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VARIATION IN HOSPITALIZATION WITH SIZE OF CITY, FAMILY INCOME, AND OTHER ENVIRONMENTAL FACTORS

Based on Records for 9,000 families in 18 States Visited Periodically for 12 months, 1928–31 [1]

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CONTENTS

The great majority of the large hospitals of the United States are located in cities. Thus hospital care is less readily accessible in rural areas because of fewer beds, greater distances, and poorer roads. The ability to pay for service is another important consideration; in large cities a certain amount of free or nearly free hospital care is usually obtainable for families with low incomes, but this is seldom true in small towns and rural areas. That greater hospital facilities available at reasonable costs would lead to more hospital care in rural areas is suggested by the high rates among persons entitled to free service; for example, the American Indians who live under extremely rural conditions but receive free medical care from the Federal Government have hospital admission rates that are 4 or 5 times those for families

[1] From General Morbidity Studies, Division of Public Health Methods, National Institute of Health.

This is the nineteenth of a series of papers on sickness and medical care in this group of families (*1–18*). The survey of these families was organized and conducted by the Committee on the Costs of Medical Care; the tabulation was done under a cooperative arrangement between the Committee and the Public Health Service. Committee publications based on the results deal primarily with costs and Public Health Service publications primarily with the incidence of illness and the extent and kind of medical care, without regard to cost. As costs are meaningless without some knowledge of the extent and nature of the service received, there is inevitably some overlapping. The Committee staff, particularly Dr. I. S. Falk and Miss Margaret Klem, cooperated in the tabulation of the data.

in small towns and rural areas in the present study (*26*). Moreover, the residents of large cities in this study had admission rates that were about 60 percent higher than those for rural areas. City dwellers with hospital insurance have still higher rates (*27*).

The variation in hospitalization in urban and rural areas is the primary concern of this paper, but family income and the availability of hospital facilities are intimately related to that subject. The measures of the extent of hospitalization here used include hospital admissions and days of care per 1,000 population and the percentage of illnesses of certain categories that were hospitalized.

I. SOURCE AND CHARACTER OF DATA

In the study of illness in a group of families in 18 States[2] that was made by the Committee on the Costs of Medical Care (*21*) and the United States Public Health Service, the record for each illness included a statement of any hospital care received during the study year.

The composition and characteristics of the group of 8,758 white families which were kept under observation for 12 consecutive months in the years 1928–31 have been considered in some detail in the first report in the series (*1*). These families, including a total of 39,185 individuals, resided in 130 localities in 18 States representing all geographic sections. Every size of community was included, from metropolitan districts to small industrial and agricultural towns and rural unincorporated areas.[3] With respect to income, the distribution was reasonably similar to the estimated distribution of the general population of the United States at the time of the survey.

Each family was visited at intervals of 2 to 4 months for a period long enough to obtain a sickness record for 12 consecutive months. On the first call a record was made of the number of members of the household, together with sex, age, and other facts about each person. On succeeding visits the canvasser recorded all illness that had occurred since the preceding call, with such pertinent facts about each case as the date of onset, the duration in terms of the presence of symptoms, of inability to pursue usual activities (disability), of days confined to bed, and of days confined to a hospital, with the type of hospital furnishing the service. Records for persons who were still sick at the preceding visit were brought up to date and when completed the termination of the case was entered. Thus there are available for an observed population which may be classified by size of city of resi-

[2] The 18 States sampled and the number of canvassed families were as follows: California (890), Colorado (386), Connecticut (100), District of Columbia (99), Georgia (544), Illinois (463), Indiana (494), Kansas (301), Massachusetts (287), Michigan (329), Minnesota (224), New York (1710), Ohio (1148), Tennessee (212), Virginia (412), Washington (551), West Virginia (318), Wisconsin (290). Further details about the distribution of the canvassed population are included in a preceding paper (*1*).

[3] Every community that was included in the study had either a local health department or some other organization employing a visiting nurse or both; therefore, the most rural areas with no organized community services are not represented.

dence and by family income, the number and proportion of illnesses that were hospitalized and the days spent in a hospital.

Definition of illness and hospital care as recorded in survey.—An illness, for the purpose of this study, was defined as any symptom, disorder, or affection which persisted for 1 or more days or for which medical service [4] was received or medicine purchased. Illness included the results of both disease and injury. What was actually included as illness, however, was necessarily influenced not only by the informant's conception of sickness but also by her memory. With visits as infrequent as 2 to 4 months, it was inevitable that many of the unattended nondisabling illnesses would be terminated and forgotten before the next visit of the enumerator.

A case of illness was considered as hospitalized if the patient stayed in the hospital for 1 or more days including any that stayed over night and a few that did not stay over night but were there for a sufficient part of a day to have been assigned a bed. Newborn infants were not counted as admissions unless they were reported as sick.

The relatively few but long cases in mental and other resident institutions which are largely unreported in family surveys [5] add little to the admission rate but greatly increase the days of hospital care. Since the incompleteness in the family reports of patients in such institutions may vary with size of city and family income, the data in this paper are exclusive of cases in hospitals for mental diseases, tuberculosis, and the resident care of other chronic diseases. Thus the present study is limited to such hospitals as general, women's, children's, eye-ear-nose-throat, and communicable or isolation—all devoted to the care of more or less temporary illness. This procedure omits a few short cases in resident institutions and retains a few long ones in general hospitals but mainly eliminates the long chronic cases. In relatively small groups such as the urban and rural in the present study, it is impossible to get stability in such items as days per 1,000 population and days per case because the study includes so few long cases. It would take a much larger study to obtain stable rates when the long cases are included.

In computing hospital admissions per 1,000 population, illnesses that originated prior to but were in the hospital during the study year are included, along with cases having their onset within the period of observation; the inclusion of the illnesses with prior onset seemed necessary to give proper representation to chronic ailments. The only date available was the onset of symptoms (nondisabling or disabling); therefore, prior onset does not necessarily mean prior hospitalization

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4 Exclusive of dental services, eye refractions, immunizations, and health examinations rendered when no symptoms were present.

5 See preceding papers (*14*, *18*) for discussion of family sickness surveys in relation to patients in resident hospitals and institutions.

Seven percent of all illnesses and 11 percent of hospitalized illnesses (including the few reported as in resident institutions) had their onset of symptoms prior to the study year; the percentage of cases actually hospitalized prior to the study year was presumably much smaller.

Hospital days refer in all instances to those *within the 12-month study period.* In computing average days per case, both complete and incomplete cases are included as cases but the days refer to those within the study year only. Hospital cases with an unknown number of days were put in at the average hospital days per case of the same diagnosis, exclusive of cases hospitalized throughout the year and of a few other exceptionally long cases.

Classification of causes of illness.—The diagnosis as reported by the family informant was submitted to the attending physician for confirmation or correction and his diagnosis substituted for the one given by the family. While reports could not be obtained from all attending physicians, the replies indicated that the housewife usually reported with reasonable accuracy the diagnosis which the physician had given to the family.[6]

Considering an illness in the sense of a continuous period of sickness, only 4.3 percent of all illnesses and 11.2 percent of hospitalized illnesses were designated as due to more than one cause. In general, the more important or more serious cause was assigned as primary, except where a disease like pneumonia is commonly recognized as following measles or influenza, in which case the antecedent condition was taken as primary.[7] In the present paper only five important diagnoses are shown separately and they refer always to the sole or primary diagnosis of the illness.

II. HOSPITALIZATION OF ILLNESS FROM ALL CAUSES

Size of city.—Families living in rural unincorporated areas had a hospital admission rate for the year of 42 cases per 1,000 population (age adjusted), as compared with 68 among those living in cities of 100,000 or over. The two middle groups of towns under 5,000 and cities of 5,000 to 100,000 population fall between these two extremes (fig. 1). When the cases are subdivided into surgical and nonsurgical, each category shows a fairly consistent increase in hospital admission rates as size of city increases; cases treated surgically range from 25 per 1,000 for rural areas to 43 for large cities; and nonsurgical cases range from 17 to 25 per 1,000 for the same two groups.

Admission rates have been plotted by age in figure 2 for the two extreme groups, rural areas and cities of 100,000 and over; it is here

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[6] See comparison of diagnoses reported by families and by physicians in the Health Survey of 1935–36 (*23*, table 2).

[7] Further details on the method of classifying the causes of illness are included in the first report in the series (*1*).

TABLE 1.—*Frequency at specific ages of surgical and nonsurgical hospital cases* [1] *for all causes in cities of different sizes and in rural areas—8,758 canvassed white families in 18 States during 12 consecutive months, 1928–31*

Size of city	All ages [2]		Age								
	Number of cases	Adjusted rate [3]	Under 5	5–9	10–14	15–19	20–24	25–34	35–44	45–54	55 and over
		Hospital cases [1] per 1,000 population during year									
All cases:											
Cities of 100,000 or over	976	67.5	61.7	70.2	49.4	50.2	84.1	94.2	69.1	51.2	66.2
Cities 5,000–100,000	635	66.0	47.6	83.7	45.2	50.1	95.1	88.7	71.4	42.3	48.5
Towns under 5,000	379	50.6	43.2	38.4	36.3	40.3	86.4	89.4	51.1	38.3	30.5
Rural areas	278	42.0	32.9	36.9	36.9	26.3	49.1	80.8	35.7	31.2	42.2
Surgical cases:											
Cities of 100,000 or over	630	42.6	42.3	57.2	41.8	32.8	40.3	46.9	47.8	28.0	43.0
Cities 5,000–100,000	403	40.1	35.2	69.2	39.8	34.3	43.6	37.7	39.7	24.9	28.3
Towns under 5,000	240	30.5	24.7	36.7	29.7	29.8	47.4	42.9	28.2	27.1	21.0
Rural areas	179	25.5	23.8	27.9	31.8	19.0	23.3	40.4	20.4	23.8	20.2
Nonsurgical cases:											
Cities of 100,000 or over	346	24.9	19.4	13.0	7.6	17.4	43.8	47.3	21.3	23.2	23.2
Cities 5,000–100,000	232	25.9	12.4	14.5	5.4	15.8	51.5	51.0	31.7	17.4	20.2
Towns under 5,000	139	20.1	18.5	1.7	6.6	10.5	39.0	46.5	22.9	11.2	9.5
Rural areas	99	16.6	9.1	9.0	5.1	7.3	25.8	40.4	15.3	7.4	22.0
	Population (years of life)										
Cities of 100,000 or over	14,351		1,963	1,994	1,578	1,037	868	2,369	2,303	1,248	907
Cities of 5,000–100,000	9,694		1,535	1,517	1,106	758	505	1,432	1,512	803	495
Towns under 5,000	7,585		1,134	1,199	909	570	359	1,096	1,134	627	524
Rural areas	6,914		881	1,005	975	685	387	743	981	673	545

[1] Exclusive of cases in mental and tuberculosis hospitals and in resident institutions for the care of other chronic diseases.
[2] All ages includes a few of unknown age.
[3] Rates adjusted by the *indirect* method as described in note 3 of table 2.

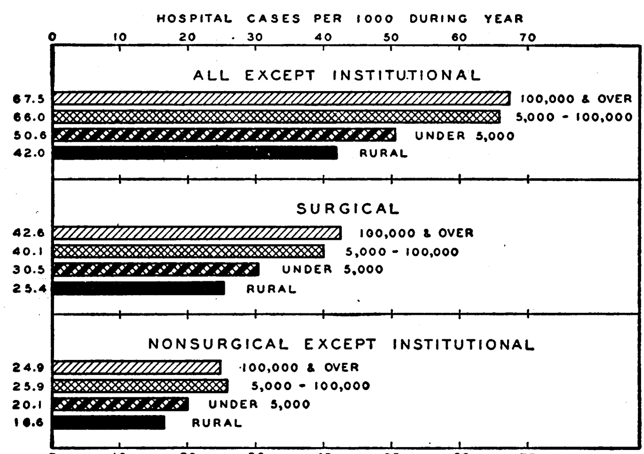

FIGURE 1.—Annual frequency of hospital admissions among persons of all ages in cities of different sizes and in rural areas—8,758 canvassed white families in 18 States during 12 consecutive months, 1928–31. (Age adjusted rates including all except cases in mental, tuberculosis, and other hospitals for the resident care of chronic diseases.)

Table 2.—*Hospitalization for all causes*[1] *in cities of different sizes and in rural areas—8,758 canvassed white families in 18 States during 12 consecutive months, 1928–31*

Size of city	All ages[2]: Number of cases or days: Surgical	All ages[2]: Number of cases or days: Nonsurgical	All ages[2]: Adjusted[3] rate: Total	All ages[2]: Adjusted[3] rate: Surgical	All ages[2]: Adjusted[3] rate: Nonsurgical	Age: Under 20: Surgical	Age: Under 20: Nonsurgical	Age: 20–44: Surgical	Age: 20–44: Nonsurgical	Age: 45 and over: Surgical	Age: 45 and over: Nonsurgical
			Hospital cases[1] per 1,000 population during year								
Cities of 100,000 or over	630	346	67.5	42.6	24.9	45.2	14.3	46.2	35.9	34.3	23.2
Cities 5,000–100,000	403	232	66.0	40.1	25.9	46.6	12.0	39.4	42.6	26.2	18.5
Towns under 5,000	240	139	50.6	30.5	20.1	30.4	9.2	37.1	35.1	24.3	10.4
Rural areas	179	99	42.0	25.4	16.6	26.2	7.6	27.9	26.1	22.2	14.0
			Annual hospital days[1] per 1,000 population								
Cities of 100,000 or over	6,073	5,468	858	470	388	217	294	570	453	678	460
Cities 5,000–100,000	2,858	3,313	703	347	357	191	271	391	485	405	218
Towns under 5,000	2,493	2,004	649	372	276	236	152	409	512	466	81
Rural areas	1,548	1,582	505	253	252	125	170	318	315	355	259
			Percentage of all cases that were hospitalized								
Cities of 100,000 or over	1,014	10,482	8.5	62.1	3.3	57.2	1.8	67.9	5.6	64.9	3.1
Cities 5,000–100,000	665	8,049	7.3	60.6	2.9	60.6	1.4	60.7	5.4	57.6	2.4
Towns under 5,000	428	6,671	5.3	56.1	2.1	48.9	1.0	65.3	4.3	63.6	1.2
Rural areas	332	5,022	5.2	53.9	2.0	50.8	1.0	57.3	3.9	58.7	1.9
			Percentage of disabling cases that were hospitalized								
Cities of 100,000 or over	872	6,201	13.8	72.2	5.6	68.1	2.7	75.5	10.3	80.4	6.2
Cities 5,000–100,000	537	4,769	12.0	75.0	4.9	75.6	2.2	73.9	9.4	73.9	4.7
Towns under 5,000	362	3,904	8.9	66.3	3.6	59.8	1.6	72.7	7.8	77.8	2.4
Rural areas	292	2,861	8.8	61.3	3.5	57.4	1.6	63.4	7.3	73.0	3.7
			Hospital days per hospital case								
Cities of 100,000 or over	630	346	11.8	9.6	15.8	4.8	20.5	12.3	12.6	19.8	19.8
Cities 5,000–100,000	403	232	9.7	7.1	14.3	4.1	22.6	9.9	11.4	15.5	11.8
Towns under 5,000	240	139	11.9	10.4	14.4	7.7	16.6	11.0	14.6	19.1	7.7
Rural areas	179	99	11.3	8.6	16.0	4.8	22.3	11.4	12.1	16.0	18.5
			Population (years of life)								
Cities of 100,000 or over	------	------	14,351			6,572		5,540		2,155	
Cities 5,000–100,000	------	------	9,694			4,916		3,449		1,298	
Towns under 5,000	------	------	7,585			3,812		2,589		1,151	
Rural areas	------	------	6,914			3,546		2,111		1,218	

[1] Exclusive of cases in mental and tuberculosis hospitals and in resident institutions for the care of other chronic diseases.

[2] All ages includes a few of unknown age.

[3] Rates per 1,000 for all ages are adjusted by the *indirect* method to the age distribution of the white population of the registration States in 1930. Briefly this method involves the following steps: Age specific rates like those in table 1 of a preceding paper (*18*) for the whole canvassed population are used as "standard rates" and multiplied by the canvassed population of specific ages for a given subgroup (for example, cities over 100,000) to obtain expected numbers of cases for the computation of an expected rate for all ages; when this rate is related to the corresponding adjusted rate for the whole canvassed group (adjustment there was by direct method), one obtains an "adjustment factor" which is of the nature of a percentage correction for differences in age distribution. This adjustment or correction factor is applied to the crude rate in the particular subgroup (for example, cities over 100,000) to obtain the adjusted rate. The details of the process are given under the heading "standardized death rates" in Pearl (*22*, pp. 265–269).

Days per case and percentages of cases are not adjusted in any way.

seen that for each of the nine age groups for both surgical and nonsurgical cases, rural areas show lower hospital admission rates than large cities. The two intermediate classes of towns and small cities do not always fall consistently between these two extremes (table 1), but when tabulated in three broad age groups (table 2) the increases in hospital admissions with size of city are reasonably consistent.

An examination of table 2 indicates that the increase in hospitalization with size of city is true not only as measured in admission rates but also in days of hospital care per 1,000 population. Considering all ages, there is a consistent rise with size of city for surgical, nonsurgical, and total days of hospital care per 1,000 population, except

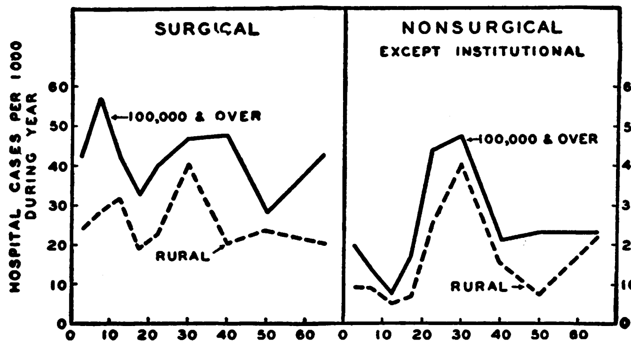

FIGURE 2.—Annual frequency of hospital admissions among persons of specific ages in large cities and in rural areas—8,758 canvassed white families in 18 States during 12 consecutive months, 1928–31. (Includes all except cases in mental, tuberculosis, and other hospitals for the resident care of chronic diseases.)

that days on surgical cases in towns under 5,000 is more than for cities of 5,000 to 100,000.

Table 2 also shows the proportion of cases that were hospitalized; since this percentage is so much higher for surgical than nonsurgical cases, the two types are shown separately. The proportion of all surgical cases (all ages) that were hospitalized varies from 54 percent in rural areas to 62 in cities over 100,000, with the two intermediate city-size groups falling between these extremes. While only 2 or 3 percent of the nonsurgical cases were hospitalized, the proportion shows a similarly consistent rise from 2.0 for rural areas to 3.3 percent for large cities.

If the nondisabling cases are excluded and the proportion of disabling cases that were hospitalized is computed, the increase with size of city shows approximately the same picture; the only irregularity in the percentages for all ages is a slightly smaller proportion of surgical disabling cases hospitalized in large (100,000 or over) than in small (5,000–100,000) cities.

The proportions of cases hospitalized among persons in the three broad age groups are somewhat irregular and inconsistent. However, if the percentages for small towns and rural areas are averaged and compared with similar averages for large and small cities, the results show consistently higher proportions of illnesses hospitalized in urban than in rural places for both surgical and nonsurgical cases.

Data are available from the Health Survey of 1935–36 (*19*) on the percentage of severe cases (disabling for 7 consecutive days or longer) that were hospitalized. The proportion increases definitely with size of city; 19 percent of the cases among residents of cities under 25,000 were hospitalized; 23 percent for cities of 25,000 to 100,000; and 30 percent among residents of cities over 100,000 in population. In five widely separated groups of rural counties, the towns and villages of less than 2,500 population all showed lower percentages of cases hospitalized than any of the above figures for cities, ranging from 7.6 to 17.2 percent. In each of the five localities the percentage of cases hospitalized among persons living in rural areas outside of the villages was less than in the villages, ranging from 5.7 to 15.5 percent. It must be remembered that the percentages quoted from the Health Survey refer to cases that disabled for 7 consecutive days or longer and would be expected to be larger than those in the present study which includes nondisabling cases and those that disabled for 1 day or longer. It is seen, however, that the Health Survey data are in agreement with the data of this study in that the percentage of cases hospitalized increases definitely with size of city.

The United States Bureau of the Census has published statistics on the proportion of deaths in the United States that occur in hospitals. In 1937, the first year for which data of this kind are available for residents of urban and rural areas, 26 percent of the deaths among persons living in towns under 10,000 and rural areas occurred in hospitals, as compared with 47 percent[8] among persons residing in cities of 10,000 population or more (*25*, p. 10). In the present study 8.9 percent of the *disabling* cases among residents of towns under 5,000 and rural areas were hospitalized as compared with 13.0 percent in cities of 5,000 population or more; corresponding figures on the proportion of *all* cases that were hospitalized were 5.3 percent for towns under 5,000 and rural areas, and 8.0 percent for residents of cities over 5,000. Thus in terms of the proportion of fatal cases that were hospitalized, the data for the country as a whole indicate definitely more hospitalization in urban than in rural areas, and the data of this study for nonfatal cases are in agreement with that finding.

Family income.—Hospital admission rates per 1,000 are shown in figure 3 for persons of different income levels. Considering persons of all ages and surgical and nonsurgical cases combined, the rates

[8] The percentages for deaths include those in mental hospitals (2.9 percent of all deaths), tuberculosis hospitals (0.9 percent), and those in penal institutions and homes for the blind, deaf, and aged (2.5 percent). The percentages for survey cases exclude all admissions to these types of institutions because of the incompleteness in recording cases in resident hospitals by the family survey method.

(adjusted) rise with income except for a higher rate in the lowest than in the next higher income group. Most of the variation with income is accounted for by surgical cases, the differences in nonsurgical rates being very small.

In hospital days per 1,000 the lowest and highest income groups have higher rates than the three intervening classes. Hospital days per admission were rather consistently highest for the lowest income group (table 3).

Size of city and family income.—There is considerable correlation between size of city and family income; that is, incomes tend to be higher in large cities and lower in the country. Thus the lower income groups are rather largely rural and higher income groups tend

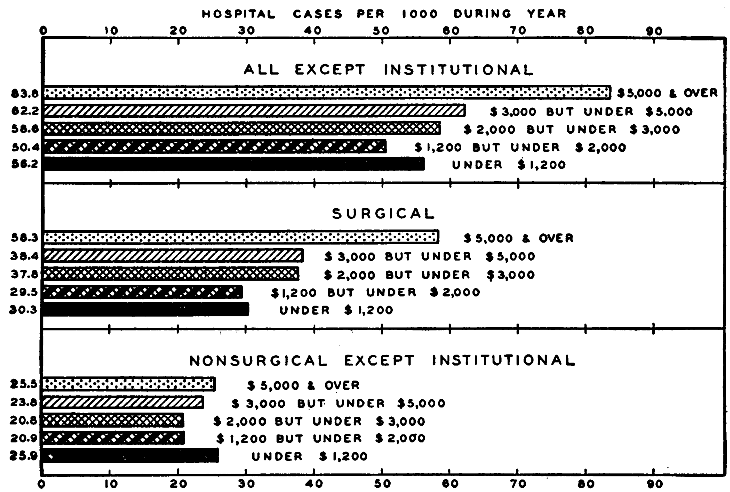

FIGURE 3.—Annual frequency of hospital admissions among persons of all ages in families of different annual income levels—8,758 canvassed white families in 18 States during 12 consecutive months, 1928–31. (Age adjusted rates including all except cases in mental, tuberculosis, and other hospitals for the resident care of chronic diseases.)

to be urban. Therefore, the two factors of size of city and family income should be considered simultaneously in relation to hospitalization.

Hospital admission rates are shown in figure 4 for persons of given income levels living in (a) towns and rural areas, (b) small cities, and (c) large cities. It is seen here that in every income group hospital admission rates per 1,000 population of all ages (adjusted) are higher for persons living in cities over 100,000 than in towns under 5,000 and rural areas; the rate for small cities is usually between those for rural areas and large cities. The same statements are true of days of hospital care per 1,000 population (table 4). Thus it appears that among families of the same income level, dwellers in large cities are

Table 3.—*Hospitalization for all causes*[1] *among canvassed white families of different income levels in 18 States during 12 consecutive months, 1928–31*

Annual family income	All ages[2]: Number of cases or days: Surgical	All ages[2]: Number of cases or days: Nonsurgical	All ages[2]: Adjusted[3] rate: Total	All ages[2]: Adjusted[3] rate: Surgical	All ages[2]: Adjusted[3] rate: Nonsurgical	Age: Under 20: Surgical	Age: Under 20: Nonsurgical	Age: 20–44: Surgical	Age: 20–44: Nonsurgical	Age: 45 and over: Surgical	Age: 45 and over: Nonsurgical
			Hospital cases[1] per 1,000 population during year								
Under $1,200	186	132	56.2	30.3	25.9	35.0	12.7	33.0	45.5	20.1	12.3
$1,200 but under $2,000	416	263	50.4	29.5	20.9	31.3	11.7	33.8	32.6	20.1	14.4
$2,000 but under $3,000	369	185	58.6	37.8	20.8	37.8	8.0	43.8	35.1	30.0	16.9
$3,000 but under $5,000	192	112	62.2	38.4	23.8	41.3	14.1	42.3	33.8	28.1	21.1
$5,000 and over	268	111	83.8	58.3	25.5	70.8	13.7	52.7	34.7	40.7	24.3
			Annual hospital days[1] per 1,000 population								
Under $1,200	2,549	2,391	938	503	435	301	321	611	698	588	165
$1,200 but under $2,000	3,377	4,200	622	300	322	113	223	394	439	405	316
$2,000 but under $3,000	3,103	2,606	657	372	285	195	181	467	340	422	427
$3,000 but under $5,000	1,378	1,465	614	304	310	173	273	319	397	475	152
$5,000 and over	2,385	1,523	880	530	350	349	252	566	429	680	301
			Percentage of all cases that were hospitalized								
Under $1,200	298	4,287	6.9	62.4	3.1	60.1	1.7	73.4	6.6	50.0	1.4
$1,200 but under $2,000	733	9,961	6.3	56.8	2.6	53.3	1.5	61.1	4.7	59.3	2.2
$2,000 but under $3,000	651	7,160	7.1	57.7	2.6	50.0	1.0	66.0	5.2	59.1	2.4
$3,000 but under $5,000	314	3,998	7.1	61.1	2.8	57.1	1.6	62.0	4.6	77.4	2.7
$5,000 and over	416	4,464	7.8	64.4	2.5	63.2	1.2	65.7	4.2	64.4	2.8
			Percentage of disabling cases that were hospitalized								
Under $1,200	256	2,463	11.7	72.7	5.4	74.3	2.9	73.4	11.5	62.1	2.7
$1,200 but under $2,000	622	6,090	10.1	66.9	4.3	63.8	2.3	70.1	8.0	72.7	4.1
$2,000 but under $3,000	540	4,241	11.6	68.3	4.4	62.3	1.5	74.9	9.3	76.5	4.9
$3,000 but under $5,000	275	2,328	11.7	69.8	4.8	63.8	2.4	72.1	8.6	92.3	5.2
$5,000 and over	345	2,412	13.7	77.7	4.6	75.4	1.9	78.6	9.3	81.0	5.9
			Hospital days per hospital case								
Under $1,200	186	132	15.5	13.7	18.1	8.6	25.3	18.5	15.3	29.3	13.5
$1,200 but under $2,000	416	263	11.2	8.1	16.0	3.6	19.0	11.6	13.5	20.2	22.0
$2,000 but under $3,000	369	185	10.3	8.4	14.1	5.2	22.6	10.7	9.7	14.1	25.2
$3,000 but under $5,000	192	112	9.4	7.2	13.1	4.2	19.4	7.5	11.7	16.9	7.2
$5,000 and over	268	111	10.3	8.9	13.7	4.9	18.4	10.8	12.4	16.7	12.4
			Population								
Under $1,200	------	------		5,820		3,145		1,758		896	
$1,200 but under $2,000	------	------		13,419		6,989		4,792		1,596	
$2,000 but under $3,000	------	------		9,491		4,625		3,537		1,299	
$3,000 but under $5,000	------	------		4,911		2,132		1,893		855	
$5,000 and over	------	------		4,689		1,823		1,670		1,154	

[1] Exclusive of cases in mental and tuberculosis hospitals and in resident institutions for the care of other chronic diseases.
[2] All ages includes a few of unknown age.
[3] Rates per 1,000 are adjusted by the *indirect* method as described in note 3 of table 2. Days per case and percentages of cases are not adjusted in any way.

hospitalized more frequently and get more days of hospital care than persons living in small towns and rural areas.

Looking at the same chart with special reference to income in cities of a given size, it can be seen that in cities over 100,000 and also in those of 5,000 to 100,000 population the highest hospital admission rates occurred in the highest and lowest income groups, with the three intervening income classes showing considerably lower rates. In small towns and rural areas, however, the low income group shows the lowest hospital rate with a regular increase as income increases. Presumably this difference is due to opportunities for free or nearly free

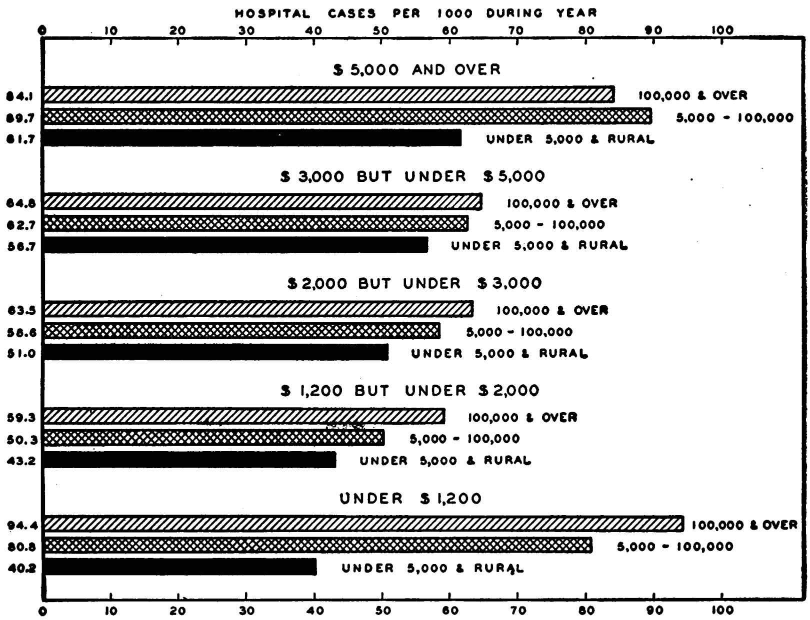

FIGURE 4.—Annual frequency of hospital admissions among persons of all ages in cities of different sizes for families of given annual income levels—8,758 canvassed white families in 18 States during 12 consecutive months, 1928–31. (Age adjusted rates including all except cases in mental, tuberculosis, and other hospitals for the resident care of chronic diseases.)

hospital care among the city poor which did not exist in rural areas. Although the rates for high incomes in rural areas and for low incomes in large cities are based on small numbers, the general picture seems too consistent to be considered a chance phenomenon.

The high rates for the lowest and highest income groups in large and small cities is true also of hospital days per 1,000 population; in towns and rural areas the variation with income is less consistent. In general, the variations with size of city and income are less marked and less consistent for hospital days than for hospital admissions per 1,000 population (table 4).

TABLE 4.—*Hospitalization for all causes*[1] *among persons of all ages in families of different income levels in cities of different sizes—8,758 canvassed white families in 18 States during 12 consecutive months, 1928–31*

Annual family income	Total			Surgical			Nonsurgical		
	Cities of 100,000 or over	Cities 5,000–100,000	Towns under 5,000 and rural	Cities of 100,000 or over	Cities 5,000–100,000	Towns under 5,000 and rural	Cities of 100,000 or over	Cities 5,000–100,000	Towns under 5,000 and rural
	Hospital cases[1] per 1,000 population during year (age adjusted)[2]								
Under $1,200	94.4	80.8	40.2	51.2	39.7	23.0	43.2	41.1	17.2
$1,200 but under $2,000	59.3	50.3	43.2	34.5	30.6	25.0	24.8	19.7	18.2
$2,000 but under $3,000	63.5	58.6	51.0	42.6	33.5	34.4	20.9	25.1	16.6
$3,000 but under $5,000	64.8	62.7	56.7	39.9	39.3	34.5	24.9	23.4	22.2
$5,000 and over	84.1	89.7	61.7	59.0	62.1	41.2	25.1	27.6	20.5
	Annual hospital days per 1,000 population (age adjusted)[2]								
Under $1,200	1,808	1,129	695	1,081	467	396	727	662	299
$1,200 but under $2,000	777	550	530	409	238	243	368	312	287
$2,000 but under $3,000	801	580	509	450	297	324	351	283	185
$3,000 but under $5,000	664	545	590	289	291	348	375	254	242
$5,000 and over	954	880	499	584	522	277	370	358	222
	Percentage of all cases that were hospitalized								
Under $1,200	11.0	10.7	4.9	73.2	68.4	55.8	5.1	5.3	2.0
$1,200 but under $2,000	8.3	6.0	5.1	60.7	56.4	53.1	3.6	2.3	2.1
$2,000 but under $3,000	8.6	6.9	5.4	60.8	52.7	53.6	3.0	3.0	1.7
$3,000 but under $5,000	8.2	6.6	5.9	66.9	58.2	54.3	3.4	2.5	2.3
$5,000 and over	8.2	8.3	5.6	59.8	70.6	69.0	2.7	2.6	1.8
	Hospital days per hospital case								
Under $1,200	18.7	12.2	16.3	19.1	7.9	14.7	18.1	17.3	18.7
$1,200 but under $2,000	11.8	9.7	11.3	9.6	5.7	8.0	15.3	16.5	16.5
$2,000 but under $3,000	11.5	9.0	9.3	9.0	7.2	8.3	17.1	11.7	11.5
$3,000 but under $5,000	9.8	8.0	9.8	6.7	6.4	9.2	15.0	11.1	11.0
$5,000 and over	11.2	9.7	7.8	9.7	8.3	6.4	14.5	13.3	11.0
	Population			Number of surgical hospital cases			Number of nonsurgical hospital cases		
Under $1,200	772	1,236	3,812	41	54	91	30	45	57
$1,200 but under $2,000	4,675	2,873	5,871	170	93	153	113	54	96
$2,000 but under $3,000	4,166	2,490	2,835	183	88	98	83	60	42
$3,000 but under $5,000	2,334	1,314	1,263	95	53	44	58	28	26
$5,000 and over	2,389	1,805	495	140	108	20	59	43	9

[1] Exclusive of cases in mental and tuberculosis hospitals and in resident institutions for the care of other chronic diseases.
[2] Rates per 1,000 are adjusted by the *indirect* method as described in note 3 of table 2. Days per case and percentages of cases are not adjusted in any way.

In hospital days per admission a relatively long hospital duration of cases in the lowest income class is true in all three of the city-rural classifications. Hospital days per admission show no large variations among the income groups above $1,200 within a given size of city. However, the average stay for each income group tends to be longer in the large cities.

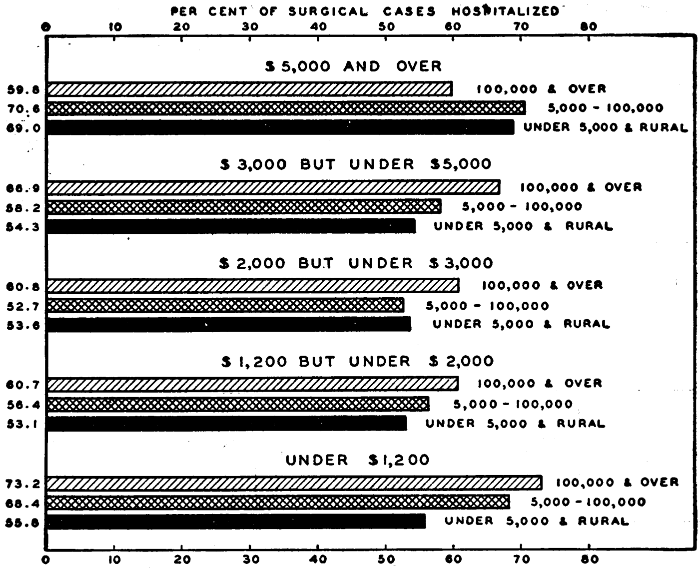

FIGURE 5.—Percent of all surgical cases that were hospitalized among persons of all ages in cities of different sizes among families of given annual income levels—8,758 canvassed white families in 18 States during 12 consecutive months, 1928–31. (Includes all except cases in mental, tuberculosis, and other hospitals for the resident care of chronic diseases.)

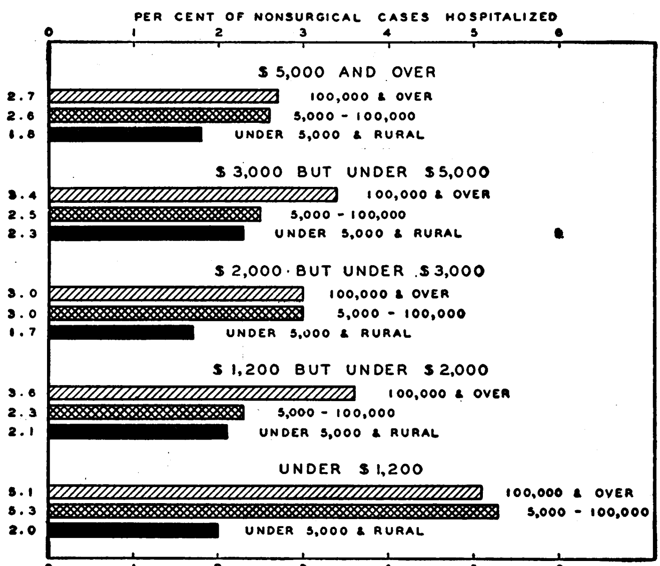

FIGURE 6.—Percent of all nonsurgical cases that were hospitalized among persons of all ages in cities of different sizes among families of given annual income levels—8,758 canvassed white families in 18 States during 12 consecutive months, 1928–31. (Includes all except cases in mental, tuberculosis, and other hospitals for the resident care of chronic diseases.)

Figures 5 and 6 show the percentages of surgical and nonsurgical cases that were hospitalized among persons of given income levels living in towns and rural areas, small cities, and large cities. For both surgical and nonsurgical cases the percentage hospitalized in the several income groups is usually less in towns under 5,000 and rural areas than in larger communities. Although the percentages hospitalized are much less for nonsurgical cases, the *relative* differences between urban and rural districts are generally larger for nonsurgical than for surgical cases.

TABLE 5.—*Hospitalization for all causes* [1] *among persons of all ages in urban and rural parts of 4 geographic sections* [2]—*8,758 canvassed white families in 18 States during 12 consecutive months, 1928–31*

Size of city	Total				Surgical				Nonsurgical			
	Northeast	North Central	South	West	Northeast	North Central	South	West	Northeast	North Central	South	West
	Hospital cases [1] per 1,000 population during year (age adjusted) [3]											
Cities of 5,000 or over	64.0	62.4	71.2	77.5	38.9	38.5	47.3	46.7	25.1	23.9	23.9	30.8
Under 5,000 and rural	44.7	44.1	31.0	64.0	29.0	25.0	22.9	34.8	15.7	19.1	8.1	29.2
	Annual hospital days [1] per 1,000 population (age adjusted) [3]											
Cities of 5,000 or over	879	721	763	940	438	371	446	496	441	350	317	444
Under 5,000 and rural	558	541	369	822	383	256	224	367	175	285	145	455
	Percentage of all cases that were hospitalized											
Cities of 5,000 or over	7.4	8.3	8.1	7.8	63.6	61.1	64.6	56.9	2.9	3.3	2.8	3.3
Under 5,000 and rural	4.5	5.2	4.4	6.8	59.4	50.5	59.8	53.2	1.6	2.1	1.1	3.1
	Percentage of disabling cases that were hospitalized											
Cities of 5,000 or over	11.2	14.0	12.4	13.9	76.2	73.3	73.5	70.3	4.5	5.8	4.4	6.2
Under 5,000 and rural	9.0	8.5	6.3	10.7	69.2	56.3	68.8	64.3	3.2	3.6	1.6	5.0
	Hospital days per hospital case											
Cities of 5,000 or over	12.7	10.5	9.7	11.8	9.7	8.0	7.9	10.1	18.0	14.9	13.8	14.5
Under 5,000 and rural	12.0	11.1	11.0	11.9	12.2	8.2	8.6	8.8	11.7	15.7	18.5	16.1
	Population				Number of surgical hospital cases				Number of nonsurgical hospital cases			
Cities of 5,000 or over	4,762	10,502	4,914	3,867	189	421	241	182	108	244	110	116
Under 5,000 and rural	4,281	3,911	2,827	3,480	126	103	64	126	62	64	20	92

[1] Exclusive of cases in mental and tuberculosis hospitals and in resident institutions for the care of other chronic diseases.
[2] States included in the survey were as follows: *Northeast.*—New York, Massachusetts, Connecticut. *North Central.*—Illinois, Ohio, Michigan, Indiana, Wisconsin, Minnesota, Kansas. *South.*—District of Columbia, Virginia, West Virginia, Tennessee, Georgia. *West.*—Washington, California, Colorado.
[3] Rates per 1,000 are adjusted by the *indirect* method as described in note 3 of table 2.
Days per case and percentages of cases are not adjusted in any way.

Size of city and geographic section.—Comparison of hospital care in different geographic regions does not mean much in the present study because the proportion of the surveyed population that is rural varies in the several sections and is not representative in this respect of the total population in the section.[9] However, it seems worth while to consider variation in hospitalization with size of city in given geographic regions. Table 5 shows hospital admission and day rates for towns under 5,000 and rural areas as compared with cities with 5,000 or more inhabitants, in each of four geographic sections. In both admissions and days of hospital care per 1,000 persons the urban adjusted rates for all ages are above the corresponding rural rates in all four sections for both surgical and nonsurgical cases, except for the nonsurgical day rate in the West. Table 5 also shows the percentage of *all* and of *disabling* cases that were hospitalized. Without exception these percentages are higher for urban than rural areas.

Although not shown here, rates and percentages of the several kinds in table 5 were computed for three broad age groups; these rates and percentages were almost all higher for cities than for towns and rural areas. Thus it appears that the various measures of hospitalization all indicate more hospital care in urban than rural parts of each of the four geographic sections.

Towns and rural areas with and without hospital facilities.—Families living in towns under 5,000 and rural unincorporated areas were classified as residing in communities with (a) available hospital facilities, and (b) no reasonably accessible facilities. Areas with available facilities included towns with a hospital other than for the care of mental diseases or tuberculosis either in the town or reasonably accessible [10] by car or other usual mode of travel; rural families were classified similarly according to the latter criterion.

Of the approximately 14,000 surveyed persons in towns and rural areas, 23 percent were classified as without reasonably accessible hospital facilities, the figure being 18 percent for small towns and 29 percent for rural areas.

A tabulation was made of the data from these town and rural schedules to show hospital rates and the percentage of cases hospitalized in communities with and without facilities. For persons of all ages, hospital admissions during the year amounted to 48 per 1,000 population for places with and 41 for those without facilities (table 6). The slightly higher admission rate for places with hospital facilities

[9] It is seen in table 5 that the rural South had low hospital admission rates for both surgical and nonsurgical cases, but the rates for the urban South were not low in this surveyed group. The West showed rather consistently high rates for both urban and rural areas.

[10] Roughly within 15 to 25 miles, depending upon the kind of roads.

is largely accounted for by the nonsurgical cases, less difference appearing for the surgical. In towns and rural areas with hospital facilities 9.1 percent of the disabling cases were hospitalized, as compared with 8.1 for communities without facilities. Of the disabling surgical cases, 65.7 percent were hospitalized for localities with and 57.1 for those without hospital facilities; the corresponding percentages for disabling nonsurgical cases were 3.7 for places with and 2.9 percent for those without hospital facilities.

TABLE 6.—*Hospitalization for all causes*[1] *among persons of all ages in communities with and without hospital facilities*[2]—*canvassed white families in towns under 5,000 and rural areas of 18 States,*[3] *1928–31*

Type of rate	Total		Surgical		Nonsurgical	
	Places with facilities	Places without facilities	Places with facilities	Places without facilities	Places with facilities	Places without facilities
Hospital cases per 1,000 population during year (age adjusted)[4]	47.9	40.5	28.5	26.0	19.4	14.5
Annual hospital days per 1,000 population (age adjusted)[4]	603	483	328	262	275	221
Percent of all cases that were hospitalized	5.3	5.0	56.5	47.8	2.1	1.8
Percent of disabling cases that were hospitalized	9.1	8.1	65.7	57.1	3.7	2.9
Hospital days per hospital case	11.7	11.1	9.9	8.8	14.9	15.9
Number of hospital cases	525	132	330	89	195	43

[1] Exclusive of cases in mental and tuberculosis hospitals and in resident institutions for the care of other chronic diseases.
[2] Communities with facilities include those with a hospital other than for tuberculosis and mental disease in the town or reasonably accessible to the family by automobile or other usual mode of travel.
[3] Population observed: Communities with facilities, 11,225; without facilities, 3,383.
[4] Rates per 1,000 are adjusted by the *indirect* method as described in note 3 of table 2. Days per case and percentages of cases are not adjusted in any way.

Distance to hospital and character of roads.—Of the 3,208 families living in towns under 5,000 and rural unincorporated areas, 3,146 reported the distance to the nearest hospital and the character of the roads. Of these surveyed families 32 percent lived within 5 miles of a hospital, 36 percent from 5 to 14 miles, 18 percent from 15 to 24 miles, and 14 percent over 25 miles from the nearest hospital. Of the total families, 94 percent reported good or fair roads to the nearest hospital and 6 percent reported poor roads during part or all of the year. Of the 2,954 families with good or fair roads, 29 percent were more than 15 miles from a hospital, but of the 192 families with poor roads, 78 percent were more than 15 miles from a hospital.

Considering only families that lived 5 or more miles from a hospital, the percentage of cases hospitalized was computed separately for households living on good or fair roads and for those on poor roads (table 7). Of the disabling surgical cases in families on good or fair roads, 64 percent were hospitalized as compared with 34 percent for those on poor roads. However, for disabling nonsurgical cases there were 3.4 percent hospitalized on the good or fair roads as compared with 4.5 on poor roads. Considering all cases, the families on good or fair roads hospitalized 9.0 percent of the disabling cases as compared to 7.9 percent for those on poor roads. It must be remembered that all of these percentages are based on rather small numbers.

TABLE 7.—*Percentage of illnesses of all causes that were hospitalized among persons of all ages, classified according to the quality of the roads—canvassed white families 5 or more miles from a hospital in towns under 5,000 and rural areas of 18 States, 1928–31*

Severity of case	Total cases		Surgical cases		Nonsurgical cases	
	Good or fair roads	Poor [1] roads	Good or fair roads	Poor [1] roads	Good or fair roads	Poor [1] roads
	Percentage of cases of the given severity that were hospitalized					
All	5.2	4.3	55.6	25.0	1.9	2.3
Disabling	9.0	7.9	63.6	34.4	3.4	4.5
Bed	11.7	10.2	72.4	39.3	4.5	5.9
	Number of cases					
All	7,815	516	480	44	7,335	472
Disabling	4,541	277	420	32	4,121	245
Bed	3,510	216	369	28	3,141	188
Hospital	409	22	267	11	142	11

[1] Poor for part or all of the year.

TABLE 8.—*Percentage of illnesses of all causes that were hospitalized among families classified according to distance from a hospital—canvassed white families on good or fair roads in towns under 5,000 and rural areas of 18 States, 1928–31*

Severity of case	Total cases			Surgical cases			Nonsurgical cases		
	Miles to hospital								
	Under 5	5–14	15 and over	Under 5	5–14	15 and over	Under 5	5–14	15 and over
	Percentage of cases of the given severity that were hospitalized								
All	6.0	5.6	4.8	58.6	58.2	52.2	2.7	2.0	1.9
Disabling	9.4	9.9	8.0	70.0	65.7	60.7	4.3	3.7	3.2
Bed	11.2	12.6	10.6	78.2	74.0	70.1	5.2	4.8	4.2
	Number of cases								
All	3,873	4,322	3,493	227	273	207	3,646	4,049	3,286
Disabling	2,459	2,433	2,108	190	242	178	2,269	2,191	1,930
Bed	2,069	1,912	1,598	170	215	154	1,899	1,697	1,444
Hospital	231	240	169	133	159	108	98	81	61

In considering hospitalization in relation to the distance to the hospital, the data are limited to families living on good or fair roads.[11] Table 8 shows the percentage of cases hospitalized among such families

[11] The inclusion of families living on poor roads in the data on distance to the hospital would have the effect of increasing the excess in the percentage of cases hospitalized among those living near a hospital; this result comes from the fact that poor roads in this survey are more frequent for households living far from hospitals.

classified according to distance to the hospital. Of the disabling surgical cases among persons living within 5 miles of a hospital, 70 percent were hospitalized as compared with 66 for 5–14 miles and 61 percent for those living 15 or more miles from a hospital. Among disabling nonsurgical cases there is a similar decline in the proportion of cases hospitalized from 4.3 percent within 5 miles of a hospital to 3.7 for 5–14 miles and 3.2 among families living 15 or more miles from a hospital.

III. HOSPITALIZATION OF ILLNESS FROM IMPORTANT DIAGNOSES

Five more or less specific diagnoses account for about two-thirds of all hospital admissions and about half of the days of hospital care,

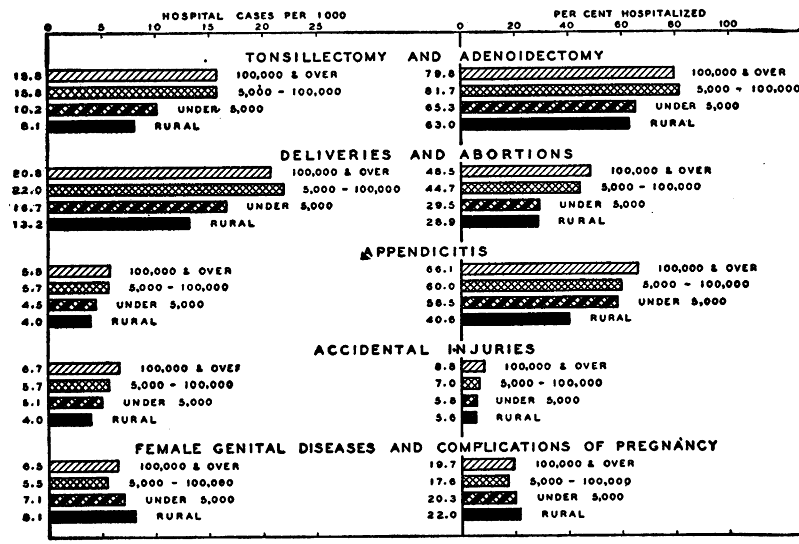

FIGURE 7.—Annual frequency of hospital admissions for certain diagnoses and the percentage of all cases that were hospitalized, by size of city—8,758 canvassed white families in 18 States during 12 consecutive months, 1928–31. (Age adjusted rates per 1,000 for sole or primary causes; rates for deliveries and female genital diseases are expressed as per 1,000 females.)

exclusive of hospitals for mental diseases, tuberculosis, and the resident care of other chronic diseases. These diagnoses are tonsillectomy and adenoidectomy, deliveries and abortions, appendicitis, accidental injuries, and female genital diseases and complications of pregnancy.

Size of city.—Figure 7 and table 9 show for these five diagnoses hospital admissions per 1,000 population and the percentage of all cases that were hospitalized in cities of different sizes and in rural areas. Considering admission rates, the first four diagnoses—tonsillectomy, deliveries, appendicitis, and accidents—all show higher admission rates in large cities than in rural areas, with the rates for

TABLE 9.—*Frequency of hospital cases of certain diagnoses in cities of different sizes and in rural areas—8,758 canvassed white families in 18 States during 12 consecutive months, 1928–31*

[Sole or primary diagnoses only]

Size of city	Number of hospital cases, all ages	Hospital cases per 1,000 population during year: All ages,[1] adjusted[2]	Hospital cases per 1,000: Age Under 20	Hospital cases per 1,000: Age 20–44	Percentage of all cases of the given diagnosis that were hospitalized: All ages[1]	Percentage: Age Under 20	Percentage: Age 20–44
Tonsillectomy and adenoidectomy							
Cities of 100,000 or over	268	15.8	30.6	10.5	79.8	80.1	76.3
Cities 5,000–100,000	192	15.8	31.7	8.1	81.7	84.3	70.0
Towns under 5,000	96	10.2	18.4	7.7	65.3	61.4	74.1
Rural areas	68	8.1	15.8	4.7	63.0	62.2	62.5
Appendicitis							
Cities of 100,000 or over	80	5.8	4.3	8.7	66.1	66.7	68.6
Cities 5,000–100,000	51	5.7	4.1	8.1	60.0	52.6	66.7
Towns under 5,000	31	4.5	3.7	6.2	58.5	51.9	64.0
Rural areas	26	4.0	4.5	4.3	40.6	43.2	34.6
Accidental injuries							
Cities of 100,000 or over	91	6.7	4.4	7.0	8.8	5.6	10.7
Cities 5,000–100,000	52	5.7	6.5	4.6	7.0	7.4	6.9
Towns under 5,000	37	5.1	3.9	5.4	5.8	4.5	6.8
Rural areas	26	4.0	3.1	5.2	5.6	4.6	7.9
Deliveries and abortions [4]							
Cities of 100,000 or over	163	20.8	(3)	51.3	48.5	(3)	48.0
Cities 5,000–100,000	105	22.0	(3)	54.7	44.7	(3)	44.5
Towns under 5,000	61	16.7	(3)	42.9	29.5	(3)	30.3
Rural areas	37	13.2	(3)	32.0	28.9	(3)	29.8
Female genital diseases and complications of pregnancy [4]							
Cities of 100,000 or over	49	6.5	----------	14.7	19.7	----------	22.7
Cities 5,000–100,000	26	5.5	----------	12.9	17.6	----------	20.0
Towns under 5,000	26	7.1	----------	16.2	20.3	----------	24.2
Rural areas	24	8.1	----------	16.9	22.0	----------	26.0
		Population of both sexes			**Female population**		
Cities of 100,000 or over	----------	14,351	6,572	5,540	7,433	3,325	3,002
Cities 5,000–100,000	----------	9,694	4,916	3,449	4,911	2,447	1,866
Towns under 5,000	----------	7,585	3,812	2,589	3,900	1,904	1,421
Rural areas	----------	6,914	3,546	2,111	3,383	1,693	1,125

[1] All ages includes cases above 45 years and a few of unknown age. Rates for 45 years and over are omitted because of small numbers; of the 20 categories only 1 had more than 10 and only 6 had more than 4 hospital cases.

[2] Rates per 1,000 are adjusted by the *indirect* method as described in note 3 of table 2. Percentages of cases are not adjusted in any way.

[3] Rates and percentages omitted because of small numbers; 0 to 7 hospital cases and 5 to 11 total cases.

[4] Rates for deliveries and female genital diseases are computed as per 1,000 females. Throughout this paper benign tumors of the female genital organs and breast and other diseases of the female breast are included in the group of female genital diseases.

small cities and towns generally between the two extremes. The percentage of cases hospitalized shows approximately the same picture.

For the fifth important cause—female genital diseases and the complications of pregnancy—there are no very definite differences among the rates for communities of different sizes either in hospital admissions or the percentage of cases hospitalized. Since many of these conditions represent old results of childbirth, the tendency toward higher rates for rural areas may be associated with higher birth rates in those communities than in large cities.

Of the deliveries with live birth in this study for women residing in towns under 5,000 and rural areas, 28 percent occurred in hospitals, as compared with 48 percent for women living in cities over 5,000. In the United States in 1937, the first year for which data of this kind are available for residents of all urban and rural places, 25 percent of the live births to women residents of towns under 10,000 and rural areas occurred in hospitals, as compared with 71 percent to women residing in cities of 10,000 population or more (*25*, p. 14). Thus this study is in agreement with data for the entire country in indicating that in urban places a higher percentage of the births occur in hospitals. The percentage in hospitals is considerably larger for the urban United States than for urban canvassed families, but the survey figure represents approximately 1930 when fewer births occurred in hospitals.[12]

Family income.—Figure 8 and table 10 show in five income groups admission rates and the percentage of cases hospitalized for the same five important diagnoses. In general the variation with income is less definite than that with size of city; however, there is a tendency toward higher rates and percentages in the upper income levels for tonsillectomy and appendicitis. The one item that stands out with a large and consistent income difference is the percentage of deliveries that occur in hospitals. Among families with less than $1,200 annual income 26 percent of the deliveries took place in hospitals, as compared with 77 percent for families with incomes of $5,000 or more. The intervening income groups show a regular increase with economic status.

Size of city, income, and geographic section.—In table 11 the urban-rural comparison is made for persons of each of the five income levels, and in table 12 for persons in each of the four geographic sections. Tonsillectomy, which has the largest numbers, runs consistently higher in urban than rural areas in all income levels and in all geographic regions, both in hospital admission rates and in the percentage

[12] In the total United States the percentage of live births that occurred in hospitals increased from 37 in 1935 to 45 in 1937 and 51 percent in 1939. In Ontario, Canada, the proportion of live births that occurred in hospitals increased from 35 percent in 1930 to 47 in 1937 (*24*).

TABLE 10.—*Frequency of hospital cases of certain diagnoses among canvassed white families of different income levels in 18 States during 12 consecutive months, 1928–31*

[Sole or primary diagnoses only]

Annual family income	Number of hospital cases, all ages	Hospital cases per 1,000 population during year: All ages,[1] adjusted[2]	Hospital cases per 1,000: Age Under 20	Hospital cases per 1,000: Age 20–44	Percentage of all cases of the given diagnosis that were hospitalized: All ages	Percentage: Age Under 20	Percentage: Age 20–44
	Tonsillectomy and adenoidectomy						
Under $1,200	82	11.0	22.6	5.7	74.5	74.7	71.4
$1,200 but under $2,000	188	10.9	22.8	6.6	72.3	73.3	65.9
$2,000 but under $3,000	135	11.6	22.7	7.1	69.2	70.9	61.0
$3,000 but under $5,000	87	15.7	27.2	13.2	78.4	75.3	86.2
$5,000 and over	120	25.0	43.9	16.8	87.6	87.0	84.8
	Appendicitis						
Under $1,200	27	5.1	4.5	6.8	50.9	50.0	50.0
$1,200 but under $2,000	40	3.2	2.0	5.0	44.4	36.8	50.0
$2,000 but under $3,000	59	6.6	3.9	11.3	68.6	60.0	75.5
$3,000 but under $5,000	26	5.4	6.1	6.3	56.5	54.2	63.2
$5,000 and over	35	7.8	9.9	7.8	76.1	78.3	72.2
	Accidental injuries						
Under $1,200	32	5.8	4.5	6.3	8.5	7.3	9.9
$1,200 but under $2,000	70	5.6	3.9	6.9	7.7	5.7	10.0
$2,000 but under $3,000	40	4.5	3.5	3.7	5.7	4.0	5.9
$3,000 but under $5,000	28	5.9	4.7	5.8	6.6	4.7	7.3
$5,000 and over	30	6.6	9.3	5.4	6.9	7.5	7.3
	Deliveries and abortions[4]						
Under $1,200	48	19.5	(3)	49.1	26.4	(3)	27.8
$1,200 but under $2,000	121	18.1	(3)	44.7	33.9	(3)	33.0
$2,000 but under $3,000	99	20.2	(3)	51.2	45.0	(3)	45.0
$3,000 but under $5,000	49	18.3	(3)	44.7	59.8	(3)	59.5
$5,000 and over	43	18.5	(3)	44.9	76.8	(3)	76.4
	Female genital diseases and complications of pregnancy[4]						
Under $1,200	14	5.7	----------	13.6	17.9	----------	21.7
$1,200 but under $2,000	49	7.8	----------	17.4	20.4	----------	23.4
$2,000 but under $3,000	34	7.1	----------	15.7	22.2	----------	25.9
$3,000 but under $5,000	13	4.8	----------	11.4	16.3	----------	18.2
$5,000 and over	15	5.8	----------	11.8	19.7	----------	22.9
		Population of both sexes			Female population		
Under $1,200	----------	5,820	3,145	1,758	2,942	1,529	957
$1,200 but under $2,000	----------	13,419	6,989	4,792	6,784	3,495	2,528
$2,000 but under $3,000	----------	9,491	4,625	3,537	4,837	2,307	1,913
$3,000 but under $5,000	----------	4,911	2,132	1,893	2,553	1,075	1,051
$5,000 and over	----------	4,689	1,823	1,670	2,398	899	935

[1] All ages includes cases above 45 years and a few of unknown age. Rates for 45 years and over are omitted because of small numbers; of the 25 categories only 1 had more than 10 and only 6 had more than 4 hospital cases.

[2] Rates per 1,000 are adjusted by the *indirect* method as described in note 3 of table 2. Percentages of cases are not adjusted in any way.

[3] Rates and percentages omitted because of small numbers; 0 to 7 hospital cases and 0 to 13 total cases.

[4] Rates for deliveries and female genital diseases are computed as per 1,000 females. See also note 4, table 9.

of cases that were hospitalized. Deliveries, appendicitis, and accidental injuries are less consistent but they all tend definitely toward higher admission rates and percentages hospitalized in urban than rural areas in the various categories. However, hospital cases of female genital diseases tend to run lower in urban than rural areas.

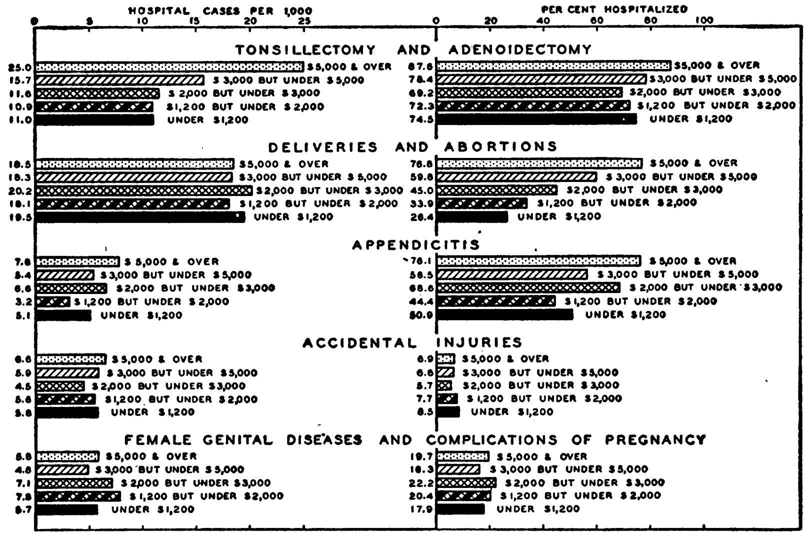

FIGURE 8.—Annual frequency of hospital admissions for certain diagnoses and the percentage of all cases that were hospitalized, by annual family income—8,758 canvassed white families in 18 States during 12 consecutive months, 1928-31. (Age adjusted rates per 1,000 for sole or primary causes; rates for deliveries and female genital diseases are expressed as per 1,000 females).

IV. SUMMARY

Data on the frequency of illness and hospital care were recorded for a 12-month period between 1928 and 1931 by periodic canvasses of 8,758 white families in 130 localities in 18 States. The surveyed families include representation from nearly all geographic sections, from rural, urban, and metropolitan areas, from all income classes and of both native and foreign-born persons. Visits were made at intervals of 2 to 4 months. Illnesses causing symptoms for 1 day or longer were recorded, together with the number of cases that were hospitalized and the days of hospital service within the study year. Hospital care in this report excludes that in institutions for mental diseases, tuberculosis, and the resident care of other chronic diseases.

Hospital rates were lower for rural than for urban areas and were lower for small towns than for large cities. Hospital admissions per 1,000 population, hospital days per 1,000, and the percentage of illnesses that were hospitalized all showed this increase with size of city.

Persons who were living in rural areas received less hospital care than those of the same income level who were living in large cities.

TABLE 11.—*Frequency of hospital cases of certain diagnoses among persons of all ages in families of different income levels in urban and rural areas—8,758 canvassed white families in 18 States during 12 consecutive months, 1928–31*

[Sole or primary diagnoses only]

Diagnosis and size of city	Hospital cases per 1,000 population [1] during year (age adjusted) [2]					Percentage of all cases of the given diagnosis that were hospitalized					Number of hospital cases, all incomes
	Under $1,200	$1,200 but under $2,000	$2,000 but under $3,000	$3,000 but under $5,000	$5,000 and over	Under $1,200	$1,200 but under $2,000	$2,000 but under $3,000	$3,000 but under $5,000	$5,000 and over	
Tonsillectomy and adenoidectomy:											
Cities of 5,000 or over	16.2	12.7	12.9	16.6	26.5	91.5	77.5	71.6	81.0	89.7	460
Under 5,000 and rural	8.1	8.6	8.6	13.2	13.0	61.9	64.0	61.7	70.4	63.6	164
Appendicitis:											
Cities of 5,000 or over	5.0	3.6	7.1	4.8	8.5	42.9	50.0	76.3	54.8	79.1	131
Under 5,000 and rural	5.2	2.5	5.3	7.2	2.1	56.3	36.8	51.9	60.0	33.3	57
Accidental injuries:											
Cities of 5,000 or over	9.5	6.4	5.0	6.3	6.6	13.1	9.3	6.4	7.5	7.1	143
Under 5,000 and rural	3.8	4.5	3.4	5.0	6.3	5.8	5.8	4.1	4.7	5.4	63
Deliveries and abortions: [1]											
Cities of 5,000 or over	33.1	21.2	20.1	20.7	17.9	38.5	38.1	47.4	65.6	75.5	268
Under 5,000 and rural	11.6	13.5	20.5	10.7	24.6	17.6	26.9	39.7	38.9	71.4	98
Female genital diseases and complications of pregnancy: [1]											
Cities of 5,000 or over	10.5	6.4	6.1	4.9	5.2	34.6	17.6	19.1	17.2	17.4	75
Under 5,000 and rural	3.2	9.9	9.3	4.6	12.1	9.6	23.9	30.2	13.6	42.9	50
	Population of both sexes					Female population					
Cities of 5,000 or over	2,008	7,548	6,656	3,648	4,194	1,031	3,858	3,389	1,895	2,169	------
Under 5,000 and rural	3,812	5,871	2,835	1,263	495	1,911	2,926	1,448	658	229	------

[1] Rates for deliveries and female genital diseases are computed as per 1,000 females. See also note 4, table 9.
[2] Rates per 1,000 are adjusted by the *indirect* method as described in note 3 of table 2. Days per case and percentages of cases are not adjusted in any way.

In cities the highest rates for admissions and days of hospital care occurred in the highest and lowest income groups; in rural areas the lowest income group had the lowest hospital rates. The lowest income group in both urban and rural areas had the longest average days per hospital case.

Small towns and rural areas without reasonably accessible hospital facilities had somewhat less hospital care than those with facilities. Families on poor roads had a smaller percentage of cases hospitalized than those on good roads, and families far from a hospital even on good or fair roads had a smaller percentage of cases hospitalized than those living nearer a hospital.

Four important diagnoses which are responsible for about half of all hospital service (tonsillectomy, deliveries, appendicitis, and accidental injuries) all showed higher hospital admission rates and percentages of cases hospitalized for urban than for rural families. The first three of these diagnoses tend toward higher percentages of cases hospitalized in the higher income levels. In the percentage of cases hospitalized, deliveries showed the largest and most regular increases with income.

TABLE 12.—*Frequency of hospital cases of certain diagnoses among persons of all ages in urban and rural parts of four geographic sections*[1]*—8,758 canvassed white families in 18 States during 12 consecutive months, 1928–31*

[Sole or primary diagnoses only]

Diagnosis and size of city	Hospital cases per 1,000 population[2] during year (age adjusted)[3]				Percentage of all cases of the given diagnosis that were hospitalized				Number of hospital cases all geographic sections
	Northeast	North Central	South	West	Northeast	North Central	South	West	
Tonsillectomy and adenoidectomy:									
Cities of 5,000 or over	13.3	16.1	17.1	16.3	90.5	80.1	82.4	70.5	460
Under 5,000 and rural	9.2	8.6	7.7	11.0	80.7	51.8	79.4	59.5	164
Appendicitis:									
Cities of 5,000 or over	7.3	4.9	5.6	6.2	84.6	57.6	57.8	62.2	131
Under 5,000 and rural	3.7	3.6	5.8	4.3	46.7	41.9	61.5	46.7	57
Accidental injuries:									
Cities of 5,000 or over	6.9	5.6	8.2	5.0	9.3	7.8	9.8	5.3	143
Under 5,000 and rural	5.5	3.3	1.9	7.0	8.0	3.6	3.1	7.2	63
Deliveries and abortions:[2]									
Cities of 5,000 or over	14.5	23.7	19.7	23.8	35.4	47.7	41.0	69.4	268
Under 5,000 and rural	16.0	14.8	3.3	23.5	29.0	36.2	6.6	38.8	98
Female genital diseases[2] and complications of pregnancy:									
Cities of 5,000 or over	5.0	4.5	10.5	6.5	21.4	15.5	21.9	19.4	75
Under 5,000 and rural	7.0	9.6	5.0	7.9	20.3	27.9	14.3	20.0	50
	Population of both sexes				Female population				
Cities of 5,000 or over	4,762	10,502	4,914	3,867	2,475	5,340	2,507	2,022	--------
Under 5,000 and rural	4,281	3,911	2,827	3,480	2,126	1,970	1,422	1,765	--------

[1] See note 2 to table 5 for States included in each section.
[2] Rates for deliveries and female genital diseases are computed as per 1,000 females. See also note 4, table 9.
[3] Rates per 1,000 are adjusted by the *indirect* method as described in note 3 of table 2. Days per case and percentages of cases are not adjusted in any way.

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PREVALENCE OF COMMUNICABLE DISEASES IN THE UNITED STATES

September 13–October 10, 1942

The accompanying table summarizes the prevalence of nine important communicable diseases, based on weekly telegraphic reports from State health departments. The reports from each State are published in the Public Health Reports under the section "Prevalence of disease." The table gives the number of cases of these diseases for the 4-week period ended October 10, 1942, the number reported for the corresponding period in 1941, and the median number for the years 1937–41.

DISEASES ABOVE MEDIAN PREVALENCE

Influenza.—For the 4 weeks ended October 10 there were 3,503 cases of influenza reported, as compared with 3,358, 2,165, and 1,835 during the corresponding period in 1941, 1940, and 1939, respectively. While the current incidence was only slightly above that recorded in 1941, it was more than 60 percent above the 1937–41 average incidence. The increase appears to be largely due to an excess of cases in the South Atlantic, West South Central, and Mountain regions. However, a rise in the mortality from all causes for the weeks ended October 3 and 10 indicate that the influenza situation should be watched. (See discussion below under Mortality.)

Meningococcus meningitis.—For the country as a whole, meningococcus meningitis continued at a relatively high level. The total number of cases reported during the current period was 192, representing an increase of approximately 80 percent over the normal seasonal level. All regions except the East and West South Central contributed to the increase.

DISEASES BELOW MEDIAN PREVALENCE

Diphtheria.—The number of cases (1,732) of diphtheria reported for the 4 weeks ended October 10 was only slightly below the number reported for the corresponding period in 1941, but it was only about 75 percent of the 1937–41 average incidence. The Middle Atlantic, South Atlantic, East North Central, and East South Central regions reported very definite declines from the expected seasonal incidence, while in other regions the numbers of cases were about normal.

Measles.—The incidence of measles was also relatively low, 2,484 cases being reported for the current period, as compared with 3,200 cases in 1941 and an average of approximately 3,000 cases during the corresponding period in the 5 preceding years. The incidence was comparatively low in all regions except the New England, West North Central, Mountain, and Pacific; the two latter regions reported the largest excesses over the seasonal expectancy, the New England a minor excess and in the West North Central region the incidence was about normal.

Poliomyelitis.—For the current period there were 855 cases of poliomyelitis reported, as compared with 2,239 cases in 1941, which figure also represents the 1937–41 median incidence for this period. With the exception of the year 1938, when only 244 cases were reported for this period, the current incidence is the lowest recorded for the same weeks since 1929. Each section of the country shared in the favorable situation of this disease that now exists.

Poliomyelitis is normally more prevalent during the summer and early fall months and in preceding years the highest incidence has been recorded during the latter part of September or the first part of October. With the exception of a slight rise in cases in the South Central regions in the summer, the disease has been relatively low in all sections of the country and it is probable that the current incidence will represent the peak of this disease for 1942.

Scarlet fever.—The reported cases of scarlet fever totaled 5,165, an increase of approximately 3,000 over the preceding 4-week period. All regions contributed to the increase. Compared with recent years, the incidence was about 20 percent in excess of the incidence in 1941, but it was only about 95 percent of the normal seasonal expectancy (approximately 5,400 cases). The incidence was relatively high in the New England, Middle Atlantic, South Atlantic, and East South Central regions, but in other regions the number of cases was less than the average number for recent years.

Smallpox.—The cases (19) of smallpox dropped below even the previous year, when 21 cases were reported, and the number is the lowest on record for this period. The low incidence of this disease seems to be largely due to the decline in the number of cases in the North Central, Mountain, and Pacific regions, where the normal prevalence of the disease is higher than in other regions.

Typhoid fever.—The typhoid fever situation was also quite favorable. The number of cases (813) reported for the current 4-week period was less than 70 percent of the preceding 5-year median incidence. In only one region, the New England, was the disease more prevalent than the 5-year expectancy. Other regions reported decreases from the 1937–41 median ranging from more than 20 percent in the Mountain region to more than 60 percent in the West North Central and Pacific regions.

Whooping cough.—The whooping cough incidence was also below normal, the 10,245 cases representing a decline from the incidence in 1941 of approximately 20 percent, and the figure was about 10 percent below the average incidence for the corresponding period in the years 1938–41. The New England region reported an increase of about 60 percent over the normal seasonal incidence and a very slight increase occurred in the Mountain region, but in all other regions the incidence was below the average of recent years.

MORTALITY, ALL CAUSES

The average mortality rate from all causes in large cities for the 4 weeks ended October 10, based on data received from the Bureau of the Census, was 11.2 per 1,000 inhabitants (annual basis). The current rate was about 6 percent above the average rate of 10.6 for the corresponding period in the 3 preceding years. There was a rise in the last 2 weeks of the period to 11.5 for the week ended October 3 and 12.2 for October 10, as compared with a 3-year average of 10.6 and 10.8 for the 2 weeks, respectively. However, the rate for October 17 was down to the approximate level of October 3. A tabulation of influenza and pneumonia deaths for the week ended October 3 (latest available date) for a smaller group of cities indicated some increase, but there was no excess in reported cases of influenza.

Number of reported cases of 9 communicable diseases in the United States during the 4-week period September 13–October 10, 1942, the number for the corresponding period in 1941, and the median number of cases reported for the corresponding period, 1937–41

Division	Current period	1941	5-year median	Current period	1941	5-year median	Current period	1941	5-year median
	Diphtheria			Influenza [1]			Measles [2]		
United States	1,732	1,759	2,296	3,503	3,358	2,165	2,484	3,200	3,033
New England	36	25	30	9	3	9	286	304	261
Middle Atlantic	57	69	113	54	18	34	460	622	622
East North Central	120	161	224	222	225	222	391	519	519
West North Central	115	110	113	56	29	53	183	164	177
South Atlantic	697	707	971	1,225	936	790	124	572	249
East South Central	255	273	431	119	55	163	54	187	187
West South Central	298	294	294	1,369	1,642	591	67	260	117
Mountain	69	67	67	334	300	187	361	213	213
Pacific	85	53	93	115	150	101	558	359	359
	Meningococcus meningitis			Poliomyelitis			Scarlet fever		
United States	192	103	107	855	2,239	2,239	5,165	4,281	5,357
New England	20	14	7	40	151	47	494	355	286
Middle Atlantic	52	29	28	186	793	458	859	625	816
East North Central	19	5	17	270	378	378	1,208	1,113	1,576
West North Central	10	5	9	127	116	270	534	482	680
South Atlantic	41	25	25	69	314	83	961	650	790
East South Central	11	7	11	41	324	57	494	426	456
West South Central	5	9	9	42	45	65	181	154	186
Mountain	5	4	4	34	30	71	149	156	202
Pacific	29	5	5	46	88	125	285	320	441
	Smallpox			Typhoid and paratyphoid fever			Whooping cough [3]		
United States	19	21	125	813	1,216	1,692	10,745	13,015	[3] 12,265
New England	0	0	0	49	29	31	1,285	978	819
Middle Atlantic	0	0	0	108	190	190	2,806	2,835	2,845
East North Central	6	7	16	109	142	238	3,328	4,197	3,567
West North Central	0	5	29	45	83	115	451	823	581
South Atlantic	3	1	1	150	273	297	835	1,288	1,224
East South Central	4	6	6	107	167	217	294	509	466
West South Central	4	1	9	152	234	341	434	509	465
Mountain	2	1	27	60	46	79	478	701	450
Pacific	0	0	10	33	52	90	834	1,175	954

[1] Mississippi, New York, and Pennsylvania excluded; New York City included.
[2] Mississippi excluded.
[3] 4 years (1938-41) only.

INCIDENCE OF HOSPITALIZATION, SEPTEMBER 1942

Through the cooperation of the Hospital Service Plan Commission of the American Hospital Association, data on hospital admissions among about 8,000,000 members of Blue Cross Hospital Service Plans are presented monthly. These plans provide prepaid hospital service. The data cover about 60 hospital service plans scattered throughout the country, mostly in large cities.

Item	September 1942	September 1941
1. Number of plans supplying data	60	56
2. Number of persons eligible for hospital care	8, 563, 567	6, 029, 508
3. Number of persons admitted for hospital care	78, 140	54, 398
4. Incidence per 1,000 persons, annual rate, during current month (daily rate ×365)	110. 9	109. 7
5. Simple average of annual rates for the 12 months ended Sept. 30	107. 5	

DEATHS DURING WEEK ENDED OCTOBER 17, 1942

[From the Weekly Mortality Index, issued by the Bureau of the Census, Department of Commerce]

	Week ended Oct. 17, 1942	Corresponding week 1941
Data from 88 large cities of the United States:		
Total deaths	8, 343	7, 597
Average for 3 prior years	7, 691	
Total deaths, first 41 weeks of year	341, 753	342, 498
Deaths per 1,000 population, first 41 weeks of year, annual rate	11. 6	11. 7
Deaths under 1 year of age	628	540
Average for 3 prior years	497	
Deaths under 1 year of age, first 41 weeks of year	23, 461	21, 503
Data from industrial insurance companies:		
Policies in force	65, 156, 032	64, 546, 105
Number of death claims	8, 861	9, 186
Death claims per 1,000 policies in force, annual rate	7. 1	7. 4
Death claims per 1,000 policies, first 41 weeks of year, annual rate	9. 1	9. 5

PREVALENCE 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 OCTOBER 24, 1942

Summary

The current incidence of meningococcus meningitis and endemic typhus fever is considerably above the median expectancy based on reports for the past 5 years. Of 61 cases of meningococcus meningitis reported during the current week (5-year median for the week, 37), more than half occurred in the Middle and South Atlantic States, where the largest numbers of cases have been reported during the current year. No cases were reported during the current week in either the West North Central or Mountain States. Of 123 cases of endemic typhus fever, 47 cases occurred in Georgia and 40 cases in Texas. A total of 2,902 cases has been reported to date this year, as compared with a total of 2,784 for the entire year 1941 and 1,882 in 1940.

The incidence of influenza is above the 5-year median. Of the total of 1,143 cases reported during the current week (5-year median, 856), 71 percent occurred in three southern States—Texas 414, South Carolina 272, and Virginia 138.

Of 281 cases of bacillary dysentery, 173 occurred in Texas. A total of 10,629 cases has been reported to date this year, the largest number occurring in Texas. Outbreaks were reported in Newton, Kansas (2,535 cases from September 2 to 14) and in Wrentham (State School), Massachusetts (310 cases reported during week ended October 17).

The crude death rate for 88 large cities in the United States for the current week is 11.7 per 1,000 population, as compared with 11.6 for the preceding week and a 3-year (1938–41) average of 11.1. The accumulative rate to date is 11.6, which is the same as that for the corresponding period in 1941. This is the first time since January that the accumulative rate this year has been as high as that for last year. Since August, however, these rates have been drawing together, due to the much higher rate in recent weeks than for the corresponding weeks last year.

Telegraphic morbidity reports from State health officers for the week ended October 24, 1942, and comparison with corresponding week of 1941 and 5-year median

In these tables a zero indicates a definite report, while leaders imply that, although none were reported, cases may have occurred.

Division and State	Diphtheria			Influenza			Measles			Meningitis, meningococcus		
	Week ended		Median 1937–41	Week ended		Median 1937–41	Week ended		Median 1937–41	Week ended		Median 1937–41
	Oct. 24, 1942	Oct. 25, 1941		Oct. 24, 1942	Oct. 25, 1941		Oct. 24, 1942	Oct. 25, 1941		Oct. 24, 1942	Oct. 25, 1941	
NEW ENG.												
Maine	1	0	1	......	......	1	7	62	31	2	2	1
New Hampshire	0	0	0	......	......	......	1	1	1	0	0	0
Vermont	0	4	0	......	......	......	66	1	3	0	0	0
Massachusetts	4	2	3	......	......	......	199	101	71	2	2	1
Rhode Island	2	0	0	......	......	......	0	9	0	1	0	0
Connecticut	2	0	1	3	......	......	10	21	6	2	0	0
MID. ATL.												
New York	17	16	17	[1] 12	[1] 4	[1] 6	93	71	91	16	0	1
New Jersey	3	9	8	8	3	4	24	40	40	2	0	0
Pennsylvania	11	8	15	1	1	......	105	123	135	5	5	2
E. NO. CEN.												
Ohio	21	20	33	6	6	4	22	63	11	2	0	1
Indiana	14	17	23	2	29	14	8	1	5	0	0	1
Illinois	18	12	27	6	8	8	11	32	32	3	2	3
Michigan [2]	10	9	9	1	......	......	35	38	39	0	2	1
Wisconsin	1	2	2	19	18	25	34	53	53	2	1	0
W. NO. CEN.												
Minnesota	3	2	4	......	1	1	14	4	6	0	0	0
Iowa	2	2	2	2	......	......	18	28	13	0	1	0
Missouri	7	10	13	......	10	10	3	7	7	0	0	0
North Dakota	1	0	1	7	1	1	1	86	1	0	0	0
South Dakota	7	3	1	......	......	......	4	2	2	0	0	0
Nebraska	0	3	5	3	......	......	36	4	2	0	0	0
Kansas	2	3	6	2	1	4	4	18	6	0	1	0
SO. ATL.												
Delaware	2	2	1	......	......	......	0	0	0	0	0	0
Maryland [2]	5	7	7	3	4	6	4	11	3	7	3	1
Dist. of Col.	3	1	1	......	1	......	0	1	1	3	0	0
Virginia	53	49	77	138	177	56	4	37	29	1	1	0
West Virginia	7	15	18	10	14	14	2	61	3	1	0	2
North Carolina	83	125	125	2	......	3	3	115	86	0	3	2
South Carolina	85	41	32	272	162	198	3	6	6	0	0	1
Georgia	51	53	53	22	30	30	1	11	3	1	0	0
Florida	13	5	5	3	34	2	2	1	2	0	1	1
E. SO. CEN.												
Kentucky	24	11	20	3	......	3	12	11	11	0	2	2
Tennessee	14	24	40	9	8	22	7	13	12	0	3	2
Alabama	29	44	41	39	21	24	3	27	4	1	1	1
Mississippi [2]	18	14	17	......	......	......	......	0	......	2	0	1
W. SO. CEN.												
Arkansas	15	14	26	19	27	27	2	13	2	1	0	0
Louisiana	19	5	20	4	6	4	3	0	1	0	0	0
Oklahoma	9	11	14	15	51	26	2	35	2	0	0	0
Texas	56	82	47	414	543	140	3	17	17	0	0	1
MOUNTAIN												
Montana	0	2	2	......	......	15	3	5	7	0	0	0
Idaho	0	0	0	10	......	1	28	9	9	0		0
Wyoming	0	0	1	5	9	......	4	1	1	0	0	0
Colorado	17	9	9	24	28	9	8	61	19	0	0	0
New Mexico	0	0	3	1	......	1	7	6	9	0	0	0
Arizona	0	3	5	36	65	54	7	74	3	0	0	0
Utah [2]	0	0	0	3	1	1	101	6	6	0	0	0
Nevada	0	0	......	......	......	......	1	0	......	0	0	......
PACIFIC												
Washington	6	1	2	1	3	......	176	3	6	1	1	1
Oregon	4	12	1	9	18	7	80	18	9	1	0	0
California	17	16	23	29	46	22	40	128	105	5	1	2
Total	656	668	769	1,143	1,330	856	1,201	1,435	1,435	61	32	37
42 weeks	11,193	11,726	16,960	88,357	497,956	174,921	473,050	831,943	353,771	2,843	1,674	1,674

See footnotes at end of table.

Telegraphic morbidity reports from State health officers for the week ended October 24, 1942, and comparison with corresponding week of 1941 and 5-year median—Con.

Division and State	Poliomyelitis			Scarlet fever			Smallpox			Typhoid and paratyphoid fever		
	Week ended		Median 1937–41	Week ended		Median 1937–41	Week ended		Median 1937–41	Week ended		Median 1937–41
	Oct. 24, 1942	Oct. 25, 1941		Oct. 24, 1942	Oct. 25, 1941		Oct. 24, 1942	Oct. 25, 1941		Oct. 24, 1942	Oct. 25, 1941	
NEW ENG.												
Maine	1	0	0	16	6	12	0	0	0	0	0	2
New Hampshire	3	0	0	7	2	2	0	0	0	0	1	1
Vermont	2	1	0	4	5	5	0	0	0	0	0	0
Massachusetts	3	11	4	169	108	72	0	0	0	2	6	3
Rhode Island	0	0	0	4	4	4	0	0	0	0	0	1
Connecticut	0	6	2	26	21	21	0	0	0	0	1	2
MID. ATL.												
New York	9	57	29	131	107	163	0	0	0	15	14	14
New Jersey	9	15	5	46	51	51	0	0	0	2	7	3
Pennsylvania	5	16	6	114	102	179	0	0	0	10	10	10
E. NO. CEN.												
Ohio	10	17	6	156	171	174	0	0	0	28	4	12
Indiana	4	5	4	29	51	103	0	0	2	6	0	3
Illinois	20	12	10	148	135	178	0	1	1	11	7	11
Michigan [2]	5	8	12	63	122	165	0	6	1	2	4	3
Wisconsin	0	4	7	162	96	96	0	0	0	0	2	1
W. NO. CEN.												
Minnesota	4	15	15	57	31	57	0	0	1	0	1	1
Iowa	0	2	11	29	35	58	3	1	1	1	0	2
Missouri	5	2	2	85	34	56	3	0	1	0	2	5
North Dakota	1	1	1	6	6	14	0	0	0	0	0	1
South Dakota	0	1	1	12	20	23	0	0	0	0	2	1
Nebraska	8	0	2	13	6	13	1	0	0	0	0	0
Kansas	8	1	2	29	44	75	0	0	0	3	1	1
SO. ATL.												
Delaware	2	3	0	5	8	6	0	0	0	1	2	2
Maryland [2]	1	4	2	37	21	28	0	0	0	5	6	6
District of Columbia	0	5	1	14	13	12	0	0	0	0	0	0
Virginia	0	6	5	63	52	44	0	0	0	5	11	10
West Virginia	0	3	3	56	51	72	2	0	0	7	4	7
North Carolina	3	5	3	116	85	85	0	0	0	12	2	5
South Carolina	8	5	0	32	12	14	0	0	0	3	8	8
Georgia	1	6	1	44	35	35	0	0	0	8	8	8
Florida	1	1	1	8	8	8	0	0	0	1	0	2
E. SO. CEN.												
Kentucky	0	5	5	48	78	78	1	0	0	4	12	12
Tennessee	3	22	3	46	80	62	0	0	0	11	6	14
Alabama	2	12	2	47	36	36	0	1	0	2	7	5
Mississippi [2]	3	7	3	21	13	13	0	1	0	2	4	4
W. SO. CEN.												
Arkansas	1	3	3	12	5	17	0	0	0	2	5	7
Louisiana	0	1	1	4	4	8	0	0	0	2	6	12
Oklahoma	2	5	2	26	18	23	0	1	1	5	4	12
Texas	13	7	7	42	30	38	3	0	1	10	14	21
MOUNTAIN												
Montana	0	2	0	8	18	16	0	0	0	0	0	1
Idaho	0	0	1	6	14	14	0	0	0	0	2	2
Wyoming	4	0	0	2	3	7	0	0	0	2	0	1
Colorado	2	2	2	22	18	26	0	0	1	3	1	3
New Mexico	0	0	1	2	6	8	0	1	0	6	1	6
Arizona	0	0	0	1	1	5	0	0	0	1	0	3
Utah [2]	1	0	2	3	8	8	0	0	0	1	1	1
Nevada	1	0	------	7	0	------	0	0	------	0	5	------
PACIFIC												
Washington	0	6	3	18	28	27	0	0	0	1	1	3
Oregon	1	5	2	8	3	13	3	2	2	0	1	3
California	19	5	7	85	97	121	0	0	3	3	5	7
Total	165	294	294	2,089	1,902	2,277	16	14	28	177	178	278
42 weeks	3,379	7,880	7,880	100,567	100,546	131,380	674	1,207	8,546	5,866	7,346	11,003

See footnotes at end of table.

Telegraphic morbidity reports from State health officers for the week ended October 24, 1942—Continued

Division and State	Whooping cough, Week ended Oct. 24, 1942	Whooping cough, Week ended Oct. 25, 1941	Anthrax	Dysentery: Amebic	Dysentery: Bacillary	Dysentery: Unspecified	Encephalitis	Leprosy	Rocky Mountain spotted fever	Tularemia	Typhus fever
			Week ended October 24, 1942								
NEW ENG.											
Maine	57	29	0	0	0	0	0	0	0	0	0
New Hampshire	0	16	0	0	0	0	0	0	0	0	0
Vermont	34	17	0	0	0	0	0	0	0	0	0
Massachusetts	169	134	0	0	1	0	0	0	0	0	0
Rhode Island	21	31	0	0	0	0	0	0	0	0	0
Connecticut	81	49	0	0	3	0	0	0	0	0	0
MID. ATL.											
New York	330	387	0	4	52	0	3	0	0	0	0
New Jersey	134	173	0	2	0	0	0	0	0	0	0
Pennsylvania	331	219	0	1	0	0	0	0	0	0	0
E. NO. CEN.											
Ohio	165	152	0	0	0	0	1	0	0	0	0
Indiana	17	14	0	0	0	0	0	0	0	0	0
Illinois	161	266	0	1	11	0	1	0	1	1	0
Michigan [2]	231	343	0	5	7	0	0	0	0	0	0
Wisconsin	161	200	0	0	0	0	0	0	0	0	0
W. NO. CEN.											
Minnesota	41	70	0	0	1	0	0	0	0	0	0
Iowa	24	20	0	0	0	0	0	0	0	0	0
Missouri	13	22	0	0	0	2	0	0	0	0	0
North Dakota	3	24	0	0	0	0	0	0	0	0	0
South Dakota	0	0	0	0	0	0	0	0	0	0	0
Nebraska	9	5	0	0	0	0	0	0	0	0	0
Kansas	24	35	0	0	0	0	0	0	0	0	0
SO. ATL.											
Delaware	11	2	0	0	0	0	0	0	0	0	0
Maryland [2]	62	41	0	0	0	12	0	0	0	0	0
Dist. of Col	4	14	0	0	0	0	0	0	0	0	0
Virginia	24	43	0	0	0	67	0	0	0	1	0
West Virginia	12	36	0	0	0	0	0	0	0	0	0
North Carolina	57	91	0	0	0	0	0	0	0	0	0
South Carolina	25	38	0	0	12	0	0	0	0	0	7
Georgia	23	3	0	2	2	0	0	0	0	1	47
Florida	6	9	0	0	0	0	0	0	0	0	9
E. SO. CEN.											
Kentucky	24	81	0	0	1	0	0	0	0	0	0
Tennessee	24	36	0	0	0	1	0	0	0	0	4
Alabama	29	26	0	0	0	0	0	0	0	0	11
Mississippi [2]		0	0	0	0	0	0	0	0	0	2
W. SO. CEN.											
Arkansas	29	10	0	1	4	0	0	0	0	1	0
Louisiana	2	5	0	1	2	0	0	1	0	0	3
Oklahoma	7	5	0	0	0	0	0	0	0	0	0
Texas	115	72	0	11	173	0	0	0	0	0	40
MOUNTAIN											
Montana	27	31	0	0	0	0	0	0	0	0	0
Idaho	1	2	0	0	0	0	0	0	0	0	0
Wyoming	5	9	0	0	0	0	0	0	0	0	0
Colorado	19	44	0	0	0	0	2	0	0	0	0
New Mexico	12	13	0	0	1	0	0	0	0	0	0
Arizona	2	3	0	0	0	13	0	0	0	0	0
Utah [2]	27	10	0	0	0	0	0	0	0	0	0
Nevada	0	1	0	0	0	0	0	0	0	0	0
PACIFIC											
Washington	14	63	0	0	0	0	1	0	0	0	0
Oregon	5	14	0	0	0	0	0	0	0	0	0
California	208	155	0	1	11	0	1	0	0	0	0
Total	2,780	3,123	0	29	281	95	9	1	1	4	123
42 weeks	147,130	174,194									

[1] New York City only.
[2] Period ended earlier than Saturday.

WEEKLY REPORTS FROM CITIES

City reports for week ended October 10, 1942

This table lists the reports from 87 cities of more than 10,000 population distributed throughout the United States, and represents a cross section of the current urban incidence of the diseases included in the table.

	Diphtheria cases	Encephalitis, infectious, cases	Influenza		Measles cases	Meningitis, meningococcus, cases	Pneumonia deaths	Poliomyelitis cases	Scarlet fever cases	Smallpox cases	Typhoid and paratyphoid fever cases	Whooping cough cases
			Cases	Deaths								
Atlanta, Ga	1	0	5	0	0	2	3	1	6	0	1	1
Baltimore, Md	0	0	2	1	2	2	17	0	13	0	1	61
Billings, Mont	0	0	------	0	0	0	0	0	0	0	0	0
Birmingham, Ala	0	0	2	0	0	0	2	0	2	0	0	0
Boise, Idaho	0	0	------	0	0	0	0	0	0	0	0	0
Boston, Mass	1	1	------	0	8	0	11	0	42	0	0	51
Bridgeport, Conn	0	0	------	0	1	0	0	1	4	0	0	1
Brunswick, Ga	0	0	------	0	0	0	0	0	0	0	0	0
Buffalo, N. Y	0	0	------	0	6	1	8	0	2	0	1	3
Camden, N. J	0	0	1	1	1	0	1	1	2	0	0	8
Charleston, S. C	1	0	2	0	0	0	1	0	0	0	0	0
Chicago, Ill	7	0	2	1	9	3	20	8	36	0	4	120
Cincinnati, Ohio	2	0	------	0	0	0	2	2	19	0	0	15
Cleveland, Ohio	3	0	6	0	0	1	9	1	26	0	0	45
Concord, N. H	0	0	------	0	1	0	0	0	0	0	0	0
Cumberland, Md	0	0	------	0	0	0	0	0	0	0	0	0
Dallas, Tex	7	0	------	0	0	0	0	0	4	0	0	5
Denver, Colo	11	1	13	1	6	0	5	2	4	0	0	10
Detroit, Mich	6	0	----	2	6	0	8	0	23	0	1	84
Duluth, Minn	0	0	------	0	0	0	2	0	0	0	0	7
Fall River, Mass	0	0	------	0	0	0	0	0	9	0	0	3
Fargo, N. Dak	0	0	------	0	0	0	0	1	0	0	0	0
Flint, Mich	0	0	------	0	0	0	1	2	5	0	0	11
Fort Wayne, Ind	0	0	------	0	0	0	2	0	0	0	0	0
Frederick, Md	0	0	------	0	0	0	0	0	0	0	0	0
Galveston, Tex	0	0	------	0	0	0	0	0	0	0	0	0
Grand Rapids, Mich	0	0	------	0	0	0	0	0	1	0	0	5
Great Falls, Mont	0	0	------	0	1	0	0	0	0	0	0	2
Hartford, Conn	0	0	------	0	0	1	0	0	0	0	2	7
Helena, Mont	0	0	------	0	0	0	0	0	0	0	0	0
Houston, Tex	6	0	1	0	0	0	2	0	1	0	1	3
Indianapolis, Ind	2	0	------	0	0	0	3	0	9	0	0	23
Kansas City, Mo	0	0	------	0	3	0	3	0	13	0	1	1
Kenosha, Wis	0	0	------	0	0	0	0	0	2	0	0	3
Little Rock, Ark	0	0	2	0	0	0	1	0	0	0	0	0
Los Angeles, Calif	5	0	7	2	9	4	8	5	11	0	0	23
Lynchburg, Va	0	0	------	0	0	0	1	0	0	0	0	1
Memphis, Tenn	0	0	------	1	1	0	2	1	7	0	1	13
Milwaukee, Wis	0	0	------	0	12	0	4	0	12	0	0	44
Minneapolis, Minn	1	0	------	2	2	1	5	3	9	0	0	2
Missoula, Mont	0	0	------	0	0	0	1	0	0	0	0	0
Mobile, Ala	4	0	------	1	0	0	2	0	2	0	0	0
Nashville, Tenn	0	0	------	0	1	0	1	0	1	0	0	0
Newark, N. J	0	0	3	0	12	0	4	3	3	0	0	10
New Haven, Conn	0	0	------	0	0	0	0	0	1	0	0	10
New Orleans, La	0	0	1	1	0	0	3	1	3	0	4	0
New York, N. Y	9	1	15	0	10	8	46	7	55	0	3	113
Omaha, Nebr	1	0	------	0	2	0	2	0	6	0	0	1
Philadelphia, Pa	0	0	4	3	47	1	16	4	34	0	2	74
Pittsburgh, Pa	0	0	1	1	2	2	12	0	5	0	1	18
Portland, Maine	0	0	------	0	3	1	1	0	1	0	0	12
Providence, R. I	1	0	------	0	7	0	5	0	2	0	0	23
Pueblo, Colo	0	0	------	0	0	0	3	0	0	0	0	0
Racine, Wis	0	0	------	0	1	0	1	0	9	0	0	3
Raleigh, N. C	0	0	------	0	1	0	1	0	0	0	0	0
Reading, Pa	0	0	------	1	0	0	2	0	0	0	0	5
Richmond, Va	0	0	------	0	0	0	1	0	2	0	0	4

See footnotes at end of table.

City reports for week ended October 10, 1942—Continued

	Diphtheria cases	Encephalitis, infectious, cases	Influenza		Measles cases	Meningitis, meningococcus, cases	Pneumonia deaths	Poliomyelitis cases	Scarlet fever cases	Smallpox cases	Typhoid and paratyphoid fever cases	Whooping cough cases
			Cases	Deaths								
Roanoke, Va	0	0	------	0	0	0	0	0	2	0	0	0
Rochester, N. Y	0	0	------	1	1	0	1	1	4	0	0	15
Sacramento, Calif	2	0	1	1	1	0	0	0	1	0	1	5
Saint Joseph, Mo	1	0	------	0	0	0	2	0	1	0	0	0
St. Louis, Mo	1	0	------	0	1	0	9	1	12	0	1	13
Saint Paul, Minn	0	0	------	0	0	0	5	0	4	0	0	7
Salt Lake City, Utah	0	0	------	0	17	0	3	2	2	0	0	7
San Antonio, Tex	0	0	------	0	0	0	1	3	2	0	0	2
San Francisco, Calif	2	1	------	1	14	2	5	0	3	0	0	11
Savannah, Ga	0	0	1	0	0	0	1	0	0	0	0	1
Seattle, Wash	3	0	------	0	1	0	5	1	0	0	0	6
Shreveport, La	2	0	------	0	0	0	0	0	1	0	1	0
South Bend, Ind	0	0	------	0	0	0	0	0	0	0	0	1
Spokane, Wash	0	0	------	0	3	0	0	0	4	0	0	0
Springfield, Ill	0	0	------	0	1	0	2	0	2	0	0	11
Springfield, Mass	1	0	------	1	0	0	2	0	31	0	0	5
Superior, Wis	0	0	------	0	0	0	0	0	6	0	0	0
Syracuse, N. Y	0	0	------	0	1	0	2	0	1	0	0	13
Tacoma, Wash	0	0	------	0	16	0	1	0	17	0	0	1
Tampa, Fla	0	0	1	1	1	0	2	0	1	0	0	1
Terre Haute, Ind	1	0	------	0	0	0	4	0	1	0	0	0
Topeka, Kans	0	0	------	0	1	0	2	0	0	0	0	0
Trenton, N. J	1	0	------	0	1	0	0	0	3	0	0	2
Washington, D. C	3	0	------	0	2	0	14	1	14	0	1	16
Wheeling, W. Va	0	0	------	0	1	0	0	0	0	0	0	4
Wichita, Kans	0	0	------	0	1	0	2	0	14	0	0	2
Wilmington, Del	1	0	------	1	0	0	6	1	1	0	0	0
Wilmington, N. C	1	0	------	0	0	0	0	0	0	0	0	0
Winston-Salem, N. C	0	0	------	0	0	0	0	0	1	0	1	2
Worcester, Mass	0	0	------	0	1	0	7	0	5	0	0	19

Anthrax—Cases: Camden, 1; Philadelphia, 1.
Dysentery, amebic—Cases: Detroit, 1; New York, 4.
Dysentery, bacillary—Cases: Baltimore, 1; Chicago, 5; Detroit, 6; Los Angeles, 4; New York, 23; Richmond, 1; St. Louis, 1.
Typhus fever—Cases: Atlanta, 1; Detroit, 2; Houston, 4; New Orleans, 1; Savannah, 1; Tampa, 3.

Rates (annual basis) per 100,000 population, for the group of 87 cities in the preceding table (estimated population, 1942, 33,744,106)

Period	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Typhoid and paratyphoid fever cases	Whooping cough cases
		Cases	Deaths						
Week ended Oct. 10, 1942	13.44	10.82	3.71	33.69	45.89	80.20	0.00	4.33	149.73
Average, 1937–41	14.99	8.59	2.19	[1] 35.60	48.41	68.24	0.31	7.18	156.94

[1] Median.

PLAGUE INFECTION IN TACOMA, WASH.

Under date of October 16, 1942, plague infection was reported proved in 2 pools of fleas from rats, *Rattus norvegicus*, in Tacoma, Wash., one pool of 177 fleas from 105 rats collected on September 22 and 23, and the other of 35 fleas from 30 rats collected on September 24 and 25.

TERRITORIES AND POSSESSIONS

Panama Canal Zone

Notifiable diseases—July 1942.—During the month of July 1942, certain notifiable diseases were reported in the Panama Canal Zone, and terminal cities, as follows:

Disease	Panama		Colon		Canal Zone		Outside the Zone and terminal cities		Total	
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths
Chickenpox	8		1		3				12	
Diphtheria	5		6		7		4		22	
Dysentery (amebic)	3		1		3	1	2	1	9	2
Dysentery (bacillary)					2		4	4	6	4
Malaria [1]	34	3	3	1	948	1	273	4	1,258	9
Measles	2		3		29		1		35	
Meningitis meningococcus	1		1		2		3		7	
Mumps	1				4				5	
Paratyphoid fever	1				1				2	
Pneumonia		13		6	89	1		5	[2] 89	25
Smallpox (alastrim)					1				1	
Trachoma	1								1	
Tuberculosis		14		4	13			9	[2] 13	27
Typhoid fever	1								1	
Whooping cough					3				[2] 3	

[1] Includes 177 recurrent cases.
[2] Cases reported in the Canal Zone only.

FOREIGN REPORTS

CANADA

Provinces—Communicable diseases—Week ended September 26, 1942.—During the week ended September 26, 1942, cases of certain communicable diseases were reported by the Dominion Bureau of Statistics of Canada as follows:

Disease	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia	Total
Cerebrospinal meningitis		1	1	1	1		1		2	7
Chickenpox		9	3	28	50	8	14	4	44	160
Diphtheria		10		26		10	5			51
Dysentery				28	1					29
German measles		1		4	10		1	1	2	19
Influenza		14			4	1				19
Lethargic encephalitis						1				1
Measles		1		18	12		8	6	2	47
Mumps		12	2	11	145	10	22	9	101	312
Pneumonia		4			11				4	19
Poliomyelitis	1	15	6	8	4	2	1		7	44
Scarlet fever		3	4	63	46	4	27	19	23	189
Trachoma									1	1
Tuberculosis	5	3	22	101	48	9		16	32	236
Typhoid and paratyphoid fever		1	2	15		5	1	1	1	26
Undulant fever				1	1				1	3
Whooping cough		7		243	89	17	6	41	25	428
Other communicable diseases		14		4	257	46	1	1	1	324

COSTA RICA

Communicable diseases—June 1942.—During the month of June 1942, certain communicable diseases were reported in Costa Rica as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Diphtheria	20		Typhoid and paratyphoid fever	23	3
Measles	392	2	Whooping cough	50	

FINLAND

Communicable diseases—July 1942.—During the month of July 1942, cases of certain communicable diseases were reported in Finland as follows:

Disease	Cases	Disease	Cases
Diphtheria	170	Poliomyelitis	4
Dysentery	1	Scarlet fever	237
Influenza	282	Typhoid fever	102
Paratyphoid fever	100		

GREAT BRITAIN

England and Wales—Infectious diseases—13 weeks ended July 4, 1942.—During the 13 weeks ended July 4, 1942, cases of certain infectious diseases were reported in England and Wales as follows:

Disease	Cases	Disease	Cases
Diphtheria	8,779	Puerperal pyrexia	2,214
Dysentery	1,747	Scarlet fever	14,571
Ophthalmia neonatorum	1,197	Typhoid and paratyphoid fever	202
Pneumonia	11,653		

England and Wales—Vital statistics—Second quarter 1942.—The following vital statistics for the second quarter of 1942 for England and Wales are taken from the Quarterly Return of Births, Deaths, and Marriages, issued by the Registrar-General and are provisional:

	Number	Annual rate per 1,000 population
Live births	167,557	16.2
Stillbirths	5,752	.56
Deaths, all causes	116,834	11.3
Deaths under 1 year of age	7,820	[1] 47
Deaths from diarrhea (under 2 years of age)	714	[1] 4.3

[1] Per 1,000 live births.

SWITZERLAND

Notifiable diseases—June 1942.—During the month of June 1942, cases of certain notifiable diseases were reported in Switzerland as follows:

Disease	Cases	Disease	Cases
Cerebrospinal meningitis	14	Poliomyelitis	56
Chickenpox	215	Scarlet fever	199
Diphtheria	89	Tuberculosis	278
German measles	36	Typhoid fever	5
Measles	1,088	Undulant fever	12
Mumps	101	Whooping cough	103
Paratyphoid fever	57		

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

From medical officers of the Public Health Service, American consuls, International Office of Public Health, Pan American Sanitary Bureau, health section of the League of Nations, and other sources. The reports contained in the following tables must not be considered as complete or final as regards either the list of countries included or the figures for the particular countries for which reports are given.

CHOLERA

[C indicates cases]

NOTE.—Since many of the figures in the following tables are from weekly reports, the accumulated totals are for approximate dates.

Place		January-July 1942	August 1942	September 1942—week ended—			
				5	12	19	26
ASIA							
Ceylon	C	82	20				
China:							
Kunming (Yunnanfu)	C	[1] 763					
Shanghai	C	1					
India	C	39,170	6,990				
Calcutta	C	1,745	222	23			
Chittagong	C	55					
Rangoon	C	1					
India (French)	C	10					

[1] From May 12 to June 20, 1942.

PLAGUE

[C indicates cases; P, present]

Place		January-July 1942	August 1942	Sept. 5	Sept. 12	Sept. 19	Sept. 26
AFRICA							
Basutoland	C	10					
Belgian Congo	C	3	1				
British East Africa:							
Kenya	C	593	63	2			
Nairobi	C	64					
Uganda	C	305	13	2			
Egypt: Port Said	C	2	1				
Madagascar	C	84	7		1		
Morocco	C	277	35	9	3	1	
Senegal	C		[1] 5		1		
Union of South Africa	C	68					
ASIA							
China.[2]							
India	C	438	1				
Indochina (French)	C	70	2		1		
Palestine: Haifa	C	4	1				
EUROPE							
Portugal: Azores Islands	C	1					
NORTH AMERICA							
Canada: Alberta Province—Plague-infected fleas		P					
SOUTH AMERICA							
Argentina: Cordoba Province	C	7					
Brazil:							
Alagoas State	C	3					
Pernambuco State	C	6					
Chile: Valparaiso	C	1					
Peru:							
Ancash Department	C	6					
Lambayeque Department	C	3					
Libertad Department	C	6	1				
Salaverry—Plague-infected rats		P					
Lima Department	C	52	1				
Lima	C	17	1				
Piura Department	C	15					
OCEANIA							
Hawaii Territory: Plague-infected rats		27	15				1
New Caledonia	C				[3] 1		

[1] Includes 4 suspected cases.

[2] Plague has been reported in China as follows: Chekiang Province, Apr. 1-10, 1942, 4 cases; Fukien Province, Jan. 1-Apr. 5, 1942, plague appeared in 11 localities; Hunan Province, week ended Apr. 18, 1942, 2 cases; Suiyuan Province, pneumonic plague appeared in epidemic form during the period Jan. 1-Apr. 4, in the northwestern area.

[3] Pneumonic.

SMALLPOX

[C indicates cases]

Place		January–July 1942	August 1942	September 1942—week ended—			
				5	12	19	26
AFRICA							
Algeria	C	597	32				
Belgian Congo	C	321					
British East Africa: Tanganyika	C	19	2	11			
Dahomey	C	56					
French Guinea	C	76					
Gold Coast	C	1,095			108		
Ivory Coast	C	50					
Morocco	C	1,275	66	4	22	5	
Nigeria	C	1,372	194	63	53	79	
Niger Territory	C	772			212		
Portuguese East Africa	C	7	3	5			
Senegal	C	17					
Sudan (French)	C	213			22	31	
Tunisia	C	1					
Union of South Africa	C	567	10				
Zanzibar	C	[1] 2					
ASIA							
Ceylon	C	7					
China	C	9					
India	C	18,742	747				
Indochina (French)	C	2,750	158				[2] 254
Iran	C	50					
Iraq	C	209	16				
Trans-Jordan	C	2					
EUROPE							
France:							
Seine Department	C	44					
Unoccupied zone	C	13					
Great Britain:							
England and Wales	C	5					
Scotland	C	45	8				
Portugal	C	36	4	4	1	1	
Spain	C	191	9	1			
Turkey	C		105	51	32	30	110
NORTH AMERICA							
Canada	C	4					
Mexico	C	42	17				
Panama Canal Zone	C	[3] 1					
SOUTH AMERICA							
Brazil	C	1					
Colombia	C	444					
Peru	C	1,147					
Venezuela (alastrim)	C	110					

[1] Imported.
[2] For the month of September.
[3] In the Canal Zone only.

TYPHUS FEVER

[C indicates cases]

Place		January-July 1942	August 1942	September 1942—week ended— 5	12	19	26
AFRICA							
Algeria	C	33,827	723				
Basutoland	C	32					
British East Africa: Kenya	C	12	2	4			
Egypt	C	22,172	325	52	32		
Ivory Coast	C	4					
Morocco	C	25,118	428	40	29	26	25
Nigeria	C	5					
Niger Territory	C	1					
Senegal	C	[1] 3					
Sierra Leone	C	7					
Tunisia	C	15,427	429		[2] 133		
Union of South Africa	C	507					
ASIA							
China	C	145					
India	C	7					
Iran	C	641					
Iraq	C	83	7				
Palestine	C	22	28	11	21		
Syria	C	22					
Trans-Jordan	C	5					
EUROPE							
Bulgaria	C	631	2		1		
Czechoslovakia	C	5					
France:							
Seine Department	C	1					
Unoccupied zone	C	226	2				
Germany	C	2,043					
Hungary	C	713	12	5	2	8	
Irish Free State	C	9	6				
Portugal	C	1					
Rumania	C	3,344	53	7	7	25	
Spain	C	3,865	5				
Canary Islands	C	1					
Switzerland	C		1				
Turkey	C	270	35	3	8	9	8
Union of Soviet Socialist Republics	C	67					
NORTH AMERICA							
Guatemala	C	114	7				
Jamaica	C	30	2				
Mexico	C	459	39				
Panama Canal Zone	C	1					
Puerto Rico	C	3					
SOUTH AMERICA							
Chile	C	49					
Colombia	C	1					
Ecuador	C	51	18				[3] 26
Peru	C	923					
Venezuela	C	16					
OCEANIA							
Australia	C	27					
Hawaii Territory	C	31	3			4	

[1] Suspected.
[2] For the period Sept. 1-10, 1942.
[3] For the month of September.

YELLOW FEVER

[C indicates cases; D, deaths]

Place		January-July 1942	August 1942	September 1942—week ended— 5	12	19	26
AFRICA							
Belgian Congo: Libenge	D	[1] 1					
British East Africa: Kenya	C	1					
French West Africa	C	1					
Gold Coast	C	[2] 2				[1] 1	
Ivory Coast [3]	C	[2] 2		[1] 2		[1] 1	[1] 1
Nigeria	C		1				
Senegal [4]	D		1				
Sierra Leone: Freetown	C	[1] 2					
Sudan (French)	D	1				[1] 1	
Togo: Hohoe	C	1					
SOUTH AMERICA [5]							
Brazil:							
Acre Territory	D	4					
Bahia State	D	1					
Para State	D	1					
Colombia:							
Boyaca Department	D	5					
Cundinamarca Department	D	3	1				
Intendencia of Meta	D	3					
Santander Department	D	2	2				

[1] Suspected.
[2] Includes 1 suspected case.
[3] During the week ended Oct. 17, 1942, 1 death from yellow fever was reported in Dimbokro, Ivory Coast.
[4] According to information dated Feb. 9, 1942, 15 deaths from yellow fever among Europeans have occurred in Senegal.
[5] All yellow fever in South America is of the jungle type unless otherwise specified.

MEDICAL STUDY OF MEN EXPOSED TO CARBON MONOXIDE[1]

A Review

Medical examinations of 156 traffic officers who had been on duty at the Holland Tunnel for 13 years and 4 months were made as a practical test of the effectiveness of the medical and engineering control methods set up for their protection. About half of these officers had been on tunnel duty every working day of this period. The carbon monoxide concentration to which traffic officers are exposed in the tunnel varies, of course, with traffic conditions, but the average exposure throughout all parts of the tunnels and for all hours of the day is probably not far from 0.7 parts of CO per 10,000 parts of air (70 p. p. m.). A few had worked as toll collectors. Their carbon monoxide exposure varied with traffic conditions and with wind velocity, but the results of several tests indicated that their heaviest exposure during peak traffic is not likely to average much more than 0.7 parts of CO per 10,000. Other men were assigned to the emergency garage, to desk duty, or to outside duty, all of them in places where the occupational exposure to carbon monoxide was negligible.

Included in the medical findings under discussion here are the results of examinations of the same men conducted by Surgeon A. L. Murray and Senior Surgeon A. E. Russell in 1932 after the officers had been on duty for 5 years.

At each examination the men, considered as a group, were found to be in excellent physical condition. There were no health impairments which because of their unusual nature, their excessive prevalence, or their severity would have signalized the presence of an occupational disease. Special search was made for signs and symptoms attributable to carbon monoxide intoxication and for the sequelae of acute episodes. No evidence of any such conditions was found.

[1] Sievers, Rudolph F., Edwards, Thomas I., and Murray, Arthur L.: A medical study of man exposed to measured amounts of carbon monoxide in the Holland Tunnel for 13 years. Public Health Bulletin No. 278. Government Printing Office, 1942. Available from the Superintendent of Documents, Washington, D. C., at 15 cents per copy.

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