. In the 1960 survey the total number of persons in the sample for whom dental Care of Mothers and Children, under the direction stratified probability sampling plan was used, and the sample is considered representative of the Washington Heights Health District in 1960–61.

The basic interview schedule was the family form, which was used to obtain data on demographic characteristics, health status, and medical care. A description of the sampling plan and a complete copy of the family form have appeared in the appendices of references 23–25. The female head of the household was usually the informant for herself and for the rest of the family. In the family form, the question asked in relation to dental care was, "Which member(s) of the family, including yourself, received dental care during the past twelve months?" Data were collected for 914 children aged 3–17 years, and these data are part of the basis of this report.

In the 1965 survey, data on dental care were collected for 732 children, 3 to 17 years, in a multistage area probability sample of 2,000 housing units (*23*). The Project on Health and Medical Care of Mothers and Children, under the direction of Dr. Elinor F. Downs, used a schedule to obtain both social and medical data for all children in the sample who were under 18 years. This children's form was administered to a parent or parent substitute of each child. The specific question on dental care in the children's form was: "Has (____) been to a dentist?" If yes, "Has (____) been to a dentist within the past year?" Information on background characteristics of each child's family were collected through the family form.

In my paper, the principal measure of use of dental care is the proportion of children who were reported to have received some care within the year preceding the interview. There are indications that analyses of who does or does not visit a dentist is more revealing than an analysis of visit rates or of types of services last received (*27*). Most studies show that what primarily differentiates population subgroups is how many people from the subgroups see dentists at all, rather than the number of times the dentist is seen (*28, 29*).

A major aim in my analysis was to delineate dental care patterns according to ethnicity. For this purpose, a color-religious-nativity classification was employed, since it was felt to be most meaningful for describing the population of the area and of present-day New York City. The classification was derived from the interviewer's observation of the respondent's color and questions about religion and place of birth of family members including head of family's father. The categories included are Puerto Rican, Negro, other Catholics, other Protestants, and Jewish. The other Catholic and other Protestant categories include Catholics and Protestants not classified as Puerto Rican or Negro. Other Protestants also includes a small number of "others," for example, children of Asian descent and white children whose religion was Eastern Orthodox or none. There were 48 such children in the 1960 sample and 39 in 1965.

Dental Care Trends and Patterns

School children. As expected, there were differences in reported dental services between preschool and school-aged children. Therefore, the results have been examined and presented separately.

The overall level of use by all school children did not change much from 1960 to 1965; it increased only from about 71 to 73 percent (table 1). This rate is in keeping with that of nationwide surveys. According to the National Health Survey, for instance, 63.4 percent of the children 5–14 years old living in the Northeast Region of the country visited a dentist in the year before the interview in 1957–58. In 1963–64, 66.2 percent of the children in the same age group and area visited a dentist in the preceding year (*4, 5*). The HIF–NORC surveys showed that the nationwide user rate for school-aged children 6–17 years old did not change from

1958–1963 (*3, 30*). In both years 47 percent of this age group was reported to have seen a dentist.

The more than 70 percent level of dental care use found for school children in the general population of Washington Heights is high compared with nationwide estimates. This use most likely reflects the active school dental health education program conducted by the Bureau of Dentistry of the Department of Health of New York City, particularly, the "dental notes" component of the program. Children are directed to seek dental care and to return a signed dental certificate indicating either no need or initiation and later completion of dental treatment. In fact, the levels of dental care found in the two Washington Heights surveys are fairly close to those reported by the bureau for the same area which are based on summarized school records (69 percent in 1960 and 68 percent in 1965) (*31*).

Table 1 shows, also, the dental care rates of school children in relation to a series of sociodemographic characteristics in both survey years. The first important finding is the stability of the patterns over time despite the sampling variation and the slight variation in wording the questions. It appears that the 5-year interval did not contribute to a more equitable distribution of dental services. In both periods the differences according to family income and ethnicity were quite pronounced. For instance, in 1960 the proportion of school children who had received some dental care was 86 percent for the highest income group and 49 percent for the lowest; in 1965 the proportion was 89 percent for the highest and 59 percent for the lowest. Equally substantial are the differences and their persistence over time among children in the various ethnoreligious groups. In both survey years Negro and Puerto Rican children were the least likely to have received dental attention, followed by white Protestant or Catholic, and Jewish children, with the Jewish children being always the likeliest users of dental services.

Further, it is clear that between 1960 and 1965, dental care—as defined in this study—showed no reliable increase for children in lower income families or for those in the Negro and Puerto Rican groups. If there was any increase during this period, it seemed to be confined to the white groups, especially the Jewish group who were relatively high users during the first study.

While there is evidence supporting the view that class differences in the use of hospital and physicians' services have been narrowing over the years

Table 1.—Percent of school children 6–17 years old having dental care the past year, by selected characteristics, Washington Heights master sample survey, 1960 and 1965

Characteristic	1960		1965	
	Percent of total with dental care	Total number	Percent of total with dental care	Total number
All school children	71.4	732	73.1	562
Boys	69.4	360	68.7	272
Girls	73.4	372	77.2	290
Family income: [1]				
Less than $3,000	49.4	89	59.3	54
$3,000–$4,999	68.9	167	64.8	128
$5,000–$7,999 [2]	79.0	257	74.1	205
$8,000 or more [2]	85.5	144	88.9	131
Ethnoreligious group: [1]				
Negro	57.9	145	56.2	130
Puerto Rican	62.4	85	58.4	113
Other Catholic [3]	75.5	222	82.7	179
Other Protestant [3 4]	71.2	73	79.5	44
Jewish	82.2	202	92.7	96
Geographic zone: [1]				
South (134–150 Sts.)	61.0	136	63.8	105
Central (150–181 Sts.)	68.4	294	62.7	220
North (181–228 Sts.)	80.5	297	86.9	237
Head of family lived in New York City: [1]				
Up to 9 years	65.7	102	66.0	103
10 years or more	69.7	429	67.3	321
Entire life	81.0	189	91.7	133

[1] Totals for subgroups exclude children for whom information was not recorded.
[2] For 1960 these income categories were $5,000–$7,499 and $7,500 or more.
[3] Excludes Negroes and Puerto Ricans.
[4] Includes those whose families' religion was Eastern Orthodox or none and children of Asian descent.

and now are relatively small and inconsistent (*3, 32–34*), the use of dentists' services continued to show significant differences among various segments of the social structure. It has been suggested that public concern with dental health and dental care seems to emerge relatively late in the evolution of the total spectrum of personal health services (*1*). The practice of regular dental care is relatively new, and its acceptance requires time. According to diffusion theories, when a practice becomes more widespread, it becomes more diffused in the social structure, and with near universal acceptance, there is no significant difference in use among different social groups (*35*). Apparently dental care is not yet a practice in rapid process of diffusion.

The stability of dental care patterns between the two points in time is demonstrated further by the

persistence of relationships between use of dental care and other background characteristics of the population of the area, such as geographic zone and length of time lived in New York City (table 1). The Washington Heights Health District has been arbitrarily divided into three zones—north, central, and south—for both descriptive and administrative purposes. During both surveys school-aged children living in the north zone were much more likely to have received dental care than children living in the central and south zones.

The ethnic composition and concomitant socioeconomic characteristics—both strongly related to dental care use—are conspicuous features of the component zones. The population of the north zone is almost totally white, with Jewish and Irish families predominating, and family incomes are relatively high. The central zone has a smaller white majority than the north, again with a relatively large Jewish component, and with Negroes and Puerto Ricans accounting for two-fifths of the population. In the south zone white persons are a minority, with three-fifths of the population being black and one-fifth Puerto Rican.

Variations in the use of dental care according to zone continued to exist when family income was taken into account. Additional data for both survey periods (available from the author) showed that in all income groups school children living in the north zone were always the most likely to have received dental services during the year.

In addition to economic factors, barriers to optimum use of dental services may be related to their availability and accessibility. It is beyond the scope of this study to establish whether there is any direct relationship between availability and use of dental services, an issue on which hard data are lacking. An attempt was made, however, to examine whether there were any geographic differences in the availability of dental resources within the district.

The American Dental Directory and a list of dentists by postal zones were used to compute the ratio of dentists to the population according to the geographic zones of the area. (The list was obtained from Dr. M. Fisher, deputy executive director, Medicaid, New York City Department of Health.) The investigator in this study found that while the population per dentist was about 1,300 in the north and central zones, it was about 4,200 in the south zone. These ratios compare with 1,039 persons per dentist in New York City and with 780 for overall Manhattan and Bronx, according to estimates compiled by the American Dental Association (*36*).

The observations in this study support other recent reports of substantial disparity in the distribution of dentists in urban areas, which, as compared with rural areas, supposedly have favorable dental manpower situations. A study of dental manpower in the Boston Metropolitan Area reported that towns with low socioeconomic levels, compared with towns of higher socioeconomic levels, had fewer and older dentists, fewer specialists, and recent histories of losing rather than gaining dentists (*37*).

Furthermore, in Washington Heights schools with dental clinics were not evenly distributed. Of the five schools with such clinics, three were in the north zone, one in the central zone, and one in the south. From this disparity in the distribution of dental care facilities in the area, it can be inferred that the likelihood of being able to walk to the dentist is less for the low-income black and Puerto Rican children of the south zone than for the children living in other sections of the community.

At both points of time, children of families whose head had lived in New York City all his life were distinctly more likely to have visited a dentist than were children in families whose head was not a long-time resident of New York City (table 1). This relationship may reflect only in part the greater use of dental care by children in the north zone, which had the highest proportion of long-term New York City residents, for the relationship was maintained when it was controlled for family income and ethnic group (tables available from the author). An exception was the Puerto Rican group, whose considerably shorter time of residence in New York City did not seem to be associated with the proportions of children who reportedly used dental services. Negroes did not differ much from the average population in the period of residence at their present address and in New York City.

Preschool children. Table 2 shows use of dental care for selected subgroups of preschoolers, 3 years and older, in the community at the two time periods. The purpose of this aspect of the study was to establish baseline levels and trends. Children under 3 years are not included because their requirements for dental treatment and use of dental services are low. Data on preschoolers will be helpful in assessing the effectiveness of programs, such

as Head Start and Get Set, aimed at the preschool child. At this time, the findings in this study serve to illustrate the great discrepancy between the need for, and the receipt of, care in this age group.

Epidemiologic studies of dental caries among preschool children are scarce in the literature because, compared with school children, preschoolers are not captive populations. Recently, however, some knowledge of the extent of dental disease in preschool children became available primarily because the institution of programs such as Project Head Start required that children enrolled in the programs have a dental examination (*38*). Experiences from such programs have indicated that dental decay is widespread among young children—that it begins early in life and increases rapidly.

Table 2.—Percent of preschool children 3–5 years old having dental care the past year, by selected characteristics, Washington Heights master sample survey, 1960 and 1965

Characteristic	1960		1965	
	Percent of total with dental care	Total number	Percent of total with dental care	Total number
All preschool children [1]	22.0	182	24.1	170
Boys	23.9	88	30.1	93
Girls	20.2	94	16.9	77
Family income: [2]				
Under $3,000	8.0	25	----	(3)
$3,000–$4,999	12.5	48	13.5	51
$5,000–$7,999 [4]	26.9	67	22.8	57
$8,000 or more [4]	37.0	27	55.5	36
Ethnoreligious group: [2]				
Negro	14.0	50	13.6	44
Puerto Rican	0	27	8.8	34
Other Catholic [5]	20.4	54	30.2	63
Other Protestant [5,6]	7.1	14	33.3	21
Jewish	56.8	37	----	(3)
Geographic zone:				
South (134–150 Sts.)	12.5	48	19.4	36
Central (150–181 Sts.)	10.7	56	14.3	63
North (181–228 Sts.)	35.9	78	35.2	71
Head of family lived in New York City: [2]				
Up to 9 years	12.2	41	4.0	50
10 years of more	17.1	82	28.4	81
Entire life	37.5	56	38.9	36

[1] Children under 3 years are not included because they rarely need treatment and infrequently use dental services.
[2] Totals for subgroups exclude children for whom information was not recorded.
[3] Numerical base too small to present percentages.
[4] For 1960 these income categories were $5,000–$7,499 and $7,500 or more.
[5] Excludes Negroes and Puerto Ricans.
[6] Includes those whose families' religion was Eastern Orthodox or none and children of Asian descent.

Table 3.—Percent of children 3 years old and over who have never been to a dentist, by age and selected characteristics, Washington Heights master sample survey, New York City, 1965

Characteristic	3–5 years		6–17 years	
	Percent of total never at dentist	Total number	Percent of total never at dentist	Total number
All children [1]	71.8	170	12.1	562
Boys	67.7	93	14.7	272
Girls	76.6	77	9.7	290
Family income: [2]				
Less than $4,000	77.8	36	11.6	112
$4,000–$5,999	82.5	57	16.8	173
$6,000–$7,999	63.0	27	11.8	102
$8,000 or more	55.6	36	5.3	131
Ethnoreligious group: [2]				
Negro	79.5	44	20.0	130
Puerto Rican	85.3	34	19.5	113
Other Catholic [3]	68.3	63	10.6	179
Other Protestant [3,4]	61.9	21	2.5	44
Jewish	----	(5)	0.0	96
Geographic zone:				
South (134–150 sts.)	72.2	36	13.3	105
Central (150–181 sts.)	81.0	63	17.7	220
North (181–228 sts.)	63.4	71	6.3	237
Head of family lived in New York City: [2]				
Up to 9 years	94.0	50	23.3	103
10 years or more	65.4	81	12.1	321
Entire life	58.3	36	3.8	133

[1] Children under 3 years are not included because they rarely need treatment and infrequently use dental services.
[2] Totals for subgroups exclude children for whom information was not recorded.
[3] Excludes Negroes and Puerto Ricans.
[4] Includes those whose families' religion was Eastern Orthodox or none and children of Asian descent.
[5] Two of 8 Jewish children had never been to a dentist.

Reported proportions of preschoolers found to require some dental treatment vary, depending on the specific ages included in the groups of children examined, on the method of examination, and on whether or for how long the water supply of the community has been fluoridated. The most frequently reported proportions of preschool children requiring some dental treatment ranged from 70 to 85 percent (*9, 38, 39*). Specifically for New York City, a recent report based on the period just after the city's water fluoridation program began in September 1965 mentions a lower but substantial rate of 50 percent for 4- and 5-year-old children (*40*).

In any case, table 2 shows that in 1960 and 1965, in the Washington Heights area of New York City, less than 15 percent of preschoolers in low-income

and minority groups received some dental care. A rate of more than 50 percent was achieved, however, by preschoolers in the highest income (1965) and Jewish families (1960).

Because of small numbers in subsamples, it is hard to assess change over time for preschoolers. This change varies by subgroups, but it is difficult to state what factors seem to influence it.

The overall levels of dental care use reported for preschoolers in the 1960 and 1965 surveys are close to that reported by the National Health Survey for the Northeast Region of the United States for the years 1963–64. This was 13 percent for children under 5 years, that is, including children 2 years and under whose needs and use of dental services are very low (*4*). A similar rate of 12 percent use by children under 5 years was reported in a study of a rural general population (*27*). Substantially higher rates of dental use have been, of course, achieved among young children in special populations, such as those under prepayment (*41*) or those enrolled in Head Start projects, under systems of examinations, referrals, followups, and free dental treatment (*9, 39*).

Table 4.—Percent of school children 6–17 years old having dental care the past year, according to family income and ethnicity, Washington Heights master sample survey, New York City, 1960 and 1965

Ethnoreligious group and income [1]	1960		1965	
	Percent of total with dental care	Total number	Percent of total with dental care	Total number
Negro:				
Less than $5,000	45.2	62		
$5,000 or more	69.2	65		
Less than $6,000			49.3	77
$6,000 or more			68.3	44
Puerto Rican:				
Less than $5,000	62.5	40		
$5,000 or more		[2]		
Less than $6,000			58.5	82
$6,000 or more			63.6	22
Other Catholics: [3]				
Less than $5,000	67.0	85		
$5,000 or more	81.4	113		
Less than $6,000			78.7	80
$6,000 or more			86.6	82
Other Protestant: [3 4]				
Less than $5,000	55.5	27		
$5,000 or more	80.9	42		
Less than $6,000			85.1	23
$6,000 or more				[2]
Jewish:				
Less than $5,000	84.6	39		
$5,000 or more	85.4	137		
Less than $6,000			84.2	20
$6,000 or more			94.1	68

[1] The selection of different cutoff points for income in 1960 and 1965 is due to differences in the income distribution of samples and in the rise of cost of living between the two surveys.
[2] Fewer than 20 children.
[3] Excludes Negroes and Puerto Ricans.
[4] Includes those whose families' religion was Eastern Orthodox or none and children of Asian descent.

Children never receiving dental care. An additional perspective on the distribution of dental services in populations can be obtained by considering the proportion of children who had never received dental care. Table 3 presents this information for selected sociodemographic subgroups of Washington Heights from the 1965 survey. Again, as expected, the two age groups differed greatly in complete lack of professional care: 72 percent of all preschool children and 12 percent of all school-aged children. In view of the data on the identified extent of dental needs among preschoolers, this is a high rate of neglect. However, the lack of professional care dropped to 56 percent among preschoolers when the family income was $8,000 or more.

It seems as if levels of use by the high-user population subgroups—such as those with the highest income—tend to represent an approximation of levels of need. Also, it can be seen that, despite the city's active school dental health program, one of five black and Puerto Rican school children had never been to a dentist. In general, demographic variability in dental care use, when complete nonuse is the indicator, is such that subgroups of children that were least likely to have received some dental service within the survey year had also the largest proportions of children who had never been reached by dental care.

Ethnic variations. Because Puerto Rican and Negro groups are overrepresented in the low-income categories, the use of dental services was examined for each of the ethnoreligious groups in the two surveys. Family income was controlled (table 4).

These data show that over the 5-year period there was no increase in the dental care levels of Negroes and Puerto Ricans and that marked ethnic differences continued to exist regardless of income levels. Among children in low-income families—the target population of publicly funded programs—only the other Catholic and other Protestant groups showed some tendency toward increasing their use of den-

tists' services from 1960 to 1965. Furthermore, while higher income was associated with more dental care among Negroes, this was not so for the Puerto Ricans nor was its effect consistent for the Jewish group.

Such relationships point to the significance of cultural factors in the use of dental services, and these cultural factors are above and beyond such social factors as economics, school pressures, and the process of diffusion of this health practice over time. The independent and cumulative influences of all these factors are illustrated in table 4: in Washington Heights in 1960 less than half of the low-income black school children reported dental care, while nearly all of the Jewish children did so in 1965.

The importance of sociocultural factors (reflected in ethnicity) on the use of dental services is further indicated by table 5, which presents the relationship between use of dental care and ethnicity according to educational level of the head of household at both points of time. The marked differences among the ethnoreligious groups are maintained regardless of whether the head of family had only an elementary education or had attended high school. It is also seen that the Negro and Puerto Rican populations are grossly underrepresented in the highest educational category. These data indicate that the limited use of dental care among Puerto Ricans and Negroes may be in part, but not exclusively, a result of their low educational status. The persistence of high use of dentists' care by children in Jewish families with little education suggests the complexity of dental health behavior and of its culture-connected patterns.

Education is a widely used measure of social status and has been interpreted as indexing opportunities, for example, through both greater awareness of practices and the availability of services which influence the acceptance and diffusion of relatively new practices (*35*). The data in table 5, however, suggest that high school education of family head in minority groups did not accelerate the general process of diffusion of dental care among their school children over the 5 years. In the Negro and Puerto Rican groups with high school education there was no increase in the use of dental care between the two points of time; nor did differences in use decrease among the ethnoreligious groups during this period.

Furthermore, in 1965, as shown in table 6, ethnic differences in the use of care continued to be quite pronounced even when occupation of the head of household was controlled. Within each ethnoreligious group occupational differences were present but were relatively small and irregular.

Ethnic variations and the significance of cultural factors—in addition to socioeconomic variables—in seeking dental care, at least in this area of New York City, were initially noted by Suchman and Rothman when they examined the dental care patterns of a subsample of adults from the 1960 master sample survey. They found that, in some instances, ethnicity seemed to transcend even the type of social organization within some population subgroups (*26*).

It is pertinent to note that results from the analyses in this study support these initial findings. The relationship is quite consistent because it was observed in data based on representative samples of school children who were studied not only in the same year as the subsample of adults in the Suchman and Rothman report, but also 5 years later in 1965.

In 1967 a survey of low-income Boston families

Table 5.—Percent of children 6–17 years old having dental care the past year, by ethnicity and education of head of family, Washington Heights master sample survey, 1960 and 1965

Ethnoreligious group [1] and education	1960		1965	
	Percent of total with dental care	Total number	Percent of total with dental care	Total number
Negro:				
Elementary school	60.0	45	54.5	33
High school	55.2	87	53.9	76
Some college or more		[2]		[2]
Puerto Rican:				
Elementary school	67.4	43	62.3	53
High school	64.5	31	47.9	88
Some college or more		[2]		[2]
Other Catholic: [3]				
Elementary school	75.0	80	83.0	47
High school	71.3	101	76.8	99
Some college or more	90.9	33	100.0	33
Jewish:				
Elementary school	94.7	19	95.5	22
High school	86.0	107	93.9	33
Some college or more	73.5	68	90.2	41

[1] Other Protestants were omitted because their number was too small for analysis by education.
[2] Fewer than 15 children.
[3] Excludes Negroes and Puerto Ricans.

Table 6.—Percent of school children 6–17 years old having dental care the past year, by ethnicity and occupational group of head of family, Washington Heights master sample survey, New York City, 1965

Occupational and ethnoreligious [1] groups	Percent of total with dental care	Total number
High level white-collar [2]	84.1	[3] 138
Negro	57.1	28
Puerto Rican		(4)
Other Catholic [5]	94.4	36
Jewish	95.9	49
Low level white-collar and blue-collar [6]	71.9	[3] 217
Negro	51.1	47
Puerto Rican	66.7	33
Other Catholic [5]	77.9	86
Jewish	90.2	41
Service workers [7]	66.2	[3] 130
Negro	64.5	31
Puerto Rican	49.1	55
Other Catholic [5]	88.6	35
Jewish		(4)

[1] Other Protestants were omitted because their number was too small for analysis by occupation.
[2] High level white-collar group includes professional and technical workers, managers, officials, and proprietors.
[3] Includes children for whom ethnicity was not recorded.
[4] Fewer than 10 children.
[5] Excludes Negroes and Puerto Ricans.
[6] Low level white-collar and blue-collar group includes clerical workers, salesmen, craftsmen, foremen, and operatives.
[7] Service workers are primarily service workers and a few laborers and private household workers.

with children in Head Start showed that contrary to the findings of most previously published reports, such as the earlier ones in New York City (*26*), black and white adults did not differ as to recency of their last dental visits (*42*). The report mentions the differences in dental facilities and in the populations in New York and Boston as being among possible factors responsible for the contrasting results. The Boston population may have more dentally aware persons, inasmuch as they volunteered their children for a dental Head Start program. It is also possible that such results may be a reflection of a beginning impact of Medicaid on the use of dental services in Massachusetts (*9*).

The ethnic patterns of children's dental care use in Washington Heights parallel those of a study of the use of prepaid pediatric clinic care provided by the Kaiser Foundation Health Plan in Oakland, Calif. In that study, the differences observed were more highly correlated with ethnic group than with social class as represented by education and occupation (*43*).

Dental care in relation to medical care. In addition to delineating patterns of use of dental services, the Washington Heights master sample survey provided the opportunity to compare patterns of using dental services with patterns of using medical services. Such considerations are relevant because, under the new systems for delivering comprehensive care, dental services are planned and delivered together with other health services. Yet some evidence and its interpretation suggest that seeking and providing dental care have their own dynamics, that dental and medical action may occupy two quite different areas in society's orientation, and therefore that dental services should not be lumped with other medical services (*17*).

For instance, Kriesberg included use of dental care and medical care as dimensions of behavior examined to determine the relative importance of situational and cultural factors in explaining the relationship between socioeconomic rank and behavior (*44*). He suggested that situational factors are those primarily responsible for the rise in the use of hospital and physicians' services and for the decrease in the relationship between such use and socioeconomic rank over the last two decades. On the other hand, in dental care behavior the puzzling finding is that the socioeconomic differences persist over time, and patterns of use appear to be accounted for by cultural factors. This process, however, seems to be a very specific one pertaining to the transmission of particular patterns of dental behavior and not to general values or to an integrated class subculture.

Similarly, on a nationwide basis, use of dental services was found to be different from use of hospital and physicians' services in that use of dental services showed the highest correlations with the predisposing and enabling components of a behavioral model developed to explain the families' use of health services (*45*). Results from the same analysis showed also that less of the total variance was explained for dental use than for either of the other services, indicating the complexity of dental care behavior patterns.

A comprehensive review of sociomedical studies of health and illness behavior states that the positive association of education, income, and occupational status with preventive dental visits appears to be stronger and more linear than the association of these variables with clinical examinations (*46*). A

study of a panel of rural adults revealed that preventive physical and preventive dental examinations were different in their patterns of diffusion among three age groups over an 8-year period (*35*). Nine social and economic factors were differently and more strongly associated with the correction of school-discovered dental defects than with correction of school-discovered medical defects (*47*). A survey of three counties in England found no correlation between recency of visits to dentists and to general practitioners and that certain variables, such as social class, which were strongly associated with dental care patterns were not related to physician consultation (*48*).

In New York City, the special research project of the Health Insurance Plan found that in 1951 rates of physicians' contacts were the same for white and nonwhite persons and the relationship of these rates to the education of head of household was irregular. At the same time there was a consistent advance in the rates of attended dental conditions with advancing education of head of household (*28*).

The estimated annual rate of physician visits per person in New York City in 1964 had almost no relationship to ethnicity and an inverse relationship to family income (*49*). The proportion of users of prepaid medical services in Group Health Insurance, Inc., showed no occupational differences in 1964 (*34*), in contrast to the marked differences between blue-collar and white-collar workers in the proportion of users of prepaid dental services in Group Health Dental Insurance from 1958–64 (*12*).

In Washington Heights a study based on a cross section sample of 5,344 persons interviewed in the master sample survey of 1960 showed that the proportion of persons receiving physician care had no positive relationship to family income even when the results were standardized for age and controlled for health insurance coverage (*33*). Furthermore, Suchman's reports—based on the subsample of 1,883 adults from the same survey—state that, in addition to income, there was a relative lack of any relationship between social class, ethnicity, "parochialism-cosmopolitanism," and the use of medical services. Persons with one or more physician visits in the past year were only slightly more likely than those who did not see a physician to report dentist visits during the same period (45 percent compared with 40 percent) (*26*).

In this report the relationship between use of dental care and some aspects of medical care behavior is examined for school children, controlling for income and ethnic factors when possible. The data provide no final answers to questions about the relative effect of various factors on the two kinds of health behavior. Nevertheless, the overall results tend to support the view that dental action and medical action do not reflect similar social and economic forces.

Table 7.—Percent of school children 6–17 years old having dental care the past year, by family income and receipt of medical or health care, Washington Heights master sample survey, New York City, 1960 and 1965

Survey year and family income	Received medical (health)[1] care		Received no medical (health)[1] care	
	Percent of total with dental care	Total number	Percent of total with dental care	Total number
1960 survey	73.0	[2] 274	70.3	[2] 437
Less than $3,000	62.5	32	41.1	56
$3,000–$4,999	78.3	60	65.4	104
$5,000–$7,499	81.9	105	75.0	140
$7,500 and over	74.5	47	81.1	90
1965 survey	75.5	[2] 441	64.2	[2] 120
Less than $4,000	61.9	84	50.0	28
$4,000–$5,999	73.0	122	64.0	50
$6,000–$7,999	78.0	82	75.0	20
$8,000 and over	86.0	121	----------	([3])

[1] Medical care in 1960 was primarily by physicians. Health care in 1965 included all types of services by medical as well as nonmedical personnel, except dental care; for example, services by optometrists, chiropractors, psychologists, and others.

[2] Includes children for whom family income was not recorded.

[3] Only 10 children.

Table 7 shows that in 1960 there was no appreciable association between dental care and medical care use for the total sample of school children in Washington Heights. The 1965 data in the same table indicate a weak relationship between the two types of use. The children who had medical care in the survey year were somewhat more likely than those who had no medical services to have also received dental care during the same period (75.5 percent compared with 64.2 percent).

It should be noted that while in the 1960 survey medical care use reflects care given primarily by physicians, in the 1965 survey health care includes all types of health services performed by medical as well as nonmedical, excluding dental, personnel; for example, optometrists, chiropractors, or psychologists. In both survey periods, however, what-

ever positive relationship could be observed between dental and medical care use was limited to low-income groups and disappeared as family income advanced from the lowest to the highest brackets.

Various explanations can be offered on a speculative basis for the weak relationship between the use of dentists' and physicians' care and for the social class patterns of these two kinds of behavior. One is that objective dental and medical needs may not be correlated in the sample populations studied. A more likely explanation is that the perception and definition of need for dental and medical treatment may not be correlated. Furthermore, the absence of such a correlation is more likely to occur among upper socioeconomic groups than among lower because the upper socioeconomic groups are more likely to exhibit health behavior rather than illness behavior. Consequently, upper socioeconomic groups are more likely to take health action in an asymptomatic stage, irrespective of objective medical or dental need (*46*).

In this study, when comparisons between use of medical and dental services for each of the separate ethnoreligious groups were possible, they did not reveal strong or consistent relationships between the two practices throughout the ethnic groups and between the two survey periods. For instance, the Negro group showed some positive relationship between dental and medical care use in both surveys, the Puerto Rican group only in the first survey, and the Catholic group only in the second survey. Some weak negative relationship was found in the Jewish group of the first survey which had sufficient numbers for reliable comparison. (Tables available from author.)

Additional comparisons among school children in the 1965 survey showed that, controlling for income and ethnicity, there was a negative (if any) relationship between use of dental services during the preceding year and having had physical examinations, checkups, or any immunization or other injections during the same period. For example, in the income group under $6,000, 58 percent of school children with reported physical examinations or checkups and 71 percent of those without physical examinations had dental care. In the $6,000 or more income group, 72 percent with and 82 percent without physical examinations or checkups had dental care.

In the same survey, it was found that the likelihood of the school child's use of dentists was positively related to his using private physicians, rather than clinics and hospital outpatient departments, as the usual source of care for medical examinations or checkups. Although this characteristic may first appear to be a reflection of income and ethnic group differences, table 8 shows that the relationship continues to exist within each income group and in four of the five ethnoreligious groups. The exception is the Puerto Rican group, which is, at least in this sample, atypical in several aspects of its dental and medical behavior.

In the 1960 survey dental care among children in low-income groups was associated with reports of having a family physician. The relationship was significant only among low-income families and persisted within ethnoreligious groups, with the exception of the Catholics (tables available from the author). It may be that in low socioeconomic groups dental care is part of a general health orientation and readiness for taking health actions or that the cultural or situational factors that lead people to have a family physician also lead them to seek dental care.

Table 8.—Percent of school children 6–17 years old having dental care the past year, according to child's usual source of medical care, by family income and ethnicity, Washington Heights master sample survey, New York City, 1965

Characteristic	Private physician[1]		Clinics or other[2]	
	Percent of total with dental care	Total number	Percent of total with dental care	Total number
All school children	79.7	[3] 365	62.1	[3] 190
Family income:				
Less than $4,000	63.8	47	57.4	61
$4,000–$5,999	81.5	108	54.0	63
$6,000 or more	83.2	190	76.2	42
Ethnoreligious group:				
Negro	56.4	55	64.8	54
Puerto Rican	65.5	58	48.6	70
Other Catholic[4]	86.8	129	71.4	49
Other Protestant[4 5]	81.6	38	----------	(6)
Jewish	92.9	85	----------	(6)

[1] Includes physicians in group practices such as Health Insurance Plan.
[2] Includes a few mentions of hospitals and health stations.
[3] Includes children for whom family income or ethnicity was not recorded.
[4] Excludes Negroes and Puerto Ricans.
[5] Includes those whose families' religion was Eastern Orthodox or none and children of Asian descent.
[6] Fewer than 15 children.

Summary and Conclusions

This study examined the use of dental services among children in the Washington Heights Health District, a community of about 270,000 people at the northern end of the Borough of Manhattan, New York City, at two points in time, with a lapse of 5 years, both before Medicaid. The aim was to establish baseline trends and patterns in dental care which could be used in assessing the impact of Medicaid and other publicly supported programs on the use of such care.

The data came from the Washington Heights master sample surveys of 1960 and 1965, two large-scale household interview surveys which collected sociomedical and sociodental information from communitywide samples.

The main findings showed an overall stability in dental care levels and patterns among children of the area over the 5-year period. The overall proportion of school children seeing a dentist at least once during the survey year did not change much between 1960 and 1965. The proportion of dental care users within a year found for school children of this area tends to be high compared with nationwide and other estimates and may reflect, in large part, the active school dental health education program of the New York City Department of Health.

Given the fact that the school program is the same throughout the district, the persistence of marked income and ethnic group differentials becomes particularly significant. The 5-year interval did not contribute to a more equitable distribution of dental services. At both times dental care use was positively and strongly related to family income and showed substantial differences among the various ethnoreligious groups. Negro and Puerto Rican children were the least likely to have received dental attention, followed by white Protestant or Catholic and Jewish children, with the Jewish children always being the likeliest users of dental care.

The ethnic pattern persisted at both time periods when family income or education or occupation of the head of household was controlled. The persistence of the ethnic pattern suggests the importance of cultural influences in seeking dental care. These influences are above and beyond economic, educational, and situational factors and support findings and conclusions of other research in this community.

Baselines in dental care levels and trends among preschoolers indicated the great discrepancy between need and receipt of services in this age group and the persistence of income and ethnic group differences.

In this study, the relationship of dental care use to aspects of medical care use was slight and variable. Weak positive relationships, when present, were limited to low-income groups. The findings in this study support the view that dental behavior has specific patterns and determinants which may vary from those of medical behavior and that relationships among sociomedical variables differ from those among sociodental variables. Both sets of relationships may be considered part of a larger set of relationships between social and health variables, an explication of which may yet lead to a more general science of "sociosalustics" (*50*).

The influences of economic and sociocultural factors in seeking dental care are so strong and persistent that over the years they have prevented the narrowing of differences toward a more equitable distribution of dental services among population subgroups. This situation constitutes a major challenge—even greater than the delivery of medical services—for programs that aim to effect uniform and optimum use of dental care.

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This study examined the use of dental services among children in the Washington Heights Health District, New York City, at two points in time (1960 and 1965). The aim was to establish baseline patterns and trends in dental care which can be used in assessing the impact of Medicaid and other publicly supported programs on the use of such care.

The study used data collected by the Washington Heights master sample survey, a long-term collaborative project sponsored by the Health Research Council of New York City. The 1960 sample consisted of 914 children and the 1965 sample, of 732 children aged from 3 to 17 years.

The results showed that there was considerable stability in both the levels and patterns of care over time. The overall percentage of children who saw a dentist at least once during the survey year increased only slightly between 1960 and 1965. At both times dental care use was positively and strongly related to income.

Ethnic group variations were quite pronounced: Negroes were least likely to have care, followed in rank order by Puerto Ricans, other white Protestants and Catholics, and Jews. Ethnic patterns persisted both over time and when family income or education or occupation of the head of the household was controlled. The results suggest that cultural characteristics have effects which are independent of economic, educational, and situational factors.

An analysis of dental care use among preschool children indicated a great discrepancy between the need and the receipt of dental services in this age group. An examination of the relationship of dental care use to aspects of medical care use showed only a slight association between the two types of behavior, and this was limited to low-income groups.