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THE DELINEATION OF A FAMILY  
HEALTH BEHAVIOR INDEX

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THE DELINEATION OF A FAMILY

HEALTH BEHAVIOR INDEX

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# THE DELINEATION OF A FAMILY

## HEALTH BEHAVIOR INDEX

### CHAPTER I

#### INTRODUCTION

Why are there families who simply refuse to utilize existing public health facilities, or develop personal habits that would contribute to a state of mental and physical well being conducive to good personal health, or to seek medical care for other than the most serious illnesses (1, 2, 3)? Sherif (4) and others (5, 6) have shown that the behavior of individuals is governed by a certain range of values which are acquired through social contact with others, most often with those in the same social stratum (7). Those who work in public health are familiar with persons who, for one reason or another, show a reluctance to: (a) participate in existing public health programs, (b) utilize existing public health facilities, and (c) seek medical aid for other than the most serious ailments (1, 2, 3).

"Cultural gap" or "value conflict" refers to the health professional's difficulty in communicating with individuals of cultural backgrounds which are different from his own (8). A con-

tributing factor to the "cultural gap" is certainly the inability of some health professionals to assimilate and understand the need for, and utilization of, several social and cultural variables (9). Among these are socioeconomic status, education, occupation, family length of stay in neighborhood, ethnic grouping, sex of the household head, and length of household head's stay in present job, all of which are rather commonly acknowledged to play a part in a family's acceptance of good health practices and preventive health care procedures (10, 11, 12, 13). Bartlett (14) in discussing the biopsychosocial process stated:

Evidence is mounting that the incidence of illness tends to be higher among individuals and groups required by life to face social adjustments beyond their integrative capacity.

One social variable shown to be of value in the development of new activities in public health practice--the one to be utilized by this writer in attempting to develop a family health behavior index--is socioeconomic status. As a major indication of the way people live, social status influences the entire disease process, from exposure to the disease causing agent to the individual's ability to resist the effects of the disease (15). Socioeconomic status has been shown to play an important role in an individual's definition of illness, his decision to seek medical attention, and in his attitude toward preventive medical programs (16). Koos (13) noted that many persons belonging to low income groups did not recognize the need for medical attention for

symptoms such as loss of appetite, persistent backache, continual coughing, chronic joint and muscle pains, swelling ankles, shortness of breath or chronic headaches.

Wilner et al. (17) found that low income families in slum housing had more serious illnesses and longer periods of disability than did those low income families living in good housing. Cooley et al. (15) stated:

During the prenatal period a variety of social factors may interfere with the early and adequate medical care which is so important. These range from the patient's background and financial situation to her emotional maturity and relationship with others.

Much of the present public health philosophy concerning preventive medical services is not suited to the health beliefs and behavior of lower social groups who have low expectations regarding health and medical care, poor motivation, and poor understanding concerning preventive medical care programs (6, 18).

All too often, health centers and outlying clinics are planned, administered, and serviced by persons who simply do not understand the needs of those living in areas where there is a high incidence of disease (19, 20). Nolan (21) observed that the time and day set for public health clinics influenced attendance. The need for baby sitters and lack of transportation are often insurmountable obstacles to many mothers who must attend clinics at a given hour on a particular week day when no week-end clinics are available. Griffith

(22) found that over 50 per cent of the families he surveyed in a low socioeconomic group had no family automobile, and among this group, only 67 per cent of the pre-school children had benefit of poliomyelitis immunization protection and only 68 per cent were adequately protected against diphtheria, pertussis, and tetanus.

Yerby (23) described a woman eight and one-half months pregnant who, after waiting three hours, was turned away from a prenatal clinic because the hospital did not serve the district in which she lived. Rosen (24) wrote of the Negro boy who would not visit the doctor because he resented going in the back door. And, in New York, while voluntary agencies utilizing some public funds did their job satisfactorily but were most active in relatively well-to-do neighborhoods, government financed public health agencies in poorer neighborhoods gave comparatively less service to their clients (25). And this, in areas where well-defined differences between incidence of disease and use of medical and preventive medical facilities exist (26).

The infrequent use of proffered health services by persons with low incomes and low educational levels, or by members of families in which the occupation of the father is of an unskilled or semiskilled nature, has been documented by various health surveys (27, 28, 29). Ross (30) perceived a uniform relationship between visits to a physician and family income and/or education. Families with low income and educational levels paid fewer visits to physicians

for preventive medical services such as prenatal and postnatal care, general physical examinations, and immunizations than did those with high incomes and/or educational levels (31, 10, 32). Gray et al. (33) observed that persons from the lower socioeconomic class makes less use of medical facilities than do persons from the upper social classes.

Meyer (34) stated:

Routine immunization of children against diphtheria, pertussis, tetanus, and smallpox has long been recommended universally by the medical profession. Despite the utmost efforts for thirty years, it is well known that there are still large numbers of children, even of school age, who have not received this protection. We have failed even to achieve the percentages thought necessary to prevent epidemics.

Breslow et al. (26) found that women in Alameda County, California, belonging to minority racial and ethnic groups, or those with low educational achievement, utilize the well known Papanicolaou test for cervical cancer much less than women in more favorable economic circumstances. This occurs, as Sheps et al. (35) point out, even though cancer of the cervix occurs much more frequently in women belonging to low socioeconomic groups. Harrington (36) made some interesting observations:

Almost 2/3 of all children in families with annual incomes of less than 2,000 dollars have never been to a dentist in their lives. Where the income is greater than 7,000 dollars, less than 10 per cent of the children had never been to a dentist. Almost five times as many persons in families making less than 2,000 dollars are confined to their homes because of chronic disease as among families earning 7,000 dollars or more. As of June, 1963, more than 87 per cent of families with an income over 7,000 dollars had some kind of health

insurance. But of families with incomes from 2,000 to 3,999 dollars, only 34 per cent had health insurance.

Achievement in public health programs is often measured according to numbers of people attending clinics, numbers of immunizations given, and numbers of food establishments visited, rather than on the satisfactory determination of problem conditions and the accurate measurement of their control or eradication. Of course, there are methods of disease evaluation available to health departments as there are available techniques to determine attitudinal and behavioral characteristics of populations in given areas. A review of the literature, however, indicates that there is not at this writing, an objective method of doing both, that is, delineating family health problems, and predicting family health behavior in a given community (37).

Thus, it would seem from a public health viewpoint, it is desirable to develop an objective measure or index that would help to determine family health problems and predict family health behavior. Therefore, the purpose of this study is to construct and validate a family health behavior index for use by public health workers in community health agencies.

## CHAPTER II

### RESEARCH METHODS

The principal procedures in the development of this research consisted of: (a) development of the survey questionnaire, (b) development of the measurement index for family health behavior, (c) estimation of the number of households necessary for a statistically sound sample, (d) allocation of the households into primary sampling units, (e) completion of the household interviews, (f) classification of the interviewees by socioeconomic status, (g) the tabulation and analysis of data, and (h) developing the health behavior index score for each socioeconomic group.

The Family Health Behavior Index (see Appendix) is concerned with eight areas of family health. These are personal hygiene, immunization levels, chronic diseases, infant mortality, medical and health insurance, medical and dental visiting patterns, diet, and physical environment.

The principles of personal hygiene are fundamentally the same for all members of the family, and its practice should be able to vary within the limits of an individual's age and health. However,



bodily cleanliness is a necessity of social intercourse; it also enables the skin to perform essential functions and it inhibits transmission of certain diseases. A necessary relationship to bodily cleanliness is the need for a sanitary environment, an environment conducive to healthy activity (38, 39). The questions on hygiene were designed to elicit information on the behavior of the family as it relates to bodily cleanliness and the physical environment.

Immunizations against infectious diseases have long been a basic part of public health activity. Yet, immunization protection among populations is considered by many health professionals to be less than satisfactory, particularly among pre-school children in low socioeconomic neighborhoods (34, 39, 40). The questions on immunization were designed to elicit information on the behavior of the family as it relates to immunization levels for adults and children in the family group.

In many families chronic diseases are not uncommon occurrences; however, it is recognized by many health professionals that economically disadvantaged families are often reluctant to receive medical treatment or practice preventive care. It is also thought by many public health professionals that socio-cultural conditions associated with low income groups aggravate existing disease conditions and create added health problems (41, 42). The questions on chronic diseases were designed to elicit information on the numbers and types

of chronic health problems experienced by family members.

Infant mortality is known to be a useful reflection of the public health practice of a community, in that the health of an infant is adversely affected by poverty, malnutrition, overcrowding, insanitary surroundings and parental ignorance. A woman's reluctance to participate in prenatal and postnatal care may in part be explained by her attitude toward pregnancy, her understanding of the desirability of an early start in prenatal care, the lack of resources to care for her other children, the distance from sources of medical care, the availability of sources of medical care, and the availability of funds (43, 44). The questions on prenatal and postnatal care and infant mortality were designed to elicit information on the past behavior of the woman during pregnancy and on the number of infant deaths occurring in the family.

It is acknowledged by many public health professionals that a direct relationship exists between social class and medical care. That is, as income, education and occupational levels increase, there is a corresponding increase in the amount of medical care. As affluence pervades the social structure and the costs of medical care continue to rise, the necessity for health insurance protection becomes increasingly important. Nevertheless, medical insurance coverage is least common among low income groups, the very people most in need of such protection (45). The question on family medical insurance coverage was designed to elicit information on the behavior of the

family in relation to health insurance.

It is known by members of the health profession that visits to a physician or dentist for preventive measures are directly related to social status. The higher the social status, the more visits to a physician or dentist for preventive medical care (45, 46, 47). The questions relating to the use of physicians and dentists, and the perceived need for physical examinations were designed to elicit information on the behavior of the family concerning visits to a physician or dentist for medical care and preventive reasons in the past year.

Health is not possible in the absence of food necessary for the building up and maintenance of body tissues. A balanced diet containing carbohydrates, proteins, minerals and vitamins, is essential to good family health. It is recognized by public health professionals that low income influences the diet of many families and that unsatisfactory dietary practices may lead to conditions favorable to disease (48, 41). The questions on family diet were designed to elicit information on the behavior of the family in relation to foods utilized in meals.

Conditions which surround man from birth to death; cold and heat; the culture in which he lives; his social, economic, and domestic circumstances; his diet, his occupation and even disease; all form his environment. Poor housing, with inadequate ventilation, dampness, overcrowding, absence of proper water supplies and satisfactory

bathing facilities, polluted water supplies and insanitary waste disposal create conditions in which disease flourishes. Polluted water and improper sewage disposal have long been implicated in the spread of disease; infant mortality rises with overcrowding; tuberculosis is more prevalent in poor housing with dampness and overcrowding; and measles at an early age is more prevalent in slum type housing (49, 50, 39). The questions on environmental surroundings were designed to elicit information on the behavior of the family as it relates to the condition and hygiene of housing and the maintenance of a sanitary environment.

The Family Health Behavior Index was calculated on a proportional basis, the scale ranging from a minimum of nine to a maximum of ninety points. The percentage of points scored based on the number of possible points was a family's score on the index. Each of the nine questions had an equal value of ten points. Thus, questions composed of different parts were of the same numerical value as those consisting of one part, with each part calculated on a basis proportional to the total value of the question. As an example of how the actual scoring is performed, Question I, pertaining to family hygiene is outlined below using artificial data.

Question I is composed of 13 parts. If all parts are answered affirmatively, the question is assigned a numerical value of ten points. If, however, three of the 13 parts are answered negatively,

the proportion is 10/13 (ten answered affirmatively) or 76.92 per cent; and 76.92 per cent of the ten points possible is equal to 7.69 points, to be assigned to the numerical value of Question I, Table 1.

If all nine questions are answered in the affirmative, the maximum total points assigned the family is ninety. Should any or all of the questions be answered in a negative manner, the points assigned the family could reach a minimum of nine. The total points assigned the family are calculated on a basis proportional to the total value of all questions, and this percentage will then become the Family Health Behavior Index. Questions not applicable for certain families, i. e., childless families, were not included in the calculation of total possible points. Although this procedure might introduce some bias since all families are not asked all questions, the scope of the questionnaire and the detailed nature of the questions is enough to negate any bias arising from this source.

To better emphasize the scoring of the rating scale to actual conditions, the following hypothesis was formulated: the more depressed the socioeconomic group, the lower will be the Family Health Behavior Index score. To determine if such relationship does indeed exist, and if so, to what degree, it was necessary to develop correlation coefficients, regression coefficients and t tests (51), between the Family Health Behavior Index scores and the family Hollingshead (52) Index of Social Position score.

TABLE 1  
EXAMPLE QUESTION I

Questions	Yes	No	Total Points
1. Family Hygiene:			
1. Individual appearance clean	X		
2. Hands clean	X		
3. Nails clean	X		
4. Clothing clean	X		
5. Housekeeping (general) clean		X	
6. Floors clean		X	
7. Walls clean	X		
8. Kitchen clean	X		
9. No garbage exposed		X	
10. No perishable foods exposed	X		
11. Bathroom clean	X		
12. Hand soap available	X		
13. Towels, washcloths available	X		
Total Points	10	3	7.69 or 76.9 %

Additional socio-cultural information was gathered to provide insights into the relationship of other factors to the Index which might be useful in refining it. The following socio-cultural variables were chosen because many public health professionals, particularly those involved in direct family services, feel that they play an important part in family health behavior (36, 12, 53). Therefore, frequency distributions were developed for: (a) family length of stay in the neighborhood, (b) ethnic grouping, (c) sex of household head, and (d) length of household head's stay in present job, as these variables related to family health behavior in the practice of hygiene, immunization levels, chronic disease conditions, prenatal and postnatal care and infant mortality, medical insurance coverage, physician and dental care, diet, environmental surroundings, and general health and social information. The following hypotheses were formulated regarding these factors: (a) the length of a family's stay in the neighborhood is directly related to their maintenance of a sanitary environment; (b) the non-white family will have less immunization protection than will the white family; (c) the households headed by women will have less satisfactory hygienic practices than the households headed by men; (d) the longer the household head has been employed in his present job, the more family medical insurance coverage.

Research Setting

The survey sample was taken in Riverside Neighborhood, Oklahoma City, Oklahoma. It is a square-mile area located near downtown Oklahoma City. The neighborhood is bounded on the north by South Fifth Street and the cross-town expressway system, on the east by tracks of the Santa Fe Railroad System, on the south by South Fifteenth Street and the South Canadian River, and on the west by Western Avenue. Santa Fe tracks running east-west divide the neighborhood at South Ninth Street. Western, Walker, and Robinson, major north-south streets also divide the neighborhood. A small park and playground is located in the southwest corner of the area at South Sixth and Shartel. Riverside Neighborhood is designated as an Oklahoma City elementary school district. There are four churches, one post office, one railway depot, and two health agencies located in the neighborhood. The two health agencies are both publicly and privately financed; one operates as a mental health center accepting referrals from all areas of the city and one operates as an immunization clinic for pre-schoolers and prenatal clinic for expectant mothers.

There are more than 220 commercial business enterprises within the neighborhood. Most of the businesses are engaged in light industry.

Riverside Neighborhood was chosen as the research setting because: (a) it is a well-known depressed area of Oklahoma City, (b)



the residential area is surrounded on three sides by commercial establishments and is separated by major through streets which interrupt the cohesiveness of the neighborhood, (c) there was reasonable access to established public health facilities, and (d) the city-county health department had conducted an extensive immunization and health education program in the area in 1964-65.

#### Sample

The number of households in Riverside Neighborhood was obtained by actual count. The basis for determining the number of persons per household was the 1960 Census Report of Oklahoma City (54). For purposes of this study, 146 total households were selected for interviewing from a random list of numbers. The sample was sufficiently large to compensate for 5 per cent refusals and 5 per cent vacancies. An adjacent housing unit was sampled in cases where vacancies occurred. Interviews were conducted by the author with members of the selected households between June and August, 1967.

## CHAPTER III

### RESULTS AND DISCUSSIONS

In this work 146 household interviews were analyzed to determine family health behavior as measured by the Family Health Behavior Index. In order to evaluate the effectiveness of the Family Health Behavior Index as a measuring instrument it was necessary to utilize an already accepted index of social position (52), and to develop statistical evaluations of the relationship between the two indices; the hypothesis being, that a significant relationship should exist between the two indices, thus helping to substantiate the validity of the Family Health Behavior Index as a satisfactory instrument for measuring family health behavior.

Frequency distributions were also developed for the socio-cultural variables: (a) sex of household head, (b) ethnic grouping, (c) length of stay in present employment of household head, and (d) length of family's stay in neighborhood as they relate to family health in order that these variables might be related to the Family Health Behavior Index value of each area of health; the hypothesis being that each variable affects family health behavior in a measurable fashion, again

lending support to the Family Health Behavior Index.

### The Family Health Behavior Index

The major hypothesis set forth in this study is that diverse groups within a given area, such as a neighborhood, may be delineated by a numerical measurement of family health behavior. For the purpose of this study eight areas of health interests were introduced, with each being accorded a numerical value of ten points. The Family Health Behavior Index value is that proportion of the total possible points each family achieved on the questionnaire (see Appendix). To determine the ability of the Family Health Behavior Index to adequately measure the health behavior of a given family, correlation coefficients, correlations and regressions, and t tests were developed between the Family Health Behavior Index and the Hollingshead Two-Factor Index of Social Position (52).

### Socioeconomic Status

There are two distinct socioeconomic groups in Riverside Neighborhood. For the purpose of this study the groups will be broadly identified as belonging to either an upper or lower socioeconomic group. The groups were delineated according to the method developed by Hollingshead (40) in his Two-Factor Index of Social Position. Table 2 shows the mean value achieved by each socioeconomic group on each of the health areas. Table 3 shows the corre-

TABLE 2  
MEAN VALUES HEALTH BEHAVIOR INDEX QUESTIONS

Health Areas	Upper	Lower	Total
Hygiene	7.8	6.5	6.8
Immunizations	3.5	2.7	2.8
Chronic disease conditions	8.6	8.3	8.4
Pre-postnatal care and infant mortality	2.4	2.2	2.2
Medical-hospitalization insurance	5.6	3.3	3.8
Family diet	8.5	8.0	8.1
Physician, dentist and physical examination	6.5	5.3	5.6
Environmental surroundings	7.5	6.6	6.8

TABLE 3  
CORRELATION COEFFICIENTS

<u>Family Health Behavior Index</u> Health Areas	Hollingshead Score
Hygiene	-0.115
Immunizations	-0.1888*
Chronic disease conditions	-0.120
Pre-postnatal care and infant mortality	-0.072
Medical-hospitalization insurance	-0.265**
Family diet	-0.181*
Physician, dentist and physical examination	-0.102
Environmental surroundings	-0.156
Children eating breakfast	-0.069

\*Significant at the 0.05 level.

\*\*Significant at the 0.01 level.

lation coefficients that were developed between the Hollingshead value of each socioeconomic group, and the value achieved by that group on the Family Health Behavior Index. Family immunization levels and family diet were significant at the .05 levels, with family medical insurance coverage being significant at the .01 level. The other health areas were not significantly related to socioeconomic status; however, the over-all significance of all questions on the Family Health Behavior Index when correlated with the Hollingshead scores was at the .01 level. Regression equations were also developed for the same factors with the results shown in Table 4. These data clearly indicate a negative relationship between the Family Health Behavior Index score and the family's score on the Hollingshead Index. As the Hollingshead score increases, the Family Health Behavior Index score decreases. Figure 1 indicates that the points representing the scores on the Family Health Behavior Index fall on a line with a negative slope. That is, as the Hollingshead score increases, the Family Health Behavior Index score decreases. Table 5 shows the t tests and their t values with the resulting probabilities. Only family medical insurance coverage reached statistical significance. However, there is little doubt that a significant relationship does indeed exist between socioeconomic status of Riverside families and their health behavior, based on the regression and correlation analysis, and the fact that family health behavior improves in direct proportion to improvement in family socioeconomic

TABLE 4  
CORRELATIONS AND REGRESSIONS

Health Areas	Correlation Coefficient	y Inter-cept	Slope	Value of y when H.H. =	
				X=40	X=60
Hygiene	-0.115	10.23	-0.0509	8.19	7.18
Immunization levels	-0.188	6.52	-0.0545	4.34	3.25
Chronic disease conditions	-0.120	9.77	-0.0209	8.93	8.52
Pre-postnatal care and infant mortality	-0.072	4.47	-0.0336	3.12	2.45
Medical-hospitalization insurance	-0.265	12.78	-0.1332	7.45	4.79
Physician, dentist, and physical examination	-0.102	9.67	-0.0233	8.74	8.27
Family diet	-0.181	10.00	-0.0656	7.37	6.06
Children eating breakfast	-0.069	5.58	-0.0376	4.08	3.33
Environmental surroundings	<u>-0.156</u>	<u>9.75</u>	<u>-0.0427</u>	<u>8.04</u>	<u>7.19</u>
Total	-0.299	79.60	-0.4726	60.68	51.23

FIGURE 1

AVERAGE VALUE OF ALL FHBI QUESTIONS

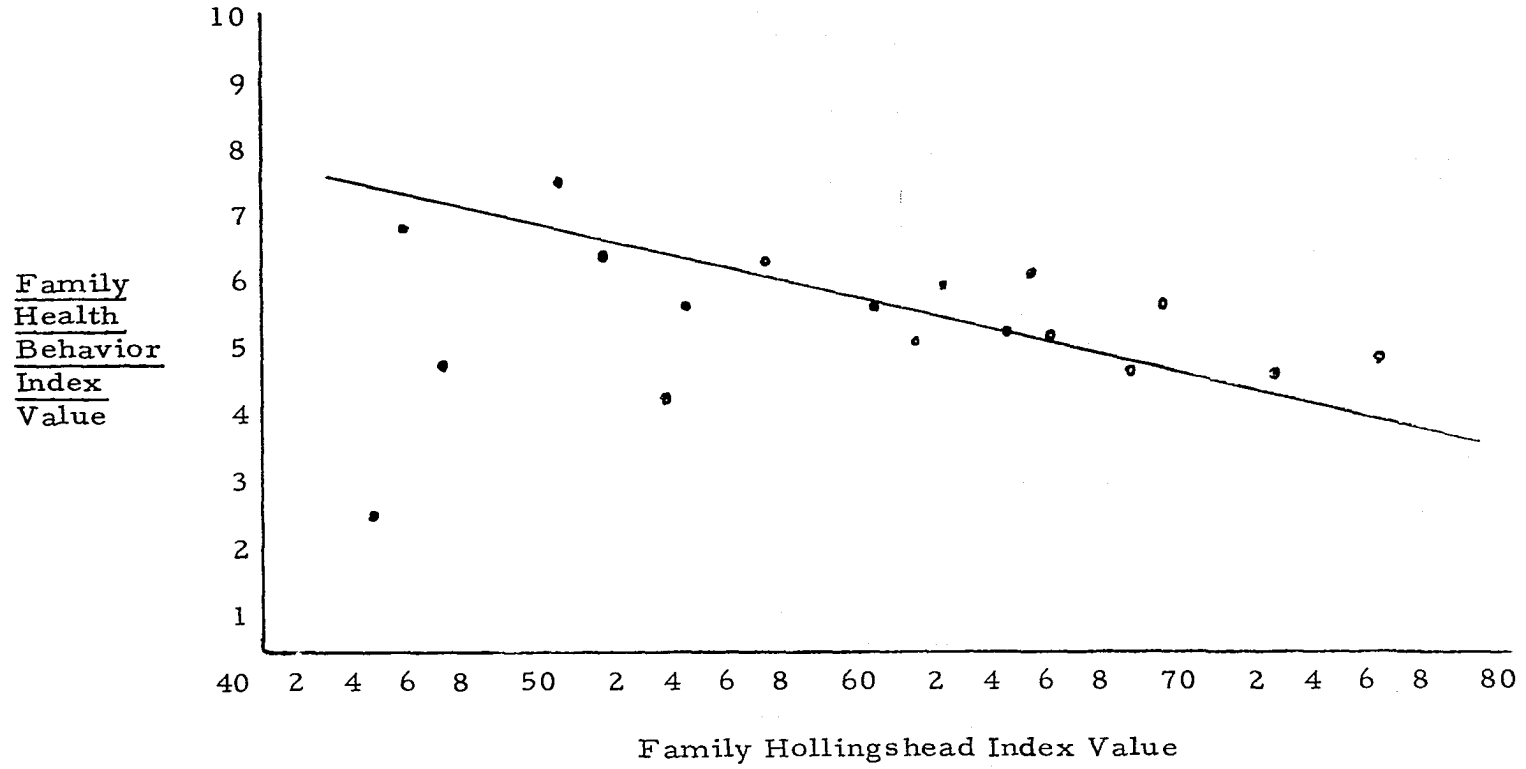




TABLE 5

t TEST VALUES AND PROBABILITIES FOR RELATED  
HEALTH AREAS IN ORDER OF SIGNIFICANCE

Health Areas	<sup>t</sup> 29 Value	Probability
Family medical insurance coverage	2.35	.02 < P < .05
Family physicians, dentists and physical examinations	1.90	.05 < P < .1
Family hygiene	1.63	.1 < P < .2
Family immunizations	1.62	.1 < P < .2
Prenatal and postnatal care and infant mortality	1.24	.2 < P < .3
Chronic disease conditions	1.00	.3 < P < .4
Environmental surroundings	.904	.3 < P < .4
Children eating breakfast	.769	.4 < P < .5
Family diet	.237	.8 < P < .9

status. Table 6 shows the number of households by socioeconomic group, and Table 7 shows the number of persons per household. Table 8 shows the breakdown of the sample households by socioeconomic grouping and Table 9 shows the Hollingshead value for each of the socio-economic groups. Riverside Neighborhood is a low socioeconomic neighborhood and the Hollingshead values substantiate this. The upper group is in the low middle income range and the lower group is in the low income range.

The Family Health Behavior Index developed for both upper and lower socioeconomic groups in Riverside clearly indicates that a significant difference exists in the family health behavior of the two groups. The difference between the groups as defined by the Family Health Behavior Index is supported by the difference in the group values on the Hollingshead Index (52). Table 10 shows the Family Health Behavior Index value for the upper and lower socioeconomic groups in Riverside. The t test resulted in a t value of 3.11 with 20 degrees of freedom. The resulting probability,  $.001 < P < .01$ , indicates that a significant difference exists in the mean health behavior index between the upper and lower socioeconomic groups and that the Family Health Behavior Index does in fact delineate two groups with distinct family health behavior practices.

The Family Health Behavior Index data indicate that public health professionals need to develop improved health education pro-

TABLE 6  
NUMBER OF HOUSEHOLDS BY SOCIAL CLASS

	Socioeconomic Groups		
	Upper	Lower	Total
Number of households	31	115	146

TABLE 7  
PERSONS PER HOUSEHOLD BY SOCIAL CLASS

	Socioeconomic Groups		
	Upper	Lower	Total
Persons per household	3.12	3.06	3.07

TABLE 8  
 BREAKDOWN OF SAMPLE HOUSEHOLDS  
 BY SOCIAL CLASS

Populations by Age	Socioeconomic Groups		Total %
	Upper %	Lower %	
0-5 months	1.00	1.10	1.10
6 mos. -4 years	11.30	11.60	11.60
5 - 14	18.60	24.40	23.10
15 - 24	10.30	10.20	10.20
25 - 34	11.30	8.20	8.90
35 - 49	12.40	13.60	13.30
50 - 64	23.80	14.20	16.20
65 +	11.30	16.70	15.60

TABLE 9  
HOLLINGSHEAD INDEX VALUES

Socioeconomic Group	Number of Households	Average Value
Upper	31	52.8
Lower	115	71.1

TABLE 10  
FAMILY HEALTH BEHAVIOR INDEX VALUES

	Socioeconomic Groups		
	Upper	Lower	Total
Family Health Behavior Index Value	69.56	59.78	61.80

grams in Riverside in the area of personal hygiene. This activity could be accomplished by utilizing neighborhood residents to teach basic hygiene to friends and neighbors. The persons doing the teaching would be trained in basic personal and housing hygiene, but might also be trained in other areas of family health, including child care, formula preparation, controlling the spread of infection through disease, and the buying and preparation of a nourishing family diet. A balanced diet, one containing all the necessary food elements should be a part of each family's daily existence. Lack of a proper diet is not always due to low family income, but may be partially due to ignorance on the part of the family cook concerning the kinds of food containing nutritive value that the family budget can afford. The hygienic conditions of respondents and households is shown in Table 11. These data from the Family Health Behavior Index clearly show that the upper socioeconomic group practices better personal hygiene and maintains a more satisfactory housing environment than does the lower group. Family dietary patterns shown in Table 12 point out the greater deficiency of meat, eggs, and vegetables among the lower socioeconomic groups.

The Family Health Behavior Index data indicate the immunization protection was less satisfactory among families in the lower socioeconomic group, although extensive immunization programs had been conducted in Riverside by the Oklahoma City-County Health De-



TABLE 11  
HYGIENIC CONDITIONS OF RESPONDENTS  
AND HOUSEHOLDS

	Socioeconomic Groups		
	Upper %	Lower %	Total %
Individual appearance clean	77.4	70.4	71.9
Housekeeping (general) clean	74.1	59.1	62.3

TABLE 12  
FAMILY DIETARY PATTERNS

These foods are utilized as a regular part of the family's dietary habits.	Socioeconomic Groups		
	Upper %	Lower %	Total %
Meat (poultry-fish)	100.00	89.56	91.78
Eggs	90.32	81.73	83.56
Vegetables	93.54	81.73	88.35
Bread	93.54	94.78	94.52
Butter (equivalent)	93.54	91.30	88.35
Milk	83.87	85.21	84.93
Cheese	58.06	40.86	44.52
Fruit	67.74	73.91	72.60

partment. The present data indicate that program methods specifically designed for reaching the "hard core" families (those families heretofore refusing to participate in established preventive health programs) must be initiated, if these families are to be brought to parity with other families in the neighborhood. Program activities that might succeed in bringing services to needy families could well include a mobile immunization clinic. This clinic would be operated by health professionals, utilizing neighborhood residents, and would operate on a door-to-door basis throughout the neighborhood. A distinguishing factor in the utilization of this unit is not the door-to-door activity, which in itself is not new, rather that the clinic would operate as a continuing unit on a regularly scheduled basis and during hours when family members could be expected to be at home. Heretofore such an operation has been conducted on a rather sporadic basis, with little, if any, follow up, and usually at one point in time. Frequency of immunization protection for family members is shown in Table 13. The Family Health Behavior Index clearly delineates between two groups with distinctly different levels of protection against disease through immunizations. Immunization levels are much higher in the upper socioeconomic group than in the lower group among all children less than 15 years of age.

The Family Health Behavior Index data clearly indicate a significant relationship between a family's social status and physician

TABLE 13  
FAMILY IMMUNIZATION LEVELS

Completed Immunizations for Family Members	Socioeconomic Groups		
	Upper %	Lower %	Total %
Adults: 15 + years			
Polio	41.93	26.95	30.13
Smallpox	9.67	6.08	6.84
Typhoid	6.45	6.08	6.16
Tetanus	16.12	14.78	15.06
Children: -15 years			
Polio	92.30	72.34	76.67
Smallpox	76.92	42.55	50.00
Typhoid	69.23	38.30	45.00
Measles	76.92	57.44	61.67
D. P. T.	92.30	58.33	65.57

services. Frequency of families claiming a family physician is shown in Table 14. The Family Health Behavior Index indicates that the health behavior of the families in the lower socioeconomic group in the utilization of physician, dental, and health department services is clearly less than that of the upper group. In that medical insurance coverage is also shown to be related to social status, it would seem to be indicated that health professionals must initiate health educational programs in the neighborhood which are developed specifically for the "hard-to-reach" group. The frequency of families with medical-hospitalization insurance or who are enrolled in Medi-Care is shown in Table 15. The Family Health Behavior Index indicates that medical insurance protection is much more prevalent in the upper socioeconomic group.

The development of programs specifically for "hard core" groups assumes particular importance when, as the Family Health Behavior Index data suggest, prenatal and postnatal care and infant mortality are directly related to socioeconomic status. The frequency of prenatal and postnatal care by a physician and infant mortality is shown in Table 16. The Family Health Behavior Index indicates that although the number of infant deaths is greater in the upper socioeconomic group (this can in part be explained by the small sample number and the infrequent occurrence of infant births and deaths in Riverside), it is clear that expectant mothers in the lower group do not avail them-

TABLE 14  
FAMILY HEALTH INFORMATION

General Health Information	Socioeconomic Groups		
	Upper %	Lower %	Total %
Family physician	64.51	46.08	50.00
Physical examination in the past year	70.96	66.95	67.80
Family dentist	45.16	16.65	22.60
Families knowing location of City-County Health Dept.	6.45	4.34	4.79
Family's use of public health facilities ever	38.70	20.00	23.97
Families utilizing public health facilities in the past year	9.67	0.00	2.05

TABLE 15  
 FAMILY MEDICAL INSURANCE AND PARTICIPATION  
 IN MEDI-CARE

	Socioeconomic Groups		
	Upper %	Lower %	Total %
Families with medical insurance	48.38	26.95	31.50
Families receiving government Medi-Care	41.93	41.73	41.78

TABLE 16  
 FAMILY PRENATAL, POSTNATAL CARE  
 AND INFANT MORTALITY

	Socioeconomic Groups		
	Upper %	Lower %	Total %
No prenatal care by a physician	--	3.47	2.6
No postnatal care by a physician	--	6.95	2.1
Infant deaths	3.22	2.60	2.7
Pre-schoolers deaths	3.22	1.73	2.4



selves of physician services as frequently as do expectant mothers in the upper group. A method for bringing better physician services to disadvantaged groups could be the establishment of neighborhood health centers. The health centers would be staffed in part by health professionals of varied disciplines, among which would be physicians, dentists, psychologists, and social workers, all of whom are capable of working in a comprehensive effort in conducting extensive health evaluation services.

These services, carried out by the skilled health professionals, would include comprehensive screening programs for chronic and infectious diseases, and medical care services for those persons unable to avail themselves of such services through a private physician. The professional staff could be supplemented in part by indigenous members of the neighborhood who would perform various services not requiring professional competency, such as clerical work, clinic aids, and a newly developing position known as a health-reach-out aid. The health-reach-out aid would visit neighborhood families and perform various services; among these would be health education, baby sitting, arrangement of transportation to clinics for families without transportation, and any other activity which might aid in motivating "hard core" families into utilization of health services. The lack of automobiles among the lower socioeconomic groups is shown in Table 17.

The Family Health Behavior Index data indicate that chronic

TABLE 17  
AUTOMOBILES PER FAMILY

	Socioeconomic Groups		
	Upper %	Lower %	Total %
One automobile	35.48	35.63	36.61
Two automobiles	38.70	9.56	15.75
No automobile	25.87	54.79	48.64

conditions were not found to play an extensive part in the relationship of social status to disease in Riverside. This is not surprising in that 31 per cent of the Riverside population is 50 years of age or older.

Both the upper and lower groups were found to have extensive chronic health problems. The percentage of reported cases would very likely have been greater had a larger number of families received care by a personal physician or protection by medical and hospitalization insurance. In that Riverside is a low socioeconomic neighborhood with a substantial percentage of the population reporting a chronic disease, it would seem appropriate for public health professionals to develop more effective screening programs for the detection of chronic conditions and more satisfactory methods of follow-up and treatment.

Different surveys have described the health experiences of low socioeconomic groups in terms of morbidity of chronic conditions; however, the need for more improved disease evaluation techniques has also been recognized. Health professionals must develop a method for early detection of chronic diseases and provide facilities for immediate treatment and long range follow-up and care for low income families. The neighborhood health centers are certainly a step in the right direction, and the utilization of health-reach-out aids may be ideal for influencing "hard core" families into participating in screening programs and the necessary follow-up in order to effect a successful termination of the disease condition. The frequency of chronic con-

ditions as diagnosed by a physician is shown in Table 18. The Family Health Behavior Index clearly indicates that chronic disease conditions appear to be more prevalent in the lower socioeconomic group.

The Family Health Behavior Index data clearly indicate a relationship between social status and environmental surroundings. Health professionals must see to it that a safe and sanitary environment is possible for families living in low socioeconomic neighborhoods. This may be accomplished, in part, by up-to-date evaluation of problem conditions, and the marshaling of civic and private resources to correct them once they are located. The Riverside data indicate that a relationship exists between housing and socioeconomic status. In that only a small percentage of Riverside residents own their home, it would seem that health professionals should work toward a more satisfactory housing code, one in which absentee landlords could be held responsible for the sanitary maintenance of their rental property. The frequency of families owning their own home is shown in Table 19. These data indicate that families in the lower socioeconomic group have less home ownership than families in the upper socioeconomic group. Table 20 shows the frequency of families living in sub-standard housing in Riverside neighborhood. These data clearly indicate that, although a majority of Riverside Neighborhood housing is sub-standard, a greater percentage of families in the lower socioeconomic group live in poor housing than do families in the upper socioeconomic group.

TABLE 18  
FAMILY CHRONIC DISEASE CONDITIONS

Type of Ailments Reported	Socioeconomic Groups		
	Upper %	Lower %	Total %
Asthma	16.12	18.26	17.80
Allergies	19.35	26.95	25.34
Chronic Bronchitis	6.45	17.39	15.06
Repeated Sinus Attacks	22.58	23.47	23.28
Heart Disease	12.90	21.73	19.86
High Blood Pressure	32.25	32.17	32.19
Varicose Veins	16.12	16.52	16.43
Hemorrhoids	19.35	18.26	18.49
Gall Bladder or Liver Trouble	6.45	15.65	13.69
Stomach Ulcer	16.12	12.17	13.01
Chronic Stomach Trouble	6.45	13.04	11.64
Kidney Stones or Other			
Kidney Trouble	12.90	26.95	23.97
Arthritis-Rheumatism	48.38	39.13	41.09
Prostate Trouble	12.90	7.82	8.90
Diabetes	12.90	13.91	13.69
Mental or Nervous Trouble	19.35	38.26	34.24
Back Trouble	19.35	34.78	31.50
Cancer or Tumor	9.67	6.08	6.84
Chronic Skin Trouble	6.45	13.91	12.32
Hernia or Rupture	16.12	12.17	13.01
Tuberculosis	0.0	3.47	2.73
Regular Diarrhea	12.90	5.21	6.84
Thyroid Trouble	3.22	11.30	9.58

TABLE 19  
FAMILIES OWNING OWN HOME

	Socioeconomic Group		
	Upper %	Lower %	Total %
Own home	51.62	40.00	42.46
Rent home	48.38	60.00	57.53

TABLE 20  
 UNSATISFACTORY HOUSING<sup>a</sup>

	Socioeconomic Group		
	Upper %	Lower %	Total %
Unsatisfactory housing	61.30	82.60	73.30

<sup>a</sup>A housing unit is deemed unsatisfactory if it has 20 or more penalty points utilizing the modified exterior structural deterioration classification of the Committee on Hygiene of Housing, American Public Health Association.

It will be necessary for the health professional to involve other governmental and non-profit agencies and private enterprise in any program designed to improve unsatisfactory environmental conditions existing in problem neighborhoods. This is necessary in that only with a sharing of resources is it possible to have the manpower and equipment necessary to effect the needed improvements. For example, the street department could aid in cleaning and maintaining streets in a sanitary manner, with the paving or oiling of streets being carried out when necessary to control the pollution content of the air. The engineering department could aid in the maintenance and extension of sewer lines, and local banks or other lending agencies could make long term low interest loans available to families wishing to make home improvements, including sanitary sewer connections, thus helping to eliminate improper waste disposal systems. The sanitation department could aid in the improvement of refuse pick-up and disposal services in the problem neighborhood, and the local housing authority could be more effective in the condemnation and elimination of unsafe and insanitary housing. The health professional could be expected to furnish the necessary expertise to draw the varied groups together and to give them direction and leadership in correcting recognized health problems.

The health professional could also be expected to furnish training and guidance to neighborhood organizations and workers willing



to become involved in environmental improvement programs. It would seem that health-reach-out aids would be ideal for utilization in health education programs designed to influence neighborhood families to participate in programs to improve neighborhood environmental conditions. The frequency of improperly stored refuse among the sample households is shown in Table 21.

The Riverside data indicate a relationship between knowledge of health services available and social status; however, the percentage of all families in the neighborhood familiar with health department services was very low. Table 22 concerns the knowledge of health services available, either directly or by referral, at the local health department. These data clearly indicate that the health department is not satisfactorily disseminating information concerning available health services to families in Riverside Neighborhood. The low family percentage concerning knowledge of health department services could possibly be explained in part at least in the well recognized reluctance of the health department to expound on its own good works. Should, however, the health department decide to enlighten the public concerning its activities, it is very doubtful that it would have a profound effect on those families in Riverside, since the media of advertising utilized by the health department is designed for families belonging to higher socio-cultural groups. Many Riverside families do not own a television set or a radio, nor do they subscribe to a daily newspaper. Table 23

TABLE 21  
IMPROPERLY STORED REFUSE

	Socioeconomic Groups		
	Upper %	Lower %	Total %
Families with improperly stored refuse	45.20	57.40	54.80

TABLE 22  
 KNOWLEDGE OF HEALTH SERVICES AVAILABLE  
 AT LOCAL HEALTH DEPARTMENT

Available Services	Socioeconomic Groups		
	Upper %	Lower %	Total %
Immunization	19.40	3.50	6.80
Prenatal care	3.20	2.60	2.70
Postnatal care	9.70	1.70	3.40
Foodhandling establishment inspection	3.20	0.86	1.40
Air pollution control	--	0.86	0.68
Milk distributors and producer dairy inspection	--	0.86	0.68
Housing inspection	3.20	0.86	0.36

TABLE 23

FAMILIES WITH TELEVISION, RADIO AND/OR  
SUBSCRIBING TO A DAILY PAPER

	Socioeconomic Groups		
	Upper %	Lower %	Total %
Families with television	90.32	90.43	90.37
Families with radio	83.87	78.26	79.45
Families subscribing to a newspaper	83.87	65.21	69.17

concerns the number of Riverside families with a television and/or radio set, and/or subscribing to a daily newspaper. These data from the family health interview indicate that families in the lower socio-economic group avail themselves of newspaper services less often than the families of the upper socioeconomic group. These data imply that the health department must find means other than newspaper advertising to disseminate information concerning the availability of health services. Unfortunate socio-cultural conditions are found in some abundance in Riverside. The educational level of a majority of household heads is less than that of a high school graduate. The educational level of household heads in Riverside is shown in Table 24. These data from the family health interview indicate that the educational achievement of the household heads in Riverside is very poor, with a large majority having achieved only a ninth-grade education or less. These data would seem to indicate that health program activities must be specifically geared for persons with limited educational achievement.

The very nature of the household head's occupation in a majority of cases is seasonal or part-time; therefore, geographical mobility is common. The classification of household heads by occupation is shown in Table 25. These data indicate that a majority of household heads in Riverside are employed as unskilled laborers. This would indicate that health programs must take into consideration

TABLE 24  
EDUCATIONAL LEVEL OF HOUSEHOLD HEADS

Achievement level	Socioeconomic Groups		
	Upper %	Lower %	Total %
Post graduate work	--	--	--
College graduate	--	--	--
College 1 - 3 years	6.45	0.86	2.05
High school graduate	29.04	6.95	11.64
10 - 11 years	25.81	14.78	17.13
7 - 9 years	38.70	35.65	36.31
0 - 6 years	--	39.14	30.82
Unknown	--	2.62	2.05

TABLE 25  
 OCCUPATIONAL CLASSIFICATION OF HOUSEHOLD  
 HEADS IN RIVERSIDE

Hollingshead's Two-Factor Index of Social Position		Socioeconomic Groups	
Occupation	Education	Upper %	Lower %
Higher executives	Graduate professional training	--	--
Business managers	University, college grad.	--	--
Administrative personnel	Partial college training	3.23	--
Clerical and sales	High school graduates	16.13	--
Skilled manual employees	Partial high school	58.06	6.08
Machine operator and semi-skilled	Junior high school	22.58	20.01
Unskilled employees	7 years school	--	73.91

seasonal increases in the population of the lower socioeconomic group, and perhaps design programs that would achieve maximum effectiveness during the period when the population increase reaches its peak. It would also seem prudent to design health programs that take into consideration not only the occupational hazards faced by the household head while on the job, but also the long term effects on personal and family health that particular kinds of jobs may entail. The length of time the family has lived in the neighborhood is shown on Table 26. These data indicate that Riverside is a relatively stable neighborhood with a majority of the families having lived there five years or more. With a relatively stable population when about one-third of the residents are 50 years of age or older, it would seem most prudent for the health department to initiate screening, evaluation and care of chronic health problems of neighborhood residents. Other program activities could be the use of home health aids, and health-reach-out aids to work with the elderly and chronically-ill, home-bound patient who has neither the motivation or resources to seek proper medical care. Other services could be the use of neighborhood volunteers, civic clubs, boy scout troops, and other interested indigenous groups, to work with their elderly neighbors for the purpose of aiding them in the maintenance of a safe, clean environment.

The large numbers of households headed by women indicate that many neighborhood homes could well be empty during the day when



TABLE 26  
 LENGTH OF TIME FAMILY HAD LIVED  
 IN RIVERSIDE NEIGHBORHOOD

Time	Socioeconomic Groups		
	Upper %	Lower %	Total %
Less than one year	19.35	9.56	11.64
One year	--	0.86	0.68
Two years	3.22	2.60	2.73
Three years	3.22	5.21	4.79
Four years	--	3.47	2.73
Five or more years	61.29	78.26	74.65
Other	12.90	--	2.73

spot announcements are readily available on television and radio, rather than in the evenings during prime television time, when the working parent is more likely to be home. The Riverside data indicates that the health department in order to make its activities known to many families in the neighborhood should utilize not only the standard communication media, but indeed must develop new methods of disseminating information to the public, particularly those groups with socio-cultural conditions contributing to non-responsive behavior toward preventive medical programs.

A satisfactory method of disseminating health information is through personal contact. Personal contact can be carried out through the daily functions of health professionals or through the utilization of neighborhood citizens participating in proposed or on-going health programs. Other means of reaching "hard core" groups must be developed, evaluated and improved upon if health departments are to serve as a positive influence in the development of satisfactory health behavior in such groups. The marital status of the household head is shown in Table 27. With almost half of the household heads in Riverside being either unmarried, divorced, widowed, or single, it would seem prudent for the health department to initiate a special approach that would facilitate cooperation from this group. Such special activities might include the conducting of multi-phase screening, evaluation, and treatment clinics in the evening hours, when it is more likely

TABLE 27  
MARITAL STATUS OF HOUSEHOLD HEAD

	Socioeconomic Groups		
	Upper %	Lower %	Total %
Household heads married	80.64	53.91	59.58
Household heads single	19.36	46.09	40.42

possible for the working mother or father to participate.

#### Sex of Household Head

The Family Health Behavior Index data indicate that sex of the household head plays an important role in the health behavior of Riverside families. Table 28 shows the Family Health Behavior Index values by sex of household head. Females score lower than males on the Family Health Behavior Index. It would seem that health professionals in planning program activities in Riverside should take into consideration socio-cultural factors found to be prevalent among those families with women as heads-of-household.

An abundance of problem conditions, such as families on welfare, low employment, low educational achievement, poor housing, lack of transportation, and little or no health insurance all play an important role in the non-utilization of available medical services, and the practice of poor family health behavior. Table 29 shows some selected comparisons concerning family health behavior by sex of household and lower socioeconomic standing.

#### Ethnic Grouping

The Family Health Behavior Index data indicate that there is little difference in the health behavior of families based on ethnic background in Riverside. Table 30 shows the Family Health Behavior Index values by ethnic grouping. The Family Health Behavior Index delineates

TABLE 28  
HEALTH BEHAVIOR INDEX VALUES

	Sex of Household Head	
	Male	Female
Family Health Behavior Index value	63.41	57.20

TABLE 29  
 FAMILY HEALTH BEHAVIOR BY SEX OF HOUSEHOLD  
 HEAD AND LOWER SOCIOECONOMIC  
 GROUPING

	Male %	Female %	Lower Socioeconomic Group %
Families on welfare	15.5	66.7	70.4
Families actively employed	52.4	11.9	31.3
Less than six years education for household head	30.1	33.3	39.1
Housing condition good	25.2	14.3	17.4
No family automobile	34.9	80.9	54.8
Families with medical-hospitali- zation insurance coverage	36.9	19.0	27.0
Families with personal physician	51.5	47.6	46.1
Families never using public health facilities	71.8	85.7	80.0
Families with knowledge of health department location	4.9	4.8	4.3
Sickness only reason for visiting a physician	89.3	88.1	88.7
Families that would use public health facilities if within one mile of home	50.5	52.4	76.5
Experiencing high blood pressure	31.1	35.7	32.2
Experiencing arthritis-rheuma- tism	42.7	38.1	39.1
Experiencing mental or nervous conditions	33.0	38.1	39.1
Experiencing back trouble	28.2	40.5	34.8
Individual appearance clean	77.6	59.5	70.4
Housekeeping clean	66.9	52.3	59.1
Improperly stored refuse	46.6	73.8	57.4

TABLE 30  
HEALTH BEHAVIOR INDEX VALUES

	Ethnic Grouping	
	White	Non-White
Family Health Behavior Index Value	61.50	62.03

two groups; however, the values are extremely close, thus indicating little difference in family health behavior based on ethnic grouping. It is also interesting to note that the Hollingshead values for both groups are very similar. Table 31 shows the Hollingshead Index values by ethnic grouping of household head. The Hollingshead values for both groups are similar and in that the Family Health Behavior Index values are also similar would tend to add validity to the health behavior index.

It would seem that health professionals would not have to consider the ethnic background of a family; however, there are extenuating conditions in Riverside which negate this assumption. The relative small number of white and non-white families in the sample, and the rather large percentage of Spanish-American families forming the non-white group tend to give an unbalanced perspective to family health conditions among various ethnic groups within the non-white category. Also, the relatively high percentage of families in the non-white group who use public health facilities is in part responsible for the higher value on the Family Health Behavior Index. The large percentage of elderly persons in the white group with minimum immunization protection, poor hygienic practices, living in poor housing structures, with small pensions as the only source of income, who practice poor preventive and curative medical care and experience a high percentage of chronic disease conditions are in part responsible for the lower value of the Family Health Behavior Index. Nevertheless, individual



TABLE 31  
HOLLINGSHEAD INDEX VALUES

Hollingshead Index	Number of Households	Average Value
White	65	66.36
Non-White	81	68.74

frequency distributions based on family health practices clearly indicate a trend toward less satisfactory health behavior in the non-white group. Table 32 shows some selected comparisons concerning the health behavior of the two groups based on ethnic grouping.

Perhaps health professionals would be advised to develop programs in Riverside designed to screen the elderly for chronic disease conditions and make medical services available to them at prices they could afford and locations they could reach. It would also seem advisable to design health education courses specifically for the white and non-white family practicing poor hygiene and failing to utilize available medical services.

#### Length of Stay in Present Employment

The Family Health Behavior Index data indicate that the length of the household head's employment does play a role in determining the health behavior of Riverside families. Table 33 shows the Family Health Behavior Index values by the length of household head's stay in present employment. The Family Health Behavior Index indicates that families with household heads in steady long term employment have a higher index value, and frequency distributions developed for health characteristics based on length of employment definitely show a trend that indicates families with household heads in their present employment for a shorter period of time do actually live in

TABLE 32  
HEALTH BEHAVIOR BY ETHNIC GROUPING

	White %	Non- White %	Lower Socioeconomic Group %
Individual appearance clean	80.0	65.4	70.4
Housekeeping clean	73.8	53.1	59.1
Housing condition good	29.2	16.0	17.4
Family owns home	49.2	37.0	40.0
Family on welfare	30.8	30.9	38.3
No family automobile	52.3	45.7	54.8
Family having personal physician	58.5	43.2	46.1
Family with medical-hospitalization insurance coverage	26.2	35.8	26.9
Family never using public health facility	78.5	54.1	80.0
Family with knowledge of health department location	9.2	1.2	4.3
Families with asthma	23.1	13.6	18.3
Families experiencing high blood pressure	30.8	33.3	32.2
Families with allergies	32.3	19.8	27.0
Families with mental or nervous conditions	36.9	32.1	38.0
Families with tuberculosis	1.5	3.7	3.5
Families with diabetes	12.3	14.8	13.9

TABLE 33

## HEALTH BEHAVIOR INDEX VALUES

	<u>Length of stay in present employment</u>		
	<u>&lt;1 yr.</u>	<u>1-3 yrs.</u>	<u>&gt;3 yrs.</u>
Family Health Behavior Index value	58.71	58.56	63.64

more sub-standard housing, practice less satisfactory personal hygiene, have less access to a personal physician, and utilize public health facilities less often than do their neighbors who remain steadily employed.

There is also a relationship between socioeconomic grouping based on length of the household head's stay in his present employment, and values on the Family Health Behavior Index, as shown in Table 34. The similar values on the Hollingshead Index compare favorably with those obtained on the Family Health Behavior Index and adds credence to the validity of the index as a health measurement tool.

It would seem important for health professionals to develop health programs designed specifically to reach the family group headed by a person with seasonal or general labor employment subject to frequent lay-offs. Such programs could be categorized by mobile health units utilized block-by-block within the boundaries of the neighborhood; comprehensive disease screening programs conducted in the neighborhood where the family lives and with adequate referrals for treatment; health education programs designed to reach the adult family members through the school age children in the family; health education programs directed at the place of employment; and through more aggressive enforcement of existing housing codes which has particular importance in Riverside, in that such a large part of the families whose household head has infrequent and/or short term employment rent their family

TABLE 34  
LENGTH OF STAY IN PRESENT EMPLOYMENT

Hollingshead Index for length of stay in present employment	Average value
<1 yr	67.52
1-3 yrs	65.76
3+ yrs	66.64

residence.

Table 35 shows some selected comparisons concerning the health behavior of two groups based on the household head's length of stay in present job.

#### Length of Stay in Neighborhood

The Family Health Behavior Index data indicate little difference in the health behavior of Riverside families based on the length of stay in the neighborhood for the family. Table 36 shows the Family Health Behavior Index values by the length of the household's stay in the neighborhood. The Family Health Behavior Index values are nearly the same, thus indicating little difference in family health behavior based on length of stay in neighborhood. It is interesting that the Hollingshead Index for families based on length of stay in the neighborhood is almost identical for those families in the neighborhood less than five years and those families in the neighborhood more than five years. The similarity in the Hollingshead values of both groups also compares favorably with the closeness of the family values on the Family Health Behavior Index. Table 37 shows the Hollingshead Index values by the families' length of stay in the neighborhood. The Hollingshead values for both groups are very similar and in that the Family Health Behavior Index values are also quite similar, this would tend to add to the validity of the health behavior index.

Frequency distributions developed for health characteristics

TABLE 35

## HEALTH BEHAVIOR BY LENGTH OF STAY IN PRESENT JOB

	Years on Job			Low
	< 1 Years %	1-3 Years %	3+ Years %	Socio- Economic Group %
Individual appearance clean	76.2	42.9	75.9	70.4
Housekeeping (general) clean	57.1	38.1	68.4	59.1
Personal family physician	47.6	23.8	50.0	46.1
Family medical-hospitalization insurance coverage	14.3	33.3	36.7	26.9
Ever used public health facilities	28.6	14.3	21.3	20.0
Knowledge of health department location	4.8	9.5	2.5	4.3
Mental or nervous conditions	33.3	23.8	31.6	26.9
Back trouble	33.3	38.1	27.8	34.8
Adult polio protection	28.6	23.8	31.6	26.9
Housing condition good	23.8	14.3	25.0	17.4
Improperly stored refuse	61.9	66.7	50.0	57.4
No family automobile	42.9	42.9	45.0	54.8
Family owns home	28.6	14.3	48.8	40.0
Family on welfare	23.8	33.3	26.3	38.3



TABLE 36  
HEALTH BEHAVIOR INDEX VALUES

	<u>Length of stay in neighborhood</u>	
	<u>&lt;5 yrs</u>	<u>5+ yrs</u>
Family health behavior index value	61.22	61.25

TABLE 37  
HOLLINGSHEAD INDEX VALUES

Hollingshead Index	Average Value
<5 years in neighborhood	67.03
5+ years in neighborhood	67.87

based on length of families' stay in the neighborhood definitely show a trend that indicates families living in Riverside less than five years do actually live in more sub-standard housing, practice less satisfactory personal hygiene, have less access to a personal physician, and utilize public health facilities less often than do their neighbors who have lived in the neighborhood five years or longer. Table 38 shows some selected comparisons concerning the health behavior of the two groups based on the family's length of stay in the neighborhood.

Health professionals need to develop programs designed to reach the family group in Riverside that has lived in the neighborhood for less than five years. Most importantly, methods must be devised to keep accurate health records for families who are very often on the move. Although much of the family movement is lateral, that is, from one low socioeconomic neighborhood to another, it is extremely difficult for health professionals to know which families are making use of what services, and almost impossible to accurately measure results of given health programs. One method of remaining in contact with mobile families would be a dye identification which would be coded for each immunization and only able to be seen under florescent lighting. This would enable public health nurses to recognize at a glance the immunization status of each family member. Another method of detecting levels of immunization protection and disease incidence for the neighborhood would be the utilization of random sample health interviews;

TABLE 38

## HEALTH BEHAVIOR BY LENGTH OF STAY IN NEIGHBORHOOD

	Length of stay in neighborhood		
	5 yrs %	5+ yrs %	Lower Socio- eco- nomic %
Individual appearance clean	51.5	77.1	70.4
Housekeeping clean	33.3	69.7	59.1
Families with personal physician	42.4	54.5	46.1
Families with medical-hospitali- zation insurance coverage	33.3	29.4	26.9
Never used public health facilities	78.8	76.1	80.0
Families with knowledge of health department location	.1	3.7	4.3
Experiencing high blood pressure	12.1	38.5	32.2
Experiencing mental or nervous conditions	45.5	31.2	38.3
Housing condition good	6.1	26.6	17.4
Families owning home	3.0	53.2	40.0
No family automobile	54.5	48.6	54.8
Families on welfare	27.3	33.0	38.3

however, this would not give information on individual family members throughout the neighborhood. Mobile clinics and multi-phasic screening units would also be useful tools in working with highly mobile families.

## CHAPTER IV

### CONCLUSIONS AND SUMMARY

Analysis of the Riverside data clearly indicated that the Family Health Behavior Index can be used successfully in characterizing the health behavior of a family relative to that of other families in a given neighborhood. Furthermore, it seems clear that health professionals would not only be able to determine family health needs by utilizing the index, but would also be able to predict with reasonable accuracy how the family might react to a given program activity. It is important for all health professionals, particularly to those responsible for the development of public health programs, to design programs in such a way that they compliment the way of life of a group of people, taking into consideration their unique social, psychological, and environmental conditions.

Utilization of the Family Health Behavior Index will enable a public health authority to establish on a community wide and/or on an individual neighborhood basis a level of family health behavior. When the health behavior level has been established, it would then be possible for the responsible public health authority to design programs for

specifically designated problem areas.

The intent of the Family Health Behavior Index was not to establish absolute areas of family health that must always be a major part of the index structure, rather to establish the feasibility of a measuring instrument for health behavior. The Family Health Behavior Index is subject to modification by health professionals who feel in their particular health jurisdictions that other health factors merit investigation and evaluation.

The Family Health Behavior Index is subject to use by any public health authority, and can be utilized in the field by nurses, social workers, health educators, and sanitarians.

A major consideration concerning the construction of the index was the validity of combining many factors such as a family's hygiene, immunization levels, chronic conditions, prenatal-postnatal care and infant deaths, medical insurance coverage, physician services, diet, and environmental surroundings, stirring them together, and getting as a final product, a measurable level of family health. Despite the diversity of factors in the index each health area is weighed as an individual entity and equated as part of the family's over-all index value.

The Family Health Behavior Index delineated two groups with diverse health behavior practices in Riverside. For the purposes of this study the families so delineated were separated into an upper and

lower group. The Family Health Behavior Index values for both groups were compared to an already established socioeconomic index (52) and a significant relationship at the .01 level was found. The hypothesis concerning the Family Health Behavior Index and family socioeconomic status stated that the more depressed the family's social status, the lower the family's value on the health behavior index. The significance of the relationship at the .01 level, based on independent correlation coefficients and t test values, substantiates the validity of the hypothesis.

Data from the Family Health Behavior Index clearly indicated that more families in the lower group were found to be on welfare and live in sub-standard housing, surrounded by an unsanitary environment compared to their neighbors belonging to the upper group. Families in the lower group were also less likely to have the services of a private physician, and did not avail themselves of public health facilities and services as did their counterparts in the upper group, nor did they have as much medical-hospitalization insurance protection. It would seem to follow then, as it did in Riverside, that prenatal and postnatal care by a physician occurred much less frequently among expectant mothers in the lower group. Family income apparently plays a significant part in the diets of Riverside families as the lower group has the least satisfactory dietary habits.

It is also true that lower socioeconomic families practiced



less satisfactory personal hygiene and maintained a housing environment less conducive to good family health than did the families in the upper group. Immunization protection was found to be less satisfactory in the families composing the lower group, particularly among children under 15 years of age. It is interesting that the lower group reported fewer chronic disease conditions than did the upper group; however, this was expected as more individuals in the upper socioeconomic group were older (over age 50) and it is this age group that suffered from the greater number of chronic health problems. Exceptions to the chronic health problems in the upper group were found with respect to mental and nervous problems, back trouble and chronic skin conditions, all of which might be associated with the stress associated with the sub-standard housing, low incomes, and high rate of unemployment found to be much more common in the families of the lower group.

In addition to the factors comprising the Family Health Behavior Index additional social and cultural information was gathered to supplement the index and to aid in determining the consistency in the findings. The following additional hypotheses were formulated: (a) the longer the family's stay in the neighborhood, the better the family's health behavior, (b) the non-white family had a lower value on the Family Health Behavior Index than did the white family, (c) female household heads scored lower on the Family Health Behavior Index

than male household heads, and (d) the longer the household head was in his present job, the higher the family's score on the health behavior index. The above variables were selected inasmuch as it is rather commonly acknowledged by public health professionals that lower income groups, ethnic minorities, the employment-unemployment-re-employment episode and sex of the head-of-household play an important part in the family's acceptance of good health practices and preventive health care procedures.

The results of the Family Health Behavior Index concerning the family's length of stay in the neighborhood indicated that there was little difference in the health behavior of families who had lived in the neighborhood for various periods of time. However, individual frequency distributions developed for selected health and social characteristics clearly showed a trend toward better family health behavior among the families living in Riverside more than five years. The frequency distributions and the closeness of the Hollingshead values for the two groups seemed to support the small difference in family health behavior established by the Family Health Behavior Index; therefore, the hypothesis is accepted.

The results of the Family Health Behavior Index concerning the ethnic grouping of the household heads indicated that two groups were delineated according to health behavior, but that little difference actually existed in family health behavior. However, individual fre-

quency distributions developed for selected health and social characteristics indicated a trend toward better family health behavior among the families in the white group. The frequency distributions and the closeness of the Hollingshead values for the two groups seemed to support the difference in family health behavior in favor of the white group established by the health behavior index; therefore, the hypothesis is accepted.

The results of the Family Health Behavior Index concerning the sex of the head-of-household indicated that two distinct groups were delineated according to health behavior with the families headed by women who practiced less satisfactory health behavior than those headed by men. Individual frequency distributions developed for selected health and social characteristics supported the findings of the health behavior index; therefore, the hypothesis is accepted.

The results of the Family Health Behavior Index concerning the length of the head-of-household's stay in present employment indicated that the families whose household heads had been in their present employment for more than three years practiced more satisfactory health behavior than did the families whose household heads had been in their present employment for three years or less. Individual frequency distributions developed for selected health and social characteristics clearly indicated that families with more stable employment practices also practiced better family health; therefore, the hypothesis

is accepted.

In summary, this study has:

1. Illuminated the extent to which health problems among families can be identified with the many social and cultural conditions which had important relationships to actual family health practices.
2. Defined those families practicing unacceptable health care to be generally deficient in other areas important to successful social intercourse, particularly occupation and education.
3. Illuminated the gap which exists today between available health services and their acceptance or non-acceptance by individual families.
4. Illuminated the need for public health programs to eliminate some of the techniques and procedures established for the health professionals rather than the client's convenience.
5. Illuminated the level of health knowledge maintained by the disenfranchised family.
6. Provided suggestions for programs necessary to correct important deficiencies in health behavior among families in Riverside Neighborhood.

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APPENDIX

HEALTH BEHAVIOR INDEX

A. HEALTH BEHAVIOR INDEX

I. Family Hygiene

	Yes	No
1.) Individual appearance clean . . . . .		
2.) Hands clean . . . . .		
3.) Nails clean . . . . .		
4.) Clothing appearance clean . . . . .		
5.) Housekeeping (general) clean . . . . .		
6.) Floors clean . . . . .		
7.) Walls clean . . . . .		
8.) Kitchen clean . . . . .		
9.) No garbage exposed . . . . .		
10.) No perishable foods exposed . . . . .		
11.) Bathroom clean . . . . .		
12.) Hand soap available . . . . .		
13.) Towels wash cloths available . . . . .		

II. Family Immunization Levels

Immunizations Completed:

6 mos. -4 yrs	M   F		Adults	
	5-14			1.) Polio . . . . .
15-24			2.) Smallpox . . . . .	
25-34			3.) Typhoid . . . . .	
35-49			4.) Tetanus . . . . .	
50-64			Children	
65 +			1.) Polio . . . . .	
			2.) Smallpox . . . . .	
			3.) Typhoid . . . . .	
			4.) Measles . . . . .	
			5.) D.P.T. . . . .	

III. Family Chronic Disease Conditions

A physician has not diagnosed any of the following diseases among members of the family.

1.) No asthma . . . . .		
2.) No allergy . . . . .		
3.) No chronic bronchitis . . . . .		
4.) No repeated sinus attacks . . . . .		
5.) No rheumatic fever . . . . .		
6.) No hardening of the arteries . . . . .		

	Yes	No
7.) No high blood pressure . . . . .		
8.) No heart disease . . . . .		
9.) No stroke . . . . .		
10.) No varicose veins . . . . .		
11.) No hemorrhoids . . . . .		
12.) No gall bladder or liver trouble . . . . .		
13.) No stomach ulcer . . . . .		
14.) No chronic stomach trouble . . . . .		
15.) No kidney stones or other kidney trouble . . . . .		
16.) No arthritis-rheumatism . . . . .		
17.) No prostate trouble . . . . .		
18.) No diabetes . . . . .		
19.) No thyroid trouble . . . . .		
20.) No epilepsy or convulsions of any kind . . . . .		
21.) No mental or nervous trouble . . . . .		
22.) No repeated trouble with back or spine . . . . .		
23.) No tumor or cancer . . . . .		
24.) No chronic skin trouble . . . . .		
25.) No hernia or rupture . . . . .		
26.) No tuberculosis . . . . .		
27.) No regular diarrhea . . . . .		

IV. Family Prenatal and Postnatal Care and Infant Mortality

1.) If a baby was born within your immediate family in the past 5 years, was he or she delivered in a hospital? . . . . .	
2.) During the pregnancy did you see a personal physician? . . . . .	
3.) During the pregnancy did you see a physician in the first three months of your term? . . . . .	
4.) Did you have prenatal care by a physician? . . . . .	
5.) Did you have postnatal care by a physician? . . . . .	
6.) Was the baby delivered by a physician? . . . . .	
7.) Have all the infants (less than one year of age) born in your immediate family in the past five years lived?	
8.) Have all your children (greater than one year, less than 6 years) lived? . . . . .	

V. Family Medical Insurance Coverage

1.) Do you carry family medical care and hospitalization insurance on yourself and members of your family? .	
--	--

VI. Family Physician, Dentist, and Physical Examinations

	Yes	No
1.) Do you have a personal family doctor? . . . . .		
2.) Do you go to the same doctor every time? . . . . .		
3.) Has any member of this household visited a physician in the <u>  </u> -year? . . . . .		
4.) In the <u>  </u> -year has any family member had a physical examination? . . . . .		
5.) Do you have a family dentist? . . . . .		

VII. Family Diet

As part of your family's regular (at least once daily) diet, do you eat:

1.) Meat (poultry, fish, etc.) . . . . .		
2.) Eggs . . . . .		
3.) Vegetables . . . . .		
4.) Bread . . . . .		
5.) Butter (equivalent). . . . .		
6.) Milk . . . . .		
7.) Cheese . . . . .		
8.) Fruit. . . . .		

VIII.

Do your children regularly eat breakfast? . . . . .		
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IX. Family Environmental Surroundings

1.) Is the housing condition good? . . . . .		
2.) Is the house habitable? . . . . .		
3.) Is the toilet inside the house proper? . . . . .		
4.) Does the house have inside hot water? . . . . .		
5.) Does the house have bathing facilities? . . . . .		
6.) Does the house have a laundry facility? . . . . .		
7.) Is the yard free of rubble? . . . . .		
8.) Is there proper refuse storage? . . . . .		

Total . . . . .

Total Possible Points . . . . .

Health Behavior Index . . . . .

. . . . .

B. FAMILY HEALTH INFORMATION

	Yes	No
1.) Have you ever used public health facilities? . . . . .		
2.) Do you know where the city-county health department is located? . . . . .		
3.) Has any member of your family visited the city-county health department in the past year? . . . . .		
4.) When a member of your family goes to a physician, does he or she go for preventive measures? (examinations, immunizations, etc.) . . . . .		
5.) Could you name some of the services available at your local health unit? . . . . .		
a) Immunizations . . . . .		
b) Prenatal care . . . . .		
c) Postnatal care . . . . .		
d) Psychological counseling . . . . .		
e) Food handling established inspection . . . . .		
f) Air pollution control . . . . .		
g) Milk distributors and producer dairy inspection . . . . .		
h) Housing inspection . . . . .		
6.) If health department services were made available to you within the area of your neighborhood (no more than one mile distant) would you use them? . . . . .		
7.) Do schools offer medical services? . . . . .		
8.) Could you tell me what some of the school medical services are? . . . . .		
a) Physical examinations . . . . .		
b) Eye examinations . . . . .		
c) Hearing examinations . . . . .		
d) Immunizations . . . . .		
e) Psychological counseling . . . . .		

- 9.) How long have you lived in this neighborhood: (a) less than (1) year. \_\_\_\_\_, (b) 1 yr. \_\_\_\_\_, (c) 2 yrs. \_\_\_\_\_, (d) 3 yrs. \_\_\_\_\_, (e) 4 yrs. \_\_\_\_\_, (f) 5 yrs. \_\_\_\_\_.
- 10.) Why don't you use the existing public health facilities?
- a) Transportation \_\_\_\_\_
  - b) Distance \_\_\_\_\_
  - c) Religious reasons \_\_\_\_\_
  - d) Don't know where they are located \_\_\_\_\_
  - e) Baby sitter \_\_\_\_\_
  - f) Work from 8 a.m. to 5 p.m. \_\_\_\_\_
  - g) The people there are too busy and I have to wait too long \_\_\_\_\_
  - h) It costs too much \_\_\_\_\_
  - i) They are not polite and treat me as if they were doing me a big favor \_\_\_\_\_
  - j) They are only for poor people \_\_\_\_\_
  - k) Racial prejudice \_\_\_\_\_
  - l) Other (specify) \_\_\_\_\_
- 11.) Is there a particular reason why you don't have a personal family doctor?
- a) Religious \_\_\_\_\_
  - b) Costs too much \_\_\_\_\_
  - c) Physicians are too busy \_\_\_\_\_
  - d) Other (specify) \_\_\_\_\_
- 12.) Is there a particular reason why you don't have a personal family dentist?
- a) Religious \_\_\_\_\_
  - b) Costs too much \_\_\_\_\_
  - c) Dentists are too busy \_\_\_\_\_
  - d) Other (specify) \_\_\_\_\_
- 13.) Are any members of your family receiving U.S. Government Medical-Care? Yes \_\_\_\_\_, No \_\_\_\_\_
- 14.) During your pregnancy, how often did you see a physician?
- (a) Weekly \_\_\_\_\_, (b) Bi-weekly, \_\_\_\_\_, (c) Monthly \_\_\_\_\_, (d) Bi-monthly \_\_\_\_\_, (e) Other \_\_\_\_\_
- 15.) If a public health facility should be opened in your area what is the maximum distance you feel would be possible for you to travel to be able to use it?
- (a) 1 block \_\_\_\_\_, (b) 2-6 blocks \_\_\_\_\_, (c) 7-12 blocks \_\_\_\_\_, (d) 25-36 blocks \_\_\_\_\_, (e) Other (specify) \_\_\_\_\_

- 16.) a) Does your family have a TV? Yes \_\_\_\_\_, No \_\_\_\_\_  
 b) Does your family have a radio? Yes \_\_\_\_\_, No \_\_\_\_\_  
 c) Do you subscribe to magazines? Yes \_\_\_\_\_, No \_\_\_\_\_  
 d) Do you subscribe to newspapers? Yes \_\_\_\_\_, No \_\_\_\_\_  
 e) Which of these does your family use most regularly? \_\_\_\_\_
- 17.) Does this family own one \_\_\_\_\_, two \_\_\_\_\_, none \_\_\_\_\_  
 automobiles?
- 18.) Does family own \_\_\_\_\_, rent \_\_\_\_\_, home?
- 19.) Think of the last time you were sick: what seemed to be the  
 matter? \_\_\_\_\_
- 20.) Occupation of household head \_\_\_\_\_  
 Is the household head actively employed? \_\_\_\_\_ or receiving:  
 (a) unemployment compensation \_\_\_\_\_, (b) workmen's compen-  
 sation \_\_\_\_\_, (c) social security \_\_\_\_\_, (d) welfare \_\_\_\_\_, (e)  
 company pension, (f) other (specify) \_\_\_\_\_
- 21.) How long has the household head been employed in his present  
 job?  
 a) 1 week \_\_\_\_\_  
 b) 1 month \_\_\_\_\_  
 c) 3 months \_\_\_\_\_  
 d) 6 months \_\_\_\_\_  
 e) 12 months \_\_\_\_\_  
 f) 18 months \_\_\_\_\_  
 g) 24 months \_\_\_\_\_  
 h) 36 months \_\_\_\_\_  
 i) Other \_\_\_\_\_
- 22.) What was the occupation of the household head's father?  
 \_\_\_\_\_
- 23.) Educational level of the household head  
 a) Post graduate work \_\_\_\_\_  
 b) College graduate \_\_\_\_\_  
 c) College 1-3 years \_\_\_\_\_  
 d) High school graduate \_\_\_\_\_  
 e) 10-11 years \_\_\_\_\_  
 f) 7-9 years \_\_\_\_\_  
 g) 0-6 years \_\_\_\_\_  
 h) Unknown \_\_\_\_\_
- 24.) Are you (the household head) presently married? Yes \_\_\_\_\_ No \_\_\_\_\_



- 25.) Has a public health department nurse visited your home in the past year? \_\_\_\_\_
- 26.) Has a public health department sanitarian visited your home in the past year? \_\_\_\_\_
- 27.) When a member of your family goes to a physician, does he or she go because of:
- a) Sickness \_\_\_\_\_
  - b) Regular physical examination \_\_\_\_\_
  - c) Employment physical examination \_\_\_\_\_
  - d) Prenatal care \_\_\_\_\_
  - e) Postnatal care \_\_\_\_\_
  - f) Immunizations \_\_\_\_\_
  - g) Other (specify) \_\_\_\_\_