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Specific Causes of Illness Found in Monthly Canvasses of Families

Sample of the Eastern Health District of Baltimore, 1938–43

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Studies have been published on the 5-year Baltimore Morbidity Survey covering particular kinds of data or data for a single year of the study. However, this is the first report which attempts to deal with the general aspects of morbidity in what may be termed the entire sample area of the study. It includes data for all of the 17 city blocks canvassed for 5 years, and for the 18 blocks canvassed for 3 years or less.[1]

Selection and Characteristics of the Sample Population

Selection of Sample

The method of selecting the sample to be studied has been described elsewhere (*5*) but may be briefly summarized here. The canvassed families all lived in the original Eastern Health District of Baltimore, wards 6 and 7 (*4, 8, 9, 10*), adjacent to the Johns Hopkins School of Hygiene and Public Health and the Johns Hopkins Hospital. In these two wards there are 10 census tracts. From other censuses of the entire two wards that constituted the original district, data were available on the number of houses in each square block (*14*). With the aid of these data entire city blocks were selected to run in approximately parallel diagonal directions throughout the two wards. An

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[1] Death and case rates for nonwhites are usually considerably higher than for whites. Because this was a relatively small study it seemed advisable to confine it to the one broad racial group of white persons.

In the last 2 years of the study, families living in an additional area and having one or more chronic diseases among their members were canvassed periodically for a special study of chronic diseases. None of these families selected because of the presence of chronic disease is included in the Eastern Health District sample study of general morbidity of all types.

The illness data in this paper are limited to diseases as they affect persons of all ages and both sexes. Subsequent reports will contain data on age and sex differences in illness rates; circumstances of accidents and the nature of the resulting injuries; and various other aspects of morbidity data.

effort was made to select a sufficient number of blocks from a census tract so that the sample drawn from that tract would constitute the same percentage of the total sample population as the white population of the census tract was of the white population of the entire Eastern Health District (*5*).

In the 35 blocks selected for canvassing, every household was covered. It was not practicable to follow the original family when it moved out of the study blocks; therefore, the family which moved away was dropped and the new family which moved into the house was added to the study. As indicated above, 17 of the 35 blocks [2] were retained throughout the 5-year study; 17 of the other blocks were dropped at the end of the third year and one was dropped within the first 2 months of that year.

In the entire sample of 34 blocks canvassed for all of the first 3 study years there were 5,297 persons under observation in June of 1938—the first month of the study; 3,286 of these same individuals were still under observation for 10 or more months (mostly 12 months) of the third study year. Thus at the end of 3 years, 62 percent of those first enrolled were still in the study. The other 38 percent had dropped out in the 3 years (annual percentage decrease [3] of 14.7) because of moves out of the sample blocks and, in a few instances, because of death or refusal to cooperate further. The blocks canvassed all 5 years showed for the first 3 years the same annual loss of persons to the survey, 14.8 percent, as for the whole 5 years. The percentage loss per year for the blocks canvassed for only 3 years was 14.6.

The above data exclude for all 3 years the block dropped in the first 2 months of the third study year; although they neglect the few persons who left the sample area and later moved back into it, the number of such persons was small.

In the 17 blocks canvassed for all 5 years, similar computations were made to determine losses during the whole 5-year period. In these blocks 2,990 persons were under observation in June of 1938—the first month of the study; 1,343 of these same individuals were still under observation for 10 or more months of the fifth study year. Thus at the end of 5 years, 45 percent of those first enrolled in these 17 blocks were still under observation. The 55 percent of original entrants into the study who dropped out during the 5-year period represent an average decrease of 14.8 percent per year.

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[2] One block contained several semitransient hotel-apartment houses where there was so much moving that it was impracticable to keep contact with the families even for short periods. This whole block was dropped early in the third study year but the data are included in this report for the time it was canvassed. There was a loss during the 2 years of 30 percent of the 238 persons originally enrolled in this block, which is equivalent to a loss of 16.2 percent per year.

[3] Computed as the mean percentage decrease which applied to the remaining population at the beginning of each study year would yield a 38 percent decrease in the 3-year period. Other similar computations based on 2- and 3-year periods were done in the same way.

For the blocks canvassed all 5 years similar computations were made at 2-year intervals, measuring from the beginning month of each year to the end of the next year. The data for each period follow:

2-year intervals	Percentage loss of population		Number observed	
	Equivalent loss per year	For the 2 years	1st month of each pair of years	10 or more months during second of each pair of years
1st–2d year	15.0	27.7	2,990	2,161
2d–3d year	14.4	26.7	2,809	2,133
3d–4th year	15.5	28.5	2,852	2,038
4th–5th year	16.7	30.7	2,739	1,899

The percentages lost to the study indicate what was observed by the field workers—that toward the later years a higher proportion of the families then included in the study moved away or dropped out for other reasons, perhaps because of loss of interest.

None of the above data count as lost to the study any persons in blocks dropped by action of those in charge of the investigation, that is, the one block dropped in the first 2 months of the third year and the 17 blocks dropped at the end of that year.

Characteristics of the Sample Population

Before considering the frequency of illness observed in the sample of the Eastern Health District, it seems worth while to examine certain characteristics of the population that may influence the illness rate. However, the fact that these characteristics are similar to those of other groups does not mean that illness rates in the sample group studied are necessarily representative of rates in other larger groups.

Table 1 shows the age distribution of all persons in the Eastern Health District sample, in comparison with several larger groups. The mean age in the Eastern Health District sample was 31.3 years as of January 1, 1941, the midpoint of the middle year, for persons under observation during that year. While the sample had slightly more children under 15 years of age than in the other groups cited, the distribution on the whole is similar to the distributions of the white population in Baltimore and in cities with populations of 100,000 and over in the Middle Atlantic and South Atlantic States.

The mean age of family heads in the sample blocks in the third or middle study year was 46.2 years. Of all family heads, 5 percent were under 25 years, only one person of this group being under 20 years old. The next four 10-year age groups contained 21, 23, 24, and 15 percent, respectively. Only 12 percent of family heads were 65 years and older, and only 3 percent were 75 and over. Eighty-five percent of the family heads were males and 15 percent females.

Table 2 shows the ratio of males to females of specific ages. In the ages under 5 and 5–14 there is in each of the groups shown in the table

Table 1. *Age distribution of white population of the canvassed blocks of the original Eastern Health District [1] of Baltimore, compared with white populations of other areas*

[Percentage of persons in each age group]

Age	Sample E. H. D.[1] population		Original E. H. D.[1] population, 1940	Baltimore population, 1940	Cities over 100,000 in Middle Atlantic States,[2] 1940	Cities over 100,000 in South Atlantic States, 1940	Cities over 100,000 in United States, 1940	Total United States, 1940	C. C. M. C.[3] cities over 100,000 (individuals observed)
	Years of life 1938–43 [4]	Persons observed in middle year [5]							
All known ages	100	100	100	100	100	100	100	100	100
Under 5	7.4	8.2	6.2	6.2	6.1	6.0	6.2	7.8	14.4
5–9	7.4	7.4	6.4	6.4	6.5	6.0	6.3	7.9	13.8
10–14	8.1	7.3	7.7	7.7	7.9	7.1	7.4	8.8	10.9
15–19	9.5	9.5	9.5	8.9	8.9	8.4	8.4	9.3	7.2
20–24	8.9	10.5	11.3	9.5	9.3	9.8	9.1	8.7	6.1
25–34	17.5	17.9	18.4	17.4	16.9	18.9	17.8	16.2	16.5
35–44	14.8	14.2	14.1	15.3	14.8	15.9	15.8	13.9	15.9
45–54	12.7	12.1	12.3	12.9	13.5	12.8	13.6	12.0	8.6
55–64	7.7	7.4	7.9	8.6	9.0	8.4	8.8	8.3	4.0
65–74	4.4	4.2	4.6	5.0	5.1	4.8	4.9	5.0	1.8
75 and over	1.4	1.5	1.5	2.0	1.9	1.8	1.9	2.1	.6

[1] Original Eastern Health District included wards 6 and 7 only.
[2] Middle Atlantic exclusive of New York City.
[3] Study of 9,000 families in a group canvassed by the Committee on the Costs of Medical Care (*1*).
[4] Ages as of midpoint of each study year in which observed.
[5] Ages as of midpoint of third study year, January 1, 1941.

an excess of males over females. Above age 15 the ratios are, with few exceptions, less than 100, which means that there are fewer males than females. In general, the sex distribution in the Eastern Health District sample is reasonably similar to data in other large cities.

Table 2. *White males per 100 white females of specific ages in the canvassed blocks of the original Eastern Health District [1] of Baltimore, compared with white populations of other areas*

[Females of same age-group = 100]

Population group	All ages	Under 5	5–14	15–24	25–44	45–64	65 and over
Eastern Health District sample (years of life, 1938–43)[2]	97.6	103.2	106.5	97.7	97.9	96.9	72.5
Eastern Health District total, 1940	97.7	106.6	104.4	90.4	101.8	99.9	74.8
Baltimore, 1940	97.4	104.0	102.9	97.9	100.9	95.3	73.6
U. S. cities over 100,000, 1940	96.5	104.0	102.2	93.0	95.0	101.5	81.0
U. S. total, 1940	101.2	103.8	103.4	99.6	99.3	104.9	95.0

[1] Original Eastern Health District included wards 6 and 7 only.
[2] Ages as of midpoint of each study year in which observed.

In the matter of marital status (table 3) the Eastern Health District sample is fairly similar to other groups. In the sample, as in other areas, more women than men of the early ages were married. Thus, the one 19-year-old boy who was married constituted 0.3 percent of the males 15–19 years of age; 11 percent of the girls of those ages were married. The excess of married women continued through the 25–29 age group, but at every age above 30 years the percentage of men who were married exceeded that of the women. The same general age-sex patterns are true of Baltimore as a whole, but the percentage of men

over 30 years of age who were married runs consistently higher in the Eastern Health District sample.

Table 3. *Marital status of white persons of specific ages in canvassed blocks of the Eastern Health District, as compared with white populations [1] of other areas*

Population group	Percentage of persons of specified ages who were married									
	Total 15 years and older	Total 15–44	15–19	20–24	25–29	30–34	35–44	45–54	55–64	65 and over
Both sexes:										
Eastern Health District sample [1] (middle year)	59.5	55.5	5.5	43.4	66.4	77.5	77.8	79.4	68.5	42.3
Baltimore, 1940	58.8	55.9	5.3	37.8	66.1	76.5	79.1	76.0	64.8	40.9
Middle Atlantic cities [2] over 100,000	57.0	51.3	2.4	27.1	59.9	73.6	78.8	77.4	67.6	44.2
C. C. M. C.[3] cities over 100,000	71.0	68.4	2.5	39.4	81.9	89.8	90.6	89.4	74.6	46.3
United States, 1940	61.3	56.6	6.1	38.3	68.2	79.0	82.3	80.1	71.4	49.0
Males:										
Eastern Health District sample [1] (middle year)	60.1	52.1	.3	32.7	57.9	78.8	81.3	84.0	77.8	60.9
Baltimore, 1940	60.1	52.1	1.2	25.7	60.2	75.1	79.9	81.3	76.6	60.0
Middle Atlantic cities [2] over 100,000	58.5	48.3	.6	17.0	53.9	72.4	79.7	81.7	77.1	60.8
C. C. M. C.[3] cities over 100,000	74.6	68.5	.6	24.0	80.0	92.8	94.4	94.8	93.1	73.3
United States, 1940	61.3	52.3	1.5	26.1	62.1	77.3	82.8	83.1	78.7	63.8
Females:										
Eastern Health District sample [1] (middle year)	58.9	59.0	10.7	53.7	75.0	76.2	74.3	74.7	60.3	28.4
Baltimore, 1940	57.6	59.7	9.3	49.5	72.1	78.0	78.3	70.7	54.3	26.9
Middle Atlantic cities [2] over 100,000	55.5	54.2	4.1	36.4	65.5	74.7	77.8	73.0	58.4	30.8
C. C. M. C.[3] cities over 100,000	67.6	68.4	4.3	49.8	83.3	87.5	86.6	82.9	57.1	28.2
United States, 1940	61.2	60.9	10.7	50.3	74.1	80.7	81.8	76.9	63.8	34.8

[1] Sample of the original Eastern Health District which included wards 6 and 7 only. Population 15 years old and over: E.H.D. sample 4,853; Baltimore 552,081; Middle Atlantic cities 100,000+, 4,184,782; C. C. M. C. cities 100,000+, 8,732; total United States 89,303,719.

[2] Exclusive of New York City. White only for Buffalo, Jersey City, Newark, Camden, Philadelphia, Pittsburgh, and Erie; data for other 5 cities are for total populations but percentages colored are not large.

[3] Committee on the Costs of Medical Care data for 9,000 families: percentages are based on full-time years of life but all of the families and nearly all of the individuals were observed for the full 12-month study period.

The mean size of family in the sample was 3.64 persons as compared with 3.59 for the whole original Eastern Health District, and 3.40 for the total of Baltimore. Table 4 shows the distributions of families according to size in the various cities and groups.

In other respects such as economic, occupational, and educational status, the Eastern Health District could not be said to be representative of Baltimore as a whole. It is a moderate residential district in which nearly three-fourths of the gainfully employed are in the clerical-sales, skilled, and semiskilled occupation groups.

Of the canvassed sample of persons who were under observation in the third or middle study year, 60 percent of the family heads were born in Baltimore, 17 percent elsewhere in the United States, and 23 percent were foreign-born.

Housing is quite uniform throughout the district, of the typical row-house type built up to the front line on a narrow lot with no play space in the front except the sidewalk and street, and little space

Table 4. *Size of family in the white population of the original Eastern Health District*[1] *and in other white population groups*

Population group	Average number of persons per family		Percentage of families[2] with specified number of persons								
	Mean	Median	1	2	3	4	5	6	7	8	9 and over
Eastern Health District sample (middle year)	3.64	3.30	5.6	23.8	25.6	18.9	11.9	7.3	4.0	1.5	1.4
Eastern Health District total, 1940	3.59	3.30	7.3	24.4	23.0	19.3	12.2	6.8	3.6	1.8	1.8
Baltimore, 1940	3.40	3.09	10.1	26.1	23.4	17.8	10.4	5.6	3.4	1.4	1.8
U. S. cities over 100,000, 1940	3.26	2.97	11.6	27.6	22.9	17.8	9.9	5.1	2.5	1.2	1.3
U. S. total, 1940	3.48	3.15	9.9	25.7	22.3	17.9	10.7	6.1	3.4	1.9	2.1

[1] Original Eastern Health District included wards 6 and 7 only.
[2] Number of families: E.H.D. sample, middle year 1,650; E.H.D. total 12,561; Baltimore, 189,660; U.S. cities 100,000+, 10,045,680; U. S. total, 32,653,000.

back of the house. According to a scale of adequacy of rooms (see reference 6 for details) which takes into account the age and sex of members of the household, 40 percent of the homes had more than an adequate number of rooms and another 28 percent had adequate space. However, 22 percent of the houses were unsatisfactory by this scale and an additional 10 percent were very unsatisfactory. As might be expected, larger families had the highest percentages with unsatisfactory housing; for families of one or two persons, 80 percent of the houses were adequate or better, as compared with 61 percent for families of five or more persons. To reverse the statement, only 20 percent of the small families were living in houses that were unsatisfactory or worse, as contrasted with 39 percent of the large families.

In the middle study year, 49 percent of the families in the sample owned their homes, with an estimated mean value of $2,790; the other 51 percent were renters with a mean rental of $23.27 per month. Sixty-two percent of the owned houses were valued between $2,000 and $4,000; 71 percent of the rented houses rented for $15 to $30 per month. Of all the dwelling units, 57 percent were houses and 43 percent were apartments. Sixty-eight percent of the houses and 24 percent of the apartments were owned. A house occupied by two or more families who maintained separate quarters and separate eating arrangements was counted as two or more apartment dwelling units.

Of the known annual family incomes for the middle study year, 67 percent fell between $1,000 and $2,500; 18 percent were less than $1,000, including 4 percent on relief, and the other 15 percent exceeded $2,500. The mean annual family income was $1,718. However, family income was not obtained for 17 percent of all families under observation in the middle study year, so the income distribution given above must be looked upon as a very rough approximation. Also,

in considering the economic level of the Eastern Health District sample, it should be remembered that the general wage and price levels have increased greatly since 1940.

Of persons 15 years old or over in the sample, 87 percent of the males and 33 percent of the females were in the labor force[4] in the third or middle study year. Of the males and females 15 years old and over in the labor force, 92 and 81 percent, respectively, had full-time jobs; 3 and 8 percent had part-time jobs; and 5 and 11 percent, respectively, were seeking work, including 1.2 and 0.6 percent who were on work relief.

Of the males in the Eastern Health District sample who were working full or part time and who reported an occupation, 25 percent were skilled craftsmen and 33 percent were semiskilled operatives, as against 23 and 22 percent in Baltimore as a whole. On the other hand, the Eastern Health District sample had only 26 percent who were in the dealer, managerial, professional, clerical, and salesmen classes, as contrasted with 41 percent for the whole of Baltimore and 39 percent for urban Maryland except Baltimore. Other categories for males and females may be seen in table 5.

Table 5. *Percentage of white persons 14 years old[1] and over in broad occupation groups—Baltimore Eastern Health District sample[2] as compared with other areas*

Occupation	Both sexes				Male				Female			
	Baltimore, Eastern Health District sample	Baltimore city 1940	Maryland, urban except Baltimore 1940	Total United States 1940	Baltimore, Eastern Health District sample	Baltimore city 1940	Maryland, urban except Baltimore 1940	Total United States 1940	Baltimore, Eastern Health District sample	Baltimore city 1940	Maryland, urban except Baltimore 1940	Total United States 1940
All occupations, except farm	100	100	100	100	100	100	100	100	100	100	100	100
Dealers, managerial, professional, except farmers	10.2	18.5	19.3	20.7	11.0	19.0	20.1	21.0	8.0	17.0	16.9	19.7
Clerks, salesmen	20.1	27.2	23.0	22.2	15.4	22.2	18.6	17.7	32.6	40.1	34.9	34.0
Skilled craftsmen, foremen	19.0	17.0	17.0	14.7	24.7	22.7	22.8	19.9	3.5	2.0	1.3	1.1
Operatives, semiskilled workers	33.1	22.6	25.8	23.2	32.5	21.6	24.9	24.0	34.9	25.3	28.1	21.1
Domestic workers	1.2	1.1	2.1	·3.3	------	.1	.1	.2	4.5	3.8	7.3	11.3
Service and protective workers	9.9	7.7	7.1	8.7	7.5	6.6	5.8	7.5	16.4	10.8	10.5	11.9
Laborers, except farm	6.5	5.9	5.8	7.2	8.9	7.7	7.6	9.6	.1	.9	1.0	.9

[1] Eastern Health District sample includes only 15 years old and over. Persons without occupations and a few in the labor force with unknown occupations are excluded. Numbers with known occupations were: males 2,009; females 749.

[2] Eastern Health District sample represents occupations for third (middle) study year.

The average years of formal education usually varies greatly with age (7). The following summary includes household heads and other adults over 20 years of age who were not currently in school. Of the persons in this group, 3.0 percent had no formal schooling, 29.1 percent

[4] Of persons 15–64 years of age, 91 percent of the males and 35 percent of the females were in the labor force.

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completed only the 6th grade or less, and 36.4 percent completed the 7th or 8th grade but did not enter high school. Thus, 68.5 percent did not go beyond the grade school. Of all adults, 25.2 percent entered high school and 8.6 percent completed the 4-year high-school course but did not go beyond high school. However, 1.5 percent of of all adults entered college, but only 0.3 percent finished the 4-year course. In addition, 1.4 percent entered vocational school, 2.1 business school, and 0.9 percent entered some type of professional school. The other 0.4 percent attended special classes of some kind or night school.

Methods of Collecting and Tabulating the Data

Collection

The Public Health Service and various cooperating agencies have made a number of studies of morbidity in different districts (*1, 2, 3, 11, 13, 15, 16*). The Baltimore study is of the periodic canvass type. Families were visited at monthly intervals to obtain a record at each visit of illnesses that had occurred since the preceding visit. In some studies of the periodic type carried on or participated in by the Public Health Service, the visits to the family have been irregular, with some intervals between visits as long as 3 or 4 months and with no attempt to canvass the families at intervals of less than 2 months.

In two studies (*15, 16*), because of weather, road conditions, and shortage of personnel, intervals between visits became so irregular that the data were tabulated in a way to show how much decrease there was in the recorded case rates as the interval between visits was lengthened. Figure 1 illustrates the result in terms of the ratio of the rate of illness found in the second, third, fourth, and fifth months preceding the visit, to the rate found in the first month preceding the visit. Figure 1 shows only illness from all causes, but the cases are classified into those that involved 1 or more days of disability (inability to pursue usual activities), those that caused the patient to be confined to bed for 1 or more days, and nondisabling cases.[5]

For example, in Cattaraugus County (*15*) the data for the third month prior to the visit indicated a case rate (all cases) that was only 45 percent of the rate during the first month prior to the visit. For bed and disabling cases one would expect a better record; the bed cases in the third month prior to the visit indicated a rate of 67 percent of that during the first month prior, and the disabling cases indicated a rate of 61 percent. As would be expected, nondisabling cases fell off most rapidly, the rate for the third month being only 33 percent of

[5] To avoid error from the fact that the longer intervals between visits occurred more frequently in the winter than in the summer, the ratios shown in figure 1 are based on a simple average of four quarterly rates (annual basis) which gives the winter and summer months equal weight regardless of the irregular frequency of long intervals in different seasons.

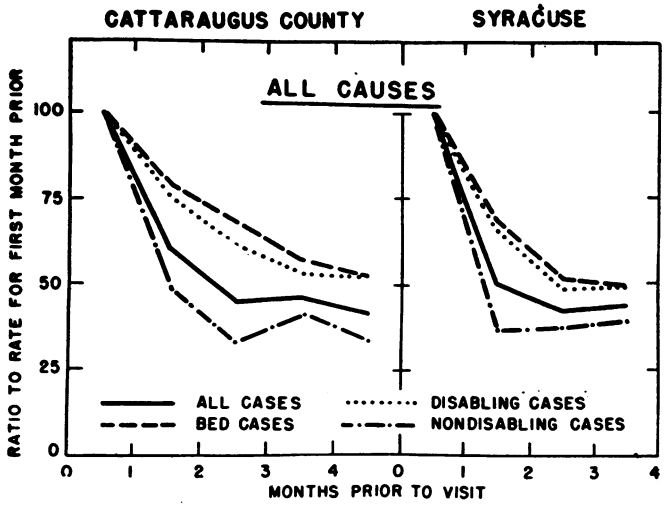


Figure 1. Ratio (percent) of recorded case incidence from all causes in different months prior to the interview, to the case incidence for the first month prior to the interview—house-to-house surveys of illness in New York State. (Rates corrected for seasonal variation. On this chart zero on the horizontal scale represents the day of the interview and the rate for the first month prior is plotted midway between 0 and 1 month; similarly, the second month prior is plotted midway between 1 and 2 months; etc.)

the rate for the first month prior to the visit. After the third month the level of recorded cases seems to remain fairly constant.

The right half of the chart indicates that the same situation existed in Syracuse (*16*), except that the drop in case rates was more rapid.

Because of this loss of cases as the time covered by a visit became more remote, the data for the Baltimore study were collected by rather regular monthly visits. This does not mean that each family was visited on a given day of the month, but within limits each one was visited at intervals of approximately 30 days.

The observed time for each family was counted from the date of the first visit to that family to the time that it moved out of the study area or to the end of the study, whichever occurred first. When one or more visits to a family were missed after they had been enrolled in the study, the illness data were recorded and counted only for the 30 days prior to the next visit. Missed visits were so few that the illness record for most of the families was continuous for the time under observation.

Tabulation

The field schedule was very detailed, and several different kinds of illness rates can be obtained from it. Among other items, the data were so recorded that new cases of illness (onset within study) could be counted and separated from cases present during study but having

their onset prior to the person's entrance into the study. Moreover, the prevalence of illness at each monthly visit could be obtained from the schedule. For these various types of illness, medical care was recorded to show the date the care was received, how many office and home calls were made by each type of practitioner or specialist, and if hospitalized, the type of hospital and how many days the patient spent in the hospital. These and other facts about illness, as well as facts about dental and eye care, and preventive services such as medical examinations and immunizations of various kinds, were recorded on a series of punchcards from which tabulations were made.

For nonattended cases, the diagnosis given by the family informant was used in the tabulations. For all cases that had the attendance of a physician (including all clinic and hospital cases) the medical attendant was asked to check or correct the diagnosis; the diagnosis given by the medical attendant was used in the tabulation. The medical attendants were very cooperative so the diagnoses of attended cases were fairly well checked. Some of the nonattended cases were chronic diseases which had been diagnosed earlier and the patient in many instances probably repeated the diagnosis given by the doctor.

The 6th edition of the International Statistical Classification of Diseases, Injuries, and Causes of Death (*17*) was not available at the time of the diagnosis coding in this study, so the code published as Public Health Service Miscellaneous Publication No. 32 (*12*) was used. It is similar to the World Health Organization code and many categories are identical, but code numbers here given are those of the Public Health Service code. In the absence of any physician's designation of the most important cause of the illness, the one selected as of primary importance was the one which usually caused the greater amount of disability or medical care.

In the tabulations of specific causes of illness, such as measles, scarlet fever, influenza, heart disease, asthma, nephritis, and pneumonia, the sole, primary, and contributory causes [6] were all counted. Care was taken not to count symptoms as cases unless no other diagnosis was available. A cold with fever, headache, and aching of limbs was coded as one diagnosis only (cold), but headache appearing as a sole diagnosis was used as a case. Furthermore, a cold in the head, throat, and chest was coded as a single diagnosis, and not as three different diagnoses. Influenza and pneumonia were coded as two diagnoses (pneumonia being an important complication and a distinct disease entity in itself), but influenza with coryza and bronchitis was coded as a single diagnosis because the latter two conditions frequently accompany influenza.

[6] The terms here used have the following meanings: Sole refers to a case with only one diagnosis; primary means the original or the more important of 2 or more diagnoses; contributory or secondary means the diagnosis of lesser importance or the diseases occurring after the primary cause for a case with 2 or more diagnoses.

On the other hand, broad groups such as respiratory, digestive, and communicable diseases include only cases with a sole cause (diagnosis) plus those represented by the primary of two or more causes or diagnoses. In counting all illnesses, the same method was used. Thus, an illness is considered to have a specific duration regardless of the number of diagnoses involved, as contrasted with a count of all diagnoses involved in the illness.

For specific diagnoses (which include sole, primary, and contributory causes), days of disability and of confinement to the house or bed include days attributed to both primary and contributory diagnoses. On the other hand, days for broad diagnosis groups and for all causes combined relate to the diagnoses that were the sole or primary causes of the illness, without duplication of any kind.

Days of disability and days confined to the house or bed refer in this study to those within the period of observation—the only figure that could be obtained accurately. To eliminate the incomplete cases (onset prior [7] or still sick at end of observation) would make for a shorter mean duration per case, since it would leave only cases with both onset and termination within the period of observation.

Contributory diagnoses in this study comprised only 4.5 percent of all diagnoses, including both disease and injury. With this low frequency of contributory causes, the selection of the principal diagnosis and the method of handling contributory causes were not of great importance; in hospital and mortality data in which the numbers of contributory diagnoses are large, the selection of the primary cause is a very important problem.

The cases were divided into four severity categories, each type including all the more severe types:

(a) All cases, including disabling and nondisabling.

(b) Disabling cases (1 day or longer), including those confined to the house and to bed. Disability is defined here as inability to pursue usual activities such as working, attending school, doing housework, or pursuing other usual activities.

(c) Cases confined to the house (1 day or longer), including confined to bed. All such cases are considered as disabling also.

(d) Bed cases (1 day or longer) are defined as cases confined to bed, including confined to a hospital. All such cases are considered as confined to the house and also as disabling.

There were some cases with series of days in which the patients (particularly housewives) were confined to the house and able to do only the work that was absolutely necessary; they were thus disabled for parts of days only and virtually confined to the house. These cases entered as "partially disabling" and other cases indicated as "partial house" were counted as disabling and house cases, respec-

[7] Prior onset means prior to the time that the particular person came under observation.

tively; they constituted about 5 percent of the total cases of those respective categories. However, no "partial bed" cases were counted as bed cases unless they were confined to the house for 7 whole days or longer; the "partial bed" cases tabulated as bed cases amounted to about 8 percent of the total bed cases. In terms of days, "partial disability" and "partial house" cases were counted as 1 day of disability or house, respectively, and "partial bed" cases (so far as used) were counted as 1 day in bed.

These various criteria for separating cases according to severity can be applied to persons of all ages except infants under 1 year of age who normally spend a considerable part of each day in bed. To be able to carry these four severity categories to all ages, infants were classified as follows:

Cases with one or more home calls or two or more office calls by or to a doctor on account of illness, or with 1 or more days in a hospital were counted as disabling cases and also as cases confined to the house.

Cases with one or more home calls or one or more days in a hospital were counted as bed cases.

For the above cases, days with one or more calls by or to a doctor on account of illness were counted as disabling days and also as days confined to the house. Days with one or more home calls by a doctor and all hospital days were counted as days in bed.

Comparison of Illness Rates

Data for 3-Year and 5-Year Blocks

As noted above, some of the illness data refer to families in city blocks kept under observation for 3 years only, and some are for blocks observed for the whole 5 years. To see more accurately how the rates for the 3-year blocks compare with those for the 5-year blocks, the two sets of data have been plotted in figure 2 to show the prevalence of illness (sick persons) on the day of the visit per 1,000 persons observed for each calendar month of the study. The disabling and total rates of the various kinds shown in figure 2 are plotted on scales so arranged that the approximate average rate per 1,000 for the whole 5-year period plots at the same distance from the base line in all charts. Thus the monthly fluctuations around this average rate are comparable for the various diagnosis categories. The 3-year rates are plotted on the same actual scales as the 5-year rates, so the differences for a given diagnosis category as between the rates for the two groups of blocks are actual.

Considering the prevalence of acute respiratory and acute non-respiratory illness, it is seen in figure 2 that the rates and their monthly fluctuations are reasonably similar for the 3- and 5-year blocks.

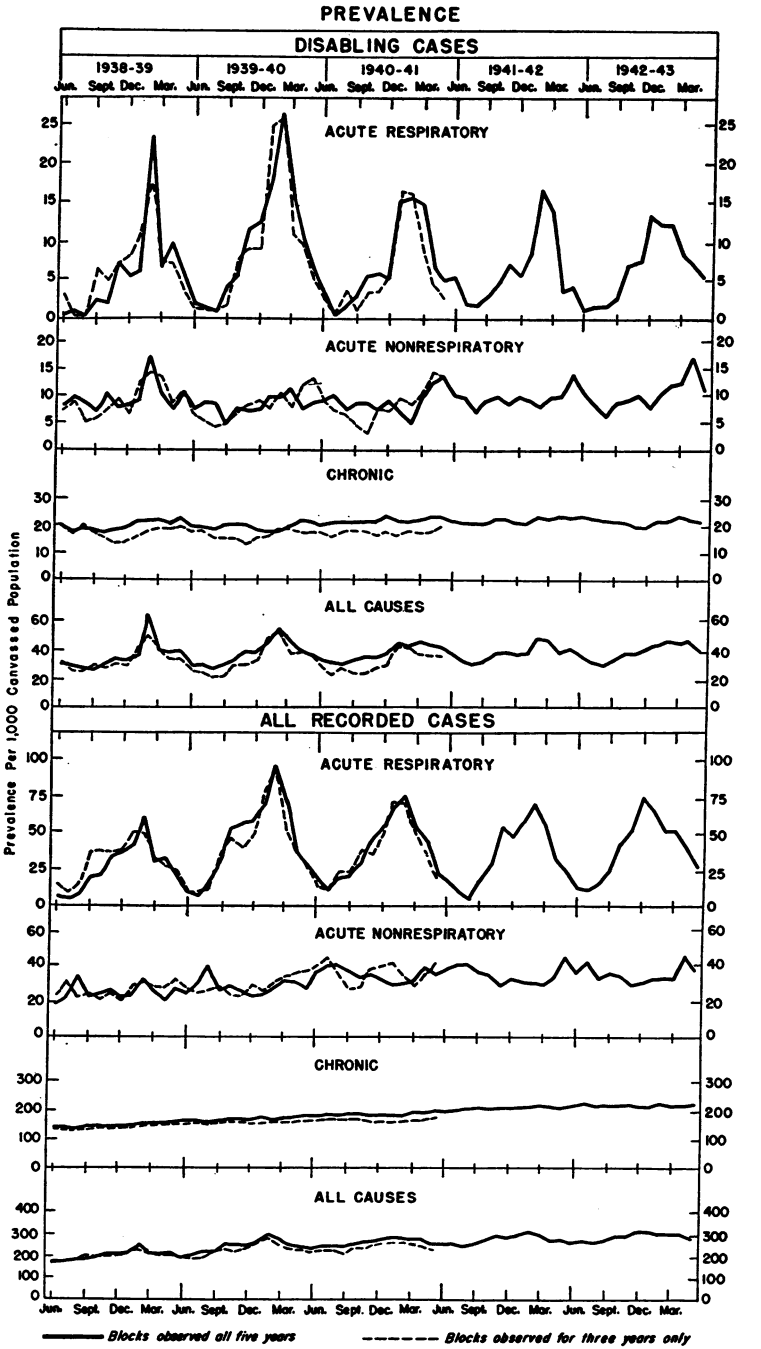


Figure 2. Monthly prevalence per 1,000 canvassed population of disabling and of total cases of certain broad diagnosis groups in 18 blocks canvassed for 3 years, and in 17 blocks canvassed all 5 years—Baltimore Eastern Health District sample, 1938–43.

In the whole 5-year period, there is a rather definite upward trend in the prevalence of the total chronic cases, starting at about 133 per 1,000 in June 1938 and terminating at 222 per 1,000 in May of 1943. The upward trend is not so clearly evident in disabling chronic cases (19.9 to 22.0 per 1,000). In both the total and disabling chronic cases, the upward trend is somewhat less for the 3-year blocks than for the first 3 years of the 5-year blocks. The effect of these differences in chronic case rates is reflected also in the trends for all causes of illness. In spite of these variations, the prevalence of illness in the 3- and 5-year blocks seems rather similar

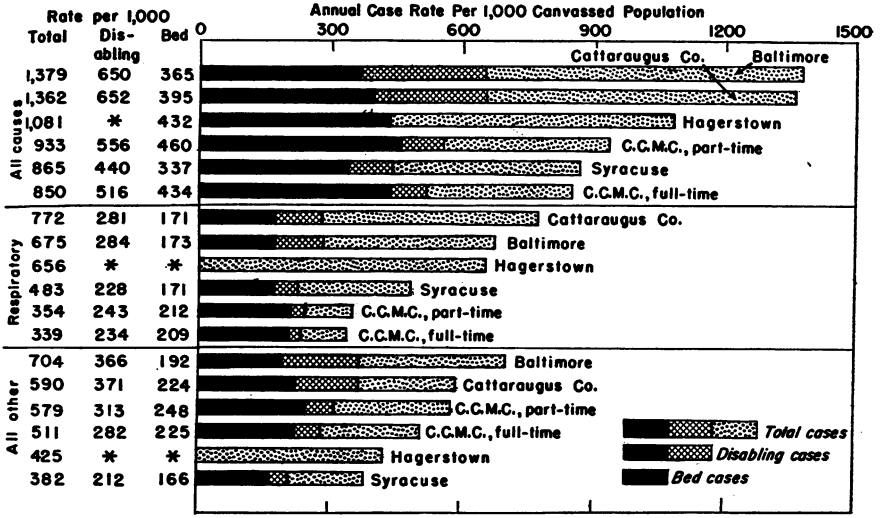
It is apparent that the prevalence rates for acute respiratory diseases show the greatest variation from month to month, the relative variability being greater for the disabling than for the total cases of this diagnosis group. The disabling acute respiratory cases and to some extent the total cases of the same diagnosis group indicate epidemics with peaks in February of 1939 and in the same month of 1940. The whole peak of the latter epidemic seems to be accounted for by the acute respiratory diseases, but the February 1939 peak shows up in the acute nonrespiratory cases as well as in the respiratory group. Reference to the reports of communicable diseases by attending physicians to the Baltimore City Health Department indicates that a measles epidemic was in progress at the same time as the minor influenza epidemic of 1939. The number of cases reported to the Health Department in February of 1939 was far greater for measles than for influenza. However, in the canvassed population the prevalence of acute disabling respiratory diseases (including influenza) in February of 1939 was 28 percent higher than that of acute disabling nonrespiratory diseases (including measles), with a peak in the latter group largely due to the measles epidemic. The other 3 survey years (June 1940–May 1943) do not appear to include any respiratory epidemics. Epidemics of respiratory disease are important in a study of illness because they are a major factor in the year to year variation in the annual case rates from all causes.

Comparison With Other Surveys

The six illness studies (fig. 3) considered in this comparison were all periodic canvasses of families over a period of 1 year or longer. The intervals between visits to the households and other survey techniques varied considerably from study to study; however, in all six studies an attempt was made to record nondisabling illness as well as cases disabling or in bed for 1 or more days. Single visit surveys covering a whole year and recording only the more severe cases such as those disabling for a week or longer, as well as surveys covering less than a 12-month period, were excluded. Most important surveys in these latter categories are the National Health Survey of

1935–36 and the Health and Depression Study covering a 3-month period in the spring of 1933.

Figure 3 shows annual case rates for all causes, all respiratory diseases, and all nonrespiratory diseases in each of the six surveys of the periodic type. Although there are large variations from survey to survey in the total recorded cases of all causes and also in the two broad diagnosis subgroups, there is less variability in disabling cases and considerably less in cases confined to bed for 1 day or longer. Thus, it appears that case rates for the more severe bed cases do not vary greatly so far as all causes and all respiratory and nonrespiratory groups are concerned.



* *Data not available for Hagerstown*

Figure 3. Comparison of illness rates per 1,000 canvassed population as recorded in six illness surveys made by periodic visits to families in given districts. (Data for Cattaraugus County (*15*) and Syracuse (*16*) include only cases occurring in the month of the survey and the first and second months prior to that month. The other surveys included very few long intervals between visits. C. C. M. C., full-time (*1*), refers to families kept under observation the whole 12 months; a separate study was made of families who dropped out earlier but in other respects were a part of the same study (*1*), footnote 21, Pub. Health Rep. 55: 67, (1940). C. C. M. C.=Committee on Costs of Medical Care. For Hagerstown study, see reference *11*.)

Influenza epidemics do not appear to account for any large part of the variation in rates from survey to survey. There was during the study periods one minor influenza epidemic in Syracuse and two minor epidemics in each of Baltimore, Cattaraugus County, and Hagerstown, with somewhat higher rates than in Syracuse. Each of the two Medical Care Survey groups had a moderate influenza epidemic. With illness rates plotted by weeks or even months, as in figure 2, the

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epidemic periods stand out with very high rates and even affect the rate for the year as a whole. However, illness rates in studies over 2- to 5-year periods, as in these data, are not greatly affected by minor influenza epidemics. Probably a more important factor in the high rate for the 3-year study in Cattaraugus County was the exceptionally good cooperation in reporting in this rather isolated rural farm area, as compared with that among city dwellers who are frequently bothered by door-to-door salesmen. The high rates in Baltimore were probably due to frequent visits as well as good cooperation, but in the Cattaraugus County and Syracuse studies no observation or case data were used for periods more than 3 months back of a visit, and in the other studies few of the visits were made at intervals of more than 2 to 3 months. As noted above, the variation in rates from survey to survey was considerably less for disabling and, particularly, bed cases than it was for nondisabling cases for which the variation in the completeness of reporting was greatest.

Illness in the Canvassed Sample of Families in Baltimore

The Eastern Health District canvassed sample, including both the 3- and 5-year blocks, affords a total full-time person-years of observation of 21,505, with a total annual incidence of illness from all causes of 1,379 cases per 1,000 population.[8] Of this total, 729 cases per 1,000 population or 53 percent of the total cases were nondisabling; the other 650 cases per 1,000 were disabling for 1 or more days. Of the disabling cases, 595 per 1,000 population, or 91 percent, were confined to the house for 1 or more days, and 56 percent were confined to bed for 1 or more days during the illness, a rate of 365 bed cases per 1,000 population. Finally, there were 15.8 disabled days per person-year of observation and 24.4 disabled days per disabling case. These figures refer to all causes of illness, including accidents, although the present paper is largely confined to diseases.

The acute diseases as presented in this paper include a few cases with onset prior to the study; table 6 gives for each diagnosis the total cases and the numbers with prior onset, which means prior to the entrance of the particular patient into the study. Chronic disease cases include disabling attacks with onset of disability within the study year and also chronic cases without disability during the entire period of observation, regardless of time of onset.

Of the annual rate of 1,379 total cases per 1,000 population (including attacks of chronic diseases) from all causes, only 54 cases per 1,000 had an onset prior to the observation period. However, in other cases disabling attacks or nondisabling experience with the chronic disease may have occurred prior to the period of observation.

[8] Rates for all causes are exclusive of any diagnoses classified as contributory. In this study such associated contributory causes are counted in the rates for each specific diagnosis but are not counted as independent cases in the total for all causes.

In a study of this kind, information about detailed diagnoses gives a better picture of the basic data than broad groups. The data in the present report are, therefore, classified into rather specific causes, but the charts show an array of detailed diagnoses for a given broad diagnosis group. The charts include three types of rates, some of which are subdivided into disabling, confined to the house, and confined to bed, shown by the type of hatching on the bars. The three broad types of rates referred to are:

(a) Annual case rates. With the exception of a few cases with onset prior to the study they represent incidence rates. These rates are based on a count of the number of cases of a given diagnosis and, particularly for acute diseases, are the type of data with which the epidemiologist deals. In terms of the spread of a communicable disease, a mild case or even a carrier may be as important as a severe bed or hospital case.

(b) The annual number of days of disability per 1,000 canvassed population. This type of rate is of interest to industrial and school authorities, because it indicates the importance of the disease in terms of inability to work, attend school, or pursue other usual activities. According to this measure, the large number of the minor respiratory cases becomes less important because of the short disabling duration per case. The few cases of cardiovascular and mental diseases become more important because of their long periods of disability.

(c) The days of disability per disabling case. This average represents the importance of the disease to the individual patient. A severe disease may be so rare that even with a long duration it is of relatively little importance to the community, but to the individual who contracts such a disease it is of tremendous importance.

To summarize, the three types of charts have to do with: (1) the importance of specific diseases to the community in relation to preventive and therapeutic measures; (2) the importance in terms of time lost from work or school; and (3) the importance of the disease to the individual patient in time lost per case. Table 6 shows numbers of various kinds of cases and rates for the detailed diagnoses that are shown in the charts.

Figure 4 shows recorded annual case rates per 1,000, both disabling and nondisabling. The total length of the bar represents the total case rate of this kind; the black portion represents the rate for cases that caused disability for 1 or more days during the study. In terms of either total or disabling cases in this study, as in preceding studies, the most frequent diagnoses are invariably the minor respiratory diseases including influenza, coryza and cold, bronchitis, tonsillitis, sore throat, laryngitis, and other diseases of the larynx, chiefly nondiphtheritic croup. In this study these minor respiratory cases accounted for 47 percent of all cases of illness and accident, 39 percent

Table 6. *Cases of illness and days of disability due to each detailed diagnosis among canvassed white families—Eastern Health District of Baltimore, Md., 1938–1943*

Diagnosis[1]	Cases[2] per 1,000 person-years observed					Days[2] per 1,000 person-years observed			Days disabled[3] per disabling case	Number of cases								
										Sole, primary and contributory				Contributory				
										Onset[4] within, and prior[5]				Onset[4] within, and prior[5]				Total onset[4] prior[5]
	Total	Non-disabling	Disabling	Confined to—		Disabling	Confined to—			Total	Disabling	Confined to—		Total	Disabling	Confined to—		
				House	Bed		House	Bed				House	Bed			House	Bed	
Minor respiratory diseases:																		
Influenza and grippe (430)	72.08	5.77	66.31	65.89	55.38	631.2	556.0	297.9	9.5	1,550	1,426	1,417	1,191	25	24	24	23	12
Bronchitis (479)	215.11	123.46	91.65	88.21	48.41	682.4	563.0	189.2	7.4	4,626	1,971	1,897	1,041	110	66	65	43	99
Coryza and cold (440)	240.18	197.12	43.06	41.25	15.95	190.6	172.1	44.3	4.4	5,165	926	887	343	121	54	52	34	70
Tonsillitis (460)	19.44	3.72	15.72	15.25	10.79	145.2	125.4	50.6	9.2	418	338	328	232	20	15	15	8	8
Sore throat (461, 466)	101.70	57.34	44.36	43.20	22.55	260.8	231.1	82.7	5.9	2,187	954	929	485	65	46	45	28	38
Laryngitis (467)	7.67	4.74	2.93	2.79	1.49	20.6	17.8	4.3	7.0	165	63	60	32	3	2	2	2	1
Other diseases of larynx (469)	2.56	.84	1.72	1.63	.60	12.4	7.6	2.5	7.2	55	37	35	13					4
Other respiratory diseases:																		
Sinusitis (495)	8.70	4.56	4.14	3.81	1.95	28.7	19.6	7.8	6.9	187	89	82	42	24	6	5	3	26
Chronic bronchitis (471)	2.00	.79	1.21	1.02	.74	27.3	16.9	9.0	22.6	43	26	22	16	12				14
Pneumonia (481–489)	8.65	.14	8.51	8.51	8.28	273.0	222.5	155.9	32.1	186	183	183	178	15	15	15	15	5
Pleurisy (490–493)	2.65	.33	2.33	2.28	2.05	52.1	35.8	26.5	22.4	57	50	49	44	4	4	4	4	1
Tonsillectomy (450)	12.18	.05	12.14	12.09	12.04	109.9	83.6	55.0	9.1	262	261	260	259	3	3	3	3	1
Other respiratory (496, 499, 503–509)	1.35	.93	.42	.42	.37	6.8	5.6	5.3	16.2	29	9	9	8	6	1	1	1	7
Allergy and related disorders:																		
Asthma (501)	9.39	3.07	6.32	5.44	3.02	168.2	41.5	18.0	26.6	202	136	117	65	4	2	1	1	8
Hay fever (500)	9.30	8.97	.33	.28	.09	.6	.6	.1	1.7	200	7	6	2	1	1	1		15
Eczema (710)	3.44	3.02	.42	.33	.05	7.2	2.5	.1	17.1	74	9	7	1	1				7
Urticaria (714)	4.00	2.88	1.12	.98	.33	4.1	2.9	.9	3.7	86	24	21	7	6	3	3	2	3
Other allergy (791–793)	4.00	3.02	.97	.88	.46	13.3	4.3	1.9	13.6	86	21	19	10	3	2	2	2	4
Dermatitis venenata (718)	7.07	5.77	1.30	.74	.23	10.0	5.6	1.7	7.7	152	28	16	5	1	1			3
Infectious and parasitic diseases:																		
Measles (013)	16.04	.37	15.67	15.62	14.37	211.6	190.7	98.6	13.5	345	337	336	309	8	8	8	8	1
German measles (014)	16.09	.56	15.53	15.21	7.16	89.8	78.2	26.5	5.8	346	334	327	154	2	2	2	2	1
Whooping cough (011)	8.56	4.09	4.46	3.67	1.44	125.0	61.2	14.1	28.0	184	96	79	31	7	7	7	7	7
Mumps (016)	4.19	.05	4.14	4.05	2.74	36.8	34.6	11.3	8.9	90	89	87	59	1	1	1	1	3
Chickenpox (015)	9.11	.65	8.46	8.32	3.58	118.6	107.9	13.9	14.0	196	182	179	77	10	5	5	1	
Scarlet fever (010)	1.40		1.40	1.40	1.35	33.0	31.9	19.6	23.6	30	30	30	29	1	1	1	1	1
Tuberculosis (all forms) (020–039)	3.12	.42	2.70	2.51	2.37	812.8	427.1	376.3	301.4	67	58	54	51	1				20
Syphilis (all forms) (060–069)	2.56	1.44	1.12	.88	.65	139.8	21.0	18.2	125.3	55	24	19	14	8	1	1	1	27

Dermatophytosis (092)	5.07	3.77	1.30	.79	.14	23.1	10.9	1.7	17.7	109	28	17	3	4				3
Other [6] infectious (001–008, 012, 040–059, 070–091,093–099)	4.28	2.47	1.81	1.63	.88	32.1	21.1	12.9	17.7	92	39	35	19	3	2	2	1	2
Reaction to smallpox vaccination (790)	2.88	1.07	1.81	1.72	.79	7.1	6.6	2.7	3.9	62	39	37	17	4	3	3	2	
Noninfectious general diseases:																		
Malignant neoplasm (100–169)	3.35	.19	3.16	3.07	2.70	229.0	157.2	112.4	72.4	72	68	66	58	1				12
Benign neoplasm and cysts of female genital organs (170–179, 657, 667)	2.33	.28	2.05	2.00	1.91	109.7	78.0	32.1	53.6	50	44	43	41	6	6	6	5	9
Other benign neoplasm (181–199)	2.28	1.21	1.07	.93	.60	21.7	9.1	7.2	20.3	49	23	20	13	3	3	2	2	3
Diabetes (210–219)	2.74	1.40	1.35	1.12	.84	322.0	149.6	26.0	238.8	59	29	24	18	12				32
Diseases [7] of thyroid and parathyroid glands (220–232)	3.07	.74	2.33	2.14	2.00	53.3	42.6	40.2	22.9	66	50	46	43	4				16
Anemia [8] (250–269)	2.84	1.07	1.77	1.67	1.44	110.6	59.3	24.5	62.6	61	38	36	31	9	8	8	7	6
Nutritional diseases [9] (240–247)	2.28	1.44	.84	.84	.51	15.6	14.0	4.9	18.6	49	18	18	11	7	4	4	2	
Chronic poisoning (270–279)	1.12	.42	.70	.47	.37	2.5	1.3	1.0	3.6	24	15	10	8	2	1	1	1	2
Diseases of nervous system:																		
Neuritis and neuralgia (316, 337, 784)	7.58	4.14	3.44	2.98	1.49	28.2	12.9	4.4	8.2	163	74	64	32	7	1	1	1	9
Intracranial vascular lesions (290–295, 307)	.88	.14	.74	.74	.65	216.3	161.2	35.9	290.7	19	16	16	14	1	1	1	1	8
Nervousness (786)	10.70	6.84	3.86	2.46	1.26	130.5	20.3	5.5	33.8	230	83	53	27	13	3	3	3	21
Psychoneurosis (330)	5.91	2.14	3.77	2.74	2.00	282.5	191.4	169.8	75.0	127	81	59	43	8	1	1	1	33
Epilepsy and mental deficiency (335–336)	2.33	.84	1.49	.93	.79	1141.3	461.7	411.0	767.0	50	32	20	17	3	1	1	1	40
Psychosis (320–329)	2.33	.23	2.09	1.72	1.44	943.8	783.8	715.2	451.0	50	45	37	31	1	1	1	1	24
Other nervous (280–282, 300–305, 309–314, 319, 334, 339, 787)	3.63	1.86	1.77	1.72	1.26	171.4	113.5	42.9	97.0	78	38	37	27	14	9	9	7	23
Diseases of eye and annexa:																		
Inflammation of conjunctiva and eyelid (347)	14.28	11.25	3.02	2.65	.60	19.2	12.0	2.7	6.3	307	65	57	13	19	4	4	2	2
Other eye diseases (340–346, 348–349)	5.58	3.44	2.14	1.67	1.40	177.2	22.3	13.6	82.8	120	46	36	30	5	2	2	1	14
Diseases of ear and mastoid process:																		
Earache (351)	10.93	4.56	6.37	6.09	2.84	40.3	36.5	9.0	6.3	235	137	131	61	62	48	46	28	3
Otitis media (350)	14.83	4.88	9.95	9.49	6.28	100.8	86.7	37.4	10.1	319	214	204	135	72	55	54	41	12
Other ear (352–353, 357)	1.53	1.35	.19	.14		.9	.8		4.8	33	4	3		1	1	1		3
Diseases of mastoid process (359)	.79	.05	.74	.74	.74	34.6	23.7	18.3	46.6	17	16	16	16	1				
Diseases of heart and circulatory system:																		
Acute [10] rheumatic fever (200–202)	7.11	1.35	5.77	5.21	4.70	755.5	413.1	330.2	131.0	153	124	112	101	1				46
Chronic rheumatic heart (360–365)	1.49	1.12	.37	.37	.33	2.7	2.4	1.1	7.4	32	8	8	7	4	1	1	1	20
Other heart diseases (370, 380–389) [11]	17.16	4.09	13.07	12.00	9.62	1512.6	786.4	230.3	115.8	369	281	258	207	22	4	4	3	87
Hypertension and arteriosclerosis (390–400)	7.63	3.95	3.67	3.16	2.33	494.1	232.0	95.0	134.5	164	79	68	50	27	3	3	3	58
Hemorrhoids (415)	4.00	2.09	1.91	1.86	1.58	64.1	30.1	19.2	33.6	86	41	40	34	15	4	4	3	12
Varicose veins (410–414)	3.86	2.04	1.81	1.58	1.07	173.1	68.7	14.6	95.4	83	39	34	23	16	1	1	1	44
Lymphadenitis and lymphangitis (426)	3.49	1.07	2.42	2.28	1.16	24.5	21.3	8.0	10.1	75	52	49	25	3	3	2	1	
Other circulatory (401–409, 420–424, 429)	7.30	4.70	2.60	2.19	1.44	40.8	27.5	10.1	15.7	157	56	47	31	14	9	9	6	10
Minor digestive diseases:																		
Digestive disturbance (560–570)	51.76	21.90	29.85	27.95	10.79	87.7	70.3	23.5	2.9	1,113	642	601	232	92	69	67	36	9
Diarrhea and enteritis (009, 530–539)	26.27	11.35	14.93	14.09	5.30	68.6	61.0	26.5	4.6	565	321	303	114	48	29	26	14	4
Other digestive diseases:																		
Infected teeth and gums (510)	20.32	12.65	7.67	6.51	1.86	35.3	24.2	5.0	4.6	437	165	140	40	20	8	7	5	1
Diseases of mouth (514–517)	2.42	1.67	.74	.65	.33	8.8	2.7	.8	11.8	52	16	14	7	3	1	1		1
Ulcer of stomach and duodenum (520–527)	2.84	.56	2.28	2.05	1.67	174.8	38.5	21.9	76.7	61	49	44	36	3				11

Table 6. *Cases of illness and days of disability due to each detailed diagnosis among canvassed white families—Eastern Health District of Baltimore, Md., 1938–1943*—Continued

Diagnosis[1]	Cases[2] per 1,000 person-years observed					Days[2] per 1,000 person-years observed			Days disabled[3] per disabling case	Number of cases								Total onset[4] prior[5]
										Sole, primary and contributory				Contributory				
										Onset[4] within, and prior[5]				Onset[4] within, and prior[5]				
	Total	Non-disabling	Disabling	Confined to—		Disabling	Confined to—			Total	Disabling	Confined to—		Total	Disabling	Confined to—		
				House	Bed		House	Bed				House	Bed			House	Bed	
Other digestive diseases—Continued																		
Appendicitis (540–549)	10.51	.65	9.86	9.58	8.18	190.7	131.7	91.9	19.3	226	212	206	176	28	28	28	28	8
Hernia (550–559)	5.44	2.70	2.74	2.51	2.23	200.0	56.9	40.9	72.9	117	59	54	48	21				51
Cholecystitis and calculus (585–586)	5.39	.42	4.98	4.98	4.14	65.7	54.9	33.8	13.2	116	107	107	89	5	1	1	1	7
Diseases of liver and gallducts (580–584, 587–589)	3.44	1.02	2.42	2.33	1.53	46.9	30.0	7.8	19.4	74	52	50	33	6	2	2	1	12
Other digestive (519, 529, 572–579, 590–599)	8.37	3.95	4.42	4.00	2.60	85.0	42.5	23.9	19.2	180	95	86	56	12	10	10	10	5
Diseases of kidney and urinary system:																		
Nephritis (375, 600–607)	4.56	1.26	3.30	3.16	2.56	459.1	282.2	126.5	139.1	98	71	68	55	9	3	3	3	25
Pyelitis (610)	2.79	.88	1.91	1.77	1.53	27.3	24.7	18.0	14.3	60	41	38	33	5	2	2	1	4
Other kidney diseases (612 617)	2.23	.70	1.53	1.44	1.26	36.3	15.5	8.2	23.7	48	33	31	27	3	2	2	2	5
Cystitis and calculus (619–621)	2.70	.84	1.86	1.67	1.40	32.8	21.3	14.8	17.6	58	40	36	30	3	2	2	2	5
Other diseases of bladder and urethra[12] (623–629)	.88	.51	.37	.33	.23	3.7	1.6	1.2	10.0	19	8	7	5	1	1	1	1	3
Male genital diseases (nonvenereal):																		
Diseases of prostate (630–639)	1.44	.42	1.02	.42	.37	23.8	10.3	7.7	23.3	31	22	9	8	4	2	1	1	6
Circumcision (642)	3.67	.33	3.35	3.35	2.74	13.0	11.9	9.7	3.9	79	72	72	59	5	5	5	5	1
Other male genital (640, 644–649)	.60	.33	.28	.28	.28	3.0	2.5	2.1	10.8	13	6	6	6	2	2	2	2	
Female genital and breast diseases (nonvenereal) except tumors and cysts:																		
Diseases of ovaries, oviducts, and parametrium (650)	2.19	.88	1.30	1.16	1.02	20.6	13.6	9.6	15.9	47	28	25	22	9	7	7	7	2
Menstrual disorders (663–664)	20.41	7.16	13.25	11.72	7.07	54.3	25.5	11.3	4.1	439	285	252	152	18	8	8	6	14
Other female genital (652–656, 658–661, 666, 668–669)	6.37	2.98	3.39	3.30	2.93	113.0	84.6	43.2	33.3	137	73	71	63	24	16	15	15	12
Puerperal state:																		
Abortions and stillbirths (674–677, 694–695)	2.23		2.23	2.19	2.05	51.7	37.9	26.4	23.1	48	48	47	44					4
Live births (670–673)	15.07		15.07	15.07	14.97	312.3	278.1	186.0	20.7	324	324	324	322	2	2	2	2	7

Complications of pregnancy and childbirth (680–689, 692–693, 696, 699)	7.44	.51	6.93	6.74	6.18	98.2	77.7	49.3	14.2	160	149	145	133	92	92	92	90	11
Puerperal diseases of breast (690)	.33	.14	.19	.19	.14	1.8	1.6	.7	9.8	7	4	4	3	1	1	1	1	-------
Diseases of skin:																		
Furuncle and carbuncle (700)	10.42	7.77	2.65	1.53	.33	19.3	7.3	1.3	7.3	224	57	33	7	5	1	1	1	4
Cellulitis and paronychia (702, 704)	3.77	2.70	1.07	.70	.28	13.4	5.8	1.2	12.5	81	23	15	6	2	-------	-------	-------	1
Impetigo (711)	4.98	3.44	1.53	1.07	.09	33.9	10.5	.3	22.1	107	33	23	2	2	2	2	1	-------
Other local skin infection (706)	5.81	3.58	2.23	1.49	.65	30.1	19.0	6.6	13.5	125	48	32	14	4	1	1	1	3
Other skin conditions (712–713, 715–716, 719)	19.58	16.37	3.21	2.79	1.26	51.8	26.5	15.3	16.1	421	69	60	27	13	4	4	1	15
Diseases of bones, joints and organs of locomotion:																		
Arthritis and chronic rheumatism (720–729, 783)	19.34	9.48	9.86	8.28	5.30	962.6	355.6	85.5	97.6	416	212	178	114	62	5	5	5	126
Other diseases of bones and joints (730–739)	5.72	3.21	2.51	1.81	1.12	383.2	187.4	33.4	152.6	123	54	39	24	2	1	1	1	17
Lumbago and myalgia (740, 782)	8.65	3.63	5.02	4.09	2.51	38.1	31.7	9.9	7.6	186	108	88	54	5	4	4	4	5
Miscellaneous orthopedic conditions (742–749)	1.35	.98	.37	.19	.05	19.9	3.0	.1	53.5	29	8	4	1	2	-------	-------	-------	5
Congential malformations and diseases of early infancy (750–779)	2.09	.47	1.63	1.58	1.26	84.9	46.8	30.2	52.2	45	35	34	27	4	4	4	4	5
Other and ill-defined diseases:																		
Headache (785)	27.95	18.88	9.07	8.00	2.51	13.5	11.3	3.6	1.5	601	195	172	54	-------	-------	-------	-------	4
Rash (233–239, 781)	4.05	3.44	.60	.51	.14	2.7	1.7	.3	4.5	87	13	11	3	4	2	2	-------	1
Other and ill-defined 789, 797–799)	36.69	25.11	11.58	8.93	3.53	113.9	26.8	9.1	9.8	789	249	193	73	2	-------	-------	-------	10

[1] Code numbers (in parentheses) are from Manual for Coding Causes of Illness (*18*).

[2] Cases include sole, primary, and contributory causes of illness so are not addable to a total for all causes.

[3] Days of diability include all on sole and primary causes and one-half of those on any contributory causes that are assigned to a given diagnosis. Disability as here used means inability to work in gainful employment or at home, do housework, attend school, or pursue other usual activities for 1 or more days. Similarly "house" and "bed" cases refer to those with 1 or more days confined to the house or bed, respectively. For chronic diseases with disability this table represents the number of disabling attacks with 1 or more days of disability rather than the number of individual patients; similarly house and bed cases represent attacks with confinement to the house or bed for 1 or more days, respectively. For nondisabling chronics, the rate represents the number of individuals with the specified disease. Disabling cases include a few that were disabled for parts of days, particularly for housewives with chores that had to be done even if the rest of the day was spent in bed. A similar method was used for "house" cases and for "bed" cases with 7 or more days confined to the house.

[4] Onset for a nondisabling case means onset of signs or symptoms; for disabling acute cases and disabling attacks of chronic diseases, onset means onset of disability.

[5] Prior means prior to time that the given family came under observation.

[6] Includes the 2 cases of diphtheria (012) that were reported.

[7] Only 6 cases of endocrine (233–239) other than thyroid and parathyroid were reported and they are included in "Other and ill-defined diseases".

[8] Includes the 1 case of blood disease other than anemia.

[9] No cases for "Other noninfectious general" (249) were reported.

[10] Includes 12 cases of history of rheumatic fever and 7 cases of history of chorea.

[11] Except congenital (753), syphilitic (061), and thyrotoxic (222) heart diseases.

[12] Includes 3 cases of other urinary (629).

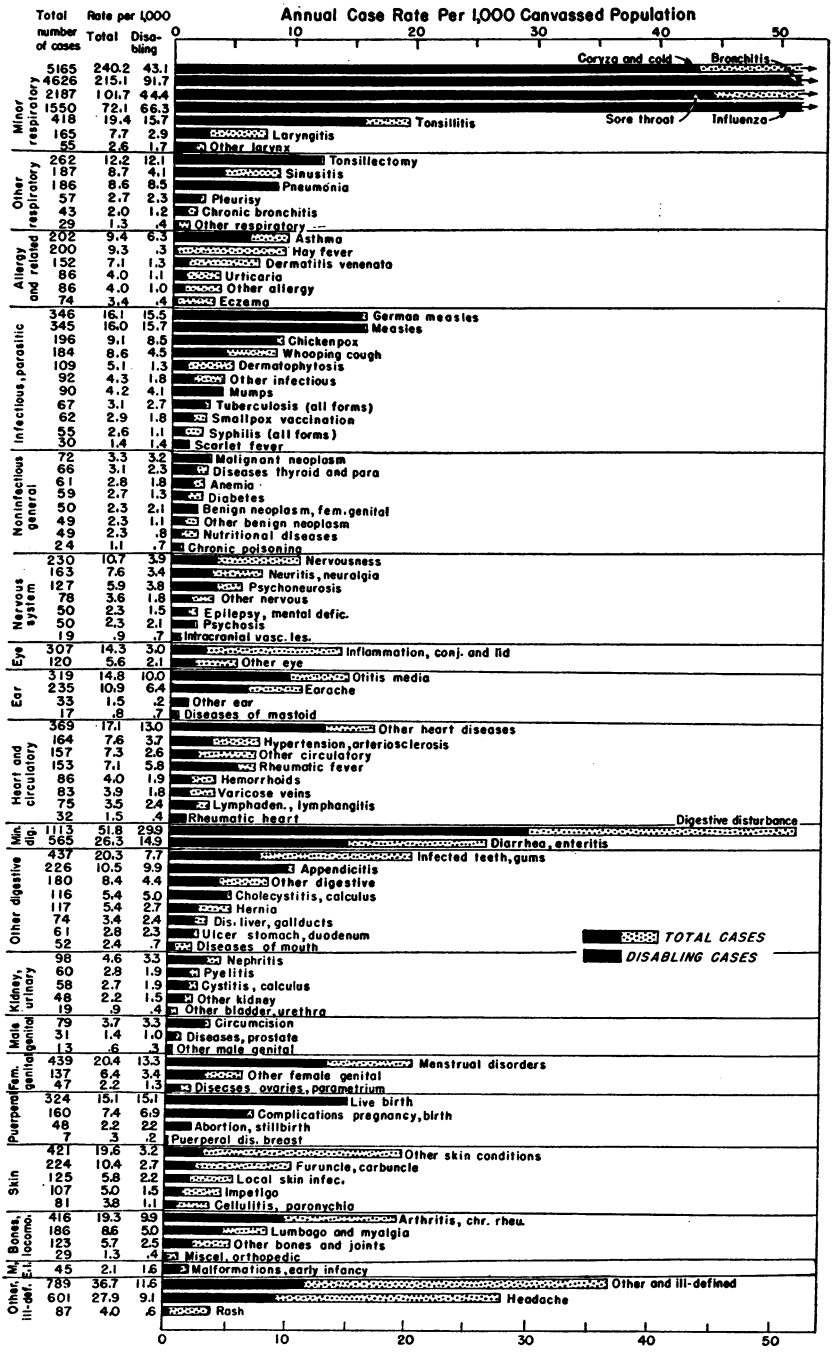

Figure 4. Annual rates per 1,000 canvassed population of total cases and of cases disabling for 1 day or longer for specific diagnoses—Baltimore Eastern Health District sample, 1938–43.

of disabling cases, 42 percent of house cases, and 41 percent of bed cases. However, of the total days of disability from all causes, only 12 percent were due to the minor respiratory diseases. The days confined to the house and to bed due to minor respiratory diseases were 17 and 13 percent, respectively, of the total days for all causes of illness and accident of the house and bed categories. Thus, in terms of days, the minor respiratory diseases are much less important than in terms of cases.

The next most numerous causes in terms of total and also of disabling cases are the minor digestive diseases, including digestive disturbance, and diarrhea and enteritis.

Ill-defined diseases including a few others of specific diagnosis constitute only 5 percent of all recorded cases, and the disabling cases of this group constitute only 3 percent of the total disabling cases.

Figure 5 drops from consideration nondisabling sickness and shows only the illness and attacks of chronic disease that were disabling in the sense of interfering with the patient's work, school, housework, or other usual activites. Again the hatchings on these bars divide the illnesses into different severities. Since cases confined to the house or bed for 1 day or longer are all considered disabling, the total length of a bar represents all disabling cases of that diagnosis. The black part of the bar represents bed cases and the black plus the darker hatching represents cases confined to the house for 1 day or longer.

We know of no study which has made use of the category, "cases confined to the house". Considering all causes of illness, 91 percent of the disabling cases were confined to the house and 56 percent were confined to bed for 1 day or longer. However, of the total days disabled, only 59 percent were days confined to the house, and 31 percent were days confined to bed. A careful study of figure 5 indicates that there are not many disabling cases that are not confined to the house for at least 1 day. Thus, confinement to the house may be a better definition of disability among nonworking and nonschool groups than inability to pursue usual activities which is at best a rough measure.[9]

It should be noted in connection with figures 4 and 5 that generally the diagnoses that show high rates in terms of total recorded cases also show high disabling case rates. While there are many differences in the array of diagnoses according to total and disabling cases, the general picture remains about the same; in both types of cases respiratory diseases are the most frequent diagnosis group and digestive, the second most frequent.

On the other hand, a number of skin diseases, minor allergies, and minor communicable diseases show fairly high total case rates with few disabling cases.

[9] The use of confinement to the house as a measure of illness was suggested to us by the late Dr. W. H. Frost.

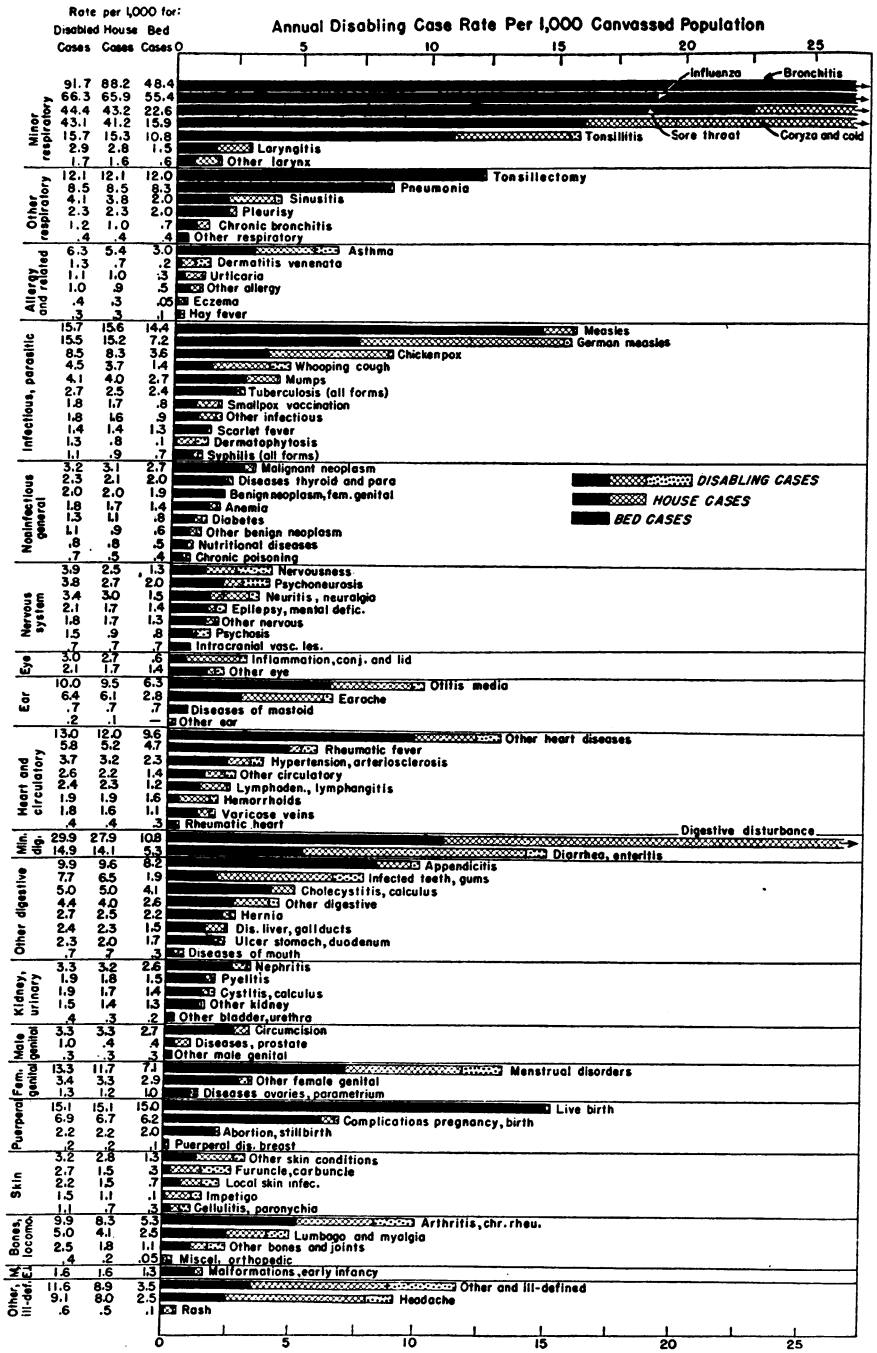

Figure 5. Annual rates per 1,000 canvassed population for cases disabling for 1 day or longer, cases confined to the house for 1 day or longer, and cases confined to bed for 1 day or longer—Baltimore Eastern Health District sample, 1938–43.

Figure 6 represents a classification of diseases according to their importance in terms of annual days of disability per 1,000 persons under observation. According to this classification such diseases as tuberculosis, epilepsy, mental deficiency, psychosis, heart disease, rheumatic fever, arthritis, and other chronic diseases stand out as important causes of illness. Many of the chronic diseases which are relatively infrequent in terms of cases are high in annual days of disability per 1,000 persons, in spite of their infrequent occurrence. Thus, these diseases are particularly important to the community as well as to the individual patient in terms of days of disability. However, the very large number of minor respiratory cases keeps them in the important categories in terms of days of disability, in spite of the short duration per case.

The prevalence rate is a useful measure of the extent of chronic disease in a population at a given time regardless of the date of onset of the cases. Such a rate is expressed as cases which existed in some form on the day of the canvass, per 1,000 individuals under observation. Because of the long durations of chronic diseases, it can be expressed as the number of individuals with chronic disease at any time during a 12-month or shorter period per 1,000 individuals observed at any time during that period, unless the patient had recovered by reason of surgery or other treatment.

Table 7 shows the average prevalence of important chronic diseases during the 5 years, computed as a simple average of prevalence rates for each study year.

At the time that each household first came under observation, the family informant was asked whether anyone in the household had any chronic disease on the interviewer's list or any other chronic disease not on the list. New chronic diseases and medical care and disability from all chronic diseases were recorded at subsequent visits.

Three types of prevalence rates per 1,000 persons observed are shown in table 7 for each diagnosis, based on the following categories:

(a) Individuals who reported the specified chronic disease and who had one or more days of disability during the whole period of their observation; these individuals may or may not have had medical care.

(b) Individuals who reported the specified chronic disease and who had medical care for it at some time during the whole period of their observation but suffered no days of disability.

(c) Individuals who reported that they had the specified chronic disease but during the whole period of their observation had neither medical care nor a day of disability.

Obviously this method of classifying the chronic cases according to disability and medical care puts many more into classes (a) and (b) than the method used for figure 2 by which the patient is classified

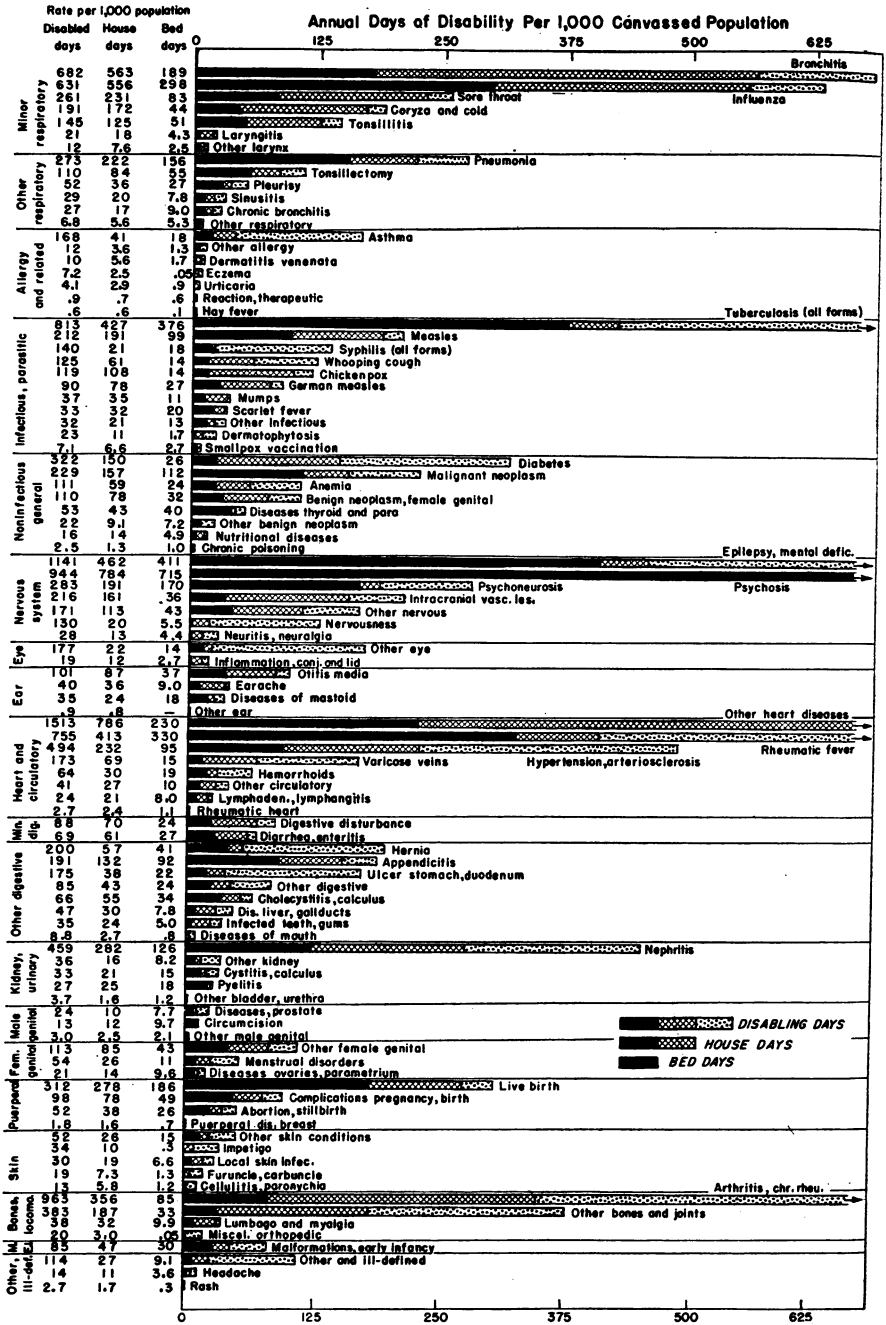

Figure 6. Annual days of disability, of confinement to the house, and of confinement to bed for specific diagnoses per 1,000 canvassed population—Baltimore Eastern Health District sample, 1938–43. (Days include those for cases lasting 1 day or longer.)

Table 7. *Average prevalence [1] of specific chronic diseases among canvassed white families—Eastern Health District of Baltimore, Md., 1938–1943*

Diagnosis [2]	Average prevalence [1] per 1,000 individuals during the 5 years of the study				Percentage of the total prevalence [1] rate that fell in each of the 3 classes				Total persons with this chronic disease
	All classes of cases	Disabling [3]	Nondisabling [3]		All classes of cases	Disabling [3]	Nondisabling [3]		
			With medical care	Without medical care			With medical care	Without medical care	
Individuals with 1 or more chronic diseases	154.79	90.75	35.64	28.40	100	58.6	23.0	18.4	4,017
Arthritis and chronic rheumatism	35.18	16.57	8.28	10.33	100	47.1	23.5	29.4	886
Heart diseases except rheumatic	26.99	18.12	5.10	3.77	100	67.1	18.9	14.0	716
Rheumatic fever and rheumatic heart	12.81	7.88	1.76	3.17	100	61.6	13.7	24.7	339
Hypertension and cerebral hemorrhage	12.73	5.19	4.71	2.83	100	40.8	37.0	22.2	310
Psychoneurosis	12.30	5.97	4.20	2.13	100	48.6	34.1	17.3	308
Varicose veins	9.10	3.53	1.30	4.27	100	38.8	14.3	46.9	230
Abdominal hernia	7.54	1.92	1.26	4.36	100	25.5	16.7	57.8	208
Diabetes mellitus	6.34	2.72	2.90	.72	100	42.9	45.7	11.4	161
Diseases of gall bladder	6.28	4.61	1.19	.48	100	73.5	18.9	7.6	163
Mental deficiency and epilepsy	6.28	3.97	.51	1.80	100	63.2	8.1	28.7	167
Sinusitis	5.07	1.59	1.89	1.59	100	31.4	37.2	31.4	120
Arteriosclerosis	4.84	2.92	1.33	.59	100	60.3	27.5	12.2	125
Syphilis	4.43	1.59	2.24	.60	100	35.9	50.6	13.5	117
Female genital and breast diseases except tumors	4.32	1.79	2.40	.13	100	41.4	55.6	3.0	112
Psychosis	4.09	3.57	.22	.30	100	87.3	5.4	7.3	108
Diseases of kidney and bladder	4.03	2.07	1.36	.60	100	51.4	33.7	14.9	102
Chronic bronchitis	3.88	1.92	1.14	.82	100	49.5	29.4	21.1	100
Cancer and other tumors	3.65	3.12	.44	.09	100	85.4	12.1	2.5	98
Tuberculosis (all forms)	3.48	2.82	.33	.33	100	81.0	9.5	9.5	100
Ulcer of stomach and duodenum	2.89	1.87	.65	.37	100	64.7	22.5	12.8	73
Hay fever and asthma	2.75	.27	2.11	.37	100	9.8	76.7	13.5	72
Thyroid and parathyroid diseases	2.74	1.25	.61	.88	100	45.6	22.3	32.1	65
All other chronic diseases	22.68	10.80	7.81	4.07	100	47.7	34.4	17.9	592
Total chronic diagnoses [4]	204.40	106.06	52.74	44.60	100	51.9	26.3	21.8	5,272

[1] Prevalence rates were computed for each study year, using all cases that existed at any time during the year and the number of individuals who were observed at any time during the year. Average prevalence is a simple average of these 5 rates.

[2] The prevalence rate for each diagnosis counts all individuals who had that chronic disease regardless of how many other chronic diseases this person had.

[3] Prevalent cases were classified into three groups based on the patient's record during the total observation period: (a) disabled for 1 or more days from this condition; (b) received medical care for this condition but was not disabled; (c) no medical care received for this condition and was not disabled from this condition.

[4] This total is the sum of the prevalence rates, counting all chronic diagnoses for each individual.

as disabled or receiving medical care only in the months in which he was disabled or had care.

Considering the average prevalence rates as shown in table 7, the five most frequent chronic diseases existing in the Baltimore sample population were, in the order of frequency: arthritis, heart disease except rheumatic, rheumatic fever and rheumatic heart, hypertension, and psychoneurosis. Arthritis, the diagnosis with the highest prevalance, is only a minor cause of death, and psychoneurosis, the fifth in prevalence, is of even less frequency as a cause of death. However, the second, third, and fourth in prevalence are major causes of death. Other chronic diseases are listed in the order of average prevalence. The rate of 22.7 per 1,000 for "all other chronic diseases" is made up entirely of diseases for which there were too few cases recorded in this study to use as a basis for reliable rates for the separate diagnoses.

The rates at the top of the table represent individuals who reported one or more chronic diseases. This counts an individual only once

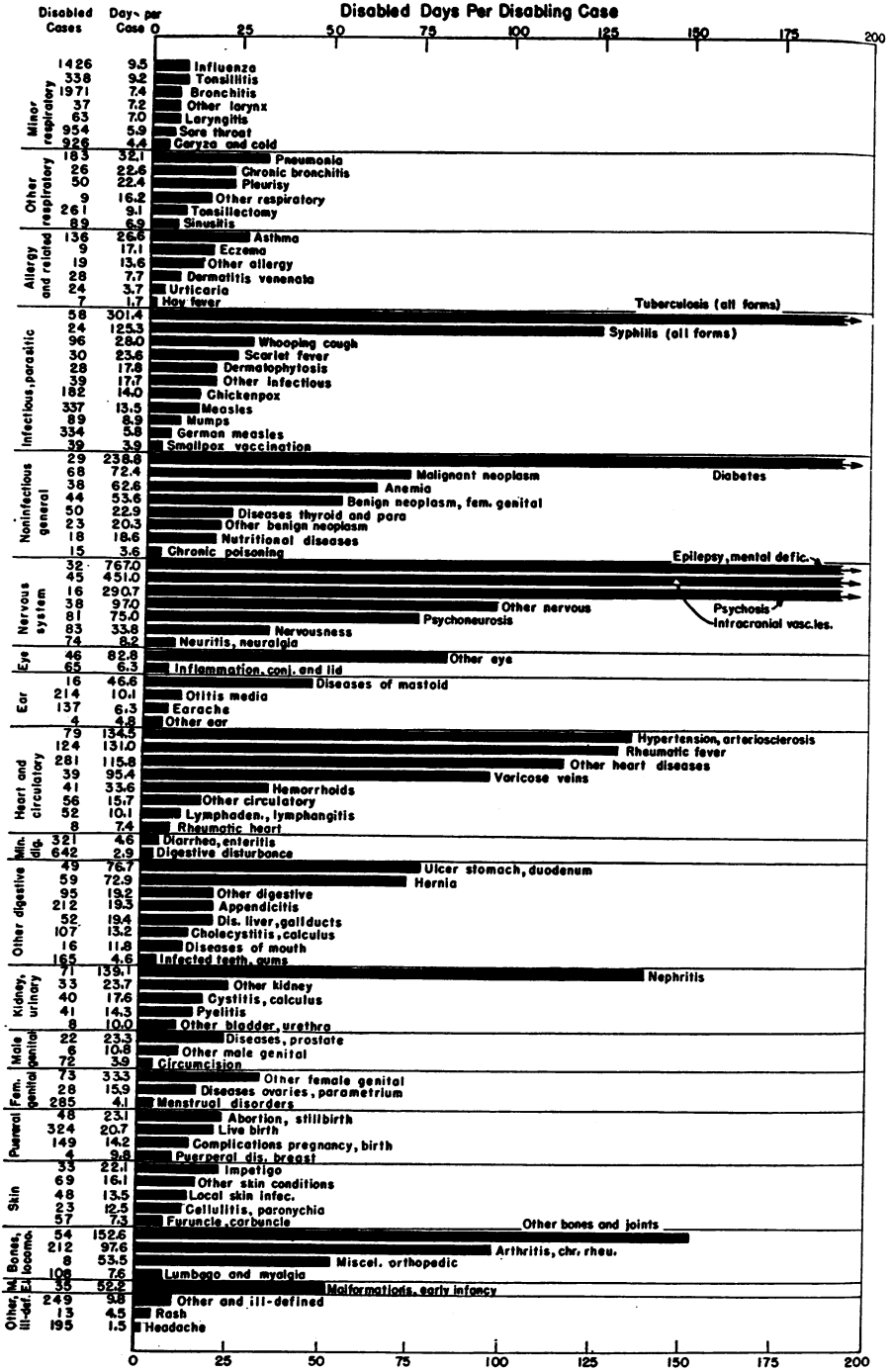

Figure 7. Disabled days per disabling case involving 1 or more days of disability—Baltimore Eastern Health District sample, 1938–43.

even though he had two or more different chronic diseases. The rate of 155 per 1,000 who had a chronic disease is reasonably close to the rate of 177 per 1,000 as found in the National Health Survey (*13*) of 1935–36 which included also impairments such as a stiff joint or a missing finger, arm, or leg.

The last line on table 7 is the sum of the prevalence rates for each diagnosis, counting an individual as many times as the chronic diseases which he reported.

In setting up figure 7 to represent the importance of an illness to the sick individual, it seemed best to use time lost from usual activities (disability) rather than the total time which the individual had had the disease. The total duration frequently means little because so many diseases represented in the nondisabling chronic category are of the nature of physical defects which may interfere relatively little with the work or other activities of the individual; or they may be diseases under good control such as diabetes.

Days of disability per disabling case, in the sense of time lost from usual activities, is a good measure of the importance of the disease to the individual patient. The long disabling durations of chronic diseases are even more important to the patient than they are to the community. Thus in this measure epilepsy, psychosis, tuberculosis, intracranial lesions and residual paralyses, the cardiovascular-renal diseases, rheumatic fever, and diseases of the bones and joints are the most important diseases to the sick individual. Other diseases of shorter duration are important because of high case fatality, but that measure is not included in the present paper.

Summary

This report deals with illness classified into detailed diagnoses in the 5-year study with monthly visits to a sample of the population of the Eastern Health District of Baltimore. It is the first illness paper based on the whole study and including all of the sickness data for the entire sample of the population of the district.

The total recorded illnesses for persons of all ages amounted to an annual rate of 1,379 cases per 1,000 canvassed population. Nondisabling illness accounted for 729 cases per 1,000, and cases disabling for 1 day or longer amounted to 650 per 1,000 canvassed population. The annual days disabled within the period of observation was 15.8 per person observed. This amounted to 24.4 days of disability per disabling case.

These various types of rates are presented for detailed diagnoses in figures 4, 5, 6, and 7, and in table 6. The specific diagnoses are shown as an array within each broad disease group. The specific diagnoses are too numerous for discussion here.

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Incidence of Disease

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

Reports From States for Week Ended September 9, 1950

For the current week, new cases of acute poliomyelitis reported in the Nation numbered 1,745, a 7.3 percent increase over the 1,626 cases reported last week. This is the sixteenth consecutive week which shows an increase over the preceding week. For the corresponding week in 1949, 2,698 cases were reported.

The cumulative total (14,099) for the current "disease" year was below the corresponding total (25,525) for last year, the highest on record. The "disease" year for acute poliomyelitis begins with the twelfth week of the calendar year. The cumulative total for the calendar year was 15,233, compared with the total of 26,440 for the corresponding period last year.

For the current week, 2 of the 9 geographic divisions decreased from the preceding week in reported cases of acute poliomyelitis. These decreases ranged from 52 (408 to 356) cases reported in the East

Comparative Data for Cases of Specified Reportable Diseases: United States

[Numbers after diseases are International List numbers, 1948 revision]

Disease	Total for week ended—		5-year median, 1945–49	Seasonal low week	Cumulative total since seasonal low week—		5-year median, 1944–45 through 1948–49	Cumulative total for calendar year—		5-year median, 1945–49
	Sept. 9, 1950	Sept. 10, 1949			1949–50	1948–49		1950	1949	
Anthrax (062)	1	------	(1)	(1)	(1)	(1)	(1)	30	38	(1)
Diphtheria (055)	112	146	169	27th	657	964	1,230	3,785	4,732	7,527
Acute infectious encephalitis (082)	37	34	27	(1)	(1)	(1)	(1)	631	479	390
Influenza (480–483)	833	551	706	30th	4,483	3,338	3,338	250,742	79,205	143,432
Measles (085)	506	499	543	35th	506	499	543	288,677	589,017	552,229
Meningococcal meningitis (057.0)	36	49	48	37th	3,666	3,314	3,574	2,753	2,470	2,602
Pneumonia (490–493)	700	741	--------	(1)	(1)	(1)	(1)	62,831	58,039	--------
Acute poliomyelitis (080)	1,745	2,698	1,526	11th	[2]14,099	25,525	13,693	[2]15,233	26,440	14,160
Rocky Mountain spotted fever (104)	11	17	17	(1)	(1)	(1)	(1)	394	500	467
Scarlet fever (050)	291	264	400	32d	1,057	922	1,549	41,227	58,588	63,652
Smallpox (084)	--------	1	1	35th	--------	1	1	26	42	148
Tularemia (059)	13	27	19	(1)	(1)	(1)	(1)	[2]691	869	718
Typhoid and paratyphoid fever (040, 041)[3]	84	117	111	11th	1,905	2,274	2,274	2,415	2,762	2,762
Whooping cough (056)	1,890	1,440	1,798	39th	113,432	52,373	96,118	91,896	42,340	70,100

[1] Not computed.
[2] Deductions: Poliomyelitis—Georgia, week ended August 19, 1 case; Michigan, week ended September 2, 1 case. Tularemia—Arkansas, week ended Sept. 2, 1 case.
[3] Including cases reported as salmonellosis.

North Central States to 16 (186 to 170) in the West North Central States. The 7 divisions increasing over the preceding week ranged from 49 (72 to 121) cases in the East South Central States to 6 (34 to 40) in the Mountain States.

The States reporting the largest numbers of cases of poliomyelitis for the week were: New York (253), Illinois (110), Pennsylvania (95), Texas (91), Ohio (83), and Michigan (81).

The total number of cases of infectious encephalitis reported for the week was 37 compared with 34 reported for the corresponding period last year. For the calendar year, a total of 631 cases was reported, the highest total in the past 5 years.

For the current week, 1,890 cases of whooping cough were reported compared with 1,440 reported for the corresponding week last year. The cumulative total number of cases of whooping cough reported for the calendar year to date was 91,896 compared with 42,340 for the corresponding period last year. States reporting the largest numbers of cases for the current week were: Michigan (175), Texas (171), New York (132), Pennsylvania (114), Wisconsin (111), and California (102).

For the Nation, reported cases of diphtheria increased slightly, from 82 last week to 112 cases for the current week. The States reporting the largest numbers of cases were: North Carolina (28), Kentucky (11), Virginia (11), and Texas (10).

No smallpox was reported in the United States. One case of anthrax was reported in Pennsylvania.

Of 41 States and the District of Columbia reporting on rabies in animals, 20 States and the District of Columbia reported no cases. The remaining 21 States reported 119 cases. States reporting the largest numbers were: Texas (24), New York (20), and Iowa (17).

Deaths During Week Ended September 9, 1950

	Week ended Sept. 9, 1950	*Corresponding week, 1949*
Data for 94 large cities of the United States:		
Total deaths	7, 960	7, 831
Median for 3 prior years	7, 871	----------
Total deaths, first 36 weeks of year	331, 675	332, 175
Deaths under 1 year of age	581	552
Median for 3 prior years	614	----------
Deaths under 1 year of age, first 36 weeks of year	22, 317	23, 508
Data from industrial insurance companies:		
Policies in force	69, 608, 690	70, 176, 809
Number of death claims	9, 447	8, 887
Death claims per 1,000 policies in force, annual rate	7. 1	6. 6
Death claims per 1,000 policies, first 36 weeks of year, annual rate	9. 4	9. 3

Reported Cases of Selected Communicable Diseases: United States, Week Ended Sept. 9, 1950

[Numbers under diseases are International List numbers, 1948 revision]

Area	Diphtheria (055)	Encephalitis, infectious (082)	Influenza (480–483)	Measles (085)	Meningitis, meningococcal (057.0)	Pneumonia (490–493)	Poliomyelitis (080)
United States	**112**	**37**	**833**	**506**	**36**	**700**	**1,745**
New England	**3**		**1**	**48**	**1**	**17**	**87**
Maine				1		5	9
New Hampshire				2			2
Vermont				5			2
Massachusetts	3			29			33
Rhode Island			1	1			8
Connecticut				10	1	12	33
Middle Atlantic	**7**	**6**	**1**	**101**	**6**	**166**	**397**
New York	6	[1]5		41	3	117	253
New Jersey			1	33	1	29	49
Pennsylvania	1	1		27	2	22	95
East North Central	**3**	**3**	**11**	**120**	**6**	**72**	**356**
Ohio	2			19	1		83
Indiana		2		4		6	26
Illinois	1			28	3	48	110
Michigan			1	14	2	14	81
Wisconsin		1	10	55		4	56
West North Central	**4**	**6**	**13**	**24**	**4**	**101**	**170**
Minnesota	1		2	9		7	41
Iowa				1			47
Missouri	2	1		2	2	11	13
North Dakota		2	2	3	1	73	
South Dakota		2		6	1		10
Nebraska			6			1	24
Kansas	1	1	3	3		9	35
South Atlantic	**54**	**1**	**209**	**23**	**4**	**72**	**257**
Delaware				3			2
Maryland			1	1		13	43
District of Columbia			1			10	10
Virginia	11		172	9		20	71
West Virginia	3		10	5	1	5	24
North Carolina	28			1	1		46
South Carolina	5	1	11		1	7	18
Georgia	6		14	1		13	24
Florida	1			3	1	4	19
East South Central	**18**	**1**	**16**	**17**	**5**	**40**	**121**
Kentucky	11			9	1	17	51
Tennessee		1	4	5	3		38
Alabama	5		12	3		14	13
Mississippi	2				1	9	19
West South Central	**19**		**526**	**54**	**7**	**165**	**161**
Arkansas			27	2	1	16	12
Louisiana	6				1	5	17
Oklahoma	3		35	5		24	41
Texas	10		464	47	5	120	91
Mountain			**45**	**50**		**18**	**40**
Montana			9	1		1	1
Idaho			1	2			7
Wyoming				2			1
Colorado			23	41		7	15
New Mexico						5	10
Arizona			12	2		5	4
Utah				2			2
Nevada							
Pacific	**4**	**20**	**11**	**69**	**3**	**47**	**156**
Washington				5		1	59
Oregon	1		1	13		4	25
California	3	20	10	51	3	42	72
Alaska						1	
Hawaii	1		41	1			1

[1] New York City only.

Reported Cases of Selected Communicable Diseases: United States, Week Ended Sept. 9, 1950—Continued

[Numbers under diseases are International List numbers, 1948 revision]

Area	Rocky Mountain spotted fever (104)	Scarlet fever (050)	Smallpox (084)	Tularemia (059)	Typhoid and paratyphoid fever [1] (040, 041)	Whooping cough (056)	Rabies in animals
United States	**11**	**291**		**13**	**84**	**1,890**	**119**
New England		**23**		**1**	**2**	**221**	
Maine						52	
New Hampshire						18	
Vermont		1			1	25	
Massachusetts		16		1		84	
Rhode Island						17	
Connecticut		6			1	25	
Middle Atlantic	**2**	**39**			**11**	**334**	**26**
New York		[2] 20			4	132	20
New Jersey	1	6				88	
Pennsylvania	1	13			7	114	6
East North Central	**1**	**60**		**3**	**5**	**442**	**13**
Ohio		35			3	62	3
Indiana		6			1	37	9
Illinois	1	6		3		57	
Michigan		7			1	175	1
Wisconsin		6				111	
West North Central		**18**			**3**	**142**	**18**
Minnesota		3				34	
Iowa		1			1	36	17
Missouri		4			2	12	
North Dakota		1				10	
South Dakota						6	
Nebraska		7				3	
Kansas		2				41	1
South Atlantic	**2**	**42**		**4**	**12**	**209**	**18**
Delaware		1				4	
Maryland		1		1	1	24	
District of Columbia		2				4	
Virginia	2	7		3	1	48	1
West Virginia		2			2	46	1
North Carolina		20			1	62	
South Carolina		3				4	9
Georgia		4			5	15	5
Florida		2			2	2	2
East South Central	**3**	**38**		**1**	**2**	**73**	**15**
Kentucky		4				19	5
Tennessee	1	21		1	1	27	3
Alabama	1	6				27	6
Mississippi	1	7			1		1
West South Central	**2**	**26**		**2**	**36**	**201**	**27**
Arkansas	1	2			2	9	1
Louisiana		3			7	3	
Oklahoma	1	12		2	11	18	2
Texas		9			16	171	24
Mountain	**1**	**11**		**2**	**4**	**106**	**1**
Montana	1	2		1		16	
Idaho		1				7	
Wyoming						1	
Colorado		4			2	27	1
New Mexico		1			2	34	
Arizona		2				17	
Utah		1		1		4	
Nevada							
Pacific		**34**			**9**	**162**	**1**
Washington		2				41	
Oregon						19	
California		32			9	102	1
Alaska							
Hawaii							

[1] Including cases reported as salmonellosis.
[2] Including cases reported as streptococcal sore throat.

FOREIGN REPORTS

CANADA

Reported Cases of Certain Diseases—Week Ended Aug. 19, 1950

Disease	Newfoundland	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia	Total
Brucellosis					1	1		1	1		4
Chickenpox			4		15	67	23	4	25	16	154
Diphtheria				1		1	6				8
Dysentery, bacillary					2	3	3			15	23
German measles			1		2	37		1	11	8	60
Influenza						7					7
Measles	1				37	119	11	1	15	19	203
Meningitis, meningococcal					1	2					3
Mumps	1		12		29	64	7	14	36	19	182
Poliomyelitis	2		2	1	12	18		11	19	4	69
Scarlet fever				2	8	11	2	1	8	8	40
Tuberculosis (all forms)	6		3	9	44	44	30	11	19	22	188
Typhoid and paratyphoid fever	1				8	2		1	1	3	16
Venereal diseases:											
Gonorrhea	3		4	5	87	72	43	29	54	79	376
Syphilis	4		2	3	69	20	6	16	6	20	146
Whooping cough			9	1	54	55	15		2	33	169

FINLAND

Reported Cases of Certain Diseases—July 1950

Disease	Cases	Disease	Cases
Diphtheria	70	Scarlet fever	468
Dysentery	2	Typhoid fever	15
Malaria	1	Venereal diseases:	
Meningitis, meningococcal	4	Gonorrhea	607
Paratyphoid fever	82	Syphilis	31
Poliomyelitis	23	Other forms	1

WORLD DISTRIBUTION OF CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER

The following tables are not complete or final for the list of countries included or for the figures given. Since many of the figures are from weekly reports, the accumulated totals are for approximate dates.

CHOLERA

(Cases)

Place	January–June 1950	July 1950	August 1950—week ended—			
			5	12	19	26
ASIA						
Burma	64	248	44	28	11	
Akyab	2					
Bassein	3					
Maubin	3					
Pegu	1					
Rangoon	1					
Toungoo		1				

CHOLERA—Continued

Place	January–June 1950	July 1950	August 1950—week ended—			
			5	12	19	26
ASIA—continued						
India	68,327	13,506	[1] 3,920	[1] 4,338	[1] 1,564	
Ahmedabad	7			1		
Allahabad	3					
Bombay	[2] 2	307	58	24	21	7
Calcutta	[2] 7,686	869	115	84	66	62
Cawnpore	1					
Cocanada	2					
Cuddalore	31					
Lucknow	10	2				
Madras	11				[3] 5	6
Masulipatam	46	1				
Nagpur		4	4	2	4	17
Negapatam	67			[3] 4	7	10
New Delhi	12	42	13	9	19	15
Port Blair (Andaman Islands)	[3] 2					
Tellicherry	27					
Tiruchirappalli		1				
Trichinopoly		1				
Tuticorin	25					
India (French)	588	231		71	97	
Karikal	381				1	
Pondicherry	207	231		71	96	
Indochina (French)	13	3	2			1
Cambodia	5					
Viet Nam	8	3	2			1
Giadinh	3					
Rachgia	1					
Pakistan	20,372	1,572	[1] 307	[1] 41		
Chittagong	158	27	1			
Dacca	186	1				

[1] Preliminary figures. [2] Includes imported cases. [3] Imported.

PLAGUE

(Cases)

AFRICA						
Belgian Congo	[1] 10	7	1	6	3	
Costermansville Province	[1] 4	1		[2] 5	[2] 3	
Stanleyville Province	[1] 6	[3] 6	1	1		
Madagascar	45	3		[4] 1	[5] 2	
Rhodesia, Northern	2					
Union of South Africa	9	1				
Orange Free State	7					
Transvaal Province		1				
Johannesburg		1				
ASIA						
Burma	213	10	1	5	2	
Bassein	1					
Bhamo	[6] 4					
Henzada	14					
Kyaiklat	34					
Minhla		1				
Moulmein	[6] 2	1				
Myaungmya	5					
Myingyan	2					
Pegu	2	1				
Pyapon	1	2				
Rangoon	[6] 6	2				
Yenangyaung	58					
China:						
Chekiang Province	35					
Wenchow	[7] 4					
Fukien Province	696	10				
Amoy		10				
Kwangsi Province	[7] 63					
Kwangtung Province	145					
India	[1] 36,529	85	51	83		
Allahabad	[8] 19					
Bombay	[6] 5					
Calcutta	[6] 3					
Cawnpore	18					
Lucknow	[6] 9					

PLAGUE—Continued

Place	January–June 1950	July 1950	August 1950—week ended— 5	12	19	26
ASIA—continued						
Indochina:						
Annam	70	8	1	3		1
Phanthiet	66	8	1	3		1
Cambodia	[9]46					
Pnompenh	3					
Cochinchina	7	5	1			
Saigon		1				
Laos	2					
Indonesia:						
Java	339	27	5	3	3	
Bandoeng	3					
Djakarta		[5]2			1	
Jogjakarta	177	25	5	3	2	
Pakistan	1					
Karachi	[8]1					
Thailand	56					
SOUTH AMERICA						
Ecuador	14					
Chimborazo Province	4					
El Oro Province	4					
Loja Province	6					
Peru	16	2				
Ancash Department	3					
Lambayeque Department	1	1				
Libertad Department		1				
Lima Department	5					
Piura Department	7					
Venezuela	5					
Miranda State	5					

[1] Corrected figure. [2] Pneumonic plague. [3] Includes 1 case of pneumonic plague. [4] Aug. 1–10, 1950. [5] Aug. 11–20, 1950. [6] Includes imported cases. [7] Deaths. [8] Imported. [9] Includes suspected cases.

SMALLPOX

(Cases; P=present)

AFRICA						
Algeria	86	4				
Angola	144					
Bechuanaland	38					
Belgian Congo	1,536	503	115	184		
British East Africa:						
Kenya	10					
Nyasaland	240	6		2		
Tanganyika	1,451	698				
Uganda	2					
Cameron (British)	331	12				
Cameron (French)	92	1				
Dahomey	207	11		[1]29	[2]10	
Egypt	[3]4					
Eritrea	1					
Ethiopia	23					
French Equatorial Africa	431	15				
French Guinea	12					
French West Africa: Haute Volta	201	4				
Gambia	5					
Gold Coast	99	82			20	38
Ivory Coast	505	48		[1]44	[2]1	
Libya	2					
Mauritania	1					
Morocco (French)	7	2		[1]1		
Mozambique	128	52				
Nigeria	12,876	633	[4]2	[4]4	[4]5	
Niger Territory	1,005	54		[1]4	[2]5	
Rhodesia:						
Northern	4					
Southern	404					
Senegal	2					
Sierra Leone	30					
Sudan (Anglo-Egyptian)	69	2		1		
Sudan (French)	103	5		[1]8	[2]38	
Togo (French)	48				[2]24	
Tunisia	1					
Union of South Africa	614	P		[1]18		

See footnote at end of table.

Place	January–June 1950	July 1950	August 1950—week ended— 5	12	19	26
ASIA						
Afghanistan	276	15				
Arabia	[3] 331			2		
Bahrein Islands: Bahrein	34		2			
Burma	4,956	31	7	3	3	
Ceylon: Colombo			[5] 1			
China	699	[6] 47				
India	100,669	11,262	[7] 1,644	[7] 1,533	[7] 387	
India (French)	73	99		8	20	
India (Portuguese)	50	11				
Indochina	365	19	4	4	2	8
Indonesia:						
Borneo	[3] 275	205	44	11		
Java	2,465	1,153	316	221	226	19
Sumatra	266	76			2	
Iran	183	22	19	3		
Iraq	[3] 129	10		1		[5] 4
Israel	15					
Japan	3	1				
Korea (Republic of)	1,331					
Lebanon	2					
Netherlands New Guiena	3					
Pakistan	13,000	1,197	245			
Palestine	90	1				
Straits Settlements:						
Singapore				[3] 2		
Syria	15					
Thailand	460					
Transjordan	30	5				
Turkey (See Turkey in Europe.)						
United Nations Relief and Works Agency for Palestine Refugees	3	9	2	1		
EUROPE						
Great Britain:						
England: Liverpool	[5] 1					
Scotland: Glasgow	21					
Greece	[8] 15					
Athens	1					
Piraeus	1					
Xylokastron	1					
Portugal	[9] 1					
Spain: Canary Islands		1				
Turkey	8					
NORTH AMERICA						
Guatemala	3					
Mexico	428	6				
SOUTH AMERICA						
Argentina	517					
Brazil	34	14	4	2	3	
Chile	3,617	87	4	7		
Colombia	558	9	1			
Ecuador	104	5				
Paraguay	1					
Peru	1,211					
Venezuela	706					
OCEANIA						
Australia: Freemantle	[5] 1					

[1] Aug. 1–10, 1950. [2] Aug. 11–20, 1950. [3] Includes imported cases. [4] In Lagos only. [5] Imported. [6] In Shanghai only. [7] Preliminary figures. [8] Includes suspected cases. [9] May 1–31, 1950.

TYPHUS FEVER*

(Cases; P=present)

AFRICA						
Algeria	88	12				
Basutoland	22					
Belgian Congo	[1] 67	[1] 3				
British East Africa: Kenya	17					
Egypt	77	5	2			

Place	January–June 1950	July 1950	August 1950—week ended—			
			5	12	19	26
AFRICA—continued						
Eritrea	14	8	1			
Ethiopia	513					
French Equatorial Africa	5					
Gold Coast	6					
Libya:						
Cyrenaica	27					
Tripolitania	66	2				
Madagascar	[1] 2					
Morocco (French)	5	1			1	
Morocco (International Zone)	1					
Morocco (Spanish Zone)	3					
Mozambique	3					
Nigeria	1					
Rhodesia, Southern	6					
Sierra Leone	[2] 5					
Sudan (Anglo-Egyptian)	4					
Tunisia	50	3				
Union of South Africa	[1] 76	P	P			
ASIA						
Afghanistan	1,282	10				
Burma	[2] 8	[2] 7				
China	[2] 16	[2] 4				
India	259	8	1			
India (Portuguese)	11	7				
Indochina	30	2		1		1
Indonesia:						
Java	6					
Sumatra	1					
Iran	152	16	2	1	2	
Iraq	111	11			2	
Japan	888	32	2			
Korea (Republic of)	[2] 1,161					
Lebanon	1					
Netherlands New Guinea	1	1				
Pakistan	88	4	1	1	1	
Palestine	2					
Straits Settlements: Singapore	[1] 5					
Syria	[1] 37					
Transjordan	15	2	2	1		
Turkey (see Turkey in Europe).						
United Nations Relief and Works Agency for Palestine Refugees	2	2				
EUROPE						
France	1					
Germany (British Zone)	2					
Germany (French Zone)	2					
Germany (United States Zone)	1	1				
Great Britain:						
England: Liverpool	[2] [4] 1					
Island of Malta	[2] 5	[2] 4	[2] 2	[2] 1	[2] 4	
Greece	[1] 25	2				
Hungary	4					
Italy	[5] 37					
Sicily	[5] 29					
Poland	37					
Portugal	2					
Spain	25	17				
Turkey	125	7	4	3	2	3
Yugoslavia	236	11				
NORTH AMERICA						
Costa Rica [2]	4		1	1		
Guatemala	20					
Jamaica [2]	21	8	1		1	1
Mexico [1]	276	29	2	3		
Panama Canal Zone	[2] 2					
Puerto Rico [2]	13	1		1		
SOUTH AMERICA						
Argentina	2					
Chile	76	19	13		4	
Colombia	461					
Curacao	1					
Ecuador	141	2				
Peru	547					
Venezuela	72					

TYPHUS FEVER—Continued

Place	January–June 1950	July 1950	August 1950—week ended—			
			5	12	19	26
OCEANIA						
Australia [2]	80	12	7			
Hawaii Territory	[1] 7	1				

*Reports from some areas are probably murine type, while others include both murine and louse-borne types.
[1] Includes murine type. [2] Murine type. [3] Reported as deaths. [4] Imported. [5] Corrected figure.

YELLOW FEVER

(C—cases; D—deaths)

AFRICA							
French Equatorial Africa	C	1					
Port Gentil	C	[1] 1					
Gold Coast	C	10	2		1		
Accra	D		[1] 1		[1] 1		
Ankobra Ferry	D	1					
Bogoso	C		[1] 1				
Kade	C	1					
Oda Area:							
Akwatia	C	[2] 7					
Atiankama	C	1					
Nigeria	D			1	1		
Calabar	D			[3] 1			
Ibadan	D				[1] 1		
Sierra Leone	C	2					
Koinadugu District	C	[4] [5] 2					
NORTH AMERICA							
Panama:							
Colon	D	1					
SOUTH AMERICA							
Bolivia:							
Chuquisaca Department	C	[6] 850					
La Paz Department	C	[7] 17					
Brazil:							
Maranhao State	D	1					
Colinas	D	1					
Colombia:							
Magdalena Department	D	1					
Los Angeles, Rio de Oro	D	1					
Putumayo Commissary	D	3					
Mocoa Locality	D	3					
Peru:							
Cuzco Department	D	2					
Quincemil	D	2					
Huanuco Department	D	1					
Tingo Maria	D	1					
Junin Department	D	1					
San Ramon	D	1					
San Martin Department	D	2					
Juanjui	D	1					
Lamas	D	1					

[1] Suspected. [2] Includes 4 suspected cases. [3] Imported. [4] Includes one suspected case. [5] One fatal suspected case reported in Koinadugu District, Sierra Leone, June 24–25, 1950 (see PUBLIC HEALTH REPORTS for Aug. 25, 1950, p. 1110), was not confirmed. [6] Estimated number of cases reported (230 deaths) in an outbreak in Azero Province Jan. 1–Mar. 14, 1950. [7] Outbreak in North and South Yungas Provinces (8 deaths).

Plague Infection in Rawlins County, Kans.

Under date of September 8, 1950, plague infection was reported proved in a specimen of 128 fleas, *Opisocrotis hirsutus*, taken from 7 prairie dogs, *Cynomys ludovicianus*, shot August 24, 1950, 10 miles west of Atwood on U. S. Highway 36, then 14 miles south on county road (Field's Ranch) in Rawlins County.