

# Public Health Reports

Vol. 57 • SEPTEMBER 18, 1942 • No. 38

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## FREQUENCY AND VOLUME OF HOSPITAL CARE FOR SPECIFIC DISEASES IN RELATION TO ALL ILLNESSES AMONG 9,000 FAMILIES, BASED ON NATION-WIDE PERIODIC CAN- VASSES, 1928-31<sup>1</sup>

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The amount of hospital care received by a given population group depends to a considerable extent upon the circumstances under which such care can be obtained. Hospital admission rates are much higher in large cities than in rural areas, probably reflecting in part the relative paucity of facilities in the country together with reluctance to go to a distant hospital. The economic factor is also important, although it is masked by the fact that in large cities low income families often receive free hospital care; in terms of admissions and particularly of days of care the urban low income group gets more than the middle and as much or more than the high income groups. In rural areas where free care is relatively rare, the hospital admission rate rises rather regularly with income. The importance of the economic factor is further indicated by hospitalization among persons with prepaid care such as that provided by hospital service plans (34); the annual admission rate among these persons is roughly 50 percent higher than for the country as a whole and also considerably higher

<sup>1</sup> From Statistical Investigations, Division of Public Health Methods, National Institute of Health.

These are the first two sections of the eighteenth of a series of papers on sickness and medical care in this group of families (1-17). The remaining five sections, Comparison of hospitalized illness and general mortality, Distribution of cases by days of hospital care, Type of hospital, accommodations, and public clinic service, Summary, and References, will be published in the next issue of PUBLIC HEALTH REPORTS. 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 costs. 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.

Special thanks are due to Dr. Mary Gover and Miss Clara E. Council, who assisted in the analysis, to Mrs. Lily Vanzee Welch, who was in immediate charge of tabulating the data, and to other members of the statistical staff of the Public Health Service for advice and assistance in the preparation of the study.

than for large cities. This increased rate of hospitalization is in spite of the terms of the contract which exclude certain diagnoses from coverage.

The United States Army (18) and Navy (19) offer illustrations of extensive hospital facilities readily available without cost to the patient. In these services hospital admissions and days of care even in times of peace are far above those for civilians; in fact the question of whether the patient is to be hospitalized is largely a matter of convenience to him and the attending physician. While most estimates for the general civilian population indicate annual rates of roughly 60 to 75 hospital admissions per 1,000 and about 1 hospital day per person (exclusive of days in mental and tuberculosis hospitals) the peacetime army, in spite of favorable age distribution and presumably better than average health, receives about 10 days of hospital care per soldier per year. While the civilian annual rate of 1 hospital day per person amounts to only about one-eighth of the days of inability to work, in the Army about nine-tenths of the days excused from duty on account of illness are spent in hospitals. In the Navy where the men receive annually 6 to 7 days of hospital care per person, about four-fifths of the days excused from duty on account of illness are spent in a naval hospital or on a hospital ship, but of the total admissions to sick report only about half are admitted to a hospital.<sup>2</sup>

It is not intended to suggest that the civilian population needs or could profitably use as much hospital care as is received in the peacetime Army and Navy, for a large proportion of civilian patients can be properly treated at home for minor ailments and during convalescence. However, the various figures here cited indicate that the amount of hospital care used by a given population group varies largely with the convenience of hospital facilities, the ability to obtain the use of those facilities, and the habits of physicians and patients with respect to hospital care.

The present paper deals with hospital admission rates and days of care for specific diseases in a surveyed population considered as a whole, with special reference to the total illness suffered by the same group. A later paper will be devoted to variations in hospital rates with family income and in rural, urban, and metropolitan areas.

#### I. SOURCE AND CHARACTER OF DATA

In the study of illness in a group of families in 18 States<sup>3</sup> that was made by the Committee on the Costs of Medical Care (24) and

<sup>1</sup> No figure for admissions to hospitals is available for the Army.

<sup>2</sup> The 18 States sampled and the number of canvassed families were as follows: California (800), Colorado (386), Connecticut (100), District of Columbia (90), Georgia (544), Illinois (463), Indiana (494), Kansas (301), Massachusetts (287), Michigan (329), Minnesota (224), New York (1,710), Ohio (1,148), 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).

the United States Public Health Service, the record for each illness included a statement of the days of hospital care received during the 12-month study period and the type of hospital involved.

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.<sup>4</sup> 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 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, marital status, occupation, 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, the days of inability to pursue usual activities (disability), the days confined to bed, and finally the days confined to a hospital and the days of nursing care; the nature of any surgical procedures used; and other medical care received. Data about persons who were still sick at the preceding visit were brought up to date and when completed the termination of the case was entered.

*Definition of illness and hospital care as recorded in the survey.*—An illness, for the purpose of this study, was defined as any symptom, disorder, or affection which persisted for one or more days or for which medical service<sup>5</sup> 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 (usually the housewife'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. The relatively few but long institutional cases which are largely missed in family surveys would add little to the hospital admission rate but would greatly increase the days of hospital and institutional care. For this reason many of the data in this report

<sup>4</sup> 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.

<sup>5</sup> Exclusive of dental services, eye refractions, immunizations, and health examinations rendered when no symptoms were present.

are exclusive of cases in resident institutions such as those for mental diseases and tuberculosis.

An illness was considered as attended if any type of practitioner was called in or consulted about the case, including all hospital cases. The case was considered as hospitalized if the patient stayed in the hospital for one or more days, and included any who stayed over night and a few who 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. If an illness had two or more diagnoses, all were considered as being hospitalized even when the treatment pertained largely to only one disease; however, in counting total hospital cases for all causes each period of hospitalization was counted only once no matter how many diagnoses were involved.

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. Seven percent of all illnesses and 11 percent of hospitalized illnesses 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<sup>6</sup> are included as cases but the days refer to those within the study year only. The incomplete cases (those with prior onset and those still sick at the last report) usually average considerably longer durations than the complete cases and their exclusion would bias the results toward shorter averages. 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.<sup>7</sup>

<sup>6</sup> Except that the few cases hospitalized throughout the year are usually excluded.

<sup>7</sup> See comparison of diagnoses reported by families and by physicians in the Health survey of 1935-36 (30, table 2).

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.<sup>8</sup> In this paper, some tables are based on sole or primary causes only and others include the contributory causes; each table indicates which procedure was followed.

## II. EXTENT OF HOSPITAL CARE AS MEASURED BY VARIOUS TYPES OF RATES

Institutions for the care of the sick may be classified as nonresident and resident. The nonresident group includes general and special hospitals where individuals go for more or less temporary illness. Resident institutions are those for the care of diseases of such long duration that the patient virtually becomes a resident of the hospital and tends to lose his identity as a member of a family. This loss of family connections may come from the break-up of the family if the wife or the chief breadwinner is hospitalized, but where a grandparent is involved he or she may merely cease to be considered a part of the family. Because of this situation it is not feasible to obtain by house-to-house canvass a complete record of the extent of hospitalization in resident institutions. Therefore, the present study of hospital care is limited largely to that in nonresident hospitals reported under such terms as general, women's, children's, eye-ear-nose-throat, and communicable or isolation. For certain purposes the only exclusions are of cases hospitalized throughout the study year; other tabulations exclude all cases and days in hospitals for mental and nervous diseases, for tuberculosis, and for the resident care of other chronic diseases. This procedure omits a few short cases in these institutions and retains a few long ones in general hospitals but mainly eliminates the long chronic cases. The exclusions are relatively unimportant in current admissions but are very important in hospital days.

### ALL TYPES OF HOSPITAL CASES

*Summary of rates<sup>9</sup> and comparison with other studies.*—During the 12-month study period there were, exclusive of cases hospitalized

<sup>8</sup> Further details on the method of classifying the causes of illness are included in the first report in the series (1).

<sup>9</sup> The rates for the surveyed families quoted in this section have been adjusted to the age distribution of the white population of the United States in 1930. In other words, the rates are corrected for the fact that the surveyed sample did not have the same age distribution as the general population of the United States. Percentages of cases and of days quoted in this section are computed from adjusted rates rather than from the actual numbers of cases and days; similarly, days per case are computed from the adjusted rates. In no instance are these measures radically different from similar computations based on the actual numbers of cases; both results are shown in table 1. Rates published in the Committee report (24) were adjusted for income and size of city but not for age.

throughout the year, 61.6 hospital cases and 886 hospital days per 1,000 persons under observation.<sup>10</sup> Thus the average stay per case in hospitals of all kinds, excluding year-long cases, was 14.4 days. Of the total illnesses 7.5 percent were hospitalized and of the total days of sickness (disabling and nondisabling) 3.0 percent were spent in a hospital. Of the cases that caused inability to work or pursue other usual activities (disabling) for one or more days, 12.5 percent were hospitalized and of the total disabled days, 11.8 percent were spent in a hospital. Of the total cases that confined the patient to bed for one or more days, 14.9 percent were hospitalized and of the total days confined to bed 23.4 percent were spent in a hospital.<sup>11</sup>

The figures on hospitalization from this relatively small survey in which there was a total of only 2,357 hospital cases may be compared with rates obtained from the Annual Hospital Survey by the American Medical Association (27). While that survey is primarily a record of hospital facilities, it gives also the number of admissions during the year and the average number of patients in the hospital, from which the total days of hospital care can be computed. Since the family survey data include few patients in mental and tuberculosis hospitals, patients in these types of institutions are excluded from both reports.<sup>12</sup> During the years 1929 and 1930 to which the bulk of the family survey data pertain, the days of hospital care, exclusive of those in mental<sup>13</sup> and tuberculosis hospitals, as recorded in the American Medical Association report, amounted to 851 per 1,000 population as compared with 775 for the surveyed families. The American Medical Association report includes admissions only since 1931, and admissions to mental hospitals only since 1932. In 1932 the admissions reported, exclusive of those to mental and tuberculosis hospitals, indicate a rate of 55.7 per 1,000 population, as compared with 60.1 in the surveyed families. The average stay in the hospital, exclusive of mental and tuberculosis hospitals, was 15.4 days per case in the American Medical Association<sup>14</sup> data as compared with 12.9 for the surveyed families.

<sup>10</sup> The inclusion of the 16 cases reported as hospitalized throughout the year gives total rates of 61.9 cases and 1,029 hospital days per 1,000 persons under observation, with an average stay of 16.6 days per hospital case.

<sup>11</sup> In this study a day in the hospital is always counted as a day in bed even though the patient was not confined to his hospital bed throughout the day; similarly, a day in bed is always counted as a day of disability. The percentages quoted are based on figures from which cases hospitalized throughout the year are excluded from total, disabling, and bed cases and days as well as hospital cases and days.

<sup>12</sup> The American Medical Association report does not show separately the hospitals for other chronic diseases, so they are not excluded from the family survey data.

<sup>13</sup> Mental hospitals as used here and elsewhere in this paper include both mental and nervous.

<sup>14</sup> Hospital admissions in the American Medical Association report apparently are exclusive of newborn infants which was the practice in the family survey also.

The great effect upon the days of hospitalization per 1,000 of the long chronic cases hospitalized in mental and tuberculosis hospitals is indicated by the fact that for 1929-30 the total annual hospital days per 1,000 population were 2,315, of which 1,205 were in mental and 159 in tuberculosis hospitals. Days of hospital care for 1932 were about the same, 2,361 per 1,000 for all hospitals and 857 for all except mental and tuberculosis hospitals. The admission rate for 1932 was 57.8 per 1,000 for all hospitals, with only 1.36 per 1,000

The recent hospital survey of public general hospitals in Ontario (31) affords data for another comparison. The annual rate for 1929-30 in these hospitals was 57.1 patients treated and 802 hospital days<sup>16</sup> per 1,000 population, as compared with 60.1 cases and 775 hospital days in the present family survey when data for mental and tuberculosis hospitals are excluded.<sup>16</sup>

Hospitalization has apparently increased considerably during the past decade. Considering hospitals exclusive of mental and tuberculosis institutions, the American Medical Association data indicate annual hospital days per 1,000 population of 948 for 1938 and 1,021 for 1940, as compared with 851 for 1929-30 and 857 for 1932. Admissions to the same types of hospitals amounted in 1938 to 70.3 and in 1940 to 74.5 cases per 1,000 population as compared with 55.7 in 1932.<sup>17</sup> The Canadian report (31) shows an increase in patients treated in public general hospitals in the Province of Ontario from 57.1 per 1,000 population in 1929-30 and 56.7 in 1932 to 66.9 in 1938; hospital days per 1,000 in Ontario increased from 802 in 1929-30 and 779 in 1932 to 864 in 1938. The above rates are exclusive of the newborn, but the Ontario report gives data back to 1900 with the newborn included. Patients treated in public general hospitals in Ontario amounted to 14 per 1,000 population in 1900, 21 in 1910, 46 in 1920, 65 in 1930 and 76 in 1938; hospital days per 1,000 in the same hospitals were 332 in 1900, 405 in 1910, 679 in 1920, 882 in 1930, and 958 in 1938. As the use of hospitals has increased by less severe cases being hospitalized, the hospital days per case have gradually decreased from 24.5 in 1900 to 12.7 in 1938.

for mental and 0.75 for tuberculosis hospitals. The hospital days per case in 1932 were 40.8 for all hospitals and 15.4 for all except mental and tuberculosis hospitals.

All of the American Medical Association hospital data refer only to registered hospitals, that is, hospitals recognized by the American Medical Association and included in their report. Data for unregistered hospitals for 1936 are given in a Public Health Bulletin on hospital facilities (28, p. 27). While the unregistered hospitals amounted to 23 percent of the total of registered and unregistered hospitals, beds in unregistered hospitals amounted to only 3.5 percent of total beds, patients admitted during the year to only 2.4 percent of the total, and days of hospitalization to only 1.6 percent of total days of hospital care. Although the number of unregistered hospitals is considerable they are small institutions which furnish only a small proportion of the total hospital service and can be neglected in considering the total.

<sup>16</sup> The rates for Ontario are based on admissions exclusive of newborn infants since that was the practice in the family survey except where the infant was reported as sick.

<sup>17</sup> The Health Survey of 1935-36 covering 83 cities and towns (20) collected data on hospital cases and days. Year-long cases were considerably underreported. Because of the emphasis placed upon cases disabling for 7 days or longer, hospital cases of less than 7 days were also underreported. When the data are limited to cases in the hospital for 7 days but less than a year the rates were as follows: annual hospital days per 1,000 population, 801 for the present study and 841 for the Health Survey; hospital admissions, 33 cases per 1,000 during the year for both studies; and hospital days per case, 24.2 for the present study and 25.4 for the Health Survey.

<sup>18</sup> Considering the American Medical Association data for all types of hospitals, the annual days of hospital care amounted in 1938 to 2,715 and in 1940 to 2,845 per 1,000 population, as compared with 2,215 in 1929-30 and 2,361 in 1932. Admissions to all hospitals amounted in 1938 to 72.6 and in 1940 to 76.6 per 1,000 population as compared with 57.8 in 1932.

*Age and sex differences in total hospital rates.*—The extent of hospitalization varies at different ages and for the two sexes because of variation in sickness rates and in the percentage of cases hospitalized. Table 1 shows a variety of rates by age and sex for all causes with an additional group among females of all causes except female genital and puerperal diagnoses;<sup>18</sup> the exclusion of diseases of the male genital organs makes little change in the curves. There is a further separation of cases into those with some surgical treatment and others which are designated as nonsurgical; rates for the total of both surgical and nonsurgical include all cases except the few that were in a hospital throughout the study year. Since the number of surgical cases in hospitals for mental diseases and tuberculosis and in other sanatoriums were negligible (only two cases in this study), the rates for surgical cases include all cases. However, a small number of nonsurgical chronic cases with extremely long durations in hospitals of the types mentioned contribute an excessive proportion of the total days of hospital care and overshadow in this respect the many short cases. Therefore, the rates in table 1 for nonsurgical cases and days include only those in general and special hospitals other than mental, tuberculosis, and other sanatoriums. The extent of the exclusions can be determined by adding the rates for surgical and nonsurgical cases and subtracting that sum from the rate for total cases, which includes those in mental and other sanatoriums, except year-long cases.

For all ages combined, the adjusted rate for hospital admissions for males amounted to 46.0 per 1,000 as compared with 74.5 for females and 48.6 for all except female genital and puerperal diagnoses. Thus there are no large differences when diagnoses not common to the two sexes are eliminated. Males had a rate of 795 hospital days per 1,000 population as compared with rates for females of 950 for all causes and 635 for all except female genital and puerperal diagnoses.

Figure 1 shows various rates and percentages by age and sex for all causes and all except female genital and puerperal diagnoses, excluding only year-long hospital cases. With the exception of high hospital day rates for males of the oldest ages, there are no large differences between the sexes when female genital and puerperal diagnoses are excluded. However, when all cases are included there is a very large excess for females of the childbearing ages for both hospital cases and days.

When female genital and puerperal diagnoses are excluded there is relatively little variation with age in the admission rate for either sex, with only moderately higher rates among children and in the older ages. Hospital days per case generally increase with age.

<sup>18</sup> 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.



TABLE 1.—Age and sex incidence of hospitalized illness from all causes as measured by various types of rates—8,758 canvassed white families in 18 States during 12 consecutive months, 1928-31

Sex and type of rate	All ages †						Age †							65 and over
	Number of cases or days	Adjusted ‡	Crude	Under 5	5-9	10-14	15-19	20-24	25-34	35-44	45-54	55-64		
Hospital cases † per 1,000 population during year:														
Total:	2,341	61.6	60.7	49.7	62.6	44.7	45.2	83.1	92.6	62.6	45.1	44.8	68.1	
Both sexes, all causes.....	890	46.0	47.1	58.0	66.0	38.2	36.7	39.1	42.5	42.0	33.1	44.8	75.5	
Male, all causes.....	1,447	74.5	73.7	39.9	59.4	51.2	53.8	115.1	120.7	83.4	59.8	44.8	62.4	
Female, all except genital and puerperal.....	956	48.6	48.7	39.9	59.4	51.2	46.6	48.2	50.6	41.3	51.1	41.9	58.8	
Surgical:														
Both sexes, all causes.....	1,452	36.6	37.7	33.7	50.9	36.8	29.5	39.2	42.9	37.4	28.3	26.1	38.1	
Male, all causes.....	618	30.8	32.7	39.5	53.9	30.4	23.6	29.1	26.6	26.9	20.1	23.6	34.3	
Female, all causes.....	834	41.7	42.5	27.9	48.0	43.2	35.5	46.5	52.8	48.1	33.9	26.9	41.0	
Female, all except genital and puerperal.....	686	33.9	35.0	27.9	48.0	43.2	34.1	34.3	34.0	28.8	23.6	23.9	37.4	
Nonsurgical † except institutional:														
Both sexes, all causes.....	816	22.8	21.2	15.6	10.3	6.3	13.4	41.5	47.0	23.3	16.7	17.0	28.0	
Male, all causes.....	240	13.1	12.7	17.8	10.3	7.8	10.5	10.1	10.8	13.1	11.4	17.4	32.0	
Female, all causes.....	572	30.4	29.1	11.9	10.4	4.9	16.4	64.5	73.8	33.5	23.2	16.4	16.0	
Female, all except genital and puerperal.....	229	12.3	11.7	11.9	10.4	4.9	10.5	9.8	13.6	10.8	10.9	16.4	16.0	
Hospital days † per 1,000 population during year:														
Total:	31,035	886	805	524	503	588	654	1,052	1,222	915	768	903	1,917	
Both sexes, all causes.....	13,112	795	694	666	521	466	750	537	736	650	577	633	2,885	
Male, all causes.....	17,631	940	898	272	485	712	557	1,428	1,582	1,183	1,001	1,077	2,665	
Female, all except genital and puerperal.....	11,668	635	594	272	485	712	485	612	657	649	866	620	1,109	
Surgical:														
Both sexes, all causes.....	12,972	381	337	133	195	266	210	477	424	477	409	437	961	
Male, all causes.....	5,670	244	301	200	224	320	147	438	294	341	270	489	1,057	
Female, all causes.....	7,293	416	372	64	168	292	273	506	531	615	547	368	884	
Female, all except genital and puerperal.....	5,399	316	275	64	168	202	267	384	306	353	466	308	840	
Nonsurgical † except institutional:														
Both sexes, all causes.....	12,367	335	321	363	226	137	163	492	579	316	228	263	540	
Male, all causes.....	4,437	258	245	431	210	137	153	98	168	214	214	284	1,007	
Female, all causes.....	7,438	384	379	207	242	136	173	779	643	434	344	269	1,176	
Female, all except genital and puerperal.....	5,369	170	172	207	242	136	108	114	133	163	210	289	1,176	
Percent of total cases † that were hospitalized:														
Both sexes, all causes.....	32,736	7.5	7.2	4.1	6.4	6.6	7.6	12.4	11.3	8.1	5.9	5.3	7.0	
Male, all causes.....	18,189	6.4	6.1	4.7	6.6	6.6	8.6	12.6	7.0	6.8	3.3	6.2	8.9	
Female, all causes.....	18,187	8.1	8.0	3.4	6.2	7.6	8.5	13.9	13.3	8.9	6.8	4.3	3.8	
Female, all except genital and puerperal.....	16,367	3.8	3.8	3.4	6.2	7.7	7.9	7.7	6.8	3.1	3.8	4.3	3.5	

See footnotes at end of table.

TABLE 1.—Age and sex incidence of hospitalized illness from all causes as measured by various types of rates—8,758 convalesced white families in 18 States during 12 consecutive months, 1928-31—Continued

Sex and type of rate	All ages †										65 and over		
	Number of cases or days	Adjusted ‡	Crude	Under 5	5-9	10-14	15-19	20-24	25-34	35-44		45-54	55-64
Percent of total cases † that were hospitalized—Con.													
Surgical:													
Both sexes, all causes.....	2,489	60.6	59.5	49.5	57.9	68.5	69.6	65.4	62.5	65.9	60.7	60.7	66.7
Male, all causes.....	1,187	53.0	52.1	48.1	54.3	46.1	47.4	54.2	52.6	56.7	54.4	55.9	71.4
Female, all causes.....	1,252	67.3	66.6	51.7	62.3	72.6	72.0	72.2	67.9	72.4	66.2	68.9	63.9
Female, all except genital and puerperal.....	1,068	64.7	64.2	52.4	62.3	72.6	71.2	68.9	64.7	64.9	64.2	64.0	61.8
Nonsurgical † except institutional:													
Both sexes, all causes.....	30,224	3.0	2.7	1.4	1.2	1.0	2.5	6.8	6.3	3.3	2.8	2.1	2.5
Male, all causes.....	13,370	2.0	1.8	1.1	1.1	1.3	2.1	2.5	2.0	2.3	1.9	2.6	4.0
Female, all causes.....	16,844	3.6	3.4	1.1	1.2	.8	2.8	8.5	8.2	3.9	2.7	1.7	1.6
Female, all except genital and puerperal.....	15,488	1.6	1.5	1.1	1.2	.8	2.0	1.7	2.0	1.4	2.4	1.8	1.6
Percent of disabling cases † that were hospitalized:													
Total:	19,871	12.5	11.8	7.5	8.6	9.3	12.2	19.3	19.0	14.7	11.5	10.5	12.4
Both sexes, all causes.....	8,920	10.6	10.0	8.6	9.0	8.0	10.9	13.4	11.9	11.9	9.7	11.5	15.9
Male, all causes.....	10,942	13.8	13.2	6.1	8.3	10.6	13.2	21.7	22.2	16.6	13.1	9.5	10.3
Female, all except genital and puerperal.....	9,701	10.2	9.9	6.1	8.3	10.7	12.5	13.8	12.8	10.2	12.0	9.0	9.8
Percent of bed cases † that were hospitalized:													
Total:	16,712	14.9	14.0	8.2	11.1	12.0	15.8	22.3	21.5	17.0	13.5	13.1	13.7
Both sexes, all causes.....	7,143	13.3	12.4	9.4	11.6	10.5	14.8	17.8	15.2	15.3	12.3	15.5	19.0
Male, all causes.....	9,560	15.7	15.2	6.7	10.7	13.5	16.5	23.8	23.8	18.0	14.4	11.0	10.9
Female, all except genital and puerperal.....	8,333	11.8	11.5	6.7	10.7	13.6	15.8	15.8	11.2	11.3	13.2	10.3	10.4
Surgical:													
Both sexes, all causes.....	1,919	77.7	75.7	64.6	68.8	75.3	81.8	76.9	76.3	84.7	88.0	90.2	95.0
Male, all causes.....	865	73.6	71.4	64.7	67.3	65.4	73.5	74.3	71.9	84.2	84.1	80.5	100.0
Female, all causes.....	1,054	80.8	79.1	70.6	70.6	84.5	88.5	78.1	78.8	85.0	91.5	90.0	92.9
Female, all except genital and puerperal.....	882	79.6	77.8	64.7	70.6	84.5	88.1	73.7	79.1	81.0	91.5	88.9	91.3
Nonsurgical † except institutional:													
Both sexes, all causes.....	14,720	6.2	5.5	2.8	2.1	2.0	5.4	13.0	12.6	7.2	5.5	5.4	5.1
Male, all causes.....	6,256	4.4	3.8	2.2	2.1	2.5	4.9	3.6	4.6	5.4	4.7	6.7	9.0
Female, all causes.....	8,455	7.2	6.8	2.2	2.1	1.5	5.8	13.4	13.5	8.3	6.2	4.4	2.1
Female, all except genital and puerperal.....	7,410	3.4	3.1	2.2	2.1	1.5	4.1	3.8	4.4	3.3	5.6	4.4	3.1
Percent of sick days † that were hospital days:													
Total:	1,007,697	3.0	3.1	2.5	2.7	3.7	4.0	5.2	4.4	3.0	2.0	1.8	2.6
Both sexes, all causes.....	401,519	3.4	3.3	3.1	2.9	3.2	5.0	4.3	4.1	3.1	2.0	2.8	4.7
Male, all causes.....	605,903	2.7	2.9	1.3	2.6	4.1	3.2	5.5	4.5	3.0	2.0	1.0	1.4
Female, all except genital and puerperal.....	540,470	2.0	2.2	1.3	2.6	4.2	2.9	3.1	2.5	2.0	1.9	1.0	1.3

Percent of disabled days † that were hospital days:											
Total:	277,963	11.2	7.4	5.8	10.1	14.4	17.4	16.4	13.9	11.7	10.4
Both sexes, all causes.....	128,520	11.4	8.9	6.9	8.2	16.2	12.4	12.3	11.5	9.6	12.3
Male, all causes.....	149,365	11.9	4.0	5.8	12.0	12.5	19.6	18.6	11.9	13.7	7.9
Female, all except genital and puerperal.....	128,036	9.3	4.0	5.8	12.1	11.9	13.7	12.4	11.7	12.7	7.5
Percent of bed days † that were hospital days:											
Total:	136,399	22.4	14.1	15.3	22.6	28.7	35.1	30.8	28.8	22.1	21.8
Both sexes, all causes.....	54,621	27.0	16.3	15.7	19.0	33.8	35.6	30.4	29.9	23.0	33.8
Male, all causes.....	81,532	20.9	8.2	14.9	25.9	23.9	36.3	31.0	23.4	26.5	9.1
Female, all except genital and puerperal.....	67,236	16.8	8.3	14.9	25.9	23.3	30.4	23.3	18.7	19.0	8.8
Hospital days per hospital case:											
Total:	2,341	13.3	10.5	8.0	13.2	14.4	12.7	13.2	14.6	17.0	21.5
Both sexes, all causes.....	890	17.3	11.5	7.9	12.6	20.4	18.7	17.3	16.5	17.5	27.0
Male, all causes.....	1,447	12.8	6.8	8.2	13.6	10.4	12.4	12.2	14.2	16.8	14.8
Female, all except genital and puerperal.....	1,956	13.1	6.8	8.2	13.9	10.4	12.7	13.0	15.7	16.9	14.8
Surgical:											
Both sexes, all causes.....	1,452	10.4	4.0	3.8	7.2	7.1	12.2	9.9	12.8	15.6	25.2
Male, all causes.....	618	11.2	5.1	4.2	10.2	6.3	15.1	9.9	12.7	13.9	30.8
Female, all causes.....	834	10.0	2.3	3.2	4.7	7.8	10.3	9.9	12.8	16.7	13.1
Female, all except genital and puerperal.....	686	9.3	2.3	3.5	4.7	7.5	10.3	9.0	12.3	16.3	12.9
Nonsurgical † except institutional:											
Both sexes, all causes.....	816	14.7	23.6	21.9	21.5	12.1	11.8	12.3	13.6	13.6	23.4
Male, all causes.....	240	19.7	23.6	20.4	17.6	14.6	9.8	20.0	15.2	18.8	31.4
Female, all causes.....	572	12.6	17.4	23.4	28.0	10.6	12.1	11.4	12.9	10.5	11.0
Female, all except genital and puerperal.....	229	13.8	17.4	23.4	28.0	10.3	11.7	9.8	14.9	10.5	14.5
Hospital nursing cases † per 1,000 population during year:											
Total:	475	13.6	6.3	7.3	7.0	10.2	15.6	17.9	16.7	14.6	27.1
Both sexes, all causes.....	165	10.0	6.1	8.5	6.5	7.9	10.1	7.9	8.7	9.2	32.0
Male, all causes.....	309	16.9	6.3	6.2	7.5	12.5	19.6	25.3	24.7	21.3	23.2
Female, all causes.....	212	11.9	6.3	6.2	7.5	11.8	13.9	10.8	12.9	17.9	23.2
Female, all except genital and puerperal.....	Surgical:										
Both sexes, all causes.....	344	8.9	4.0	5.8	6.6	7.5	11.8	11.3	12.3	10.1	18.0
Male, all causes.....	113	6.9	4.3	6.4	5.6	3.9	8.9	5.8	6.4	6.5	16.0
Female, all causes.....	228	11.5	3.7	5.2	7.6	11.2	13.9	15.4	18.3	14.6	19.6
Female, all except genital and puerperal.....	180	10.1	3.7	5.2	7.5	11.2	12.2	9.9	11.5	12.0	19.6
Nonsurgical † except institutional:											
Both sexes, all causes.....	125	3.6	2.4	1.6	.4	2.3	3.3	6.4	4.4	4.2	9.0
Male, all causes.....	44	2.8	1.8	2.1	.9	3.3	1.1	2.1	2.3	2.2	5.6
Female, all causes.....	80	4.2	4.1	1.0	1.3	4.9	9.6	6.4	6.4	6.6	3.6
Female, all except genital and puerperal.....	29	1.6	2.6	1.0	.7	.8	.8	.6	1.4	6.0	3.6
Hospital nursing days † per 1,000 population during year:											
Total:	3,920	119.8	101.7	38.8	32.4	94.4	160.0	138.3	169.3	133.1	293.6
Both sexes, all causes.....	1,355	91.3	71.7	59.6	30.0	79.9	168.9	44.1	82.9	73.9	140.6
Male, all causes.....	2,547	146.8	129.8	18.7	34.8	109.0	183.5	245.6	263.2	203.2	244.2
Female, all except genital and puerperal.....	1,583	97.3	80.7	18.7	34.8	107.7	95.5	75.0	120.6	178.6	244.2

See footnotes at end of table.

TABLE 1.—Age and sex incidence of hospitalized illness from all causes as measured by various types of rates—8,758 convalesced white families in 18 States during 12 consecutive months, 1928-31—Continued

Sex and type of rate	All ages 1			Age 7							65 and over		
	Number of cases or days	Adjusted	Crude	Under 5	5-9	10-14	15-19	20-24	25-34	35-44		45-54	55-64
<b>Surgical:</b>													
Both sexes, all causes.....	2,788	86.0	72.3	13.8	32.0	31.7	52.1	110.0	77.8	129.0	105.0	129.7	228.5
Male, all causes.....	2,974	65.8	51.5	17.8	47.2	28.7	26.2	153.2	37.9	58.7	50.9	102.0	242.6
Female, all causes.....	1,814	107.6	92.4	9.7	17.3	34.8	78.1	78.4	16.5	199.9	171.3	162.9	217.5
Female, all except genital and puerperal.....	1,322	82.1	67.4	9.7	17.3	34.8	78.1	69.4	62.4	107.1	147.4	133.0	217.5
Nonsurgical & except institutional:													
Both sexes, all causes.....	1,056	31.1	27.4	14.7	6.8	7	39.3	44.8	59.9	40.3	16.1	12.9	68.1
Male, all causes.....	320	21.6	16.9	10.7	12.4	1.3	47.8	15.7	6.2	24.2	3.3	23.6	121.3
Female, all causes.....	718	38.1	36.6	12.3	1.4	1.3	30.9	66.1	99.8	56.6	31.9	26.7	283.7
Female, all except genital and puerperal.....	246	14.3	12.5	12.3	1.4	-----	29.5	17.1	12.7	13.6	31.2	-----	26.7
Percent of hospital cases that had a special nurse in the hospital:													
Total:													
Both sexes, all causes.....	2,341	22.1	20.3	12.8	11.7	15.7	22.5	18.7	19.3	26.7	32.5	33.3	39.7
Male, all causes.....	2,890	21.7	18.5	10.4	12.9	17.0	21.4	25.7	18.6	20.8	27.9	33.3	42.4
Female, all causes.....	1,447	22.7	21.4	15.9	10.5	14.7	23.2	17.0	19.5	29.7	35.6	33.2	37.1
Female, all except genital and puerperal.....	956	24.6	22.2	15.9	10.5	14.7	25.4	28.8	21.3	31.1	35.1	32.1	39.4
Surgical:													
Both sexes, all causes.....	1,452	26.8	23.7	11.8	11.3	17.9	25.6	30.1	26.4	52.9	38.6	48.6	47.4
Male, all causes.....	618	22.5	19.1	10.8	10.4	18.6	16.7	30.8	19.7	23.7	32.4	47.4	46.7
Female, all causes.....	834	29.9	27.1	13.3	10.8	17.3	31.5	29.8	29.2	38.0	43.1	50.0	47.8
Female, all except genital and puerperal.....	686	29.8	26.2	13.3	10.8	17.3	32.7	35.7	29.1	40.0	41.9	50.0	52.4
Nonsurgical & except institutional:													
Both sexes, all causes.....	816	15.7	15.3	15.1	15.3	6.9	17.1	8.0	13.6	18.8	25.0	8.0	39.1
Male, all causes.....	240	21.8	18.3	10.0	10.0	11.1	31.3	11.1	19.2	17.9	19.0	14.3	50.0
Female, all causes.....	572	13.8	14.0	21.9	10.0	8.0	7.6	13.0	19.2	19.2	28.6	22.2	22.2
Female, all except genital and puerperal.....	229	13.2	12.7	21.9	10.0	-----	6.3	8.3	4.5	12.5	30.0	-----	22.2
Percent of hospital days that were hospital nursing days:													
Total:													
Both sexes, all causes.....	31,035	13.5	12.6	5.4	7.7	5.5	14.4	15.2	11.3	18.5	17.3	15.7	15.5
Male, all causes.....	13,112	11.3	10.3	4.3	11.4	6.4	10.7	31.5	6.0	12.8	13.1	11.6	12.6
Female, all causes.....	17,631	14.3	14.4	8.1	3.8	4.9	19.6	10.7	13.2	21.7	20.3	24.7	21.1
Female, all except genital and puerperal.....	11,668	16.3	13.0	8.1	3.8	4.9	22.3	15.6	11.6	18.6	20.6	21.7	22.0
Surgical:													
Both sexes, all causes.....	12,972	22.6	21.5	10.3	16.4	12.0	24.8	23.0	18.3	27.0	25.7	30.4	23.8
Male, all causes.....	5,679	19.1	17.2	8.9	21.1	8.7	17.3	34.9	12.9	17.2	18.3	20.9	22.9

Female, all causes.....	7,293	24.9	15.0	10.3	17.3	28.6	15.5	20.6	32.5	30.2	46.2	24.5
Female, all except genital and puerperal.....	6,369	24.5	15.0	10.3	17.3	28.6	15.5	20.6	32.5	31.6	45.2	23.9
Nonsexual <sup>1</sup> except institutional:												
Both sexes, all causes.....	12,367	8.5	4.0	3.0	.5	24.1	9.1	10.4	12.8	7.1	4.9	12.6
Male, all causes.....	4,657	6.9	2.5	5.9	.9	31.2	16.9	2.9	2.9	1.5	8.3	12.0
Female, all causes.....	7,488	9.9	5.9	.6	.....	17.8	8.5	11.8	13.0	13.0	.....	15.2
Female, all except genital and puerperal.....	3,369	8.4	5.9	.6	.....	27.4	15.0	9.5	8.4	14.9	.....	15.2
Hospital nursing days <sup>2</sup> per hospital case <sup>3</sup> with a special nurse:												
Total:												
Both sexes, all causes.....	475	8.8	4.5	5.3	4.6	9.3	10.3	7.7	10.1	9.1	10.1	11.0
Male, all causes.....	165	9.1	4.7	7.0	4.6	10.2	16.8	5.5	9.5	8.2	9.4	11.4
Female, all causes.....	309	8.7	3.5	3.0	4.6	8.7	7.8	8.2	10.4	9.6	11.0	10.5
Female, all except genital and puerperal.....	212	8.1	7.5	3.0	4.6	9.1	6.9	7.0	9.4	10.0	10.0	10.5
Surgeal:												
Both sexes, all causes.....	344	8.8	8.1	3.5	5.5	6.9	9.3	6.9	10.5	10.4	10.6	12.7
Male, all causes.....	118	9.5	8.3	4.2	7.4	6.7	17.1	6.5	9.2	7.8	9.1	15.1
Female, all causes.....	228	8.6	8.0	2.6	3.3	4.6	5.6	7.0	10.9	12.7	12.1	11.1
Female, all except genital and puerperal.....	180	8.1	7.3	2.6	3.3	7.0	5.7	6.3	9.3	11.3	11.1	11.1
Nonsexual <sup>1</sup> except institutional:												
Both sexes, all causes.....	125	8.7	8.4	6.2	4.3	17.1	13.6	9.4	9.2	3.9	9.5	7.6
Male, all causes.....	44	7.6	7.3	6.0	5.8	14.6	14.0	3.0	10.3	1.5	9.5	7.6
Female, all causes.....	80	9.1	9.0	4.7	1.3	23.5	13.5	10.4	8.8	4.8	.....	7.5
Female, all except genital and puerperal.....	29	8.8	8.5	4.7	1.3	45.0	21.0	20.5	10.0	5.2	.....	7.5

<sup>1</sup> All ages includes a few of unknown age; both sexes includes a few of unknown sex.  
<sup>2</sup> Rates in the form of cases or days per 1,000 population are adjusted by the direct method to the age distribution of the white population of the death registration States in 1930 as a standard population; this population is given for specific ages in table 1 of a preceding paper (4).  
<sup>3</sup> Figures in the "adjusted" column on days per case represent the result of dividing the adjusted rate for days per 1,000 by the adjusted rate for cases per 1,000; figures in the "adjusted" column for percentages of cases or percentage of days represent the percentage that one adjusted rate per 1,000 is of another adjusted rate per 1,000.  
<sup>4</sup> Hospital cases represent periods of illness spent in a hospital regardless of the numbers of diagnoses; that is, these totals for all causes are the sums of data for cases with sole or primary diagnoses. They include cases in all types of hospitals for 1 night or longer, except the few cases in hospitals throughout the study year (16 cases). All other non-surgical cases in mental and tuberculosis hospitals and other sanatoriums (73 cases) as well as the 16 cases mentioned above, are excluded from the non-surgical cases; 2 short surgical cases in hospitals of this type were included as negligible. Thus total cases, which means surgical plus non-surgical, includes 73 institutional cases not included in either subgroup.  
 Hospital cases include those admitted prior to but receiving hospital inpatient service within the study year and cases still in the hospital at the end of the year of observation; hospital days include only those within the study year. In computing total hospital days, hospital cases with an unknown number of days were put in at an average based

on cases of the same diagnosis group with known hospital days, exclusive of the few cases in a hospital throughout the study year.  
 Illness from accident is included along with that due to disease. Infants born in a hospital are not counted as cases unless they were sick.  
<sup>5</sup> Total cases include those with symptoms lasting 1 day or longer and sick days include both disabling and non-disabling days; disabling cases refer to those causing inability to work, attend school, care for the home, or pursue other usual activities for 1 day or longer regardless of age or employment status; bed cases refer to those confining the patient to bed or hospital for 1 day or longer; for further details and rates per 1,000 see table 1 of a preceding paper (4).  
<sup>6</sup> Hospital cases with a nurse include all that had one or more private duty nurses for 1 or more days or nights or both; nursing provided as a part of the hospital service is not included.  
<sup>7</sup> A day with two or more private nurses within the 24 hours is counted as only 1 nursing day to put nursing and hospital days on the same basis; nursing provided as a part of the hospital service is not included here.  
<sup>8</sup> 24: hospital days per case, all cases, male 17.9, female 11.7, female except 11.5; percent of all hospital cases that special nurses made 23.1, female 19.3, female except 26.9; percent of all hospital days that were hospital nursing days, male 16.8, female 15.6, female except 15.9; hospital days per 1,000 males, surgical 206, non-surgical 158; hospital days per case for males, surgical 10.6, non-surgical 12.3.

The percentage of disabling and bed cases that were hospitalized show two types of differences between the sexes, (a) a higher percentage of all disabling and bed cases are hospitalized among females of the childbearing ages, but this is not true of diagnoses common to

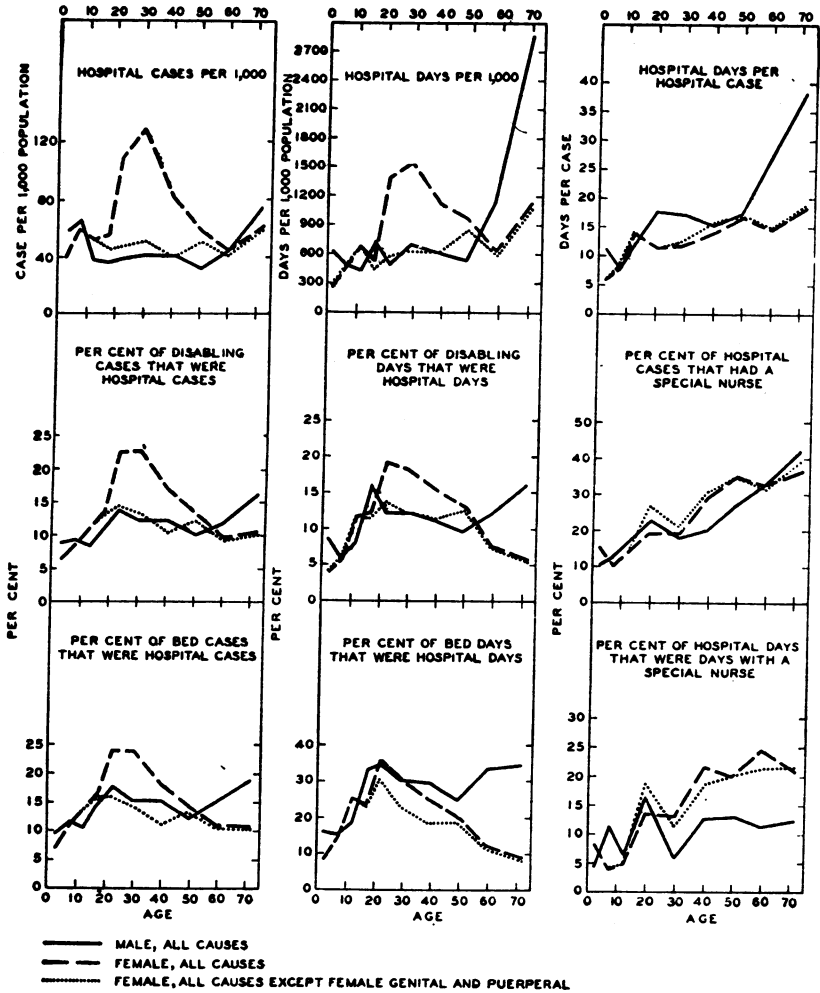


FIGURE 1.—Annual volume of hospital care for illness from all causes as measured by various types of rates for males and females of specific ages—8,758 canvassed white families in 18 States during 12 consecutive months, 1928-31. (Includes all except cases in hospital throughout year. Scales are so made that the adjusted rate for all ages of both sexes represents an interval on the vertical rate scale that corresponds to approximately 30 years on the horizontal age scale.)

the two sexes, (b) in the ages above 55 years males show a higher percentage of cases hospitalized; this difference between the sexes is more marked in the percentage of the days in bed that were spent in a hospital.

Hospital cases represent a selection of the severe illnesses in the community; this situation is emphasized by the fact that 22 percent

of the hospitalized illnesses had the exclusive services for one or more of the days or nights in the hospital of a special private-duty nurse, presumably paid by the patient. Of the total hospital days, 14 percent were days with a special nurse for one or more of the two or three nursing shifts of the 24-hour hospital day. Of the hospital cases with a special private duty nurse, 65 percent had one such nurse during some part of at least one 24-hour hospital day, and 35 percent had two or more special nurses during at least one 24-hour day. The percentage of cases with a special nurse in the hospital increases with age, but there are no large differences between the sexes; however, the percentage of hospital days with a special nurse is greater for adult females than males (fig. 1).

TABLE 2.—Hospital admissions per 1,000 population and the percentage of cases hospitalized among single and married males and females of specific ages—8,758 canvassed white families in 18 States during 12 consecutive months, 1928-31

Age and marital status	All causes <sup>1</sup>			Female, except genital and puer-peral	All causes <sup>1</sup>			Female, except genital and puer-peral
	Both sexes	Male	Female		Both sexes	Male	Female	
	Hospital cases per 1,000 population during year				Number of hospital cases			
Total 20-34:	53.0	43.4	62.9	56.2	96	40	56	50
Single.....	101.6	41.0	142.4	47.9	596	97	499	168
Married.....								
20-24:	51.2	45.5	57.8	56.0	63	30	33	32
Single.....	129.3	21.5	168.5	42.1	113	5	108	27
Married.....								
25-29:	52.2	34.7	68.1	57.6	19	6	13	11
Single.....	105.1	39.9	147.5	43.9	221	33	188	56
Married.....								
30-34:	64.2	44.4	78.1	54.7	11	4	10	7
Single.....	90.6	45.3	127.8	53.5	262	59	203	85
Married.....								
	Percent of total cases that were hospitalized				Population (years of life)			
Total 20-34:	9.9	9.7	10.1	9.2	1,812	922	890	
Single.....	11.9	6.7	14.0	6.4	5,869	2,364	3,505	
Married.....								
20-24:	9.9	10.4	9.6	9.6	1,290	659	571	
Single.....	14.5	4.3	16.3	6.4	874	233	641	
Married.....								
25-29:	10.3	7.8	12.0	10.4	364	173	191	
Single.....	12.3	6.7	14.5	6.0	2,103	828	1,275	
Married.....								
30-34:	9.2	8.3	9.6	6.9	218	90	126	
Single.....	10.7	7.0	12.6	6.8	2,892	1,303	1,589	
Married.....								

<sup>1</sup> Exclusive of a few cases in a hospital throughout the study year.

Table 2 shows by sex and marital status hospital admission rates and the percentage of cases hospitalized among persons 20 to 34 years of age. Among males there are no consistent differences between admission rates for the married and the single. Among females the admission rates for all causes and the percentage of cases hospitalized are consistently higher for the married, but when female genital and puerperal diagnoses are excluded the rates and percentages are rather consistently lower for the married than the single. Admission rates

for all causes and also for all except female genital and puerperal diagnoses are rather consistently higher for females than for males of like marital status, but this is not true of the percentage of cases hospitalized.

TABLE 3.—Percentage of hospital admissions and days due to certain diagnoses—all causes except mental and nervous diseases and tuberculosis in 4 studies<sup>1</sup> of hospital morbidity

[Sole or primary diagnoses except in New York study<sup>1</sup>]

Diagnosis	Percentage of hospital cases due to each diagnosis				Percentage of hospital days due to each diagnosis		Hospital days per hospital case	
	Can- vassed white families, 1928-31	Ontario public general hospi- tals, 1936	Balti- more, 1926-35	New York City, 1933	Can- vassed white families, 1928-31	Ontario public general hospi- tals, 1936	Can- vassed white families, 1928-31	Ontario public general hospi- tals, 1936
All causes except mental and nervous and tuberculosis . . .	100	100	100	100	100	100	11.4	13.5
Tonsil and adenoid diseases . . . . .	28.0	13.3	24.9	10.3	4.6	1.8	1.9	1.8
Deliveries and abortions . . . . .	16.3	16.1	18.1	11.0	16.6	13.4	11.7	11.2
Accidental injuries . . . . .	9.0	11.4	6.9	8.6	11.2	12.0	14.3	14.3
Appendicitis . . . . .	8.4	8.0	4.5	4.3	10.1	7.8	13.8	13.2
Degenerative diseases <sup>2</sup> . . . . .	5.3	10.6	5.6	12.8	13.2	20.4	28.5	26.1
Female genital diseases and complications of pregnancy . . . . .	3.6	3.8	3.9	2.8	4.4	3.8	13.7	13.6
Communicable diseases <sup>3</sup> . . . . .	2.6	0.9	3.8	2.6	4.2	1.5	18.5	21.7
Nonmalignant tumors, including female genital . . . . .	2.0	2.6	3.0	3.2	2.4	2.8	13.6	14.8
Mastoid diseases . . . . .	2.0	1.0	1.1	1.7	1.4	1.0	8.2	14.3
Diseases of bones, joints, malformations and early infancy . . . . .	1.9	2.0	2.6	1.9	5.1	3.5	31.4	23.5
Hernia . . . . .	1.9	1.6	2.5	2.2	2.7	2.2	16.8	15.3
Pneumonia . . . . .	1.6	2.1	3.5	3.1	2.2	2.3	15.8	15.0
Biliary calculi and cholecystitis . . . . .	1.6	1.3	1.2	1.2	2.5	1.8	19.1	18.2
All other causes . . . . .	15.9	25.3	18.4	34.3	19.4	25.7	13.9	13.8
Number of cases, all causes . . . . .	2,250	52,579	2,497	615,693	25,762	712,083	2,250	52,579

<sup>1</sup> Present study of 8,758 canvassed families; Ontario, Canada, last quarter of 1936 (31); samples from nine Baltimore hospitals, 1926-35 (28); New York City Welfare Council Study, calendar year 1933 (27).

<sup>2</sup> Data for New York City study are available only as totals including contributory.

<sup>3</sup> Degenerative includes diseases of the heart, kidney (except pyelitis), diabetes, cancer, arteriosclerosis, high blood pressure, cerebral hemorrhage, varicose veins, cystitis, urinary calculi, and other bladder diseases.

<sup>4</sup> Communicable includes the common contagious diseases of childhood and other infections such as meningitis, poliomyelitis, typhoid, erysipelas, dysentery, but excludes influenza, tuberculosis, venereal disease, and septicemia.

<sup>5</sup> Two cases in the hospital throughout the study year are excluded from this diagnosis and from all causes; the other 14 year-long cases were excluded as mental and tuberculosis cases.

*Important diagnoses in hospitalized illness.*—Before considering diagnosis in this relatively small sample of hospitalized illnesses in the surveyed group, some comparison should be made with diagnosis distributions in other hospital data. Table 3 shows the percentage of hospital cases, exclusive of all mental and nervous diseases and tuberculosis, that were due to certain diagnoses that are important in hospital practice and which were available in the four studies included in the table. The 13 diagnoses account for three-fourths or more of the cases in three studies but only two-thirds of those in New York. All of the data refer to sole or primary diagnoses except for New York, which were available only as a total of sole, primary, and contributory diagnoses. Tonsil and adenoid diseases (largely tonsillectomy)



is a major cause of hospitalization in all four groups, but is considerably more important in the present family survey and the Baltimore study than in New York and Ontario. Deliveries, abortions, and stillbirths constituted 16 to 18 percent of the hospital cases in three studies, but only 11 percent in New York. Appendicitis constituted about 8 percent of all cases in Ontario and in the family study, but only 4 to 5 percent in the Baltimore and New York studies. An examination of other causes indicates considerable variation from one group to another in the percentage of cases due to a specific diagnosis;

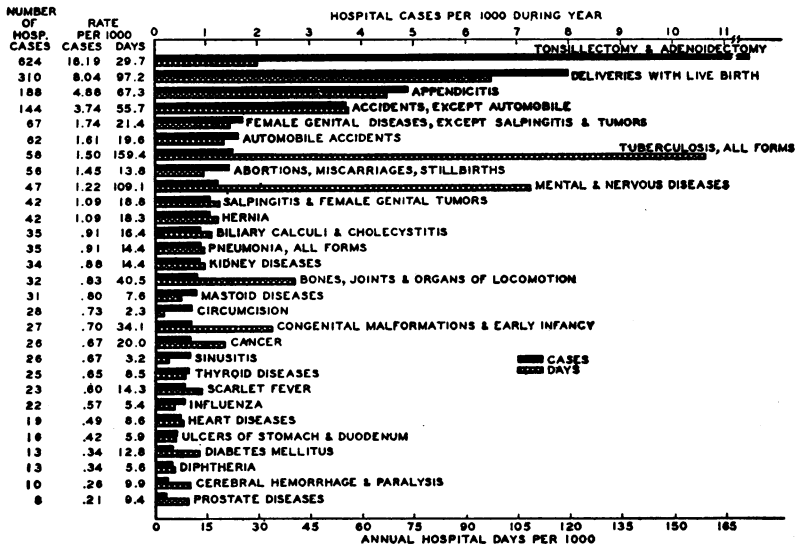


FIGURE 2.—Annual frequency of hospital admissions and days of hospital care for certain diseases per 1,000 population—8,758 canvassed white families in 18 States during 12 consecutive months, 1928-31. (Sole or primary diagnoses for all specific causes with 15 or more hospital cases or 200 or more hospital days. Rates per 1,000 exclusive of institutional were: Tuberculosis 0.49 cases, 13.5 days; mental and nervous diseases 0.54 cases, 11.0 days; diseases of bones, joints, and organs of locomotion 0.78 cases, 29.4 days; congenital malformations and early infancy 0.67 cases, 24.7 days.)

however, all four studies are in agreement in that the major causes of hospitalization are tonsil and adenoid diseases, deliveries, accidents, appendicitis, female genital diseases, and degenerative diseases. The two studies for which days of hospital care are available indicate that the same causes are also important in days of hospital care, with the possible exception of tonsil and adenoid diseases and the possible addition of diseases of the bones, joints, and organs of locomotion.

Figure 2 shows admission rates and annual hospital days for important specific diagnoses<sup>19</sup> for the 8,758 canvassed families of this

<sup>19</sup> It should be noted that throughout this paper the rates for detailed causes of illness are crude rates because the numbers of cases are insufficient for age adjustment. However, rates for the five major causes have been adjusted for age and are given in table 6 and its footnotes. Since the canvassed sample has relatively more children and fewer older persons than the general population, the effect of adjustment is to reduce considerably the rate for tonsillectomy, ear diseases, and communicable diseases, and increase that for degenerative diseases of old age. Other diagnoses which vary less with age are not greatly affected.

study. The data pertain only to sole or primary causes to avoid counting the same hospital day on two cases.<sup>20</sup>

By far the most frequent cause of hospital admission was tonsillectomy, with deliveries second. When all accidents are counted as a single cause they are third and appendicitis fourth, but in this chart automobile and other accidents are separated; automobile accidents constitute 30 percent of the total accident admissions. Other diagnoses with considerable frequencies are the various categories of female genital diseases and abortions. In terms of admissions to all types of

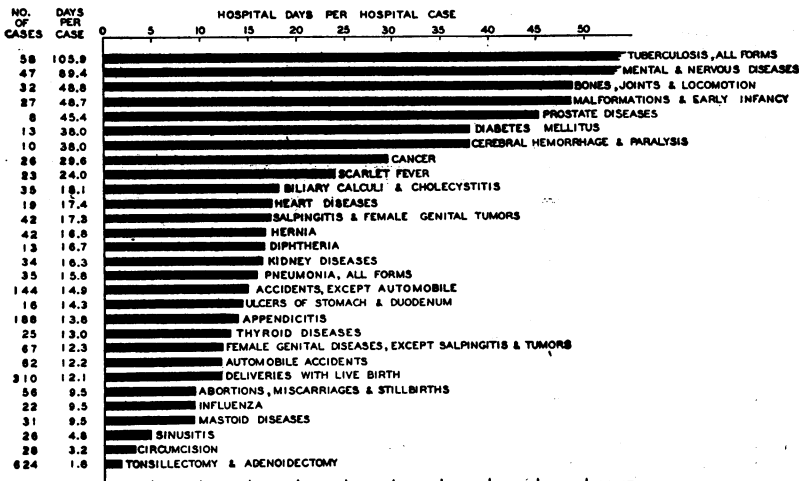


FIGURE 3.—Hospital days per hospital case of certain diseases—8,758 canvassed white families in 18 States during 12 consecutive months, 1928-31. (Sole or primary diagnoses for all specific causes with 15 or more hospital cases or 200 or more hospital days. Hospital days per case exclusive of institutional were: Tuberculosis, 27.3; mental and nervous diseases, 20.1; diseases of bones, joints, and organs of locomotion, 37.8; malformations and early infancy, 36.6.)

hospitals, tuberculosis was seventh among the diagnoses listed in this chart; but in days of hospital care it was the first cause, although complete enumerations of all cases in mental institutions would no doubt put mental diseases above it.<sup>21</sup> However, when data for tuberculosis hospitals are excluded, neither tuberculosis cases nor days are large for the remaining general and special hospitals. The same is true of mental cases in nonmental hospitals. Other diagnoses in their order of importance in terms of days of hospital care per

<sup>20</sup> Of the 2,357 admissions, 2,093 had only one diagnosis, and 264, or 11 percent of the total, had two or more diagnoses; there were 304 contributory diagnoses on the 264 cases with two or more diagnoses.

<sup>21</sup> Hospital cases and days for mental diseases as recorded in this family study were incomplete as compared with data from the American Medical Association (27). However, the recorded admissions to and days of care in tuberculosis hospitals compare favorably with the American Medical Association data. Admissions to tuberculosis hospitals in this study constituted 1.8 percent of all admissions to all except mental hospitals, as compared with 1.3 for the American Medical Association data. Days of care in tuberculosis hospitals constituted 17.9 percent of all days in all except mental hospitals in this study and 15.8 percent in the American Medical Association data. However, the total number of hospitalized tuberculosis cases in the present study is too small to give much reliability to the rates.

1,000 population are deliveries, all accidents, appendicitis, diseases of the bones, joints, and organs of locomotion, and malformations and diseases of early infancy.<sup>22</sup>

In terms of hospital days per case (fig. 3), the diagnoses that head the list are severe diseases which are not so frequent as causes of admission, namely, tuberculosis, mental diseases, bone and joint diseases, and malformations and diseases of early infancy. Tonsillectomy, although first in frequency, had the shortest duration, 1.8 days per case; deliveries, appendicitis, and accidents which were high in both frequency and hospital days per 1,000 population have reasonably short average durations in the hospital.

Hospital admission rates for males and females are shown for specific diagnoses in figure 4. The diseases that stand out as having definitely

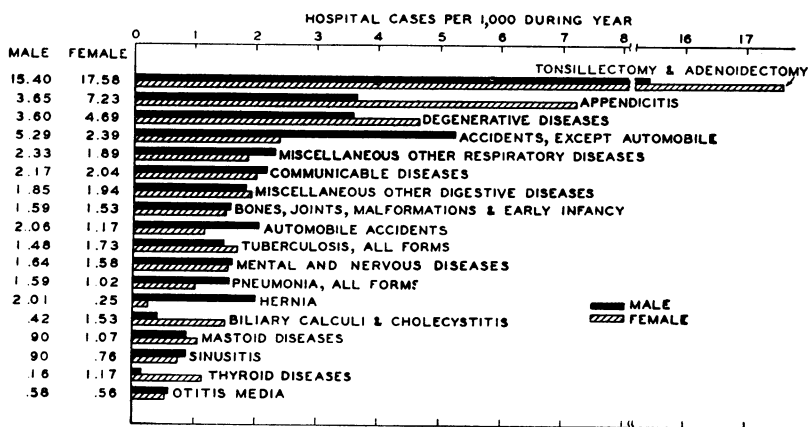


FIGURE 4.—Annual frequency of hospital admissions for certain causes per 1,000 males and females—8,758 canvassed white families in 18 States during 12 consecutive months, 1928-31. (Sole, primary, and contributory diagnoses for all cases. The heterogeneous group of diseases of the bones and joints, malformations and early infancy used in various parts of this paper all tend to have long hospital durations.)

higher admission rates for males are accidents, both automobile and other; hernia, and pneumonia. The diseases that stand out as having definitely higher rates for females are appendicitis, biliary calculi and cholecystitis, thyroid diseases, degenerative diseases, and tonsillectomy. The variations between males and females in admission rates generally reflect sex differences in the total incidence of the several diseases.

*Diagnosis distribution of the hospital case load.*—The make-up of the hospital case load in terms of different diagnoses is of interest; similarly, the total days of hospital care can be distributed according to the diagnoses primarily responsible for the hospitalization. Because institutional cases were underreported in this survey, data for mental

<sup>22</sup> In this study made primarily from the point of view of illness in the canvassed family, infants born in a hospital were not counted as hospital admissions (illness) unless there was some disease or condition which required treatment.

hospitals are excluded; as already noted, data for tuberculosis hospitals seem to be more complete and are used in some instances.

Figure 5 shows in the first two bars on the left the diagnosis distribution of hospital cases and days for all except mental hospitals. In terms of cases, tonsillectomy constitutes 27 percent of the total,

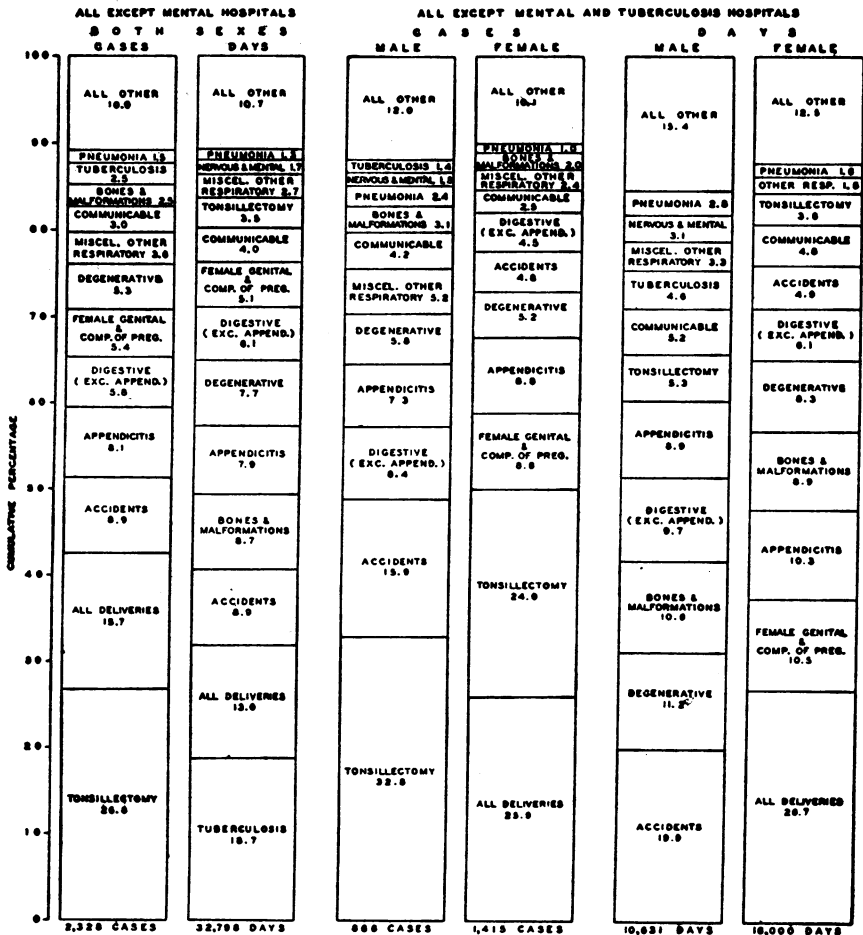


FIGURE 5.—Percentage of cases and days of hospital care (exclusive of certain institutions) which were due to each diagnosis, by sex—8,758 canvassed white families in 18 States during 12 consecutive months, 1928-31. (Sole or primary diagnoses; each bar shows the 14 diagnoses of the second (days) bar except where less than 1.0 percent.)

deliveries and abortions 16 percent, accidents 9 percent, and appendicitis 8 percent; thus these four diagnoses constitute 60 percent of the hospital case load. However, the average stay in the hospital for the various diagnoses differs greatly, so the distribution with respect to days of hospital care is quite different. Tuberculosis, which accounts for about 2 percent of the hospital cases, is responsible for 19 percent of the days of hospital care. In terms of hospital days, deliveries

and abortions come second, 13 percent; accidents third, 9 percent; bones, joints, malformations and diseases of early infancy fourth, 9 percent; and appendicitis fifth with 8 percent of the total days of hospital care, exclusive of that in mental hospitals.

The two middle bars in figure 5 compare for males and females the diagnosis distribution of hospital cases except those in mental and tuberculosis hospitals. For males the most important diagnoses are tonsillectomy which constitutes 33 percent of the total cases; accidents, 16 percent; digestive diseases except appendicitis, 8 percent; and appendicitis, 7 percent. For females, however, deliveries and abortions come first with 26 percent of the cases; tonsillectomy second, 24 percent; female genital diseases third, 9 percent; and appendicitis fourth, 9 percent. Accidents, which is second among males with 16 percent of the cases, is sixth among females with 5 percent of the cases.

The two bars on the right of figure 5 make a similar comparison of males and females with respect to days of hospital care, except in mental and tuberculosis hospitals. Among males accidents come first, causing 20 percent of the total days of hospital care, and degenerative diseases are second with 11 percent. Among females deliveries and abortions are the first cause in days of hospital care, being responsible for 27 percent of the total, and female genital diseases second, with 11 percent. Among males, tonsillectomy was first in terms of cases (33 percent), but sixth in terms of days (5 percent); among females it was second (24 percent) in terms of cases but ninth (4 percent) in terms of days.

*Proportions of specific diagnoses hospitalized.*—Of interest also is the percentage of cases of certain diagnoses occurring in the community which receive hospitalization; this family study of all illness affords data for such percentages. It has been seen that 7.5 percent of all cases and 12.5 percent of disabling cases (causing inability to work or pursue other usual activities for one day or longer) were hospitalized. Figure 6 shows for a long list of specific diagnoses the percentage of the total cases that were hospitalized. Although not shown in graphic form, there is, at the left of the chart, the percentage of disabling cases that were hospitalized and the percentage of all cases that were attended by a doctor.

Of all tonsillectomies, 76 percent were hospital cases, the other 24 percent being done at a clinic, doctor's office, or at home. Other diagnoses for which 50 percent or more of all the cases were hospitalized are mastoid diseases, 73 percent; tumors of the female genital organs, 67; appendicitis, 60; salpingitis and pelvic abscess, 59; and cancer, 50 percent. It should be noted that these percentages are based on total cases, but every diagnosis with 8 percent or more of the cases in a hospital shows an attendance by a doctor of 87 percent or more (only two are below 90 percent); therefore, the per-

centages of attended cases that were hospitalized would not differ greatly from the percentages based on total cases.<sup>23</sup>

Considering all illness, 6.4 percent of the cases among males were hospitalized, as compared with 8.1 among females for all causes and

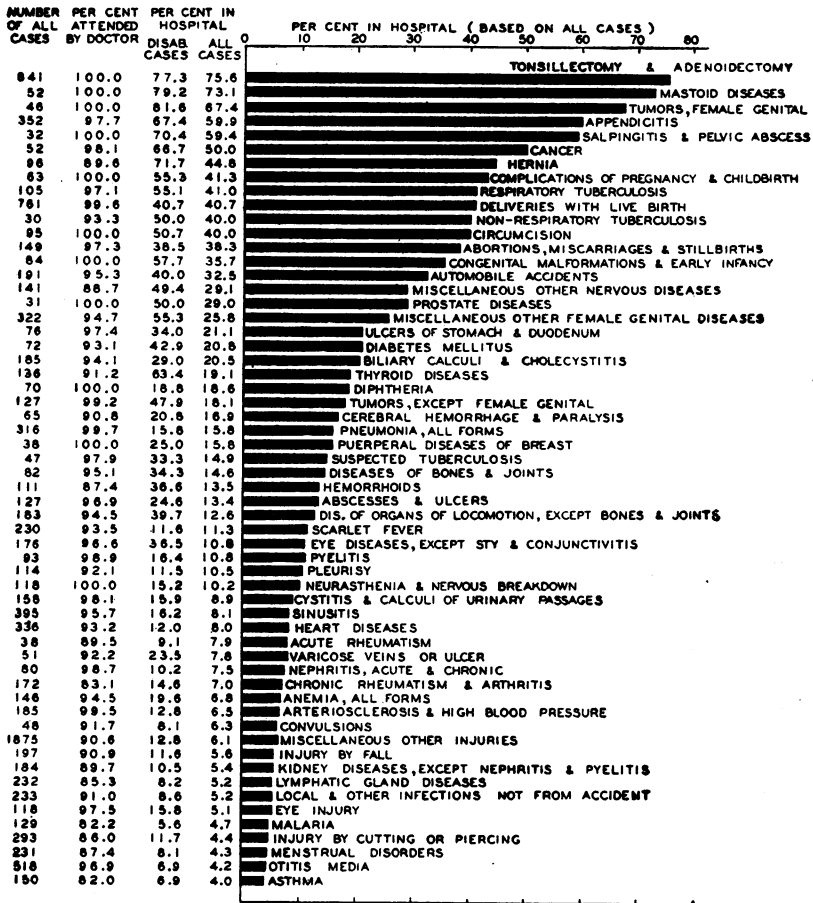


FIGURE 6.—Percentage of cases of certain diagnoses that were hospitalized—8,758 canvassed white families in 18 States during 12 consecutive months, 1928-31. (Sole, primary, and contributory diagnoses for all specific causes with 30 or more total cases and with 4 percent or more of the cases hospitalized.)

5.8 percent for all except female genital and puerperal diagnoses. Thus for diagnoses common to the two sexes, males were hospitalized in a slightly higher percentage of illnesses than females.

Figure 7 shows for males and females separately the percentage of all cases of specific diagnoses that were in a hospital. Diagnoses

<sup>23</sup> Of the deliveries with live birth in this study, 40.7 percent were in hospitals, as compared with 36.9 percent for the total United States in 1935 (*§§*), the first year with available data. Figures of this kind for all births (live and still) are available for Ontario, Canada (public general hospitals) back to 1900; in that year 1.8 percent of all births were in hospitals; the percentage in 1910 was 5.0; and in 1920 16.4. In 1930, 84.9 percent of the live births took place in hospitals; in 1935 the figure was 40.1, and in 1938, 47.5 percent (*§†*).

not common to the two sexes are excluded, as are also those with less than 25 total cases for either sex. Of the 38 diagnoses included, 26 show a higher percentage of cases hospitalized among males and 12 diagnoses show a higher percentage hospitalized among females. While the differences are negligible in some cases, they are usually fairly large; among the diagnoses with the larger differences and with higher percentages for males are malformations and diseases of

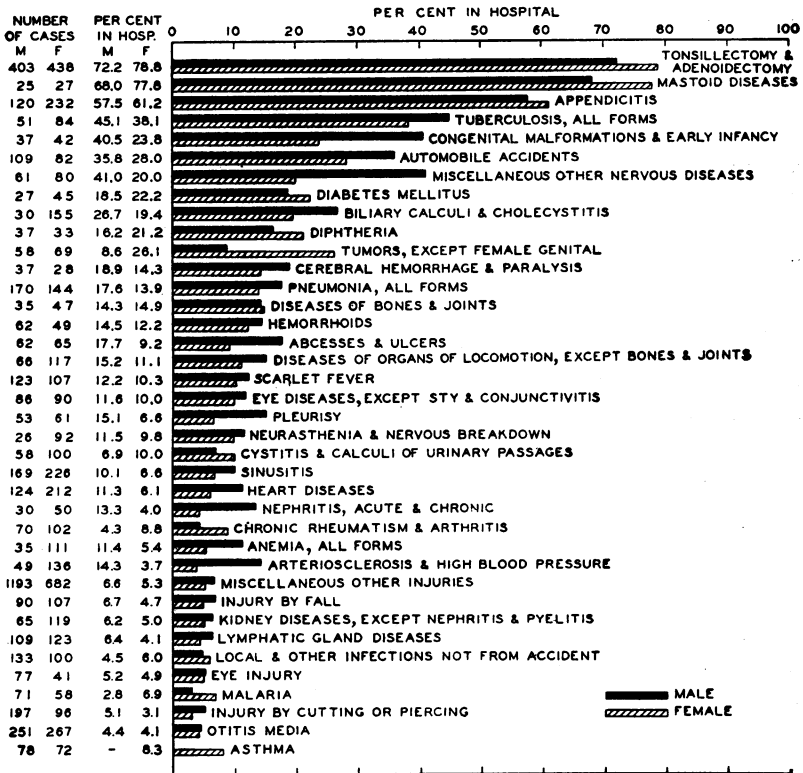


FIGURE 7.—Percentage of cases of certain diagnoses among males and females that were hospitalized—8,758 canvassed white families in 18 States during 12 consecutive months, 1928-31. (Sole, primary, and contributory diagnoses for all specific causes with 25 or more cases for each sex and with 4 percent or more of the total cases hospitalized.)

early infancy, nervous diseases, biliary calculi and cholecystitis, abscesses and ulcers, pleurisy, heart diseases, nephritis, and arteriosclerosis. Among the diagnoses with higher percentages of cases hospitalized for females are tonsillectomy, mastoid diseases, benign tumors except female genital, chronic rheumatism and arthritis, malaria, and asthma.

Since the household informant was usually a woman, the lower percentages of cases hospitalized among females may reflect a more

complete recording of mild nonhospital cases for the female informant. However, if nondisabling cases are eliminated and the percentages based on disabling cases only, the showing is very similar to that described above; of the same 38 diagnoses, the percentages of disabling cases that were hospitalized were greater for males for 29 diagnoses—the same number as for total cases.<sup>24</sup> Thus whether the total or only the disabling cases be considered, males seem to be hospitalized in larger percentages of cases of specific diagnoses than is true of females.

#### SURGICAL AND NONSURGICAL HOSPITAL CASES

Hospital surgical cases among males amounted to 30.8 per 1,000 as compared with rates for females of 41.7 for all causes and 33.9 for all except female genital and puerperal diagnoses. The admission rate for males for nonsurgical cases (exclusive of those to mental and tuberculosis hospitals and other sanatoriums) was 13.1 per 1,000 as compared with rates for females of 30.4 for all causes, and 12.3 for all except female genital and puerperal diagnoses. In terms of hospital days there was likewise an excess for females when all causes were considered, but when diagnoses not common to the two sexes were excluded, the rates for females for both surgical and nonsurgical cases were slightly less than those for males.

*Age and sex differences in surgical and nonsurgical rates.*—Figure 8 shows hospital rates by sex and age for surgical and nonsurgical cases exclusive of deliveries. Throughout the chart the rates for nonsurgical cases and days are exclusive of those for mental and tuberculosis hospitals and other sanatoriums.<sup>25</sup>

Surgery as here used includes any cutting of tissue or suturing of wounds, and the setting of a bone or placing of a cast. The reports did not include a statement as to whether forceps were used in delivery and in some deliveries the informant may have failed to report minor

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<sup>24</sup> Of the 38 diagnoses, 24 showed higher percentages hospitalized for males than females for both disabling and total cases; 2 showed higher percentages for males than females for total cases and lower for disabling cases; 2 diagnoses showed lower percentages hospitalized for males than females for total cases and higher for disabling cases; the other 10 diagnoses showed lower percentages hospitalized for males than females for both disabling and total cases.

For the whole United States in 1936 the percentage of deaths that occurred in hospitals (exclusive of penal institutions and those for the blind, deaf and aged) was 35.1 for males and 29.6 for females. Army, Navy, Veterans' Administration and other Federal hospitals account for about one-fourth of the excess of males over females. Of 42 diagnoses common to the two sexes, 38 showed a higher percentage of deaths in hospitals and other institutions among males than females.

<sup>25</sup> From the point of view of a family study, it would be desirable to show hospital rates regardless of the type of institution. The reasons for the exclusions are twofold (a) in a relatively small group such as the present study, it is impossible to get stability in age curves for days per 1,000 persons or days per case because the study includes so few long cases. It would take a much larger study to obtain stable curves when all long cases are included. (b) Since admissions to and particularly days in mental hospitals are greatly underreported in this study, the inclusion of mental and other sanatoriums would still greatly understate the total days of hospital care for the types of illness treated in such hospitals.



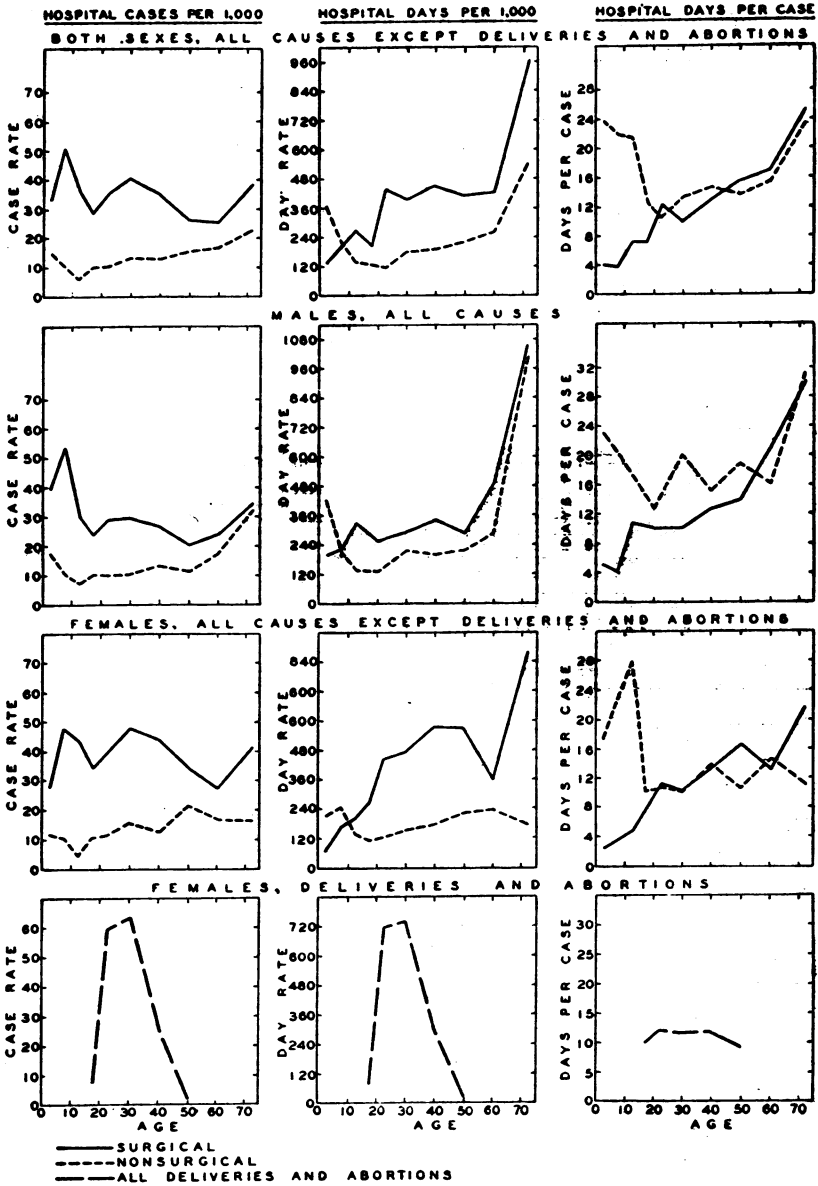


FIGURE 8.—Annual volume of hospital care for surgical, nonsurgical, and obstetrical cases among males and females of specific ages—8,758 canvassed white families in 18 States during 12 consecutive months, 1928-31. (Sole or primary diagnoses exclusive of mental and tuberculosis hospitals and other sanatoriums and of year-long cases.)

surgery; at any rate a larger percentage of deliveries in this study were reported as nonsurgical than in studies based on hospital records.<sup>26</sup>

<sup>26</sup> Adjusted rates for deliveries (including abortions) were 19.3 per 1,000 females, of which 2.1 per 1,000 were reported as surgical and 17.2 as nonsurgical. Rates per 1,000 females of specific ages were 15-19, surgical 1.3, nonsurgical 5.9; 20-24, surgical 6.5, nonsurgical 53.1; 25-34, surgical 4.9, nonsurgical 58.4; 35-44, surgical 4.4, nonsurgical 20.7; 45-54 surgical none, nonsurgical 2.0.

In terms of hospital admissions exclusive of deliveries, surgical cases in these general and special hospitals are more frequent than nonsurgical for every age group. The largest excess for surgical cases appears at 5-9 years when tonsillectomy is frequent. However, in hospital days per 1,000 population, the ages under 10 years are higher for nonsurgical than for surgical cases; the few hospital nonsurgical cases at these ages seem to be severe. With the exception of these younger ages the days per case are not greatly different for surgical and nonsurgical cases when data for mental and tuberculosis hospitals and other sanatoriums are excluded. The hospital days per surgical case increase gradually with age from 4 days for children under 10

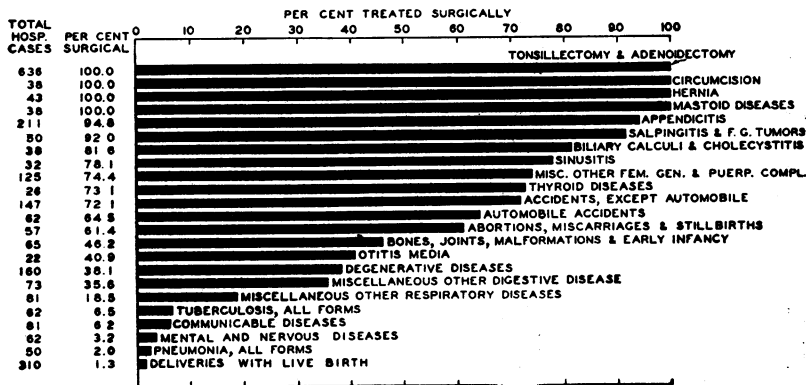


FIGURE 9.—Percentage of hospital cases of certain diagnoses that were treated surgically—8,758 canvassed white families in 18 States during 12 consecutive months, 1928-31. (Sole, primary, and contributory diagnoses for all cases.)

years to 25 days for persons over 65 years. For nonsurgical cases there is a general increase in days per case as age increases above 20 years.

Among males in hospitals, surgical cases predominate at every age but the excess over nonsurgical is small above 55 years. Among females surgical cases exclusive of deliveries also predominate at every age; when deliveries are included, surgical cases as defined in this study predominate at all ages except 20-34 years. In hospital days per 1,000 population, the rate for nonsurgical (exclusive of those in mental and tuberculosis hospitals and other sanatoriums) is lower than for surgical cases at every age group above 10 years for both males and females when deliveries are excluded. Hospital days per case among males and females fluctuate considerably from age to age, but among children of each sex nonsurgical cases have a relatively long average duration.

*Proportions of hospital cases that were treated surgically.*—Figure 9 shows the percentage of hospital cases of each diagnosis that were treated surgically. Of the total hospital admissions 62 percent were

treated surgically. The first two diagnoses, tonsillectomy and circumcision, are surgical by definition. The third and fourth, hernia and mastoid diseases, were also all surgical cases; although the numbers are small, 43 and 38 cases respectively, this means that in this group of families there were no hospitalized cases of these diseases which were not treated surgically. Other diagnoses with 75 percent or more of the cases treated surgically were appendicitis, 95 percent; salpingitis and female genital tumors, 92; biliary calculi and cholecystitis, 82; and sinusitis, 78 percent. Sixty-five percent of admissions because of injury in automobile accidents and 72 percent of other accident admissions were treated surgically. Toward the bottom of the list with less than 5 percent of the cases treated surgically are mental and nervous diseases, 3.2 percent; pneumonia, 2.0; and deliveries with live birth, 1.3 percent. It has already been noted that minor surgery may have been omitted in reports on deliveries; however, abortions, miscarriages, and stillbirths were reported as involving surgery in 61 percent of the admissions.

*Diagnosis distribution of surgical and nonsurgical case load.*—The diagnosis distribution of the surgically treated cases is quite different from the nonsurgical. Figure 10 shows the importance of the different diagnoses in the surgical and nonsurgical hospital case loads, exclusive of care in mental and tuberculosis hospitals. Tonsillectomy makes up 43 percent of the hospital surgical cases; appendicitis is second, 12 percent; accidents third, 10 percent; and female genital diseases fourth, with 8 percent of the cases. Thus, these four diagnoses make up more than 70 percent of the total hospital surgical cases. Among the hospital nonsurgical cases, deliveries and abortions constitute 39 percent; degenerative diseases, 8 percent; communicable diseases, 8 percent; and accidents 7 percent; with a total of more than 60 percent for the four diagnoses. Of these four most important nonsurgical diagnoses, only the accident group is also among the first four diagnoses for surgical cases.

In terms of hospital days, appendicitis is responsible for 20 percent of the total days of hospital care for surgical cases; accidents are second, 17 percent; digestive diseases, except appendicitis, are third, 12 percent; female genital diseases fourth, 12 percent; and tonsillectomy fifth, 9 percent. Deliveries and abortions account for 28 percent of the total days of hospital care for nonsurgical cases; bones, joints, malformations and diseases of early infancy, 15 percent; degenerative diseases, 10 percent; and communicable diseases, 9 percent.

*Proportions of surgical and nonsurgical cases of specific diagnoses that were hospitalized.*—Of the total surgical cases reported in the study, 60 percent were hospitalized, but of the total nonsurgical cases only 3 percent were hospitalized. Of the surgical cases that were in bed

for one or more days, 76 percent were hospitalized, as against 6 percent of such nonsurgical cases. Thus, the hospital gets practically all major surgery and a considerable share of minor surgery, but only a small proportion of the large number of nonsurgical cases.

Figure 11 shows for specific diagnoses the percentage of surgical and of nonsurgical cases that were hospitalized. More than 90 per-

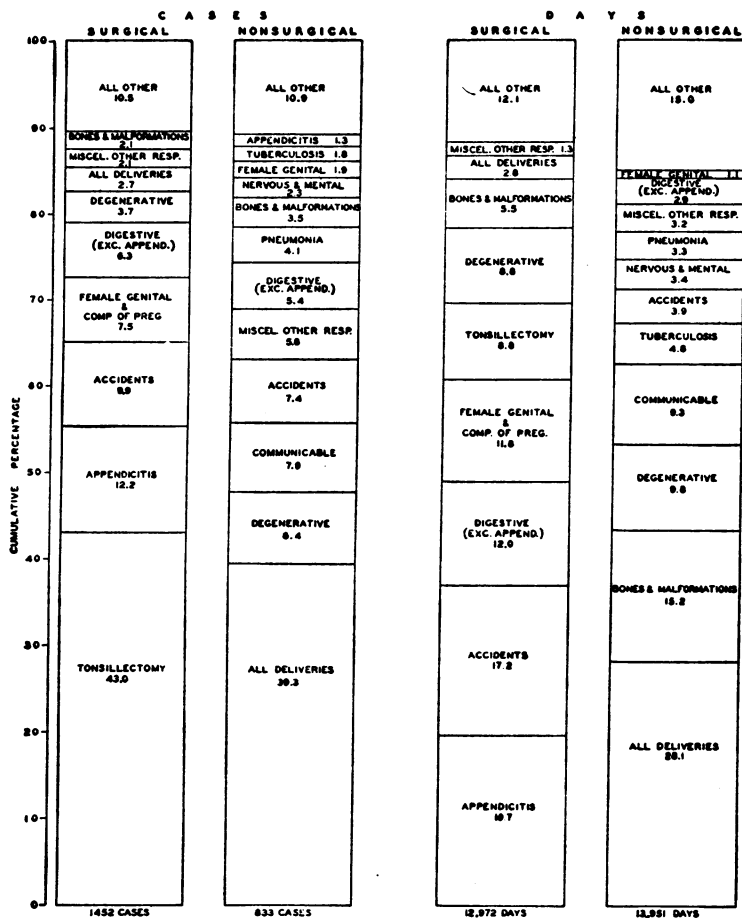


FIGURE 10.—Percentage of cases and days of hospital care for surgical and nonsurgical cases which were due to each diagnosis—8,758 canvassed white families in 18 States during 12 consecutive months, 1928-31. (Sole or primary diagnoses for all cases except those in mental and tuberculosis hospitals; each bar shows the 14 diagnoses of the second (days) bar in fig. 5, except where less than 1.0 percent.)

cent of the surgical cases of the following diagnoses were hospitalized: hernia, gall-bladder diseases, thyroid diseases, appendicitis, mastoid diseases, and salpingitis and female genital tumors. Although these operations may seem impossible outside of a hospital, it must be remembered that these data cover some extremely rural places where an emergency operation may have been necessary. Throughout the list

of diagnoses where there were 15 or more surgical cases to use as a basis for computing the percentage, the proportion of surgical cases that were hospitalized is definitely higher than that of nonsurgical cases. Of the 23 diagnoses with 20 percent or more of the surgical cases hospitalized, all show less than 10 percent of the nonsurgical cases hospitalized except 5 diagnoses, namely, salpingitis and female genital tumors, cancer, deliveries, automobile accidents, and malformations and diseases of early infancy. There are some diseases for

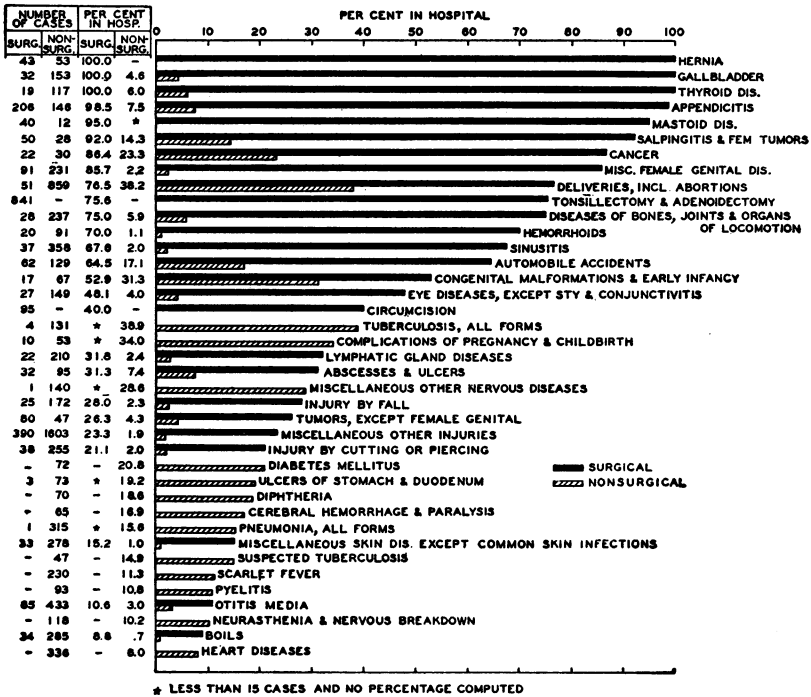


FIGURE 11.—Percentage of surgical and nonsurgical cases of certain diagnoses that were hospitalized—8,758 canvassed white families in 18 States during 12 consecutive months, 1928-31. (Sole, primary, and contributory diagnoses for all specific causes with 8 percent or more of surgical or nonsurgical cases hospitalized and with 15 or more total cases of either type. Three appendectomies, and 1 gall bladder operation done prior to but sick outside the hospital during the study year are assumed to have been hospital cases.)

which there were few or no surgical cases for the computation of a percentage. These diagnoses which are largely nonsurgical range from 39 percent hospitalized for tuberculosis to 8 percent for heart diseases; they include all diagnoses with 8 percent or more of the nonsurgical cases hospitalized.

Of the hospital surgical cases 27 percent had the exclusive services of a special private duty nurse for one or more of the days or nights in the hospital, as compared with 16 percent of the hospital nonsurgical

cases. Of the hospital surgical cases with one or more special nurses, 35 percent had two or more special nurses during at least one 24-hour day; this figure was approximately the same for nonsurgical cases, 36 percent.

*(To be concluded in the next issue of PUBLIC HEALTH REPORTS.)*

## DEATHS DURING WEEK ENDED SEPTEMBER 5, 1942

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

	Week ended Sept. 5, 1942	Correspond- ing week, 1941
<b>Data from 86 large cities of the United States:</b>		
Total deaths.....	7,518	7,388
Average for 3 prior years.....	7,241	-----
Total deaths, first 35 weeks of year.....	291,722	295,266
Deaths per 1,000 population, first 35 weeks of year, annual rate.....	11.7	11.9
Deaths under 1 year of age.....	621	522
Average for 3 prior years.....	4,777	-----
Deaths under 1 year of age, first 35 weeks of year.....	19,047	18,186
<b>Data from industrial insurance companies:</b>		
Policies in force.....	65,002,571	64,453,029
Number of death claims.....	10,125	7,821
Death claims per 1,000 policies in force, annual rate.....	8.1	6.3
Death claims per 1,000 policies, first 35 weeks of year, annual rate.....	9.3	9.7

# PREVALENCE OF DISEASE

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

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## UNITED STATES

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### REPORTS FROM STATES FOR WEEK ENDED SEPTEMBER 12, 1942

#### Summary

The number of reported cases of poliomyelitis increased from 195 last week to 267 for the current week. This increased incidence was shared by all geographic areas except the Mountain and Pacific States. More than one-half of the cases occurred in the Middle Atlantic and East North Central States. The following named States reported the largest numbers of cases (last week's figures in parentheses): Illinois 44 (36), New York 29 (19), New Jersey 22 (21), Ohio 13 (17), Tennessee 13 (4), and Indiana 11 (7). No other State reported more than 10 cases during the current week. In only 1 year (1936) since 1930 has the peak of the incidence of poliomyelitis for the country as a whole come as late as the last week of September.

The persistence of meningococcus meningitis during the summer has brought the cumulative cases to date (2,541) above the figure for the corresponding period of any other year since 1937 (4,336). For the current week the number of reported cases (46) was above that for the corresponding week in 1937 (44). The highest incidence continues in the Middle Atlantic and South Atlantic States.

The number of reported cases of influenza increased from 388 last week to 707 cases, of which 227 occurred in South Carolina, 143 in Texas, and 138 in Virginia—70 percent of the total in these 3 States.

Other reports for the current week include 1 case of anthrax in Pennsylvania, 15 cases of amebic, 254 cases of bacillary, and 195 cases of unspecified dysentery, 16 cases of infectious encephalitis, 7 cases of Rocky Mountain spotted fever, 4 cases of smallpox, 15 cases of tularemia, and 134 cases of endemic typhus fever (58 in Texas and 46 in Georgia).

The death rate for the current week in 88 large cities of the United States is 10.1 per 1,000 population, as compared with 10.6 last week and a 3-year (1939-41) average of 10.3.

For the first 7 months of 1942 the birth rate for 41 States and the District of Columbia was 19.5 and the death rate 10.6, as compared with 18.3 and 11.0, respectively, for the corresponding period last year.

*Telegraphic morbidity reports from State health officers for the week ended September 12, 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
	Sept. 12, 1942	Sept. 13, 1941		Sept. 12, 1942	Sept. 13, 1941		Sept. 12, 1942	Sept. 13, 1941		Sept. 12, 1942	Sept. 13, 1941	
<b>NEW ENG.</b>												
Maine.....	1	0	1	-----	1	-----	4	25	1	1	0	1
New Hampshire.....	0	0	0	-----	-----	-----	4	2	0	0	0	0
Vermont.....	0	0	1	-----	-----	-----	4	4	4	0	0	0
Massachusetts.....	3	4	2	-----	-----	-----	41	33	30	2	3	1
Rhode Island.....	1	0	0	-----	-----	-----	5	9	0	1	0	0
Connecticut.....	1	0	0	1	1	1	5	6	4	1	1	0
<b>MID. ATL.</b>												
New York.....	5	8	13	12	-----	11	21	81	77	6	5	3
New Jersey.....	3	1	3	7	4	4	20	19	17	4	1	1
Pennsylvania.....	3	12	10	1	1	-----	36	61	35	4	2	2
<b>E. NO. CEN.</b>												
Ohio.....	3	10	14	6	4	4	12	23	13	0	0	0
Indiana.....	6	1	7	-----	4	4	8	2	5	0	0	0
Illinois.....	14	17	14	4	-----	3	9	35	21	2	1	1
Michigan <sup>1</sup> .....	3	4	4	2	-----	-----	23	73	21	0	0	0
Wisconsin.....	0	0	2	17	7	21	54	77	30	0	1	1
<b>W. NO. CEN.</b>												
Minnesota.....	0	4	2	1	1	1	9	0	6	0	0	0
Iowa.....	3	1	2	1	4	3	4	16	6	0	0	0
Missouri.....	3	3	3	-----	-----	2	9	4	4	1	0	0
North Dakota.....	0	1	1	-----	-----	-----	0	0	0	0	0	0
South Dakota.....	4	3	1	1	-----	-----	2	0	0	0	0	0
Nebraska.....	4	0	1	-----	-----	-----	15	2	1	0	0	0
Kansas.....	2	3	7	8	2	1	3	3	3	0	1	0
<b>SO. ATL.</b>												
Delaware.....	0	0	0	-----	-----	-----	1	0	0	0	1	0
Maryland <sup>1</sup> .....	1	1	3	2	2	2	9	11	3	4	0	0
Dist. of Col.....	3	1	1	-----	-----	-----	4	3	2	1	0	0
Virginia.....	22	6	37	138	66	47	8	15	10	2	1	2
West Virginia.....	16	4	7	2	-----	10	1	11	3	1	2	2
North Carolina.....	38	40	40	4	-----	-----	10	40	9	1	0	1
South Carolina.....	25	36	30	227	123	148	10	32	5	2	2	0
Georgia.....	31	24	31	11	7	2	0	16	1	2	0	0
Florida.....	2	1	4	-----	7	2	10	4	4	0	0	0
<b>E. SO. CEN.</b>												
Kentucky.....	5	7	13	-----	-----	5	20	29	3	0	1	1
Tennessee.....	12	10	16	3	10	10	17	13	10	2	1	1
Alabama.....	17	19	31	24	3	6	3	5	3	1	1	1
Mississippi <sup>1</sup> .....	8	9	19	-----	-----	-----	-----	-----	-----	0	0	0
<b>W. SO. CEN.</b>												
Arkansas.....	13	11	12	5	2	2	5	28	4	0	0	0
Louisiana.....	4	5	5	5	3	3	2	7	3	1	1	0
Oklahoma.....	6	13	11	19	8	20	6	6	4	0	1	0
Texas.....	32	23	24	143	254	79	2	41	28	1	1	1
<b>MOUNTAIN</b>												
Montana.....	0	0	1	1	-----	2	2	3	3	0	0	0
Idaho.....	0	0	0	-----	-----	-----	0	2	2	0	0	0
Wyoming.....	0	0	1	15	4	-----	5	3	2	1	0	0
Colorado.....	8	14	5	19	19	1	5	5	9	0	0	1
New Mexico.....	2	0	4	1	1	-----	1	2	1	0	0	0
Arizona.....	1	0	0	27	36	14	1	52	5	0	1	0
Utah <sup>1</sup> .....	0	0	0	3	-----	-----	15	1	3	0	0	0
Nevada.....	0	0	-----	-----	-----	-----	0	0	-----	0	0	-----
<b>PACIFIC</b>												
Washington.....	5	0	1	-----	-----	-----	35	7	8	0	1	1
Oregon.....	1	3	1	-----	6	6	21	8	8	1	0	0
California.....	10	11	13	2	21	11	47	74	42	1	1	1
<b>Total</b> .....	<b>321</b>	<b>310</b>	<b>453</b>	<b>707</b>	<b>601</b>	<b>479</b>	<b>527</b>	<b>893</b>	<b>561</b>	<b>46</b>	<b>30</b>	<b>30</b>
36 weeks.....	8, 192	8, 443	13, 142	82, 365	491, 922	161, 261	468, 385	826, 240	349, 706	2, 541	1, 513	1, 513

See footnotes at end of table.



*Telegraphic morbidity reports from State health officers for the week ended September 12, 1942, and comparison with corresponding week of 1941 and 5-year median—Con.*

Division and State	Pollomyelitis			Scarlet fever			Smallpox			Typhoid and paratyphoid fever		
	Week ended		Me- dian 1937- 41	Week ended		Me- dian 1937- 41	Week ended		Me- dian 1937- 41	Week ended		Me- dian 1937- 41
	Sept. 12, 1942	Sept. 13, 1941		Sept. 12, 1942	Sept. 13, 1941		Sept. 12, 1942	Sept. 13, 1941		Sept. 12, 1942	Sept. 13, 1941	
<b>NEW ENG.</b>												
Maine.....	4	3	2	5	6	6	0	0	0	1	4	3
New Hampshire.....	0	7	0	3	3	0	0	0	0	0	1	1
Vermont.....	4	1	1	2	1	1	0	0	0	2	1	0
Massachusetts.....	1	16	5	58	59	23	0	0	0	2	5	3
Rhode Island.....	1	2	0	1	4	2	0	0	0	1	0	0
Connecticut.....	5	19	4	13	10	10	0	0	0	0	1	3
<b>MID. ATL.</b>												
New York.....	29	109	88	59	72	61	0	0	0	16	30	20
New Jersey.....	22	41	13	26	15	18	0	0	0	6	7	7
Pennsylvania.....	7	63	20	47	40	44	0	0	0	15	24	24
<b>E. NO. CEN.</b>												
Ohio.....	13	35	35	41	49	52	0	0	0	6	14	22
Indiana.....	11	7	7	16	12	17	0	1	1	5	2	8
Illinois.....	44	25	25	39	44	78	0	0	0	9	6	35
Michigan <sup>1</sup> .....	10	20	49	32	47	59	0	2	0	0	7	7
Wisconsin.....	1	6	6	38	52	46	0	3	0	1	9	4
<b>W. NO. CEN.</b>												
Minnesota.....	3	24	24	15	11	18	0	0	0	0	2	2
Iowa.....	8	0	3	11	10	22	0	0	1	2	5	5
Missouri.....	8	1	1	28	8	15	0	1	1	8	6	10
North Dakota.....	1	1	1	4	1	1	0	0	0	1	0	1
South Dakota.....	0	0	0	9	7	3	1	0	0	0	3	0
Nebraska.....	8	1	1	4	8	8	0	0	0	0	0	0
Kansas.....	4	1	1	14	44	32	1	0	0	2	3	7
<b>SO. ATL.</b>												
Delaware.....	0	0	0	1	8	2	0	0	0	2	0	1
Maryland <sup>1</sup> .....	2	17	2	9	16	14	0	0	0	2	9	9
Dist. of Col.....	0	3	2	6	11	3	0	0	0	0	0	1
Virginia.....	9	11	5	22	5	16	0	0	0	11	14	19
West Virginia.....	3	1	1	32	9	19	0	0	0	4	12	19
North Carolina.....	7	9	9	43	40	34	0	0	0	4	17	13
South Carolina.....	3	8	2	16	8	9	0	0	0	8	5	18
Georgia.....	3	26	2	23	8	13	0	0	0	1	18	18
Florida.....	0	4	2	1	2	2	0	0	0	1	4	4
<b>E. SO. CEN.</b>												
Kentucky.....	6	14	4	21	25	26	0	0	0	11	13	27
Tennessee.....	13	29	3	49	32	28	0	2	0	18	5	27
Alabama.....	1	38	4	32	18	17	0	0	0	1	7	12
Mississippi <sup>1</sup> .....	4	5	3	11	11	11	0	0	0	2	8	8
<b>W. SO. CEN.</b>												
Arkansas.....	5	5	1	3	1	9	0	1	0	6	15	24
Louisiana.....	5	1	1	3	2	2	0	0	0	11	20	13
Oklahoma.....	1	2	2	19	10	10	0	0	1	5	11	18
Texas.....	6	3	8	10	33	24	1	0	0	21	36	47
<b>MOUNTAIN</b>												
Montana.....	0	2	1	9	9	5	0	0	0	2	2	2
Idaho.....	0	1	0	2	3	2	0	0	0	1	0	3
Wyoming.....	0	0	0	1	1	1	0	0	0	0	0	1
Colorado.....	0	6	5	8	14	8	0	2	1	4	7	5
New Mexico.....	1	1	1	1	1	5	0	0	0	2	3	5
Arizona.....	2	0	0	1	2	0	0	0	0	2	1	2
Utah <sup>1</sup> .....	0	3	3	3	1	6	0	0	0	0	0	1
Nevada.....	0	0	0	0	0	0	0	0	0	2	0	0
<b>PACIFIC</b>												
Washington.....	1	8	2	7	9	10	1	0	0	6	2	2
Oregon.....	0	6	4	4	2	4	0	0	0	0	3	3
California.....	10	8	14	29	42	51	0	0	2	1	3	15
Total.....	267	593	593	830	825	910	4	10	14	202	342	517
36 weeks.....	2,169	5,199	4,813	91,272	91,866	118,940	625	1,167	8,136	4,700	5,802	8,743

See footnotes at end of table.

Telegraphic morbidity reports from State health officers for the week ended September 12, 1942—Continued

Division and State	Whooping cough		Week ended Sept. 12, 1942								
	Week ended		Anthrax	Dysentery			Encephalitis	Leprosy	Rocky Mountain spotted fever	Tularaemia	Typhus fever
	Sept. 12, 1942	Sept. 13, 1941		Amebic	Bacillary	Unspecified					
<b>NEW ENG.</b>											
Maine.....	40	6	0	0	0	0	0	0	0	0	0
New Hampshire.....	1	4	0	0	0	0	0	0	0	0	0
Vermont.....	46	0	0	0	0	0	0	0	0	0	0
Massachusetts.....	201	194	0	0	0	0	0	0	0	0	0
Rhode Island.....	4	47	0	0	0	0	0	0	0	0	0
Connecticut.....	69	41	0	0	2	0	0	0	0	0	0
<b>MID. ATL.</b>											
New York.....	325	319	0	2	12	0	4	0	0	0	1
New Jersey.....	197	192	0	0	0	0	0	0	1	0	0
Pennsylvania.....	247	216	1	0	5	0	0	0	0	0	1
<b>E. NO. CEN.</b>											
Ohio.....	160	317	0	0	3	0	0	0	0	0	0
Indiana.....	56	12	0	0	0	1	0	0	0	0	0
Illinois.....	385	237	0	0	45	0	3	0	0	1	0
Michigan <sup>1</sup> .....	226	340	0	1	2	0	0	0	0	0	0
Wisconsin.....	194	239	0	1	0	0	0	0	0	0	0
<b>W. NO. CEN.</b>											
Minnesota.....	48	31	0	0	0	0	0	0	0	0	0
Iowa.....	19	27	0	0	0	0	2	0	0	0	0
Missouri.....	14	20	0	0	0	8	1	0	0	1	0
North Dakota.....	6	5	0	0	0	0	0	0	0	0	0
South Dakota.....	4	19	0	0	0	0	2	0	1	0	0
Nebraska.....	15	2	0	0	0	0	0	0	0	0	0
Kansas.....	14	97	0	0	0	0	0	0	0	0	0
<b>SO. ATL.</b>											
Delaware.....	0	2	0	0	0	0	0	0	0	0	0
Maryland <sup>2</sup> .....	43	39	0	0	0	2	0	0	2	0	0
Dist. of Col.....	26	24	0	0	0	0	0	0	0	0	0
Virginia.....	24	44	0	0	0	153	0	0	1	0	1
West Virginia.....	3	31	0	0	0	0	0	0	0	0	0
North Carolina.....	66	83	0	4	0	0	0	0	0	0	2
South Carolina.....	31	69	0	0	0	0	0	0	0	2	2
Georgia.....	33	5	0	1	3	0	0	0	0	1	46
Florida.....	2	8	0	0	1	0	0	0	0	0	7
<b>E. SO. CEN.</b>											
Kentucky.....	29	71	0	0	5	0	0	0	1	0	0
Tennessee.....	63	53	0	0	0	14	0	0	1	3	1
Alabama.....	40	25	0	0	0	0	0	0	0	0	8
Mississippi <sup>2</sup> .....			0	0	0	0	0	0	0	0	2
<b>W. SO. CEN.</b>											
Arkansas.....	14	18	0	3	37	0	0	0	0	3	3
Louisiana.....	4	2	0	1	4	0	0	0	0	0	2
Oklahoma.....	4	20	0	0	0	0	0	0	0	0	0
Texas.....	88	84	0	1	106	0	1	0	0	0	58
<b>MOUNTAIN</b>											
Montana.....	20	44	0	0	0	0	1	0	0	0	0
Idaho.....	3	17	0	0	0	0	0	0	0	0	0
Wyoming.....	6	29	0	0	0	0	1	0	0	0	0
Colorado.....	10	75	0	0	22	0	1	0	0	0	0
New Mexico.....	6	25	0	0	0	0	0	0	0	0	0
Arizona.....	3	14	0	0	0	17	0	0	0	0	0
Utah <sup>2</sup> .....	10	33	0	0	0	2	0	0	0	0	0
Nevada.....	4	24	0	0	0	0	0	0	0	2	0
<b>PACIFIC</b>											
Washington.....	25	76	0	0	0	0	0	0	0	1	0
Oregon.....	6	29	0	0	0	0	0	0	0	0	0
California.....	114	223	0	1	7	0	0	0	0	1	0
<b>Total.....</b>	<b>2,948</b>	<b>3,532</b>	<b>1</b>	<b>15</b>	<b>254</b>	<b>197</b>	<b>16</b>	<b>0</b>	<b>7</b>	<b>15</b>	<b>134</b>
<b>36 weeks.....</b>	<b>130,991</b>	<b>156,018</b>									

<sup>1</sup> New York City only.

<sup>2</sup> Period ended earlier than Saturday.

## WEEKLY REPORTS FROM CITIES

City reports for week ended August 29, 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	Pollomyelitis cases	Scarlet fever cases	Smallpox cases	Typhoid and paratyphoid fever cases	Whooping cough cases
			Cases	Deaths								
Atlanta, Ga.....	0	0	7	0	0	0	3	0	2	0	0	5
Baltimore, Md.....	0	1	3	1	7	3	9	1	3	0	1	40
Barre, Vt.....	0	0	0	0	10	0	0	0	0	0	0	2
Billings, Mont.....	1	0	0	0	1	0	0	0	2	0	0	6
Birmingham, Ala.....	0	0	1	0	0	0	1	0	0	0	1	0
Boise, Idaho.....	0	0	0	0	0	0	0	0	0	0	0	0
Boston, Mass.....	2	0	0	0	13	3	5	1	19	0	1	33
Bridgeport, Conn.....	0	0	0	0	0	0	1	0	0	0	0	1
Brunswick, Ga.....	0	0	0	0	0	0	1	0	0	0	0	0
Camden, N. J.....	0	0	0	0	0	0	0	1	0	0	0	11
Charleston, S. C.....	1	0	4	0	0	0	1	3	1	0	0	0
Charleston, W. Va.....	2	0	1	0	0	0	0	1	0	0	2	0
Chicago, Ill.....	6	0	0	0	6	1	14	20	7	0	3	157
Cincinnati, Ohio.....	0	0	0	0	1	0	0	2	4	0	0	18
Cleveland, Ohio.....	0	0	4	0	4	1	9	1	11	0	0	39
Columbus, Ohio.....	0	0	1	1	1	0	1	0	4	0	0	8
Concord, N. H.....	0	0	0	0	1	0	0	0	0	0	0	0
Cumberland, Md.....	0	0	0	0	0	0	0	0	0	0	0	0
Dallas, Tex.....	1	0	0	0	0	0	1	0	2	0	0	12
Denver, Colo.....	0	0	7	0	3	0	2	0	1	0	1	11
Detroit, Mich.....	0	0	1	1	5	0	6	4	11	0	1	120
Duluth, Minn.....	0	0	0	0	0	0	2	0	0	0	0	4
Fall River, Mass.....	0	0	0	0	0	0	0	0	3	0	0	3
Fargo, N. Dak.....	0	0	0	0	0	0	1	1	0	0	0	2
Flint, Mich.....	0	0	0	0	0	0	2	0	0	0	0	8
Fort Wayne, Ind.....	0	0	0	0	0	0	1	0	0	0	1	0
Frederick, Md.....	0	0	0	0	0	0	0	0	0	0	0	0
Galveston, Tex.....	0	0	0	0	0	0	1	0	0	0	0	0
Great Falls, Mont.....	1	1	0	0	0	0	0	0	0	0	2	2
Hartford, Conn.....	0	0	0	0	0	0	4	1	1	0	0	9
Helena, Mont.....	0	0	0	0	0	0	0	0	0	0	0	5
Houston, Tex.....	1	0	1	0	0	0	5	0	4	0	1	2
Indianapolis, Ind.....	3	0	0	0	0	0	3	1	1	0	0	11
Kansas City, Mo.....	0	0	0	0	2	0	3	0	2	0	0	2
Kenosha, Wis.....	0	0	0	0	0	0	0	0	5	0	0	16
Little Rock, Ark.....	0	0	0	0	0	0	1	0	0	0	0	0
Los Angeles, Calif.....	1	0	1	0	7	0	4	0	8	0	1	18
Lynchburg, Va.....	0	0	0	0	0	0	0	0	0	0	0	1
Memphis, Tenn.....	0	0	0	0	1	0	2	0	1	0	0	18
Milwaukee, Wis.....	0	0	0	0	7	0	3	3	6	0	0	31
Minneapolis, Minn.....	0	0	0	0	1	0	3	1	1	0	0	19
Missoula, Mont.....	0	0	0	0	0	0	0	0	0	0	0	0
Mobile, Ala.....	0	0	1	0	0	0	0	0	2	0	1	0
Nashville, Tenn.....	0	0	0	0	0	0	4	1	1	0	2	5
Newark, N. J.....	0	0	3	0	15	1	0	3	4	0	0	40
New Haven, Conn.....	0	0	0	0	0	0	0	0	1	0	0	3
New Orleans, La.....	0	0	1	0	1	0	8	1	0	0	0	0
New York, N. Y.....	9	2	1	1	14	1	50	12	24	0	4	143
Omaha, Nebr.....	0	0	0	0	1	0	1	0	1	0	0	3
Philadelphia, Pa.....	1	0	0	0	6	2	16	0	11	0	1	84
Pittsburgh, Pa.....	1	0	1	2	2	0	5	1	1	0	4	15
Portland, Maine.....	0	0	0	0	0	0	0	0	2	0	0	0
Providence, R. I.....	0	0	0	0	3	0	0	0	1	0	0	22
Pueblo, Colo.....	0	0	0	0	0	0	0	0	0	0	0	0
Raleigh, N. C.....	0	0	0	0	0	0	1	0	0	0	1	2
Reading, Pa.....	0	0	0	0	0	0	0	0	0	0	0	2
Richmond, Va.....	0	0	1	1	0	0	1	0	2	0	1	2

City reports for week ended August 29, 1942—Continued

	Diphtheria cases	Encephalitis, infections, cases	Influenza		Measles cases	Meningitis, meningococcus, cases	Pneumonia deaths	Folliculomyelitis cases	Scarlet fever cases	Smallpox cases	Typhoid and paratyphoid fever cases	Whooping cough cases
			Cases	Deaths								
Roanoke, Va. ....	1	0	0	0	0	0	0	0	0	0	0	0
Rochester, N. Y. ....	0	1	0	0	1	1	0	1	0	0	0	15
Sacramento, Calif. ....	0	0	1	0	0	0	0	0	1	0	0	0
Saint Joseph, Mo. ....	0	0	0	0	0	0	0	0	0	0	0	0
Saint Louis, Mo. ....	0	0	0	0	1	2	5	4	2	0	2	5
Saint Paul, Minn. ....	0	0	0	0	1	0	3	1	1	0	0	27
Salt Lake City, Utah. ....	0	0	0	0	5	2	2	0	0	0	0	7
San Antonio, Tex. ....	0	0	0	0	0	0	7	0	0	0	0	2
San Francisco, Calif. ....	0	0	1	0	11	1	1	0	4	0	0	6
Savannah, Ga. ....	1	0	0	0	0	0	1	1	0	0	0	3
Seattle, Wash. ....	1	0	1	1	7	0	5	0	0	0	1	6
Shreveport, La. ....	0	0	0	0	0	0	0	1	1	0	1	0
South Bend, Ind. ....	0	0	0	1	0	0	0	1	1	0	0	5
Spokane, Wash. ....	0	0	0	0	4	0	3	0	1	0	0	2
Springfield, Ill. ....	0	0	0	0	0	0	0	0	1	0	0	0
Springfield, Mass. ....	0	0	0	0	5	1	1	0	1	0	0	2
Superior, Wis. ....	0	0	0	0	0	0	0	0	0	0	0	0
Syracuse, N. Y. ....	0	0	0	0	9	0	0	0	0	0	0	21
Tacoma, Wash. ....	0	0	0	0	23	0	1	0	0	0	0	0
Tampa, Fla. ....	0	0	0	0	0	0	0	0	0	0	0	0
Terre Haute, Ind. ....	0	0	0	0	0	0	1	0	0	0	0	0
Topeka, Kans. ....	0	0	0	1	0	0	0	0	1	0	0	3
Trenton, N. J. ....	0	0	2	0	2	0	0	0	0	0	1	0
Washington, D. C. ....	2	0	0	1	1	1	5	1	5	0	0	11
Wheeling, W. Va. ....	0	0	0	0	0	0	2	0	0	0	0	7
Wichita, Kans. ....	0	0	0	1	0	0	3	0	2	0	0	0
Wilmington, Del. ....	0	0	0	0	0	0	1	0	2	0	0	0
Wilmington, N. C. ....	1	0	0	0	0	0	0	0	0	0	0	7
Winston-Salem, N. C. ....	1	0	0	0	0	0	3	0	1	0	0	0
Worcester, Mass. ....	0	0	0	0	0	0	5	0	1	0	1	14

*Dysentery, amebic*—Cases: Atlanta, 2; Little Rock, 1.

*Dysentery, bacillary*—Cases: Atlanta, 2; Baltimore, 2; Chicago, 7; Columbus, 1; Detroit, 1; Los Angeles, 2; Nashville, 1; New York, 18; Richmond, 4; St. Louis, 2.

*Dysentery, unspecified*—Cases: San Antonio, 4.

*Rocky Mountain spotted fever*—Cases: Nashville, 1.

*Typhus fever*—Cases: Atlanta, 1; Brunswick, 3; Charleston, S. C., 4; Houston, 1; Mobile, 1; New Orleans, 1; Savannah, 3; Tampa, 2.

Rates (annual basis) per 100,000 population, for the group of 87 cities in the preceding table (estimated population, 1942, 33,323,772)

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 Aug. 29, 1942...	5.79	6.26	1.25	29.26	35.21	27.38	0.00	5.48	167.90
Average for week 1937-41....	9.17	4.43	1.58	25.78	36.69	31.47	0.32	9.65	188.05

<sup>1</sup> Median.

## TERRITORIES AND POSSESSIONS

## Panama Canal Zone

*Notifiable diseases—May 1942.*—During the month of May 1942, certain notifiable diseases were reported in the Panama Canal Zone, and terminal cities and vicinities, 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.....	7				1				8	
Diphtheria.....	4		2		1		1		8	
Dysentery (amebic).....	6		4		3		4		17	
Dysentery (bacillary).....					1			1	1	1
Malaria <sup>1</sup> .....	27	3	5		807	4	290	10	1,129	17
Measles.....	9		1		78		4		92	
Meningitis, meningococcus.....	2	1	1						3	1
Mumps.....	1				2				3	
Paratyphoid fever.....	1				4		2		7	
Pneumonia.....		10		2	59	2			59	14
Tuberculosis.....		14		7	3	1		11	3	33
Typhoid fever.....	1		1		3				5	

<sup>1</sup> Includes 166 recurrent cases.

<sup>2</sup> Cases reported in the Canal Zone only.

## FOREIGN REPORTS

### CANADA

*Provinces—Communicable diseases—Week ended August 15, 1942.*—  
During the week ended August 15, 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	2	-----	6	1	-----	-----	1	2	13
Chickenpox.....	-----	5	-----	15	53	1	7	8	36	125
Diphtheria.....	-----	8	1	9	2	-----	2	-----	1	23
Dysentery.....	-----	-----	-----	5	1	-----	-----	-----	-----	6
German measles.....	-----	6	-----	-----	3	-----	2	-----	2	13
Influenza.....	-----	4	-----	-----	3	-----	1	-----	6	14
Lethargic encephalitis.....	-----	-----	-----	-----	-----	3	-----	-----	1	4
Measles.....	-----	-----	-----	62	23	2	19	-----	2	108
Mumps.....	-----	8	-----	7	83	11	33	6	68	216
Pneumonia.....	-----	2	-----	-----	4	-----	-----	-----	-----	6
Pollomyelitis.....	-----	4	15	9	4	1	1	-----	2	36
Scarlet fever.....	3	5	4	33	42	8	10	16	13	134
Trachoma.....	-----	-----	-----	-----	-----	1	-----	-----	-----	1
Tuberculosis.....	7	9	6	120	52	-----	29	-----	39	262
Typhoid and paratyphoid fever.....	-----	-----	1	10	6	1	-----	1	-----	19
Whooping cough.....	-----	-----	7	187	77	6	-----	8	21	306
Other communicable diseases.....	-----	39	-----	3	237	92	-----	1	4	376

### CUBA

*Provinces—Notifiable diseases—4 weeks ended July 18, 1942.*—  
During the 4 weeks ended July 18, 1942, cases of certain notifiable diseases were reported in the Provinces of Cuba, as follows:

Disease	Pinar del Rio	Habana <sup>1</sup>	Matanzas	Santa Clara	Camaguey	Oriente	Total
Cancer.....	1	2	5	7	-----	22	37
Chickenpox.....	-----	-----	-----	-----	-----	1	1
Diphtheria.....	1	25	4	3	1	8	37
Hookworm disease.....	-----	-----	-----	-----	-----	2	2
Leprosy.....	-----	2	2	-----	-----	3	6
Malaria.....	139	18	-----	12	40	182	341
Measles.....	-----	17	1	1	-----	1	20
Pollomyelitis.....	2	11	5	2	2	36	58
Rabies.....	-----	1	-----	-----	-----	-----	1
Scarlet fever.....	-----	1	-----	-----	-----	-----	1
Tuberculosis.....	27	48	22	73	22	42	234
Typhoid fever.....	28	80	20	79	14	49	270
Whooping cough.....	-----	-----	-----	2	-----	-----	2

<sup>1</sup> Includes the city of Habana.

## REPORTS OF CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER RECEIVED DURING THE CURRENT WEEK

NOTE.—Except in cases of unusual prevalence, only those places are included which had not previously reported any of the above-mentioned diseases, except yellow fever, during the current year. All reports of yellow fever are published currently.

A cumulative table showing the reported prevalence of these diseases for the year to date is published in the PUBLIC HEALTH REPORTS for the last Friday in each month.

(Few reports are available from the invaded countries of Europe and other nations in war zones.)

### Plague

*Indochina—Laos.*—For the period August 11–20, 1942, 1 case of plague was reported in Laos, Indochina.

*Madagascar.*—For the period August 11–20, 1942, 2 cases of plague were reported in Madagascar.

*Morocco.*—During the week ended August 22, 1942, 14 cases of plague were reported in Morocco.

### Typhus Fever

*Iraq.*—During the week ended July 18, 1942, 5 cases of typhus fever were reported in Iraq.

*Morocco.*—During the week ended August 22, 1942, 58 cases of typhus fever were reported in Morocco.

*Rumania.*—During the week ended August 29, 1942, 10 cases of typhus fever were reported in Rumania.

*Turkey.*—During the week ended August 29, 1942, 11 sporadic cases of typhus fever were reported in Turkey.

### Yellow Fever

*Ivory Coast—Bobo Dioulasso.*—On September 1, 1942, 2 deaths from suspected yellow fever were reported in Bobo Dioulasso, Ivory Coast.

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## COURT DECISION ON PUBLIC HEALTH

*Sewage disposal—pollution of watercourse on private property—liability of city.*—(Michigan Supreme Court; *Dohany v. City of Birmingham et al.*, 2 N.W.2d 907; decided March 17, 1942.) The plaintiff owned about 21 acres of land, no part of which was within the corporate limits of the defendant city of Birmingham. The land had been acquired for residential purposes and was traversed by a meandering, natural watercourse having a channel and well-defined banks. At times this watercourse was dry, but whenever there was a heavy rainfall it was the outlet for raw sewage discharged from the defendant city's sewer.

In an action by the plaintiff for an injunction the city, in effect, admitted that under certain conditions raw sewage was discharged,

through the city sewer, across plaintiff's land but claimed the right to do so because the sewage was diluted at such times by surface water from excessive rainfall. The city relied upon holdings that a riparian owner was allowed reasonable use of a natural watercourse in common with other riparian owners, even to the extent of a certain amount of pollution, but the Supreme Court of Michigan said that the rights of a riparian owner were not involved in the instant case. "No part of the natural watercourse lies within the corporate limits of the defendant city. The city is not a riparian owner." Respecting the defendants' claim that their position was analogous to that of a riparian owner because surface water found its natural outlet in plaintiff's watercourse, the court stated that it did not follow that the city could make an unreasonable use of plaintiff's watercourse for disposing of raw sewage.

According to the court, no public necessity warranted a city in injuring the rights of riparian owners by polluting a stream with its sewers. Such rights were protected by the constitution and could not be taken away except by due process of law. It could not be successfully maintained that the city's duty to care for its sewage disposal continued only during normal weather and ended when there was an excessive rainfall. Nor, continued the court, did plaintiff's right to have the nuisance abated depend upon the use of water from the natural watercourse for drinking or domestic purposes. "The value of plaintiff's land is materially lessened when sewage is discharged across his land with the attendant bad odors and the visible evidence of human excrement."

The decree allowed the city a reasonable time to make the necessary improvements and permanently enjoined defendants from thereafter discharging raw sewage into the watercourse on or across plaintiff's land.

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