

Dental Visits by Income and Race In Ten Urban and Two Rural Areas

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Abstract: Household surveys in 12 low income areas found large differences in dental visit rates after control for income and race. The dental visit rate for Red Hook (NYC) exceeded the national rate whereas in seven of the areas the rate was below national averages by 40 per cent or more. The ranges in dental visit rate for low income Blacks was from two-thirds the na-

tional rate (in two areas of the South) to two to three times greater than the comparable national rate (in three areas of the Northeast). Lesser but nevertheless large variations among area dental visit rates existed for other race and income groups. (Am. J. Public Health 66:878-885, 1976)

On the national level, the trend toward a decreasing gap in the frequency of physician visits between the poor and nonpoor has been noted.¹ In contrast, considerable income differential persists in the frequency of dental visits.² A possible explanation might be that financial barriers to physician care have been decreasing while financial access to dental care remains restricted.

Income has been considered one of the most important factors in differential utilization of dental care. It has been assumed that lower dental utilization was related to financial barriers. Because low utilization of dental services is found among low income groups when these barriers have been eliminated,³ inquiry into causes other than income is needed.

Income remains a useful surrogate for social classes or cultural value systems held by individuals and therefore serves as an analytical tool in utilization studies. Lower priority is generally given to dental care compared to physician visits for illness. From this standpoint, dental care utilization is somewhat similar to preventive medical care utilization; generally low income groups seek preventive-type care at a lower rate than higher income groups.

The purpose of this paper is to describe dental utiliza-

tion in small areas whose residents are poor and low income. Data on dental utilization are presented by race and income, type of dental care, and the average number of dental visits required in these areas to equal the regional average within which they are located. For lack of a better standard of need, regional dental visit rates by age for 1969 were applied to area population by age to estimate additional dental visits needed for income and racial groups in these areas.

Whereas national and regional utilization rates represent an average of geographic variations, a comparison of small areas gives additional insight into utilization differentials. For example, is the direct relationship between income and dental utilization somewhat similar from area to area? How much does dental utilization vary among areas when income is controlled? Is the dental utilization among the black population consistently lower than the white population living in the same area?

Source of Data

Data on dental care in this report were collected from ten urban neighborhoods and two rural areas during 1968-71 by the National Opinion Research Center (NORC), University of Chicago.* Households were selected for interviewing

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*The exceptions were: The Kansas City survey was conducted by the National Center for Health Statistics, Department of Health, Education, and Welfare; the Montana survey was conducted by the Montana State University and the University of Montana with consultation by NORC. Standard questionnaire items were used for all the surveys.

TABLE 1—Number of Persons and Households Interviewed, Per Cent of Households in Sample with Interviews Completed, and Estimated Population in Survey Areas

Area and survey year	No. of Household Interviews Completed	No. of Persons Interviewed	Per Cent of Households in Sample with Completed Interviews	Estimated Population of Survey Area
			%	
Roxbury, Boston, Massachusetts, 1971	1,418	5,022	83	32,000
Bedford Stuyvesant-Crown Heights, Brooklyn, New York City, 1968-69	1,472	4,620	81	135,000
Red Hook, Brooklyn, New York City, 1968	1,506	5,269	82	24,000
Southeast Philadelphia, Pennsylvania, 1968-69	1,404	4,644	82	31,000
Upper Cardozo, Washington, D.C., 1969	866	2,432	71	44,000
Peninsula Charleston, South Carolina, 1969	1,441	4,483	91	42,000
Southside Atlanta, Georgia, 1968	1,075	4,164	92	28,000
Wayne Miner & Model Cities, Kansas City, Missouri, 1969-70	2,522	7,181	76	73,000
5 central Wisconsin counties,* 1968	1,282	4,725	92	252,000
16 eastern Montana counties,** 1969	941	3,088	87	85,000
Mission, San Francisco, California, 1970	1,415	3,851	77	109,000
East Palo Alto, California, 1969	1,503	4,731	86	23,000

*The five counties are: Clark, Marathon, Portage, Taylor and Wood.

**The 16 counties are Carter, Custer, Daniels, Dawson, Garfield, McCone, Phillips, Powder River, Prairie, Richland, Roosevelt, Rosebud, Sheridan, Valley, and Wibaux. The Indian reservation population is excluded.

using a standard area probability sampling technique. The purpose of these surveys was to obtain baseline measures for evaluating the impact of selected neighborhood health centers on its service area population. Follow-up surveys now in preparation will measure changes in medical and dental utilization patterns between two points in time. Questions on utilization were asked for all members of the household, usually of the spouse of household head or the household head.

Urban neighborhoods consisted of a number of contiguous census tracts with population size varying from 23,000 in East Palo Alto to 135,000 in Bedford Stuyvesant-Crown Heights area of Brooklyn, New York. The two rural areas consisted of five central counties in Wisconsin with a population of 252,000 and 16 eastern Montana counties with a population of 85,000 (excluding Indian reservation population). The number of persons and households interviewed, per cent of households in the sample with completed interviews, and the total estimate of the number of persons in each survey area are shown in Table 1.

All measures (averages and per cents) in this report are based on sample data; since the sample was selected to be self-weighting, these measures can be generalized to the total population in the survey areas.

Persons over two years of age who did not report dental visits ranged from 0-4 per cent. Persons who did not report annual income ranged from 1-21 per cent.

The income category "poor" used in this report includes persons in families who would be classified by the national poverty guidelines as poor.⁴ These guidelines take into account size of family. For example, an urban family of four with an income of \$3,700 or less in 1969 would be classified as poor. The "near poor" category includes person in families with incomes above the poverty level to two times the income level used as the upper cutoff for poor. The remain-

der of the population for whom income was reported were classified as "nonpoor." For comparability with nationally published data, in Tables 6 and 9 the income categories used refer to annual family income without taking into consideration family size.

Area population characteristics which may affect utilization—per cent poor and near poor, per cent black and per cent with Medicaid coverage at time of interview—are presented in Table 2. About seven out of the 12 areas would be considered poverty areas as defined by the Bureau of Census, areas where 20 or more per cent of the population have income at or below the poverty level set by the national poverty guidelines.

Findings

The annual number of dental visits per person by income category in each survey area is presented in Table 3, with comparative national data. These small area data by income show that compared to the national average of 1.5 dental visits per person, only one (Red Hook) of 12 areas achieved this rate. Not even the highest income groups in the remaining 11 areas reached the national average of 1.5 visits.

The geographic pattern showed highest utilization in the areas of the Northeast (with the exception of Southeast Philadelphia), and lowest in the areas in the South and in the survey areas of Kansas City.

Data in table 3 also show that the relationship of income to dental visits differs from area to area, and that within any one income group, there are variations in visit rate from area to area.

Age-specific dental visits rates by geographic region. A more precise comparison of differences in dental visit rate

TABLE 2—Selected Characteristics of the Population*

Area	Per Cent Poor	Per Cent Poor and Near Poor	Per Cent Black	Per Cent with Medicaid
Roxbury, Boston	40%	72%	74%	35%
Bedford Stuyvesant-Crown Hts, NYC	22	57	84	39
Red Hook, NYC	25	72	30	36
Southeast Philadelphia	34	71	48	21
Upper Cardozo, DC	13	51	79	9
Peninsula Charleston	38	71	74	4
Southside Atlanta	36	74	89	9
Wayne Miner & Model Cities, KC	29	68	53	**
5 counties, Wisconsin	13	27	0	3
16 counties, Montana	11	24	0	3
Mission, San Francisco	13	40	9	11
East Palo Alto	10	36	71	12

*Estimated from sample.

**Not tabulated.

among areas can be made by use of age-specific rates. The 1969 data on dental visits collected by the National Center for Health Statistics show that regional variations exist in dental utilization (see regional figures in Table 4). For every age group the dental rates in the Northeast and West regions are above comparable national rates. The rate for all ages in the Northeast and West was 64 per cent larger than the rate in the South and 22 per cent above the rate in the North Central States. The rate for children in the South was especially low compared with the rates for children in other regions.

Dental visit rates in the survey areas resembled the regional pattern (Table 4), but were not altogether uniform nor consistent with the rates for the region in which they are located. Highest areas of dental utilization were reported for

the survey areas in the Northeast and the lowest in Peninsula Charleston and Southside Atlanta.

The age-specific dental visit rates for each age group in the survey areas were below the comparable regional rates, with the exception of Red Hook. Almost one-half of the rates by age was 50 per cent or below the rates prevailing in the region.

Two obvious factors which might account for regional differences in dental utilization are: differences in dental needs, and availability of dental resources. Since data on dental care needs was not collected in this study, it was not possible to relate dental care utilization to need. Although there appears to be a direct relationship between need and utilization in terms of individuals,⁵ for area comparisons this

TABLE 3—Annual Dental Visits Per Person By Income

Area	All Incomes		Nonpoor		Near Poor		Poor	
	Visits	(N)	Visits	(N)	Visits	(N)	Visits	(N)
United States*	1.5		1.8		1.1		0.8	
Roxbury, Boston	1.2	(4,943)	1.3	(1,271)	1.2	(1,467)	1.0	(1,794)
Bedford Stuyvesant-Crown Heights, NYC	1.2	(4,463)	1.1	(1,683)	1.5	(1,347)	1.0	(871)
Red Hook, NYC	1.8	(5,228)	1.7	(1,193)	1.8	(2,007)	1.9	(1,086)
Southeast Philadelphia	0.8	(4,612)	1.1	(1,089)	0.8	(1,438)	0.6	(1,278)
Upper Cardozo, DC	0.8	(2,389)	1.0	(1,042)	0.7	(800)	0.6	(263)
Peninsula Charleston	0.6	(4,460)	1.0	(1,141)	0.5	(1,306)	0.3	(1,498)
Southside Atlanta	0.5	(4,075)	0.6	(1,067)	0.5	(1,489)	0.4	(1,488)
Wayne Miner & Model Cities, Kansas City	0.6	(7,046)	0.5	(1,891)	1.5	(2,381)	0.7	(1,693)
5 counties, Wisconsin	1.1	(4,584)	1.2	(2,866)	0.8	(583)	0.8	(562)
16 counties, Montana	0.9	(3,003)	1.0	(1,901)	0.7	(302)	0.6	(279)
Mission, San Francisco	1.1	(3,688)	1.1	(1,766)	1.0	(784)	1.2	(374)
East Palo Alto	0.9	(4,627)	1.0	(2,708)	0.6	(1,040)	0.6	(421)

*Source: National Center for Health Statistics, Dental Visits, Volume and Interval Since Last Visit, United States, 1969, Vital and Health statistics, Series 10, No. 76. Income groups shown for the United States, 76. Income groups shown for the United States are not identical to those shown for the areas. Instead, income categories for the U.S. are:

Poor: Less than \$3,000
 Near Poor: \$3,000 to \$6,999
 Nonpoor: \$7,000 and over

TABLE 4—Annual Dental Visits Per Person By Age: United States, Four Geographic Regions and Survey Areas

Area	All ages		0-16 years		15-44 years		45-64 years		65+ years	
	Visits	(N)	Visits	(N)	Visits	(N)	Visits	(N)	Visits	(N)
United States*	1.5		1.4		1.7		1.6		1.0	
<i>Northeast</i>	1.8		1.7		2.1		1.8		1.2	
Roxbury, Boston	1.2	(4,943)	1.1	(2,309)	1.4	(1,732)	1.1	(650)	0.6	(252)
Bedford Stuyvesant- Crown Heights, NYC	1.2	(4,463)	1.0	(1,849)	1.4	(1,806)	1.4	(628)	1.1	(180)
Red Hook, NYC	1.8	(5,228)	1.7	(2,149)	2.1	(1,869)	1.7	(832)	1.2	(378)
Southeast Philadelphia	0.8	(4,612)	0.7	(1,710)	1.1	(1,449)	0.8	(976)	0.4	(477)
<i>South</i>	1.1		0.9		1.3		1.3		0.9	
Upper Cardozo, DC	0.8	(2,389)	0.6	(695)	0.9	(1,065)	0.8	(451)	0.6	(178)
Peninsula, Charleston	0.6	(4,460)	0.4	(1,656)	0.9	(1,416)	0.8	(950)	0.5	(438)
Southside, Atlanta	0.5	(4,075)	0.5	(1,888)	0.6	(1,376)	0.5	(562)	0.2	(249)
<i>North Central</i>	1.4		1.4		1.5		1.4		0.9	
Wayne Miner & Model Cities, Kansas City	0.6	(7,046)	0.5	(2,640)	0.7	(2,203)	0.6	(1,382)	0.4	(821)
5 counties, Wisconsin	1.1	(4,584)	1.1	(1,836)	1.4	(1,453)	1.0	(911)	0.4	(384)
<i>West</i>	1.8		1.7		1.8		2.0		1.3	
16 counties, Montana	0.9	(3,003)	1.0	(1,075)	1.1	(886)	0.8	(717)	0.4	(325)
Mission, San Francisco	1.1	(3,688)	0.8	(1,110)	1.4	(1,583)	0.9	(680)	0.6	(315)
East Palo Alto	0.9	(4,627)	0.5	(1,795)	1.1	(2,001)	1.0	(684)	0.5	(133)

*Source: Source of data for the United States and each geographic region: National Center for Health Statistics, Dental Visits Volume and Interval Since Last Visit, United States, 1969, Vital and Health Statistics, Series 10, No. 76, 1972. Age groups for the U.S. differ from those shown in table as follows:

0-16 years:	0-14 years
17-44 years:	15-44 years
45-64 years:	45-64 years
65+ years:	65+ years

relationship may not hold. That is, an area with *low* dental utilization may not correspond to an area of *low* need for dental care.

In fact, the low dental visit rates in the South lead us to believe that there is greater rather than less need for dental care in this region.

Poor dental health status and past neglect among the population in Southside Atlanta were indicated by the fact that on their last dental visit in the past year 45 per cent of the population and 35 per cent of the children 0-16 years of age had extractions only. A somewhat similar situation was reported for the survey area in Charleston.

Resource data such as dentist-to-population ratios are of limited value in measuring availability of dentists to residents of small areas, and especially of poverty areas. Data for computing dentist-to-population ratios are usually available in terms of counties or cities and are often not applicable to small areas within these larger geographic entities. Dental offices are not usually found in poverty areas, but tend to be concentrated in certain areas of the central business district. Although lack of dental resources is a factor in low utilization, regional variations in the perception of need for dental services, and therefore demand, can exert an effect on the number of dental resources in these areas.

Mean dental visits among persons seeing a dentist in the year. Data collected in the surveys failed to confirm the finding by Andersen, et al.,⁶ that among persons who had at least one dental visit in the year, persons of low income consume as much dental care as other income groups, (Table 5). The greatest number of visits among persons who saw a den-

tist in the past year were made by the highest income group in eight of the 12 survey areas. In only five of the 12 areas was this measure directly related to income.

Dental visit rates by race. Table 6 examines dental visits by race and income. Its most striking feature is the relatively high rate of dental utilization among the Blacks, both poor and nonpoor, in the areas of the Northeast where dental visit rates among the Blacks are more nearly comparable to rates found among the Whites. A possible explanation of greater usage of dental care by the Blacks in Roxbury, Bedford Stuyvesant, and Red Hook is greater access to dental resources, because of greater availability of resources and broader Medicaid coverage. It is also possible that the higher rates of dental care visits among the Blacks in these areas is due to the fact that in Boston and New York City and perhaps the Northeast region in general there is a greater expectation and demand for health and social services than in other geographic regions of the United States. This expectation and demand and the greater public support for access to health and social services mutually support one another. The norm for greater expectation and demand for health and social services becomes increasingly accepted by greater number of persons within the geographic area, including subcultures and minority groups.

The large differences in dental services utilization between the races and between income groups among the Whites suggest that some of the variation in the dental visit rates between areas is related to differences in race and income composition of the area populations. The pattern of dental utilization by race and income in the survey areas par-

TABLE 5—Annual Dental Visits Per Person among Those Who Saw a Dentist in the Year by Income

Area	All Incomes		Nonpoor		Near Poor		Poor	
	Visits	(N)	Visits	(N)	Visits	(N)	Visits	(N)
United States*	3.2		3.3		3.0		3.2	
Roxbury, Boston	3.2	(1,852)	3.5	(481)	3.2	(558)	2.8	(649)
Bedford Stuyvesant-Crown Heights, NYC	3.3	(1,661)	2.9	(641)	4.1	(508)	3.2	(277)
Red Hook, NYC	4.0	(2,360)	3.6	(564)	4.1	(883)	4.5	(460)
Southeast Philadelphia	2.4	(1,575)	2.8	(426)	2.3	(493)	2.0	(378)
Upper Cardozo, DC	2.0	(963)	2.3	(451)	1.8	(318)	1.7	(94)
Peninsula, Charleston	2.0	(1,371)	2.4	(484)	1.8	(359)	1.5	(294)
Southside Atlanta	1.8	(1,128)	2.0	(329)	1.9	(407)	1.6	(384)
Wayne Miner & Model Cities, Kansas City	2.3	(1,722)	2.1	(469)	2.2	(571)	2.4	(475)
5 counties, Wisconsin	2.2	(2,211)	2.3	(1,435)	1.8	(248)	2.0	(213)
16 counties, Montana	2.0	(1,389)	2.1	(909)	1.7	(131)	1.8	(93)
Mission, San Francisco	2.8	(1,476)	2.7	(740)	2.9	(284)	3.6	(128)
East Palo Alto	2.5	(1,692)	2.5	(1,089)	2.0	(309)	2.0	(131)

*Source: Andersen, Ronald, et al., Health Service Use, National Trends and Variations, DHEW Publications No. HSM 73-3004, October 1972.

alleled the national experience to some extent, but there were notable exceptions. In Roxbury and Red Hook, low income Blacks had higher dental visit rates than low income Whites. In the Kansas City areas, neither income nor race affected dental visits.

The Spanish-speaking population in Red Hook and Mission had rates of dental visits similar to the remainder of the population in these areas. However, in the Roxbury area it was far below both the White and Black rates. Income had little effect on the dental visit rate for the Spanish-speaking population in all three areas.

Per cent of the population seeing a dentist in the past

year. Another measure of the level of dental care is the per cent of the population who saw a dentist in the past year. As seen in Table 7, this figure ranged from 23 per cent in the survey areas in Kansas City to 49 per cent in the five Wisconsin counties compared to the national average of 45 per cent. The proportion seeing a dentist in a year was weakly related to income in almost all of the areas, whereas nationally income was strongly and directly related to this measure.

Type of dental care in the past year. The following question about type of dental care was asked: "What have you had done by a dentist or his assistant during the last 12 months? First, have you had your:

TABLE 6—Annual Dental Visits Per Person by Race and Income

Area	BLACKS Income				WHITE Income				SPANISH Income			
	Less than \$5,000		\$5,000 or more		Less than \$5,000		\$5,000 or more		Less than \$5,000		\$5,000 or more	
	Visits	(N)	Visits	(N)	Visits	(N)	Visits	(N)	Visits	(N)	Visits	(N)
United States*	0.6		0.8		1.0		1.7					
Roxbury, Boston	1.3	(1,642)	1.2	(1,971)	1.1	(252)	1.7	(327)	0.7	(404)	0.6	(122)
Bedford Stuyvesant-Crown Heights, NYC	1.1	(1,526)	1.1	(1,612)	—	—	—	—	—	—	—	—
Red Hook, NYC	2.0	(655)	1.7	(550)	1.6	(487)	1.9	(1,094)	1.8	(662)	1.7	(355)
Southeast Phil.	0.6	(1,314)	0.6	(468)	0.7	(671)	1.3	(993)	—	—	—	—
Upper Cardozo, DC	0.6	(642)	0.8	(1,000)	1.4	(78)	1.1	(178)	—	—	—	—
Penin. Charleston	0.4	(1,910)	0.4	(1,084)	0.8	(366)	1.7	(536)	—	—	—	—
Southside Atlanta	0.4	(2,681)	0.5	(852)	0.6	(171)	0.9	(257)	—	—	—	—
Wayne Miner & Model Cities, KC	0.7	(1,404)	0.5	(1,082)	0.7	(862)	0.6	(1,025)	—	—	—	—
5 counties, Wisc.	—	—	—	—	0.8	(1,195)	1.2	(4,806)	—	—	—	—
16 counties, Mont.	—	—	—	—	0.6	(568)	0.9	(2,104)	—	—	—	—
Mission, SF	—	—	—	—	1.0	(410)	1.2	(1,075)	1.0	(228)	1.1	(723)
East Palo Alto	0.5	(515)	0.8	(2,505)	0.8	(190)	1.4	(716)	—	—	—	—

*Source: National Center for Health Statistics, Dental Visits, Volume and Interval Since Last Visit, United States, 1969, Vital and Health Statistics, Series 10, No. 76. The figure for the Black population shown for the U.S. includes all races other than classified as White. Income in this table refers to annual family income. Figures are not shown where race or ethnic group did not comprise at least 10 percent of the area population.

TABLE 7—Per Cent of Population Seeing a Dentist in the Year by Income

Area	All Incomes	Nonpoor	Near Poor	Poor
United States*	46%	55%	36%	27%
Roxbury, Boston	36	37	37	35
Bedford Stuyvesant-Crown Heights, NYC	35	36	35	29
Red Hook, NYC	45	47	44	42
Southeast Philadelphia	34	39	34	29
Upper Cardozo, DC	39	42	38	33
Peninsula Charleston	31	42	27	19
Southside Atlanta	26	28	25	25
Wayne Miner & Model Cities, KC	23	24	22	26
5 counties, Wisconsin	49	51	42	38
16 counties, Montana	44	46	40	30
Mission, San Francisco	36	39	32	30
East Palo Alto	35	38	29	29

*Source: National Center for Health Statistics, Dental Visits, Volume and Interval Since Last Visit, United States, 1969, Vital and Health Statistics, Series 10, No. 76. See note in table 3 for income comparability between national and survey areas. For sample size, see table 3.

Teeth checked, x-rayed or cleaned?
Teeth fixed or filled?
Bridgework repaired?
Teeth or bridge replaced?
Tooth or teeth pulled?"

Answers specified type of care received during the entire year, but not the number of times a person received a type of care. Therefore, it was not possible to compute cohort rates. Table 8 shows the percentage of respondents who reported they received preventive dental services and/or received extractions during the year (an individual may be in both categories).*

The per cent of population with preventive dental service during the year varied by age and income as well as between areas. In general more children (0–16 years of age) obtained preventive care than adults but this did not hold for Charleston, San Francisco, and Palo Alto. In some areas this difference between the children and adults was large and could be related to school dental health programs. In most areas more children and adults in the higher income group received preventive care than children and adults of lower income

The per cent of children with extractions in the year was lower than for adults among both income groups, but income seems unrelated to extractions.

In Red Hook, the highest proportion of the population receiving both preventive dental services and extractions were reported by almost all age and income groups. The figures for Roxbury are similarly high. In Montana and Wisconsin counties, the proportion reporting preventive dental services was four times as great as that reporting extractions. The lowest proportion of the population receiving preventive

dental services was found in Charleston together with a moderately high proportion reporting extractions. In Southside Atlanta,* on their last dental visit for the year, almost 40 per cent more persons had extractions than those receiving preventive services. This suggests that many of the dental visits in these two survey areas of the South were of an emergency nature.

Additional visits needed. The percentage of additional visits required to equal the average of the region within which the surveyance is located was calculated (Table 9). Regional rates by age⁷ were applied to each race and income group in each area, thus standardizing for age differences between race and income groups of the survey areas and the regions.

In addition to computing per cent of additional dental visits required by race and income groups based on regional rates, comparable per cents were calculated for these areas as a whole based on national and regional rates by age (see 2nd and 3rd columns in Table 9). From these two columns, it can be seen that the use of regional rates compared with use of national rates as a standard resulted in moderating differentials for the areas of the South and North Central regions, while increasing them for areas in the West and Northeast (with the exception of Red Hook).

Discussion

This paper has described several aspects of dental utilization in poverty and low income areas. In most, but not all areas, dental utilization among the Black population was lower than the rate for the White population even when differences in income were taken into account. In many areas, the relationship between income and dental visit rate was weak or nonexistent compared to the strong direct relationship be-

*Attention was focused on preventive services and extractions, the first and last of the five specific questions. A higher proportion of the population receiving preventive services may reflect better quality of dental care because of the efficacy of prophylaxis in promoting good dental health, whereas a high proportion receiving extractions may reflect poor dental health status.

*Southside Atlanta is not shown in Table 8 because data are limited to type of care received at last dental visit for the year.

TABLE 8—Per Cent of Population Receiving Preventive Dental Services and Extractions within the Year by Age and Income

Area*	0-15 YEARS						17 YEARS & OLDER					
	Poor		All other Incomes				Poor		All other Incomes			
	With Pre-ventive Care %	(N)	With Ex-tractions %	With Pre-ventive Care %	(N)	With Ex-tractions %	With Pre-ventive Care %	(N)	With Ex-tractions %	With Pre-ventive Care %	(N)	With Ex-tractions %
Roxbury, Boston	31	(1,129)	13	39	(1,215)	14	30	(693)	22	29	(1,974)	19
Red Hook, NYC	40	(564)	16	47	(1,591)	13	35	(526)	22	39	(2,570)	21
Southeast Phila.	29	(621)	5	35	(1,095)	6	11	(663)	16	22	(2,250)	14
Upper Cardozo, DC	36	(135)	7	42	(577)	7	20	(134)	13	25	(1,571)	15
Penin. Charleston	8	(753)	6	18	(906)	10	9	(748)	18	23	(2,063)	18
Wayne Miner & Model Cities, KC	26	(136)	11	22	(362)	8	16	(393)	13	14	(1,631)	11
5 counties, Wisconsin	39	(223)	5	48	(1,676)	8	27	(352)	8	38	(2,469)	11
16 counties, Montana	37	(100)	7	47	(1,011)	7	21	(187)	7	37	(1,974)	11
Mission, SF	22	(152)	7	32	(1,006)	8	30	(237)	14	36	(2,428)	11
East Palo Alto	19	(227)	6	26	(1,597)	7	29	(201)	15	35	(2,688)	15

*Data for Bedford Stuyvesant and Southside Atlanta were omitted due to lack of comparability because the questions used in these two areas on dental care asked only for information concerning the last dental visit in the year.

tween dental visits and income observed nationally. This may be due to the limited range in income among area residents, to some degree of homogeneity in behavior of populations in small areas, to differences in available and accessible resources, publicly-financed dental services, or to other obvious factors.

Although population differences may account for some of the variance in dental utilization nationally and within an area, much greater variance in dental utilization exists be-

tween geographic areas after differences in income and race have been taken into account.

It may be possible for society to change access to dental care by making dental care financing and facilities more readily available. The question is: Will it change utilization, especially among the Black and low income populations? Will it affect use of preventive dental care as well as emergency-type dental care utilization. Will increased utilization result in better dental health? Data from follow-up surveys just

TABLE 9—Additional Visits Required to Equal the National and Regional Dental Visit Rates as a Per Cent of Actual Dental Visit Rates by Race and Income

Area	ALL RACES		BLACK		WHITE		SPANISH	
	Based on national rates	Based on regional rates	Income less than \$5,000	Income \$5,000 or more	Income less than \$5,000	Income \$5,000 or more	Income less than \$5,000	Income \$5,000 or more
<i>Northeast</i>								
Roxbury, Boston	27%	56%	37%	65%	59%	14%	137%	216%
Bedford Stuyvesant-Crown Heights, NYC	26	56	60	69	—	—	—	—
Red Hook, NYC	16	3	-11	14	9	-3	-1	13
Southeast Phila.	90	132	179	196	145	44	—	—
<i>South</i>								
Upper Cardozo, DC	92	46	91	45	-20	3	—	—
Penin. Charleston	163	78	207	175	44	-29	—	—
Southside Atlanta	201	123	153	113	68	25	—	—
<i>North Central</i>								
Wayne Miner & Model Cities, KC	166	146	107	177	96	123	—	—
5 counties, Wis.	34	24	—	—	68	15	—	—
<i>West</i>								
16 counties, Mont.	72	107	—	—	184	101	—	—
Mission, SF	44	68	80	124	56	51	66	66
East Palo Alto	80	111	228	135	117	28	—	—

Note: For sample size, see table 6.

completed* in some of the same survey areas may help to answer some of these questions. In areas where dental utilization was low, it is likely that some improvement in dental utilization has occurred due to increased access provided by neighborhood health centers in these areas.

*Conducted during the summer of 1975 by Westat, Inc., Rockville, Maryland, under contract to National Center for Health Services Research, Health Resources Administration, Department of Health, Education, and Welfare.

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Panel on Arsenic Studies

The Panel on Arsenic Studies for the Environmental Health Hazard Project of the American Public Health Association is charged with serving as a scientific advisory panel on inorganic arsenic and other toxic substances. It does this by acting as a study section evaluating proposals for research. It also suggests studies that are needed, and it reviews and assesses the results of studies which are being carried out under the APHA contract with the Environmental Protection Agency. This review is designed to assist EPA in preparing scientifically acceptable regulations.

Date of Expiration: To 1977 or later, depending on the life of the contract which currently expires at the end of October 1977.

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Date of Appointment: January 1, 1975 for 1, 2 and 3 year terms. Previous members who served one year terms were: Inge Goldstein, PhD, Columbia University; Edward Radford, MD, Johns Hopkins University; Robert L. Morris, PhD, University of Iowa; and Max A. Woodbury, PhD, Duke University.