

# MEASURING HEALTH NEEDS IN AN URBAN DISTRICT<sup>1</sup>

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## INTRODUCTION

**A**N evaluation of the public health services in a community may be approached in at least three different ways. First, there is the most common method of measurement which is based on quantitative indices of the volume of service and a comparison of these with certain yardsticks or standards of service believed to be reasonably adequate for the average community when the population, death rates, and reported incidence of communicable diseases are taken into account. This is termed the appraisal of health activities according to the standard set forth in the "appraisal form." A second quantitative approach to the adequacy of the various types of health activities in a specific community may be based on the determination of the extent of health needs of individuals and families and the extent to which these needs have been met. A third method of evaluation is to study the quality of the particular services rendered. The last involves more a critical appraisal of the techniques and practices used in carrying on specific activities and of the results or effectiveness of the services rendered. For a complete evaluation of the health services in a community, obviously they should be studied from both the quantitative and qualitative point of view.

The present paper reports on an experiment in applying the second method of evaluating quantitatively the adequacy of health activities. An attempt has been made to assemble data on the extent of certain health problems for a sample population in a single health district in New York City and to study the nature

<sup>1</sup> From the Milbank Memorial Fund. This is the first in a series of articles reporting on a survey in the Mott Haven Health District. The adequacy of services in relation to specific problems will be considered in the next paper which will be published in the April *Quarterly*.

and amount of service provided for them. Only the activities of the Health Department of the direct, personal type for the prevention of disease and promotion of health are considered. Such activities are a major function of the modern health department and many public health nurses and physicians provide educational, preventive, diagnostic, and corrective services for the promotion of maternal, infant, and child health and the control of tuberculosis and other communicable diseases. An evaluation of the extent to which this part of the health program is adequate should consider all evidence on the prevalence of health problems in a specific community and the record of services provided by the Health Department or others to meet these health needs. Some measure of the relation of the services rendered to the actual need is of especial value when the community under consideration is a poor district in a metropolitan area for which such indices as infant and tuberculosis mortality show the need of preventive health service to be relatively great.

This problem of determining the extent of unmet needs for health services was made the subject of a special investigation in the Mott Haven Health District of New York City in 1932.<sup>2</sup> This district was not at that time organized for district administration of health services and was typical probably of most districts in New York City in which no intensive program was being carried on with the aid of non-official agencies. A survey was made of about one thousand families during the latter half of 1932 to collect data which would reveal the extent of preventive and educational health services among them, the extent of neglected health problems, the amount of ill health and medical care received, and other relevant facts concerning the economic and environmental conditions of the families. The study was undertaken as an experi-

<sup>2</sup> This investigation supplemented other studies conducted by the Committee on Neighborhood Health Development, members of the research staff of the Milbank Fund and several specialists who collaborated on special phases of the studies in connection with the preparation of a program for organizing the health activities on a district basis to bring the services closer to the needs of specific neighborhoods.

ment in measuring the adequacy of the public health activities; to provide data which could be used in guiding the development of a more adequate program; and also to afford a base line against which improvements in the service under the recently inaugurated District Health Administration in Mott Haven could be measured at a later date.

#### DATA COLLECTED

A home visit to each family in this study was made by an investigator who obtained a complete roster of the family with age of each member and the place of birth, education, and religion of the husband and wife in the family. The approximate earnings and type of work of each employed person during the twelve months preceding the investigator's visit were recorded and also recent changes in employment or rate of pay. The housing data obtained included the monthly rental, number of rooms, kind of heat, toilet and bath facilities, and length of residence at present address.

The informant was asked specifically if any public health nurse had called and, if so, for what purpose; if any member of the family had attended a health department clinic; and if the family had been notified of any health condition in a child of school age which should receive attention and, if so, what had been done about it. For every child, the investigator inquired as to whether it had been vaccinated against smallpox and immunized against diphtheria and by whom. Illnesses during the previous twelve months and any medical or nursing care received were asked for and a record taken of the source of such care, whether from a private physician, a hospital clinic, the health department, or other agency.<sup>3</sup>

The names of all families in the survey, not just those who had

<sup>3</sup> It was not expected that a complete record of illness and medical care could be obtained for as long a period as a year. Most of the prolonged or serious illnesses would be remembered and it is believed that the record of children's communicable diseases is fairly complete.

reported some health service, were checked against the records of service on file at the Health Department clinics, at the schools on the medical examination cards or on the nurses' records, and in the office of the Henry Street Visiting Nurse Service. Records at the hospital clinics and the dental and eye treatment clinics in the public schools were not checked, the family statement being accepted for the medical care received.

#### REPRESENTATIVENESS OF THE FAMILIES STUDIED

An effort was made to visit an unselected sample of families which would be well scattered over the entire Mott Haven district. Since the district contained 56,913 families according to the 1930 Census, the 1,049 families visited were slightly less than two per cent of the total. The general plan followed was to canvass about two per cent of the families in each of the 39 Census tracts which had from 50 to 3,665 families. Obviously not all blocks or even neighborhoods could be sampled, but in tracts with a large number of families those visited were scattered in different blocks and districts within the tract to provide a few families from the various types of homes. The final count of completed schedules grouped according to health areas, a combination of Census tracts with approximately 25,000 population, showed that the per cent of families visited in some areas varied considerably from the two per cent average, as may be seen in Table 1. Nevertheless, the families in the study are reasonably well distributed and all types of neighborhoods are represented.

Some evidence of the extent to which the sample may be con-

Table 1. Percentage of families in each health area of the Mott Haven district which is included in the surveyed sample.

	TOTAL MOTT HAVEN	HEALTH AREA										
		37	38	39	40	41	42	43	44	45	46	47
Number	1049	101	84	93	174	72	120	43	94	83	105	80
Per Cent	1.8	1.9	2.1	1.8	3.0	1.3	2.1	1.1	1.6	1.9	2.4	1.3

sidered representative of the district as a whole is afforded by the distribution of the families according to monthly rental and nativity. Since health services for one year were to be considered, it has seemed best to base this study on the families which resided within the Mott Haven district throughout the period. There were 801 such families. Comparison of these families with data from the United States Census for the entire Mott Haven district indicates that the proportion of families in the rental class of \$50 or more per month and the proportion of Russian and Polish families, most of whom are Jewish, are both smaller than in the district as a whole.<sup>4</sup> In other words, our sample contains less than a representative proportion of the higher economic group of Russian

<sup>4</sup> Monthly rentals and ownership of homes are the only data indicative of the economic status of families available for both the survey sample and the entire district. From the United States Census, rental data for the district as of 1930 are available while rentals for the survey sample are for 1932, but rents had declined during these two years. From the Real Property Inventory, a distribution of rents for the district is available for 1934, but a further general decline had taken place by this date. Therefore, the rentals at the time of the survey would fall in between those for which district data are available. The distributions of rentals from these several sources are shown below, and it is apparent that the sample has a smaller proportion of families paying \$50 or more per month than would be typical for the health district.

Distribution according to tenure and monthly rental of families in the survey and of all families in the Mott Haven Health District.

TENURE AND MONTHLY RENTAL	SURVEY SAMPLE		MOTT HAVEN HEALTH DISTRICT	
	Number	Per Cent	United States Census, 1930 Per Cent	Real Property Inventory, 1934 Per Cent
TOTAL	801	100.0	100.0	100.0
Owned homes	14	1.7	5.6	5.1
Rented homes	787	98.3	94.4	94.9
<i>By Rental for Rented Homes<sup>1</sup></i>				
TOTAL	725	100.0	100.0	100.0
Less than \$10	0	0.0	.1	.8
\$10—\$19.99	17	2.3	2.3	8.2
\$20—\$29.99	228	31.4	12.3	31.6
\$30—\$49.99	458	63.2	57.5	51.7
\$50—\$74.99	22	3.0	23.5	6.5
\$75 or more	0	0.0	4.2	1.2

<sup>1</sup> Excludes 15 families in the survey sample with unknown rental and 47 families who gave janitor service for rental.

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and Polish families. The Italian families, on the other hand, make up a slightly larger portion of the sample than is typical of the district. Our sample, however, seems reasonably typical of the 75 to 85 per cent of families in the Mott Haven district which in 1932 were paying less than \$50 per month.

The age distribution, as shown in Table 2, was somewhat younger for the surveyed population than that of the entire district. The relatively high proportion of school children and younger children would tend to increase the chances of a family having some public health service. For this reason, and because of the small number of high-income families in the sample, the amount of health care reported for these families is no doubt a maximum and probably somewhat higher than an average for all types of families in the district.

The percentage distribution for the sample according to color and place of birth of the family heads is compared with that given by the Census for the entire district in the following table. A marked similarity will be noted but some differences appear too. The principal significant difference is that, in the survey sample, a smaller proportion of the heads of households were born in Russia or Poland and a larger proportion in Italy. Examination of data on nativity for specific health areas reveals that in Health Area 43, Russian and Polish family heads formed 42.6 per cent of the total or nearly twice the average percentage for the district and this area (Table 1) contributed relatively few families to the sample. It is also an area with a relatively large percentage of families paying high rents. On the other hand, Health Areas 38 and 39, where a normal proportion of the families were visited, contain the principal Italian districts and in Area 38 a disproportionately large number of Italian families were canvassed.

Percentage distribution according to color and nativity of heads of families in the survey and of all families in the Mott Haven Health District.

COLOR AND NATIVITY OF HEAD OF FAMILY	SURVEY SAMPLE		MOTT HAVEN. U. S. CENSUS 1930
	Number	Per Cent	Per Cent
TOTAL FAMILIES	801	100.0	100.0
White (Total) <sup>1</sup>	781	97.5	98.6
Native-born	253	31.6	29.8
Foreign-born	524	65.4	68.8
Russia-Poland	123	15.4	23.5
Italy	127	15.9	9.6
Ireland	77	9.6	8.0
Germany	64	8.0	7.8
All other	133	16.6	19.9
Negro and other colored	20	2.5	1.4

<sup>1</sup> Includes four families with place of birth unknown for head of family.

Age Group	Survey Sample		U. S. Census 1930
	Number	Per Cent	Per Cent
ALL AGES	3,587	100.0	100.0
Under 5 years	372	10.5	8.2
5-14	859	24.1	17.8
15-24	650	18.3	20.1
25-44	1,100	30.9	34.4
45-64	500	14.1	16.3
65 and over	76	2.1	3.2
Unknown	30	...	...

Table 2. Age distribution of population surveyed compared with that of the Mott-Haven Health District according to the 1930 Census.

#### HEALTH FACILITIES

The Health Department maintained two Baby Health Stations in the Mott Haven district in 1931 and 1932, one prenatal clinic and a tuberculosis clinic. The public health nursing service was specialized, that is, different nurses were re-

sponsible for the infant supervision, tuberculosis care, communicable disease follow-up, and school child service. When one of these nurses went into a home, she limited her attention to the health problem which had been the cause for making a home contact. In addition to these health education and supervisory services, the Health Department operated dental clinics for school children in six schools and an eye clinic in one school. There was also a special clinic for the examination of food handlers.

The principal preventive health services offered by private agencies in the district were those given by the Henry Street Nursing Service which had a district office in Mott Haven and operated a Baby Health Station. The Henry Street nurses gave general health instruction in the homes in addition to giving home nursing care for morbidity.

One City hospital and one private hospital in the district provided clinics for prenatal and postpartum care and infant clinics for mothers delivered in the hospital. Both also had out-patient clinics for most types of medical care.

#### I. EXTENT OF SERVICE TO FAMILIES

There were 77 families, or 9.6 per cent of the 801 families, which had received some direct service from the Health Depart-

ment, either from a public health nurse in the home or from a physician or nurse in a clinic, during the twelve-month period prior to the investigator's visit.<sup>5</sup> This does not include the health examination of school children<sup>6</sup> nor the immunization of children against smallpox and diphtheria.

The specific health problems which received attention during the year are shown in Table 3. Physical defects of school children were the most frequent problem and 5.0 per cent of all families in the study, or more than one-half of those receiving any service, had supervision from the Health Department because of some defect which needed correction. The second largest group of families with service was comprised of those with an infant for which instruction was given on feeding and other hygiene matters; 2.6 per cent of all families received this service. There were nine families, or 1.1 per cent, which came to the attention of the Health Department because of tuberculosis. Other health problems, including communicable diseases, health examinations, and anti-rabies treatment, were the cause of service to one per cent of the families in the survey. No family reported any attendance at the Health Department prenatal clinic.

The general nature of the service, whether a home visit by the public health nurse or attendance at one of the clinics, is indicated in Table 3 for each type of health problem. When infant hygiene

<sup>5</sup> In general, the informant's statement of service was accepted, even if the record of service was not located, when the information was sufficiently specific to give reasonable evidence that the service was received within the period under consideration. A very few reported services were discarded, particularly those of nurses' home visits to school children when the record on file showed no visit for this period. At most, the reported services not counted would add less than one per cent to the proportion of families receiving service.

<sup>6</sup> There were 112 families, or 14 per cent of the total, which had had one or more children examined by the school physician during the year; 78 of them had had no other service from the Health Department. Medical examinations of school children are now required by law and the routine followed in New York City is to examine those in certain grades each year. Since this service definitely is provided for all, there is no question of the extent to which the population is reached; the quality and effectiveness of the examination, and efficiency of administration are the points of interest for appraisal. However, these examinations reveal to the public health nurse many health problems among the school population and the services rendered in caring for these will be discussed.



HEALTH PROBLEM	PER CENT OF FAMILIES IN SURVEY	NUMBER OF FAMILIES	FAMILIES WITH SPECIFIED TYPE OF SERVICE		
			Home Visit by Nurse Only	Clinic Visit Only	Clinic and Home Visit
TOTAL FAMILIES WITH SERVICE	9.6	77 <sup>1</sup>	41	19 <sup>1</sup>	17
Defect of school child	5.0	40	35	4	1
Infant hygiene	2.6	21	0	9	12
Tuberculosis, definite or suspected	1.1	9	1	4	4
Communicable disease	.6	5	5	0	0
Health examination—adult	.2	2	0	2	0
Anti-rabies treatment	.1	1	0	1	0

<sup>1</sup>One family had supervision for both tuberculosis and infant hygiene and is counted only once in the total; it had clinic service only for tuberculosis but the infant had both home nursing visits and clinic visits.

Table 3. Number and per cent of the 801 families in the survey which had service for various health problems and number with clinic and nursing service in a twelve-month period in the Mott Haven District, 1931-1932.

or tuberculosis is the problem, both clinic and nursing service usually are given, and the major part of both the educational and supervisory service is provided at the clinic. Both types of service were rendered to no other families in this series with the single exception of one which was visited by a school nurse for the correction of a defect of vision in a school child who was later cared for at the school clinic.

Only one family had had any supervision for more than one health problem. The infrequent occurrence of service for more than one problem in the same family suggests that the nurses in the district, who are on a specialized service, failed to utilize a home visit for a specific problem as a case-finding opportunity and to refer other health problems in the family for attention.

Since most of the health services rendered related to child health, the age composition of the family influences the probability of its receiving some preventive service. There were 543

families with children under 15 years of age in this sample and 74 of the families with service were in this group. Thus, 13.6 per cent of the families with children had service from the Health Department in the twelve-month period.

*Volume of Service.*

Health Department nurses made one hundred visits to the homes of the 54 families whose record of service could be located, or an average of 1.9 visits per family. Only ten of the 54 families were visited more than twice (Table 4).

Table 4. Number of times a public health nurse visited a family or some member of a family visited a clinic in a twelve-month period in Mott Haven district, 1931-1932.

Number of Visits	Home Visits by Nurse	Visits to Health Department Clinic
ANY NUMBER	54	20
1	26	2
2	18	2
3	6	3
4	2	1
5	1	0
6-10	1	6
11 or more	0	6

For the 20 families whose records of service at either an infant clinic or tuberculosis clinic were available, the total visits to clinic<sup>7</sup> were 162, as shown in Table 4. The clinic record could not be found for 7 of the 21 infants reported as having been registered at a Health Department clinic, and it is possible that these had made only one or two visits, and that, if these records could be included, they would reduce the average number of visits per family. However, it is apparent that repeated visits to the clinic were made by most of those who used this service, and 12 of the 20 families had had from 6 to 21 contacts with a nurse or physician at a Health Department clinic.

*Service According to Economic Status.* With less than 10 per cent of the families having either clinic service or home instruction by a public health nurse, it is interesting to see from what economic groups these families were drawn. In Table 5, the families have been grouped in three income classes as follows:

<sup>7</sup> Visits to clinic were counted on a family basis and are the number of different occasions on which one or more members of the family attended the clinic.

ECONOMIC STATUS	TOTAL FAMILIES SURVEYED	ALL HEALTH PROBLEMS	DEFECT OF SCHOOL CHILD	INFANT HYGIENE	TUBERCULOSIS	COMMUNICABLE DISEASE	OTHER
NUMBER OF FAMILIES							
Relief	123	20	10	6	3	1	0
Poor	323	35	15	11	5	3	1
Moderate	224	15	10	4	1 <sup>1</sup>	0	1
Unknown	131	7	5	0	0	1	1
PER CENT OF FAMILIES							
Relief		16.3	8.1	4.9	2.4	.8	0
Poor		10.5	4.7	3.4	1.5	.9	0
Moderate		6.7	4.5	1.8	.4	0	.4
Unknown		5.3	3.8	0	0	.8	.8

<sup>1</sup> This family is included also in the infant hygiene group.

Table 5. Per cent of families in specific income groups which had service from the Health Department in Mott Haven Health District during a twelve-month period, 1931-1932.

“relief families” including all those receiving welfare aid for any part of the twelve-month period; “poor” including families with up to \$1,400 income; and “moderate” including all with a reported income of \$1,400 or more.<sup>8</sup> Among families which had had welfare assistance, the per cent receiving some health service was 16.3 compared with 10.5 per cent for the “poor” families and 6.7 per cent for the higher income families.

The need of relief families and those with marginal incomes for instruction and assistance in providing adequate health supervision for their children is too well known to require objective evidence. The proportion of families with children which received any health supervision is shown in Table 6. Even among the most underprivileged group, more than four-fifths of the families with children had no service from the Health Department.

*Services from Private Agencies.* The instructive health supervision given by the Henry Street Nursing Service in this district

<sup>8</sup> The income data was by no means exact and for 268 families no approximate annual income was computed, but the record of unemployment, type of work, et cetera, permitted us to classify 157 of them in either the poor or moderate group. It is believed that, of the remaining 131 families, nearly all belong in the moderate group as the distribution of the rentals for these families corresponds closely to that of the moderate group.

ECONOMIC STATUS	FAMILIES WITH CHILDREN UNDER 15 YEARS OF AGE		
	Total Families	Received Clinic or Nursing Health Supervision	
		Number of Families	Per Cent of Total
Relief families	100	19	19.0
Poor	194	33	17.0
Moderate	159	15	9.4
Unknown	90	7	7.8

Table 6. Per cent of families in which there was one or more children who had Health Department service in a twelve-month period according to economic status of families, Mott Haven district, 1931-1932.

related almost entirely to the supervision of maternity patients and a complete program of prenatal, postpartum, and new-born infant care was provided. There were 26 families in our survey which reported either maternity or infant care or both from a Henry Street nurse in the twelve-month period, and only three which reported supervision for other health problems,<sup>9</sup> making a total of 29, or 3.6 per cent, of the 801 families in the study.

Since 7 of the 29 families under Henry Street supervision also had had some Health Department service, there were 22 families with health supervision in addition to the 77 reached by some Health Department activity. Therefore the total number of families with some instructive or corrective health care was 99, or 12.4 per cent of all families in the survey.

Prenatal clinics conducted by the two hospitals in the district and by several hospitals outside the district gave medical care to 20 mothers who bore a child during the twelve-month period included in this study. Although this care is a preventive service, it does not make the supplementary instructive and home service of the official or voluntary agencies unnecessary.

#### COMPARISON WITH OTHER AREAS

Data are available from a similar study of a small sample of families living in the low-rental sections of the Bellevue-Yorkville

<sup>9</sup> Bedside care for morbidity has not been included when that was the only service; 16 families reported this type of care.

Health District of New York City where a health demonstration under the auspices of the City Department of Health and with the cooperation of a number of private agencies had been in progress for several years. Families were visited in 1932 wholly at random and exactly the same information was obtained as in the Mott Haven district. Of the 156 families for which preliminary tabulations have been made, only 4 paid more than \$40 a month rent and the sample seems roughly comparable, therefore, with the "relief" and "poor" groups in the Mott Haven study.

In Bellevue-Yorkville, the per cent of families reporting health service from a Health Department clinic or nurse was 39.1 as against 9.6 in Mott Haven for all families, and 12.3 for the two low-income groups.<sup>10</sup> When the comparison is made on the basis of families with one or more children, we find that 55.5 per cent of such families had had service as against 17.7 in Mott Haven. In other words, more than three times as many families in every one hundred low-income families had health supervision in Bellevue-Yorkville as in Mott Haven.

A further comparison may be made with Syracuse, New York, for which a study of the extent of service to families according to income has been published.<sup>11</sup> Here it was found that 49.1 per cent of families classed by the investigator as "poor" or "very poor" and with one or more children had had clinic or home supervision by the public health nurse. This figure includes some maternity service but the number of families out of a random sample with this type of service in one year is very small.

It seems evident from these general data that the amount of service provided in the Mott Haven district was insufficient to supply more than a very small part of the population with any

<sup>10</sup> The services included for the two areas are comparable but some types of service included for Bellevue-Yorkville were not in the Mott Haven program, as, for example, preschool clinics. Prenatal and maternity services in both areas were furnished by private agencies, and more well-baby clinics and nursing supervision were available in addition to the Health Department's services in Bellevue-Yorkville than in Mott Haven.

<sup>11</sup> Randall, Marian G.: Health Department Nursing Service for Urban Families. *Milbank Memorial Fund Quarterly*, January, 1934, xii, No. 1, p. 75.

kind of health service. So large a proportion of the families in the district are either very poor or on very marginal incomes that a large volume of service would be required to enable the Health Department to extend its activities for the prevention of disease and the promotion of personal health into the homes of any considerable part of the district's low-income population. However, health facilities were provided on a much larger scale in Bellevue-Yorkville and the needs in Mott Haven would seem equally great.

*(To be continued)*