

*Based on a household survey, a report is presented on the health supervision received during the first year of life by infants from middle- and low-income families in New York City. This includes information on mothers' attitudes toward supervision, auspices of care, and the ages at which care was started.*

## **MEDICAL CARE OF URBAN INFANTS: HEALTH SUPERVISION**

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A LARGE part of the time of pediatricians is devoted to the health supervision of well infants. Departments of Health allocate a substantial portion of their resources to such programs. The Child Health Conference has a history that goes back to the Infant Milk Stations in New York City, and to voluntary groups in France at the turn of the century, whose efforts were directed toward the poor. With the emergence of pediatrics as a specialty and the development of a variety of immunizing agents, the management of health and of growth and development received enthusiastic public acceptance.<sup>1</sup>

Standards have been formulated for the frequency and content of health supervision visits.<sup>2,3</sup> However, there have been few studies to delineate the extent to which these standards have been met in various population groups. One reason for the dearth has been the lack of a suitable measuring instrument. A simple count of visits per year is not very meaningful. Moreover, as usually reported, such counts combine well-care visits with visits for illness.<sup>4</sup> Description of immunization status ignores other aspects of health supervision. Barron and Mindlin<sup>5</sup> have devised a numerical index which combines visits and im-

munizations to give a rating of the amount of health supervision an infant receives.

This paper describes the health supervision received during the first year of life by infants from middle-income and low-income families in New York City. In addition to the Health Supervision Index (HSI) for various groups, the auspices of their care, the infants' ages when it was started, its content and their mothers' attitudes toward such care are reported.

### **Methodology**

The data presented derive from a household survey conducted in New York City in 1965 and 1966. The methodology is described in detail elsewhere.<sup>6</sup> Monthly inquiry, beginning at one month of age, was made into the medical experiences of two random samples of infants. One lived in an interracial slum, M.H. District; the other in a predominantly white middle-class neighborhood, W. District. The ethnic distributions in the two districts are shown in Table 1. All but 5.4 per cent of the whites lived in W., while the district itself was 79.3 per cent white. Conversely, all but 20.6 per cent of the

**Table 1—Distribution of study infants by district and by ethnic group**

	M.H. District		W. District		Total	
	No.	%	No.	%	No.	%
White	11	4.5	192	79.3	203	41.9
Negro	69	28.5	16	6.6	85	17.6
Spanish	162	66.9	34	14.0	196	40.5
Total	242	100.0	242	100.0	484	100.0

Negro and Spanish\* lived in M.H. That district was only 4.5 per cent white.

Trained, lay interviewers were ethnically matched with respondents. As much as possible, they kept their own panels during the year, building relationships of confidence. Four cohorts of infants, one born in each season of the year, were studied to allow for seasonal influences on patterns of care at different ages. Contrast groups from the same cohorts, also randomly selected, were interviewed. These mothers were seen only once, so that the effect of repeated interviewing on the reported medical behaviors of the infants could be assessed. Among the questions asked of the mothers were some concerning checkup examinations: their frequency, their content, their medical auspices, the mothers' attitudes to them.

The HSI is a two-coordinate point on a plane where one axis, X, is a function of the number of months in which a visit was made and the time of these visits; and the other axis, Y, is the number of immunizations the infant was given. For this analysis, the plane has been divided into eight zones, which were then grouped into three categories, as shown in Figure 1A. The line parallel to the X-axis separates infants who

\* Defined as any infant, irrespective of color or race, whose mother was either born in Puerto Rico, Cuba or one of the Latin American countries, or identified by the interviewer as Puerto Rican rather than white or Negro.

received four or more immunizations from those who received fewer. The three lines parallel to the Y-axis divide the babies according to their visit pattern scores into those with very few, late, irregular visits (less than 15); those with visit patterns at least as good as the American Academy of Pediatrics' recommended standard of a visit monthly for the first six months, and bi-monthly for the second six months of life (60 or more); and two intermediate groups. The zones are then combined into the three categories, indicated by the shading, which very roughly might be considered "good," "fair," and "poor" amounts of infant health supervision. These schema lend themselves to the tabular and graphic presentation shown in Figure 1B. In the eightfold table, the individual cells correspond to the zones of the plane; the marginals give the distributions of immunizations at the right and visit pattern scores at the bottom. The bar chart provides a quick appreciation of the apportionment of the population into the "good-fair-poor" categories.

## Results

### The Health Supervision Index

Figure 2 shows the over-all status of infant health supervision in the contrast-

**Figure 1A—The Health Supervision Index Plane**

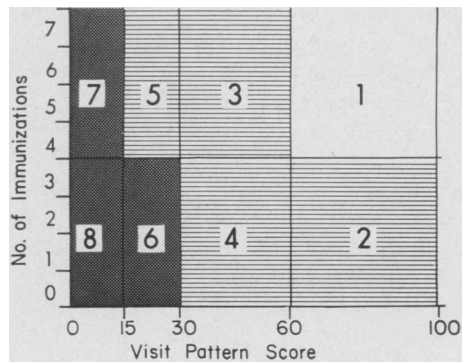
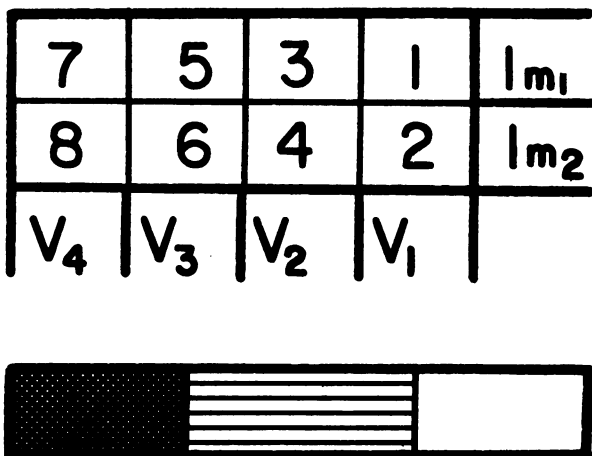


Figure 1B—The Health Supervision Index: Standardized presentation



ing districts as measured by the HSI. More than seven times as many infants are in Zone 1 in the W. District as in M.H., while eight times as many of the slum dwellers are in Zone 8. Three-fourths (76.9%) of the W. babies have visit pattern scores of 30 or better, while fewer than one-fifth (18.1%) of the M.H. babies score as high. Similarly, with respect to immunizations, the mid-

dle-class babies are better immunized, although this difference is not as marked.

The HSI distribution for each ethnic group is shown in Figure 3. As pointed out above, W. District is almost equivalent to "white," and M.H. District to "Negro-Spanish." There are minor differences between the Negro and the Spanish, but these are of little im-

Figure 2—Per cent distribution of Health Supervision Index by district

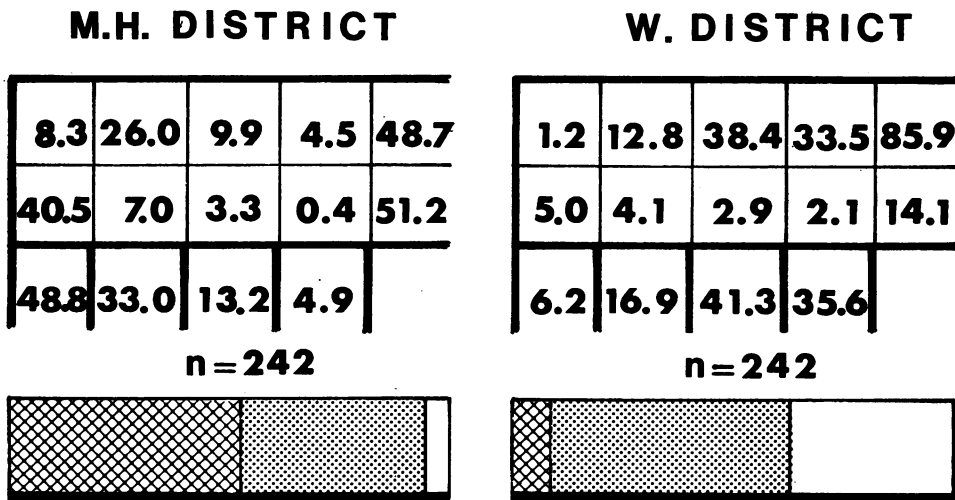
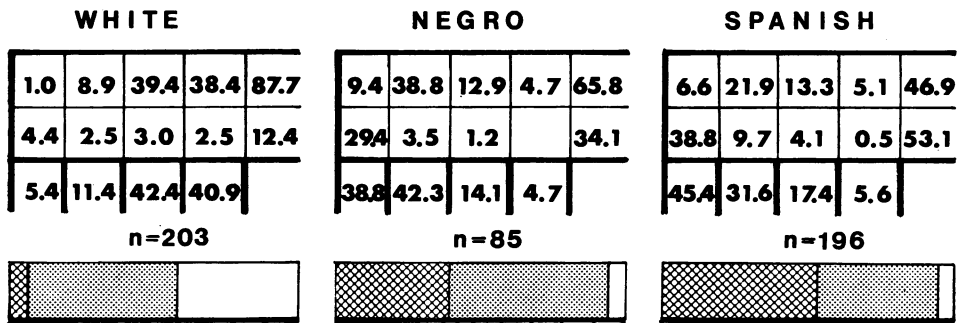


Figure 3—Per cent distribution of Health Supervision Index by ethnic group



portance compared to the striking difference between each of them and the white population.

Both education of the mother and family income are associated with the HSI. However, these influences are not as strong as the influences of district of residence and ethnicity. In Figures 4 and 5, the Negro and Spanish residents are combined for comparisons with the white in the same district and the Negro and Spanish of the slum. The amounts of health supervision vary more from one ethnic-residence group to another, when income or education are held constant, than they vary between the high and

the low income or education subjects within any one of the ethnic-residence groups.

The type of provider of medical care should have an influence on the completeness of a baby's health supervision. At the last interview of the year, mothers were asked whether they considered their babies to have a regular doctor. There were 14 per cent who named a pediatrician; 41 per cent had a general practitioner, group, or some other source of private care; 26 per cent mentioned a hospital clinic. There were 58 mothers (12%) who said they had more

Figure 4—Per cent distribution of Health Supervision Index by district, ethnic group and family income

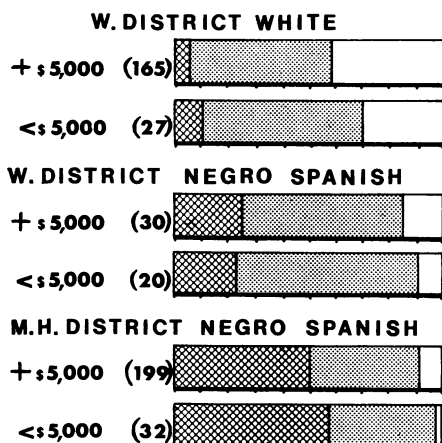


Figure 5—Per cent distribution of Health Supervision Index by district, ethnic group and education of mother

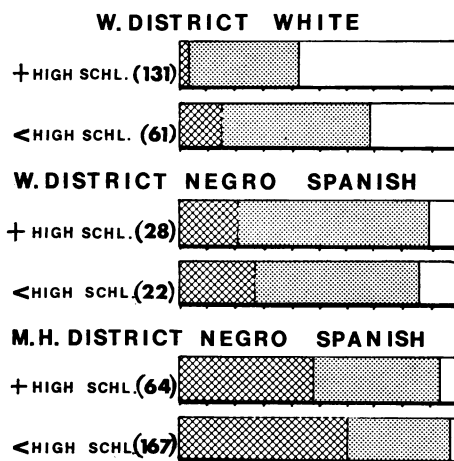
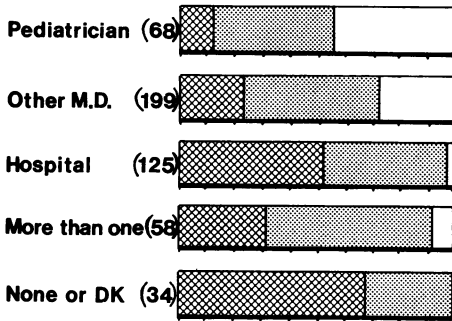


Figure 6—Per cent distribution of Health Supervision Index by type of regular doctor (medical care auspices)



than one regular doctor. Usually this was a Department of Health Child Health Station and a separate source for sick care; finally, 8 per cent had no regular doctor. Figure 6 gives the HSI distributions of the babies according to this classification. As might be expected, more pediatricians' patients were rated "good" than those of any other type of provider. However, even by the classification, the influences of district and ethnicity are dominant as seen in Figure 7 where the pediatricians and other private physicians have been combined to yield numbers large enough for analysis. There were only three Negro or

Spanish babies in W. who had a pediatrician for their regular doctor.

When the mothers who had a single regular doctor were asked if he encouraged checkups when the baby was not sick, only 68 per cent said that he did. As Figure 8 shows, this seems to have an effect on the percentages of babies getting good and poor health supervision

Figure 7—Per cent distribution of Health Supervision Index by type of regular doctor, district and ethnic group (medical care auspices)

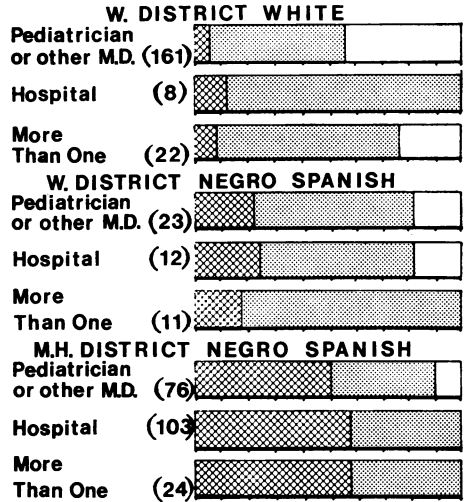
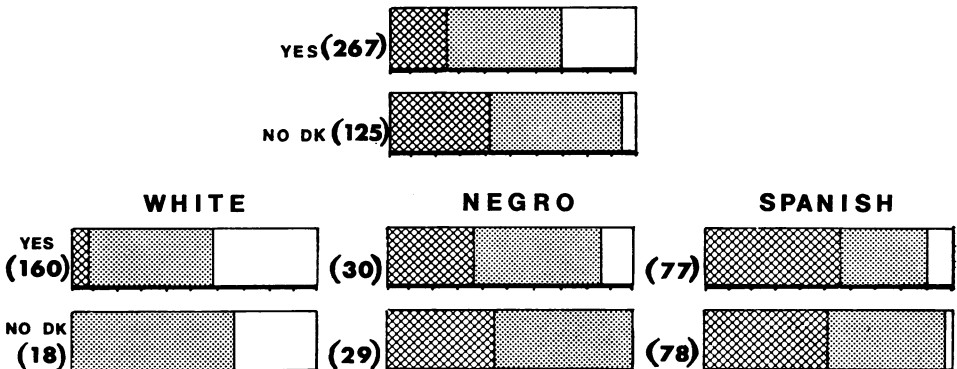


Figure 8—Per cent distribution of Health Supervision Index by whether doctor encourages checkups and ethnic group (all cases)



in the entire sample. Within the ethnic groups there are some paradoxical findings: for both white and Spanish babies a higher percentage were rated "poor" HSI among those whose doctors did encourage regular checkups than among those whose doctors did not.

The distribution of the HSI was examined in each ethnic group in relation to a number of other variables:

Mothers who rated their own health "fair or poor" were more likely to have their infants' HSI so rated.

"Infants whose health their mothers rated as "fair or poor" were more likely to have a fair or poor amount of health supervision if they were Negro or Spanish, but not if they were white.

Infants in single-parent households (largely Negro and Spanish) were more likely to be rated "poor" on the HSI.

Infants who were an only child had more health supervision than those who had siblings, and in general, infants in large families did not fare as well as those in small families; Negro babies with three or more siblings were an exception in these data.

### Time of First Visit

It is usually recommended that the first visit for well-baby care be made when the infant is about one month old. At the time of this study the New York City Department of Health was giving first appointments in its Child Health Stations to infants from five to six weeks of age. So that the comparison with the private sector would not be invidious, Table 2 shows the distribution of infants making their first visits either to a Child Health Station or to some other source (private physician, group, or hospital clinic) by two months and at later intervals. Larger percentages of Negro and Spanish babies than whites make their first visit later than two months of age. The ethnic-associated differences is seen among those seeking private care as well as those going to Child Health Stations. It persists at equal levels of income and education.

One of the stereotypes in infant health

supervision is that the mother who has many children does not attend regularly. While the HSI data bear this out to some extent with respect to the year-long picture, nevertheless, *if she comes at all*, she is not particularly delinquent in beginning care during the first two months. In all three ethnic groups, the mother of an only child is more apt to have started with checkups by the time her infant is two months of age. There is no difference in the frequency of early attendance by mothers of two-child, three-child, or larger families regardless of ethnicity. However, there were 21 babies in the sample who had no checkups at all. Large families were indeed over-represented here. There were 11 who were in families of four or more children, whereas the expected number would have been 4.7 children. The Spanish, too, were over-represented in this group: 15, compared to an expected eight such families.

### Attrition in Health Supervision

The longitudinal nature of this study offers a unique opportunity to observe the pattern by which Infant Health Supervision declines during the first year

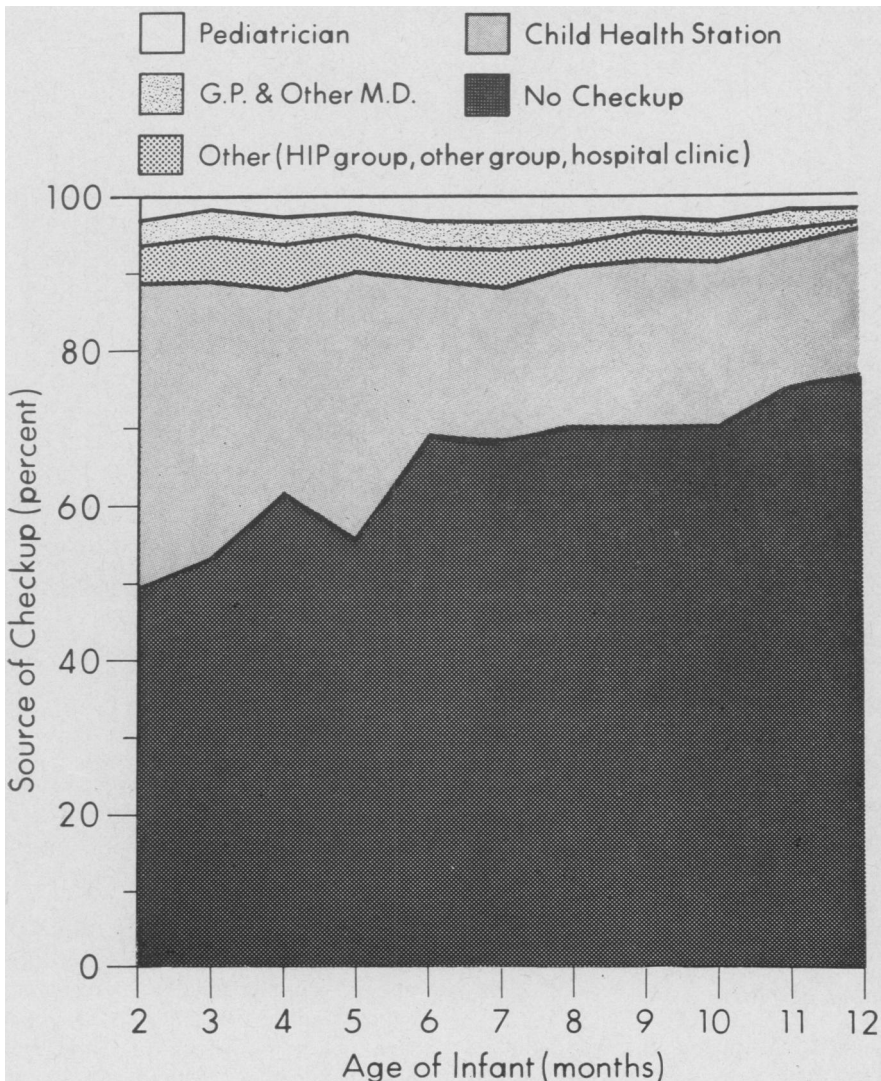
**Table 2—Per cent distribution of babies by month and place of first checkup and by ethnic group**

Month and place of first visit	White	Negro	Spanish
1-2 months	79.3	57.6	56.6
Child Health Station	7.9	52.9	45.4
Other	71.4	4.7	11.2
3-5 months	18.2	24.7	28.0
Child Health Station	2.0	20.0	21.9
Other	16.2	4.7	6.1
6 months or later	2.0	11.8	7.6
Child Health Station	1.0	10.6	7.1
Other	1.0	1.2	0.5
No checkup	0.5	5.9	7.6
(n)	203	85	196

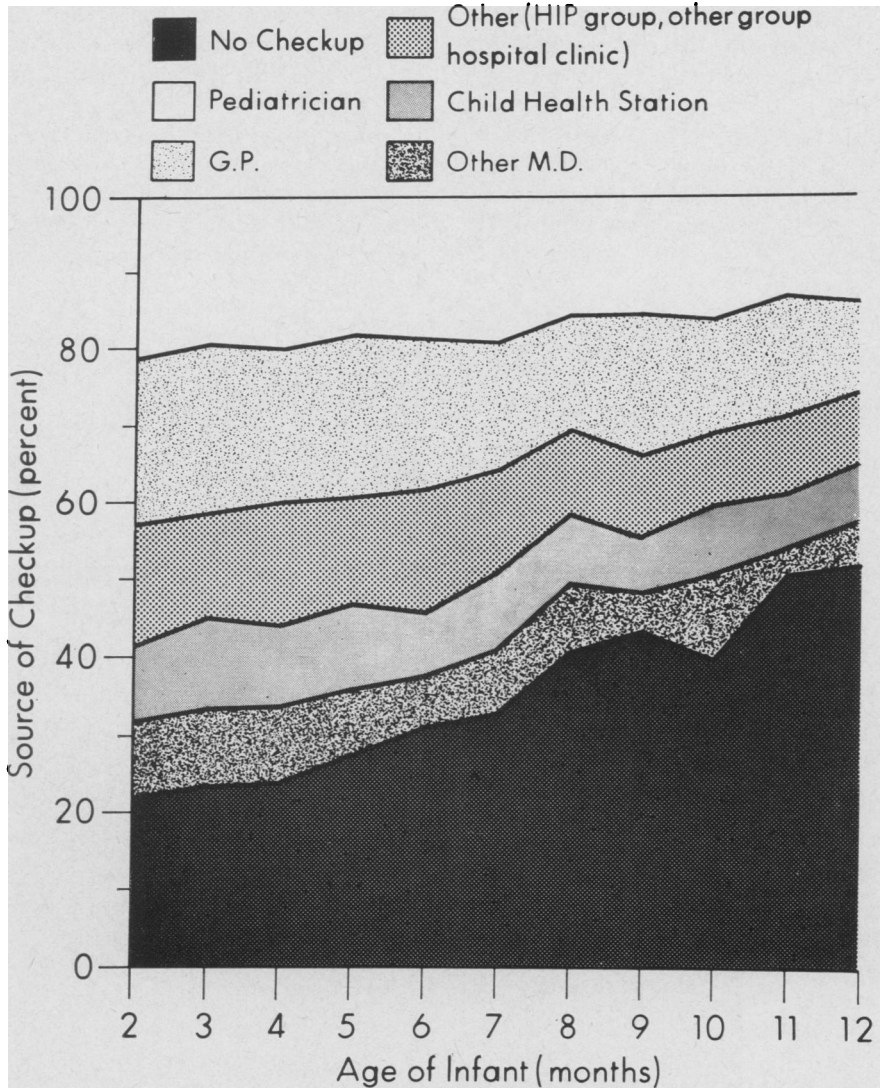
of life, irrespective of the provider of the service. Figures 9 and 10 present for each district the percentage of babies interviewed each month who went for checkup that month to each type of provider. For instance, in W. District, 20 per cent of the infants went to a pediatrician during their second month, 22 per cent to a general practitioner, 16 per cent to some other private practitioner,

10 per cent to a Child Health Station, 10 per cent to some other source (such as a hospital clinic or a group), and 22 per cent had no checkup. When the babies were eight months old, 15 per cent saw a pediatrician, 15 per cent a general practitioner, 11 per cent some other practitioner, 8 per cent went to a Child Health Station, 10 per cent some other, and 41 per cent had no visit. If

Figure 9—Auspices of checkup each month: M.H. District



**Figure 10—Auspices of checkup each month: W. District**



the standard of the Academy of Pediatrics were followed by all, there would be no babies in the "none" category for the first six months. The second six months would have a saw-tooth pattern as babies alternated months of visits.

**Content of Visits**

Each time during the year that a checkup visit was reported the mother

was asked a series of questions about the contents of the visit. There were few surprises in the responses. Practically all babies were weighed at each visit. Feeding advice was given almost universally in the early months, slightly less as babies got older; general practitioners gave a smaller percentage of babies feeding advice in the later months than did pediatricians or Child Health Station doctors. Immunizations were



given to more than three-fourths of the babies brought to Child Health Stations each month from the second through the twelfth month; pediatricians and general practitioners gave fewer early immunizations, 20 per cent in the second month and 55 per cent in the third month, but from then on from 75 to 90 per cent of the babies making visits were given some kind of immunization.

Anticipatory guidance was conspicuous in its scarcity. This component of the health supervision visit was elicited by the question "As you know, babies grow and learn to do new things. Did the doctor or nurse tell you about what new things you might expect the baby to be doing?" Its validity was established by independent checks in the pre-test of the questionnaire. Only the Child Health Stations were consistently offering guidance to about 12 per cent of their patients. Pediatricians and general practitioners gave guidance to less than 7 per cent overall, in some months to as few as 2 per cent.

**Mothers' Attitudes**

At both the first and last interview of the year, a series of statements was read to each mother so that she could indicate agreement or disagreement, thus characterizing her attitudes to medical care and doctors generally. One of them was:

"After a baby has had all of his baby shots, he still should be taken to a doctor for regular checkups every month or two even if he is not sick."

Table 3 presents the several combinations of answers that were offered. Sixty per cent of the white mothers were consistent in their opinions compared to 75 per cent of the Negro and Spanish mothers. Of those who changed their responses between the beginning and the end of the year, more mothers shifted away from health supervision than toward it in all three ethnic groups.

One may speculate that the year-long relationship with the interviewer permitted a more honest response to such a question which may have a "right" answer. The HSI for these classifications are shown in Figure 11. There is little relation between any combination of expressed attitudes and performance in any group.

**Discussion**

The data presented reveal a large gap between the teaching and the penetration of infant health supervision. The American Academy of Pediatrics, the departments of pediatrics of the better medical schools, and the lay press that caters to parents, all advocate a frequency of visits that would score 60 or better on the HSI visit pattern plus a variety of immunizations during the first year of life. However, only among white babies whose regular doctor was a pediatrician did even half of the group come up to this standard. Overall, only one-third of the babies from the middle-class neighborhood and a scant one-twentieth of the ghetto babies achieved it.

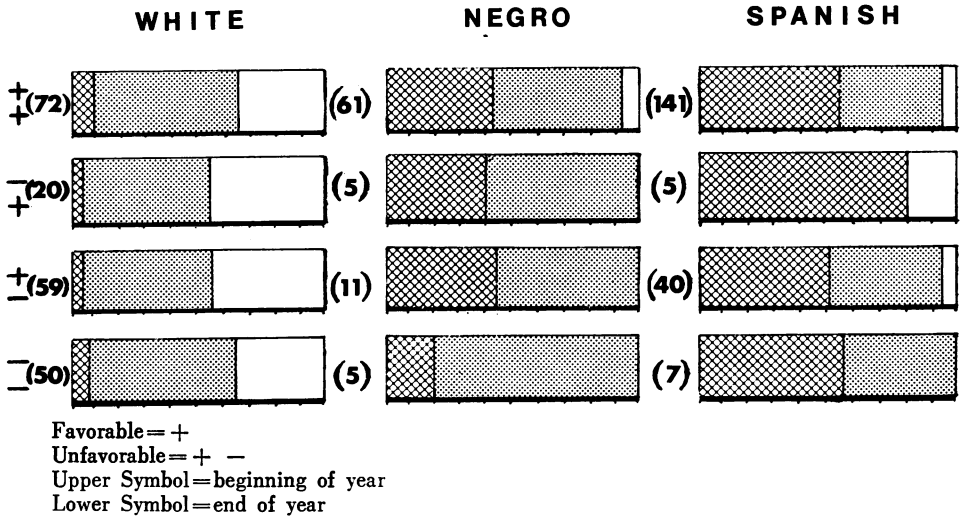
Comparison of the Negro and Spanish who live in the middle-class area with the whites who live in the same area shows that the former do not re-

**Table 3—Per cent distribution of mothers' attitudes about checkups at first and last interview by ethnic group**

Attitude		White	Negro	Spanish
First interview	Last interview			
+	+	35.5	71.8	71.9
-	+	9.8	5.9	2.5
+	-	29.1	12.9	20.4
-	-	24.6	5.8	3.6
DK or NA		1.0	3.5	1.5
	(n)	203	85	196

\* + = favorable to checkup  
 - = unfavorable to checkup

Figure 11—Per cent distribution of Health Supervision Index by mother's attitude toward checkup at beginning and end of year



ceive as much health supervision as the latter, irrespective of their family income or the mother's education. There were too few whites living in the low-income area to compare with their Negro and Spanish neighbors as Hochstim, et al.,<sup>7</sup> have done. These authors' finding that "persons of each race, at a given income level outside the poverty area, are consistently better off than their counterparts inside the area" is confirmed for the health supervision of their infants. It is, moreover, extended to include "a given educational level of the mother."

If the physicians themselves have the message, they are not imparting it satisfactorily to their patients. While 90 per cent of the white mothers who had a regular doctor said that he encouraged regular checkups even when the baby was not sick, only 45 per cent of them agreed with him that the baby should have such checkups by the time it was one year old. Conversely, while only half of the Negro or Spanish mothers reported that the doctor encouraged checkups, 75 per cent of these mothers

thought the checkups were important. When it came to performance, however, the whites who said the checkups were not important outscored the minority groups who said they were important.

It is striking how the percentage of babies who get a checkup each month falls off at about the same rate in the two districts. This occurs despite the fact that, even by the end of the year, more of the M.H. mothers say they think checkups are important. Are these mothers answering what they think the interviewers want to hear? Are they giving the "right answer?" Or are they prevented from getting the care they want because of the way health supervision is offered?

The poorer HSI ratings in M.H. must be due, at least in part, to the system for providing this kind of medical care. At the time of the study, appointments for newborns in Child Health Stations were given when the babies were about six weeks old. Subsequent appointments were spaced at six to eight week intervals, unless there were special problems. After a missed appointment, there was

a waiting period of one to three weeks before a new one could be scheduled because the appointment books were full. Drop-ins were discouraged. In contrast, many of the private physicians in the W. District held office hours several times a week, when drop-ins were expected. Most of the doctors who saw patients by appointment could schedule a visit within two or three days. It is not surprising that there are more low HSI scores in M.H. than in W.

What is surprising is that there are so many low scores in the middle-class group. The "enthusiastic public acceptance" may not be as widespread as generally believed. A substantial percentage of these white middle-class mothers said that they did not think that checkups for infants every month or two were important once the babies were immunized. Perhaps they are telling us something else. Could it be that the process of setting the standards needs reexamination? At present, standards seem to emerge from the consensus of expert opinion. They might be more appropriate if they reflected a relationship between actual practice and observed health status, however that might be measured. While the data show that in any one month, right up to the end of the first year, more than half of the babies in the W. District made a checkup visit, only one-third of the population was making them with regularity and the approved

frequency. For the remaining two-thirds, either the standard itself is irrelevant or the service so inaccessible or unacceptable that mothers will not avail themselves of it.

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