# **Public Health Reports**

Vol. 57 • OCTOBER 2, 1942 • No. 40

# THE INCIDENCE OF PNEUMONIA AS RECORDED IN THE NATIONAL HEALTH SURVEY\*

By Rollo H. Britten, Senior Statistician, United States Public Health Service

The incidence of pneumonia as recorded in the National Health Survey is presented in this report in relation to population and socioeconomic factors, together with limited information on medical care. The data cover a period (1934-36) during which the mortality from the disease was neither unusually high nor unusually low in comparison with the years immediately before and after. This fact is brought out in figure 1, which shows the mortality rate from pneumonia for the United States as a whole for the years 1921 to 1939.

The National Health Survey <sup>1</sup> was a house-to-house canvass of 703,092 urban families in 18 States and 36,801 families in certain rural areas to determine the frequency of serious disabling illness, medical care received for such illness, and the relation of these items to social and economic conditions. The survey was patterned on previous ones conducted by the United States Public Health Service and in general followed the established techniques developed in such surveys, information being obtained by trained enumerators from the housewife or other responsible member of the housebold. Information was requested as to illnesses disabling for a week or more at any time during the 12 months preceding the date of the visit. It is felt that in the case of a severe disease such as pneumonia limitation to cases disabling for a week or longer does not result in the loss of an appreciable number of cases of the disease. It should be pointed out that

<sup>•</sup>From the Division of Public Health Methods, National Institute of Health. Assistance in the preparation of the materials for this study was furnished by the personnel of the Work Projects Administration (Official Project Nos. 712159-655/9999 and 765-23-3-10). Acknowledgment is also made to Mrs. Annie Stein and various other members of the National Health Survey staff for statistical assistance.

<sup>&</sup>lt;sup>1</sup> Perrott, George St. J., Tibbitts, Clark, and Britten, Rollo H.: The National Health Survey: Scope and method of the Nation-wide canvass of sickness in relation to its social and economic setting. Pub. Health Rep., 54: 1663-1687 (1939).

Britten, Rollo H., Collins, Selwyn D., and Fitzgerald, James S.: The National Health Survey: Some general findings as to disease, accidents, and impairments in urban areas. Pub. Health Rep., 55:444-470 (1940).

National Health Survey, 1935-1936: Pneumonia in urban United States: Frequency, severity, and medical care. Preliminary Reports, Sickness and Medical Care Series, Bulletin 11, Division of Public Health Methods, National Institute of Health, U. S. Public Health Service: 1938. [Processed] (Prepared by David E. Hailman of the Health Survey staff.)

#### October 2, 1942

1480

the instructions provided that cases ending fatally were to be included even if the duration from the beginning of symptoms was less than a week. The population surveyed comprised 2,152,741 white <sup>2</sup> persons



FIGURE 1.—Annual mortality from pneumonia. United States, 1921-39. (From Special Reports, Vital Statistics Division, U. S. Census Bureau.)

of known age and known family income. This is the group for which the pneumonia record will be shown in this paper.

The urban surveyed population was so distributed as to give a sample which was generally representative of cities in the United States according to size and region. In large cities (100,000 population and over in 1930) the population to be canvassed was determined by a random selection of many small districts based on those used in the United States census of 1930.<sup>3</sup> In the smaller cities selected for study (between 2,500 and 100,000 population) the population was completely enumerated. The rural survey was made in three States in order that at least indicatory data might be obtained on the rural health problem.

Except where otherwise indicated, the cases of pneumonia considered in this report include, in addition to the primary cases, those in which the diagnosis was recorded as contributory to another diagnosis for the same illness or period of disability. Inclusion of the contributory cases makes the rate about 14 percent higher than if it were limited to primary cases.

<sup>&</sup>lt;sup>3</sup> Data for the colored population have been excluded because it was felt that the record obtained for pneumonia in this group was not sufficiently complete.

<sup>&</sup>lt;sup>3</sup> The representativeness of the sample has been shown by comparisons with 1930 census population data. (See Perrott, Tibbitts, and Britten, op. cit.)

The frequency rates do not include cases for which no medical attendant was reported (about 2 percent of the total). Obviously, no information is possible from a survey of this type as to the number of unattended cases of pneumonia which occur in this country, since a medical diagnosis is necessary to determine the presence of the disease. The presumption is that such cases are more likely to occur in the low income groups.

The rates have been adjusted on the basis of a sample study of diagnosis reports received from physicians and hospitals. This adjustment increased the rates about 5 percent. Even with this correction, however, it is felt that the rates must be regarded as somewhat below the true incidence of pneumonia because of difficulties in the complete enumeration of disease.<sup>4</sup>

#### FINDINGS FOR THE TOTAL URBAN POPULATION

For the white urban population as a whole the annual frequency of pneumonia (sole, primary, and contributory cases) was 5.4 per 1,000 persons.<sup>5</sup> Although newer methods of treatment since the time of the survey may have lowered the mortality and disability from the disease, it is not felt that they would have affected the incidence.

The average duration of disability of the sole and primary cases was 39 days, with an annual disability rate of 185 days per 1,000 observed persons—or about two-tenths of a day per person in the entire urban population.<sup>6</sup> Disability was defined to mean inability to work, attend school, care for home, or perform other usual activities.

In this report separate consideration is not given to the frequency of recorded cases which ended fatally. Information as to mortality is generally available from other sources. Furthermore, it has been generally recognized that, in house-to-house canvasses of the type under consideration, an appreciable proportion of deaths which occur in the sample areas are not recorded. The reasons for this loss are not entirely clear, but include disappearance of single-person households, breaking up of other households, lack of coverage of orphanages, homes for the aged, and other institutions in which the death rates are particularly high, and the difficulty of establishing the concept of reporting on persons who were no longer members of the household at the time of the survey. It is interesting to observe that the average

<sup>&</sup>lt;sup>4</sup> See Lienau, C. C.: Selection, training, and performance of National Health Survey field staff. Am. J. Hyg., 34 (Sec. A): 110-132 (November 1941).

<sup>&</sup>lt;sup>4</sup> A record was also obtained as to the number of cases of pneumonia existing on the day of the visit, the rate being 0.61 per 1,000 persons. Owing to the fact that the period of the survey covered only the winter months, November-March, and therefore was not representative of the whole year, it has been felt desirable in this article to confine attention to the incidence of cases occurring during the 12 months preceding the date of the visit.

<sup>•</sup> The percentage distribution of these cases by duration of disability (based on a 5-percent random sample of the punched cards) was as follows: 7-10 days, 8.4; 11-17 days, 14.1; 18-24 days, 17.2; 1 month (25-44 days), 34.4; 2 months, 15.3; 3 months, 4.0; 4 months, 3.3; 5-7 months, 2.8; 8-11 months, 0.4.

duration of disability for recorded fatal cases of pneumonia was 18.9 as against 42.3 for nonfatal cases.

The annual mortality from pneumonia (sole and primary diagnoses) in urban United States was 84 per 100,000 persons in 1935. The annual incidence of pneumonia (sole and primary diagnoses) was 4.8 as recorded in the Health Survey. Hence, an estimated case fatality of 17.5 percent is obtained.

#### VARIATION BY AGE AND SEX

The annual frequency of pneumonia cases varied markedly with age (table 1 and fig. 2). The curve starts at a high point for infants 7and young children, descends abruptly, reaching a low point at age 20, and then rises to another high point in old age. The figures indicate that 1 in every 40 persons has pneumonia during his first year of life.

		accord	ing to se	t and age				
A ()	Annu 1,000	ual freque persons o	ency per observed	Ratio of male rate to female	N	umber of	Cases	Number of persons
Age (years)	Both	Mala	Female	rate (fe- male rate	Both	Molo	Fomala	Both

4 88

24. 70 14. 84

8.42 3.17

2.06 2.97 3.29 3.90

5.23

9.30

17.37

=100

122

127

118

132

113

150

115

121

121

129

98

93

Male | Female

5.96

31.38

17.52

11.15

3.57

3.09

3. 41

3.98

4.72

6.75

9.16

} 16. 14

seres

5.40

28.10

16. 20 9. 80 3. 37

2.54 3.18

3.63

4.31

5.96 9.24

16.00

22.48

All ages

Under 1 1.....

1-4-----

-54.....

55-64.....

65-74.....

85 and over

5-9

10-14

75-84

15-24...

25-34.....

35-44.....

Male

6, 205

235

655 624 525

378

221

31

sexes

11,632

416

654

972

135

965

839

503

105

1, 959

1, 708

1, 149

1, 1, 227 Female

5, 427

181

882

727 307

418

572

572

511

440

461

282 74

sexes

2, 152, 741

29, 619 120, 917 174, 354 193, 877 381, 991 361, 681 229, 979

338, 272 263, 123

162, 012

90, 785

31, 440

4, 670

TABLE	1.—Annual	frequency of	of pneumon	a per	1,000	white	persons	observed,
		acce	ording to see	and a	ge			

The average number of days of disability per 1,000 persons observed was high in childhood, reached a minimum in the age group 15-24, and then rose rapidly (table 2). The severity in terms of days of disability per case tended to increase somewhat with age.

In contradistinction to most causes of illness, the annual frequency of pneumonia was higher among males than among females, the annual rates being, respectively, 6.0 and 4.9 per 1,000 persons. This finding confirms previous studies for mortality.<sup>8</sup> Table 1 presents the Health Survey rates by age and sex and the ratio of the male rate to the female rate at each age.

-	100	
	187	
- 1	<b>TO</b> 4	

<sup>&</sup>lt;sup>7</sup> Since age was recorded as of last birthday, persons under 1 year of age would on the average be under observation for one-half of a year. In calculating the rates for this age group, therefore, the population has been divided by 2.

<sup>&</sup>lt;sup>8</sup> See especially Doull, J. A., Harmon, G. E., and Fisher, B.: The sex ratio of pneumonia mortality and its possible relation to occupation. Am. J. Hyg., 20: 628-640 (November 1934).



**TABLE 2.**—Annual days of disability per 1,000 white persons observed and per case of pneumonia,<sup>1</sup> according to age

Age (years)	Annual number of days of dis- ability per 1.000 persons observed	Days of disability per case	Number of persons
All ages	185	38. 9	2, 152, 741
Under 15 15-24. 25-64. 65 and over	204 90 146 369	35. 6 38. 8 41. 7 42. 2	518, 767 381, 991 1, 125, 088 126, 895

<sup>1</sup> Illnesses in which pneumonia was a contributory diagnosis have been excluded.

#### VARIATION BY GEOGRAPHIC REGION AND SIZE OF COMMUNITY

The cities enumerated in the National Health Survey have been classified into four geographic regions.<sup>9</sup> Table 3 shows that the incidence of pneumonia was not widely different in these regions. However, the highest rate was noted in the South and the lowest in the Northeast. The rates given in the table have been adjusted to the age composition of the enumerated white population in order to eliminate the effect of differences in the distribution of the population by age in the various regions and size of city groups.

 
 TABLE 3.—Annual frequency of pneumonia per 1,000 white persons observed, by geographic region and size of city, adjusted to a standard age composition 1

	Geographic region						
Size of city (population)	All regions	Northeast	North Central	South	West		
Total	5. 4	5.0	5.6	6.1	5. 4		
500,000 and over	5. 1 5. 2 6. 5 5. 6	5.2 5.0 4.4 4.2	5.0 5.7 6.8 6.0	4.7 8.2 6.7	4.9 5.5 4.5 6.1		

FREQUENCY PER 1,000 PERSONS OBSERVED

NUMBER OF PERSONS OBSERVED

Total	2, 152, 741	821, 114	<b>734</b> , 517	311, 231	285, 879
500,000 and over	934, 542 647, 035 303, 211 267, 953	514, 555 160, 942 66, 293 79, 324	356, 438 187, 759 117, 660 72, 660	166, 623 96, 177 48, 431	63, 549 131, 711 23, 081 67, 538

<sup>1</sup> Adjusted to the age composition of all white persons enumerated in the National Health Survey.

It will also be noted from the table that there is no wide variation in the frequency of the rates by size of city. Certain differences appear, but they are not consistently maintained in each of the four regions.

In table 4 a limited amount of data is given for rural areas (towns and villages under 2,500 population and purely rural districts). It will be noticed that the rates (adjusted to a standard age composition) tend to be higher than those for urban areas. It is not felt that the rural data are representative of rural United States generally and therefore no combined figure is given, but the differences between urban and rural incidence of the disease are suggestive.

<sup>•</sup> The Health Survey States included in the four regions are: Northeast—Massachusetts, New Jersey, New York, Pennsylvania; North Central—Illinois, Michigan, Minnesota, Missouri, Ohio; South—Alabama, Georgia, Louisiana, Texas, Virginia; West—California, Oregon, Utah, Washington.

Northeast includes the New England and Middle Atlantic groups of the conventional census classification; North Central includes East and West North Central; South includes South Atlantic and East and West South Central; West includes Mountain and Pacific.

The names of the individual cities surveyed will be found in the report, Perrott, Tibbitts, and Britten, op. cit.

State and country	Rate per 1,	,000 persons	Number of persons		
	obse	rved	observed		
State and county	Towns and	Purely rural	Towns and	Purely rural	
	villages	areas	villages	areas	
Michigan: Hillsdale County	10. 0 6. 1 12. 3 6. 7 9. 3	7.3 5.7 9.8 7.5 6.9 8.2	3, 903 4, 653 2, 128 3, 214 901 6, 866	16, 069 7, 243 14, 295 8, 575 8, 889 24, 788	

#### TABLE 4.—Annual frequency of pneumonia per 1,000 white persons observed in specified rural counties 1

<sup>1</sup> Adjusted to the age composition of all white persons enumerated in the National Health Survey. <sup>2</sup> Crawford, Otsego, and Roscommon Counties.

#### RELATION TO ECONOMIC STATUS

Higher rates of pneumonia mortality in the lower socio-economic classes have been established in previous studies.<sup>10</sup> The National Health Survey shows that there is a similar relation for cases of pneumonia. In table 5 and figure 3 this comparison is made against annual family income. The figure uses broader age groups and



FIGURE 3.-Frequency rate of pneumonia for each income group (all ages, adjusted).

expresses the relation in terms of the ratio of the rate in each income group to that in the income group of \$2,000 and over.

Income is defined to comprise all salaries, wages, business profits (including those received from boarding and lodging houses), income from boarders and lodgers in private families, and income from investments received during the survey year; it thus represents an approximate yearly income for the family. Families were not asked to report the exact amount of income, but were asked to locate themselves in one of the classifications shown in table 5. No allowances were made for income in kind. If a household had been in existence for less than

<sup>&</sup>lt;sup>10</sup> See, for instance, Britten, Rollo H.: Mortality rates by occupational class in the United States. Pub. Health Rep., 49: 1101-1111 (1934).

Collins, Selwyn D.: Economic status and health. A review and study of relevant morbidity and mortality data. Pub. Health Bull. No. 165 (1926).

TABLB 5.—Annual frequency of pneumonia per 1,000 white persons observed, according to age and economic status

FREQUENCY PER 1,000 PERSONS OBSERVED

						1	Age (years)						
Annual family income and relief status	ЧI	ages		;		;	;	2				:	76 and
	Crude	Adjusted <sup>1</sup>		Ŧ.	Ì	10-14	10-24	₩- -	<b>#</b>	40-04 40-04	<b>1</b> 2	60-74	19VO
All known incomes.	5.4	5.4	27.8	16.2	9.8	3.4	2.5	3.2	3.6	4.3	6.0	9.2	16.9
Relief	8.8	8.3	49.2	26.0	11.5	4.0	3.7	6.3	6.7	7.6	8.9	11.3	19.7
Under \$1,000	5.5	5.3 4 8	28.4	16.0 12.5	0.0	48	96 96	3.1	3.7	4.7	5 9 9 9	80 C	14.5
	9 00 0 H H H	14 14 14 14	19.0		10 a	- 100	100 1010	5010 5010	-0- 5010	5 6 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	00 1 0 1 0 1 0	2 <b>*</b> -	19.4 18.8
\$3,000 to \$5,000 \$5,000 and over		14141 14141	16.1	8.52	9 4 9 6 6 6	14 14 14	114	800 10101	0 10 10 10 10	900 CO 900 CO 900 CO	ეოეთე ეფეთე	10 <b>6</b> 10 <b>6</b> 10	19.0
	_	_	MUM	BER OF	PERON	S OBSEH	VED	-					
All known incomes		2, 152, 741	<b>30</b> , 619	120, 917	174, 864	193, 877	381, 991	361, 681	338, 272	263, 123	162,012	90, 786	36, 110

5, 318 88 13, 5, 220 5, 240 5, 240 5, 240 5, 240 5, 240 5, 240 21, 634 36, 535 65, 455 65, 455 67, 547 49, 835 19, 215 8, 417 8, 417 672 \$ 72, 880 96, 413 71, 242 18, 657 7, 626 46, 352 88,220 67,005 89,730 8,320 8,320 8,320 8,320 67, 527 37, 740 44, 673 32, 591 7, 873 3, 348 3, 348 45,886 41, 816 24, 701 30, 431 11, 763 11, 763 1, 447 ઌ.**r. 4.**બ 888865888 88865888 6, 871 462, 831 511, 211 385, 623 275, 302 109, 250 49, 240 359.184 ...................... ...................... Under \$1,000 \$1,000 to \$1,500 \$1,500 to \$2,000 \$2,000 to \$3,000 \$3,000 to \$5,000 \$3,000 and over Relief Nonrelief:

<sup>1</sup> Adjusted to the age composition of all white persons enumerated in the National Health Survey. <sup>3</sup> In calculating the rates for this age group, the population has been divided by 2. (See footnote 7.)

#### October 2, 1942

1 year, the income was prorated on an annual basis. Families which reported the receipt of relief were not asked to specify the amount of income during the year. For the purpose of classifying persons by income, unrelated members of households (servants, roomers, etc.) are assigned to the income group corresponding to that of the family in which they live.

It will be observed that the annual frequency of pneumonia in relief families was 8.8 as against 4.1 for families with incomes of \$5,000 and over. (The corresponding figures after adjustment had been made to a standard age composition were 8.3 and 4.2.) The nonrelief group with low incomes showed some excess over families with high incomes. It is to be presumed that the association between economic status and incidence of pneumonia would be even greater if it had been possible to obtain information as to cases of the disease which did not receive medical attention. The table and figure show that the differences by economic status are present at each age (except above 75 years). However, the most marked relation occurs among infants and very young children.

Because of the expensive nature of pneumonia treatment, it is important, in planning a public health program for the control of this disease, to know the relative number of cases which may be expected in each income group as well as the frequency rates. The percentage distribution of pneumonia cases according to economic status is therefore presented (table 6 and fig. 4).<sup>11</sup> Almost half of the cases (49 percent) occurred in families with incomes below \$1,000 (relief and nonrelief). In evaluating these data account should be taken of the fact that the income distribution of the population was probably somewhat different at the time of the survey (1935–36) than it is at present.

Annual family income and relief status	Percentage distribu- tion of cases	Number of cases	Number of persons observed
All incomes	100. 0	11, 632	2, 152, 741
Relief	27. 2	3, 161	359, 184
Under \$1,000 \$1,000 to \$1,500 \$1,500 to \$2,000 \$2,000 to \$3,000 \$3,000 to \$5,000	21. 9 20. 9 14. 3 10. 0 4. 0	2, 553 2, 429 1, 664 1, 161 461	462, 931 511, 211 385, 623 275, 302 109, 250
\$5,000 and over	1.7	203	49, 240

 
 TABLE 6.—Percentage distribution and number of cases of pneumonia according to economic status

<sup>11</sup> The percentage of cases in the relief population is thought to be definitely understated in view of studies showing that in the Health Survey an appreciable proportion of families which were on relief were not so recorded. In tables 7 and 8 are given the severity and disability rates in relation to family income. For this comparison, only those illnesses with pneumonia as the sole or primary diagnosis are utilized. The severity of the pneumonia case evidently did not vary greatly with economic status; hence, the rates of disability reflect essentially the findings just discussed with reference to the incidence of the cases.



FIGURE 4.—Distribution of cases of pneumonia according to economic status.

 TABLE 7.—Days of disability per case of pneumonia<sup>1</sup> according to age and economic status

Age (years)			
Under 15	15-24	25-6 <del>4</del>	65 and over
35. 6	38.8	41. 7	42. 2
36.0	37.4	47.0	47.7
34.4 35.1 36.1 36.9	42.9 36.3 36.7 40.6	42.5 37.4 38.1 41.7	43. 1 38. 2 39. 9
	Under 15 35. 6 36. 0 34. 4 35. 1 36. 1 36. 9	Under 15 15-24 35.6 38.8 36.0 37.4 34.4 42.9 35.1 36.3 36.1 36.7 36.9 40.6	Under 15         15-24         25-64           35.6         38.8         41.7           36.0         37.4         47.0           34.4         42.9         42.5           35.1         36.3         37.4           36.1         36.3         37.4

<sup>1</sup> Illnesses with a contributory diagnosis of pneumonia are excluded.

Although, for the reasons stated previously, no particular consideration is given in this report to the record of fatal cases, it is felt that the absence of information from other sources as to the relative mortality rates by specific income groups justifies comparison on this basis. In figure 5, therefore, is shown the ratio of the death rate from pneumonia in each income group to that in the group with incomes of \$2,000 and over. The ratios are based on rates adjusted to the age composition of the Health Survey white population.

TABLE 8.—Annual days of disability from pneumonia 1 according to age an	d economic
status	

	Annual days of disability per 1,000 persons observed								
Annual family income and relief status	All	ages	Under 15	15-24	25-64	65 years			
	Crude	Adjusted 3	years	years	years	and over			
All known incomes	185	185	294	90	146	369			
Relief	314	304	418	124	291	486			
Under \$1,000 \$1,000 to \$1,500 \$1,500 to \$2,000 \$2,000 and over	190 153 142 149	187 154 148 156	286 254 239 235	102 72 76 81	154 113 106 122	365 365 359 134			

<sup>1</sup> Illnesses with a contributory diagnosis of pneumonia are excluded.

<sup>a</sup> Adjusted to age composition of all white persons enumerated in the National Health Survey.





#### PNEUMONIA AND HOUSING

National Health Survey data show that pneumonia occurred relatively more frequently in crowded households. Discussions of this point have already appeared,<sup>12</sup> but the importance of the relation merits its brief consideration in this report also. In table 9 and figure 6 the incidence of pneumonia is shown by degree of crowding. It will be observed that the adjusted <sup>13</sup> rate is 6.7 for families with more than 1½ persons per room as against 4.0 for families with 1 person or less per room. A similar difference is observed for the relief group and the nonrelief group under \$1,000 when considered separately.

<sup>&</sup>lt;sup>13</sup> Britten, Rollo H., Brown, J. E., and Altman, Isidore: Certain characteristics of urban housing and their relation to illness and accidents: Summary of findings of the National Health Survey. Milbank Memorial Fund Quarterly, 18: 91 (April 1940).

Britten, Rollo H., and Altman, Isidore: Illness and accidents among persons living under different housing conditions: Data based on the National Health Survey. Pub. Health Rep., 56: 609 (1941). Reprint 2253, <sup>13</sup> See table for nature of this adjustment and also for description of the population used for this particular comparison.

			]	Degree of	crowdin	g		
Annual family income and relief status and age (years)	All house- holds	l person or less per room	More than 1 person per room but not more than 1.5	More than 1.5 per- sons per room	All house- holds	l person or less per room	More than 1 person per room but not more than 1.5	More than 1.5 per- sons per room
	Cru	de freque pe	ncy rate per ersons	1,000	Adjust	ed <sup>3</sup> frequ pe	iency rate persons	er 1,000
All incomes: 4								
All ages	4.5	40	5.5	89	4.5	40	5.4	6.7
Under 15	8 1	74	8.6	10.2	84	75	10 2	14 2
15-24	22	21	23	2.6	22	21	2.9	3.0
25-64	8 1	20	2.0	50	3 2	28	<b>4</b> .0	5.2
65 and over	7.3	7.2	8.8	6.7	7.7	7.6	8.9	
Relief:				<b></b>				
Allages	7.4	6.2	8.1	9.1	6.9	6.1	8.3	9.7
Under 15	11.6	10.6	11.8	12.6	12.7	11.2	13.6	19.8
15-24	3.0	3.1	3.0	2.9	3.5	3.2	4.3	3.3
25-64	5.4	4.6	61	7.0	5.4	4.5	6.7	7.9
Nonrelief, under \$1,000;								
Allages	4.5	4.0	5.5	6.6	4.5	4.1	5.5	5.9
Under 15	8.4	7.9	8.5	10.0	8.8	8.0	10.4	11.8
15-24	22	20	2.5	3.0	2.2	2.0	2.9	
25-64	3.0	2.8	3.6	4.8	3.1	2.8	3.9	4.1
Nonrelief, \$1,000 to \$1,500:								
All ages	4.0	3.8	4.6	4.5	4.0	3.8	4.3	. 4.4
Under 15	7.1	7.2	7.0	6.8	7.4	7.1	7.6	7.3
15-24	1.9	1.9	2.1	1.1	1.9	1.8	1.9	1.6
25-64	2.8	2.7	3. 2	3.5	2.8	2.6	2.9	3.8
20-04	2. 8	21	ð. 2	3. 3	2. 8	2.0	2.9	ə.

#### TABLE 9.—Annual frequency of pneumonia<sup>1</sup> according to persons per room,<sup>3</sup> economic status, and age

<sup>1</sup> For reasons of tabulation, illnesses in which pneumonia was a contributory diagnosis are excluded.
 <sup>2</sup> Data based on 1,769,993 white persons in 83 cities. The population is comprised of persons in households consisting of at least the bousehold head and his wife.
 <sup>3</sup> Rates for age groups adjusted to a standard household-size composition and, for all ages, to a standard age and household-size composition. Rates are not shown where there are fewer than 20 cases enumerated.
 <sup>4</sup> Includes persons with income of \$1,500 or more.

#### MEDICAL CARE

Because of the rapidly changing character of pneumonia treatment, the information on receipt of medical care for pneumonia cases in the National Health Survey, obtained in 1935-36, is not entirely indicatory of present conditions, but it does more or less show those existing prior to the introduction of the newer methods of treatment. In table 10 is presented a summary of the information, classified by size of the surveyed cities.<sup>14</sup> The cases under consideration are limited to those which were attended by doctors.<sup>15</sup> As stated previously, no information is available as to the number of cases of pneumonia which were not medically attended, since a medical diagnosis is necessary to determine the presence of the disease.

Because of the importance of bedside nursing in the treatment of pneumonia.<sup>16</sup> special emphasis is given to this aspect in the table. Thirteen percent of the cases received private-duty nursing care, 32 percent received floor nursing care in hospitals, and 40 percent re-

<sup>&</sup>lt;sup>14</sup> For reasons of tabulation, illnesses in which pneumonia was the contributory diagnosis are not included in the tables in this section.

<sup>&</sup>lt;sup>16</sup> The term "doctor" as used here refers to physicians and a relatively small group of other practitioners. 16 Advisory Committee on Prevention of Pneumonia Mortality: Pneumonia-mortality and measures for prevention. Pub. Health Rep., Supplement No. 142, p. 18 (1938).



FIGURE 6.-Relative frequency of pneumonia according to persons per room (base, 100, for households with one or less person per room).

TABLE	10.—Summary	of medica	and	nursing	care for	pneumoni	a cases	<sup>1</sup> according
		•	to s	ize of ci	tų			

		Size of city (	population)	
· Type of information	All sizes	100,000 and over	25,000 to 100,000	Under 25,000
Private duty nursing care: <sup>3</sup> Cases per 1,000 persons Percentage of cases receiving such care Nursing days per 1,000 persons	0. 59 12. 7 9. 9	0.51 11.7 9.1	0. 78 13. 2 10. 8	0.83 17.0 13.8
Nursing days per private-duty nurse case	16.8	17.6	13.8	16.7
Cases per 1,000 persons Percentage of cases hospitalized Hospital days per 1,000 persons	1.5 31.7 28.2	1.5 35.3 31.0	1.5 26.1 22.2	. 99 20. 3 18. 5
Hospital days per hospital case Percentage of cases receiving hospital and/or private- duty nursing care.	19. 1 40. 5	20.0 43.5	14. 4 34. 7	18. 8 32. 9
Physician's home care: 4 Calls per 1,000 persons Calls per case receiving such care	40.0 9.5	37.1 9.5	49.5 8.8	46.7 10.1
Visiting nurse care: Cases per 1,000 persons. Percentage of cases receiving such care Nursing visits per 1,000 persons	. 42 8. 9 3. 6	.42 9.6 3.8	. 38 6. 4 2. 6	. 44 9. 0 3. 8
Nursing visits per visiting nurse case	8.8	9.1	6.8	8.0

 Exclusive of illnesses in which pneumonia was a contributory diagnosis.
 Exclusive of floor-duty nursing service in hospital.
 Hospital care refers solely to in-patient care.
 Refers to cases treated at home by physician whether or not other types of medical services were also increases treated at home by physician whether or not other types of medical services were also increases the service of the serv given.

ceived either hospital or private-duty nursing care or both. There was a marked variation with size of city.

In tables 11 and 12 and figure 7 the type of medical or nursing care is shown for the various income and size of city groups. It is clear that private-duty nursing care was limited largely to families in good economic circumstances. Perhaps the most striking point brought out is the fact that the proportion of cases receiving private-duty

 
 TABLE 11.—Percentage of pneumonia cases ' which received private-duty nursing and hospital care according to size of city and economic status

	Size of city (population)						
Annual family income and relief status	All sizes	100,000 and over	25,000 to 100,000	Under 25,000			
All incomes	12.7	11.7	13. 2	17.0			
Relief Nonrelief: Under \$1,000. \$1,000 to \$2,000. \$2,000 to \$3,000.	3.5 10.4 18.3 25.4	3.2 9.1 11.4 24.3	2.7 11.5 17.2 19.7	6.0 13.4 19.5 36.6			

#### PERCENTAGE OF CASES RECEIVING PRIVATE-DUTY NURSING :

All incomes	31. 7	35. 3	26.1	20. 3				
Relief	39.6	46.7	28.6	17. 5				
Under \$1,000	28. 8 29. 5	<b>33.</b> 9 81. 2	23. 4 24 5.	18.3 25.1				
\$2,000 to \$3,000 \$3,000 and over	26.8 28.3	28. 9 26. 6	27.4 35.2	} 19.0				

#### PERCENTAGE OF CASES RECEIVING HOSPITAL CARE :

#### PERCENTAGE OF CASES RECEIVING PRIVATE-DUTY NURSING AND/OR HOSPITAL CARE

All incomes	40. 5	43. 5	34.7	32. 9
Relief	41. 9	48.6	30. 7	22. 2
Nonrelief:           Under \$1,000           \$1,000 to \$2,000           \$2,000 to \$3,000           \$3,000 and over	36. 0 38. 4 45. 2 55. 8	40. 4 39. 1 46. 0 52. 5	30. 1 36. 0 40. 2 67. 0	29.0 37.1 45.0 64.6

<sup>1</sup> Exclusive of illnesses in which pneumonia was a contributory diagnosis.

<sup>1</sup> From table 10.

 TABLE 12.—Medical and nursing care per pneumonia case 1 according to size of city and economic status

	Size of city (population)						
Annual family income and relief status	All sizes	100,000 and over	25,000 to 100,000	Under 25,000			
All incomes	16.8	17.6	13. 8	16. 7			
Relief	19. 2	22. 5	9.7	16. 1			
Under \$1,000. \$1,000 to \$2,000. \$2,000 to \$3,000. \$3,000 and over	14.0 16.1 17.1 19.6	14.6 16.4 18.0 20.1	13. 4 13. 7 13. 4 16. 1	13. 3 18. 1 15. <b>3</b> <b>23. 4</b>			

#### NURSING DAYS PER PRIVATE-DUTY NURSE CASE :

<sup>1</sup> Exclusive of illnesses in which pneumonia was a contributory diagnosis.

From table 10.

#### TABLE 12.—Medical and nursing care per pneumonia case according to size of city and economic status—Continued

All incomes	19. 1	20. 0	. 14.4	18.8
Relief	21. 4	22. 0	17.4	23. 2
Under \$1,000	18.0	19. 2	13. 2	18. 3
\$1,000 to \$2,000	17.7	18.7	13. 2	16. 1
\$2,000 to \$3,000	18.6	19.5	15. 2	14.6
\$3,000 and over	18.4	19. 6	9.4	27. 6
PHYSICIAN'S HOME CA	LLS PER H	IOME CASE		

All incomes	9. 5	9. 5	8. 8	10. 1
Relief	6. 9	6. 7	6.6	7.9
Nonrelief: Under \$1,000. \$1,000 to \$2,000 \$2,000 to \$3,000 \$3,000 and over	9.7 9.9 11.6 12.7	9.8 9.9 11.9 12.7	9.8 9.4 8.3 12.9	9. 4 11. 1 12. 8 12. 4

<sup>3</sup> From table 11.





UNDER 25,000 POPULATION



FIGURE 7.—Percentage of pneumonia cases which received private-duty nursing care or hospital care of both by city size and income.

nursing care or hospital care or both shows no very great difference by economic status in the large cities, whereas in the small cities the difference by economic status is very marked. For instance, in cities under 25,000 in population only 22 percent in the relief group received private-duty nursing care or hospital care or both, while in the group with family income of \$3,000 and over the percentage was 65.

484138-42----3

#### SUMMARY

In summary, it may be stated that:

1. The annual frequency of pneumonia (sole, primary, and contributory diagnoses) in urban areas was 5.4 per 1,000 white persons.

2. The average duration of the sole and primary cases was 39 days, with an annual disability rate of 185 per 1,000 persons.

3. Based on Health Survey incidence data and on mortality from pneumonia in urban United States in 1935, an estimated case fatality rate of 17.5 percent was obtained.

4. The rate was somewhat higher in the rural area sample.

5. The rate was higher among males than among females.

6. The frequency varied markedly with age, being highest in infancy and old age.

7. There was no great difference in frequency by geographic region or size of city.

8. The frequency was much greater in the low income families.

9. A close association between crowding and the incidence of pneumonia existed.

10. The proportion of cases receiving private duty nursing care or hospital care or both showed no very great difference by economic status in the large cities, whereas in the small cities the difference by economic status was very marked.

#### **INFANT MORTALITY IN RURAL AND URBAN AREAS 1**

By HERBERT J. SOMMERS, United States Public Health Service

Since 1915, the infant mortality rate in the expanding birth registration area of the United States has been reduced by more than half. Although the decline has not been continuous, the trend is well established. The rate in 1939, 48 deaths under one year per 1,000 live births, was 29 percent lower than the rate of 68 per 1,000 in 1929.

However, it has not been possible to determine how uniform the reduction in infant mortality has been throughout the total population. Prior to 1939 detailed tabulations of infant mortality records for rural and urban communities were made by place of occurrence of death rather than by place of residence of the infant. While such tabulations are satisfactory from the point of view of determining the need for expansion of hospital facilities in a given area, they may easily lead to erroneous conclusions as to the infant mortality rate for the population of a given area, for increasing proportions of births and infant deaths of rural residents have been occurring in urban hospitals. Depending upon the number of rural births and rural infant deaths occurring in urban areas, rural and urban infant mor-

<sup>&</sup>lt;sup>1</sup> From the Division of Public Health Methods, National Institute of Health.

tality rates may have been higher or lower than they would have been if births and deaths had been allocated to place of residence.

An annual tabulation of births by place of residence has been made since 1935, but 1939 is the first year for which the Division of Vital Statistics of the Bureau of the Census has tabulated infant deaths in this manner.<sup>2</sup> It is now possible to calculate the effect of adjustment for residence upon rural and urban infant mortality rates. This paper will discuss the relative number of infant deaths in rural and urban areas<sup>3</sup> when the birth and mortality records have been adjusted for nonresidents.

The recorded rural and urban infant mortality rates in the expanding birth registration area are shown in figure 1. According to





these rates, based upon births and deaths tabulated by place of occurrence, the relative size of the infant mortality rate in rural and urban communities has been reversed during the 25-year period since 1915. From 1915 through 1928, the urban rate, although higher than the rural in every year, decreased more rapidly than the rural, so that in 1929, for the first time on record, the rate was lower in urban

<sup>&</sup>lt;sup>2</sup> Vital Statistics-Special Reports. Vol. 12, No. 26, pp. 493-497. June 16, 1941.

<sup>&</sup>lt;sup>3</sup> Urban areas are defined as all places with 10,000 or more population in 1930.

than in rural areas. Since then, without exception, the urban rate has been lower than the rural, and the difference between them has been increasing.

The question arises as to whether this apparently greater reduction of the infant mortality rate in urban than in rural territories is real representing actually lower mortality per 1,000 live births among urban than among rural residents—or whether the urban rate was fictitiously lowered and the rural rate fictitiously raised by the occurrence of a larger proportion of rural births than of rural deaths in urban territories. The number of urban births and urban infant deaths occurring in rural areas is relatively small compared with the number of rural births and deaths occurring in urban areas.

Table 1 presents for each State white infant mortality rates in 1939, based upon birth and infant mortality records tabulated by place of residence, and the ratio of the recorded rate in each area to the corresponding resident rate. Rates for the white population are discussed independently of those for the nonwhite population in order

**TABLE 1.**—Number of infant deaths per 1,000 live births, for whites in urban and rural areas, by place of residence; and the ratio of the recorded to the corresponding resident rate, each State, 1939 (urban includes places of 10,000 or more population)

State	Res rt	ident ate	Rati cor res	io of re- ded to sident rate	State	Resident rate		Ratio of r corded to resident rate	
	Urban	Rural	Urban	Rural		Urban	Rural	Urban	Rural
New England: Maine New Hampshire Vermont Massachusetts Rhode Island Connecticut Middle Atlantic: New York New Jersey Pennsylvenie	60. 9 50. 3 50. 3 37. 2 39. 0 36. 7 37. 0 35. 3 43. 6	49. 5 44. 1 44. 1 35. 3 37. 3 34. 7 40. 7 37. 0 45. 4	0.86 .85 .77 .99 1.01 .97 1.00 1.00	1.06 1.13 1.10 1.04 .98 .99 1.05 1.12 06	South Atlantic—Con. North Carolina Georgia Florida. East South Central: Kentucky Tennessee Alabama. Mississippi	50. 0 49. 5 49. 4 40. 7 55. 2 45. 6 51. 9 86. 5	51. 4 55. 0 50. 5 48. 9 50. 0 49. 2 48. 8 45. 1	1. 38 1. 33 1. 05 1. 12 . 91 1. 27 1. 04 . 79	0. 90 . 91 . 98 . 95 . 95 . 99 1. 01
East North Central: Ohio Indiana Illinois Michigan Wicconsin	39.0 44.5 34.0 39.0 37.9	45.0 34.6 40.6 44.0 41.1	1.00 1.05 .95 1.01 1.09 .98	.95 1.01 1.02 .88 1.02	West South Central: Arkansas Louisiana Oklahoma Texas Mountain:	48. 0 42. 5 49. 6 69. 8	44. 7 49. 4 45. 7 63. 8	1. 10 1. 27 1. 02 . 99	. 96 . 88 . 97 . 99
West North Central: Minnesota Iowa Missouri. North Dakota South Dakota Nebraska. Kansas.	34. 8 46. 6 35. 2 61. 1 43. 3 40. 7 40. 5	35. 1 35. 4 47. 1 45. 7 35. 6 35. 4 37. 0	1.03 .96 1.08 .83 .91 1.01 1.01	. 99 . 96 . 97 1. 02 1. 03 . 94 . 99	Montana Idaho Wyoming Colorado New Mexico Arizona Utah Nevada	39. 8 41. 9 51. 0 46. 6 83. 2 82. 4 37. 0 32. 5	44. 8 45. 9 39. 7 59. 7 107. 2 72. 7 39. 8 41. 8	. 98 . 88 . 99 1. 02 1. 08 . 93 1. 00 . 76	1.04 1.00 1.02 1.02 .99 1.05 1.02 1.02
South Atlantic: Delaware Maryland District of Columbia Virginia West Virginia	40. 0 34. 5 38. 7 41. 2 48. 3	38. 2 43. 6 52. 5 54. 3	. 89 1. 14 . 87 1. 15 1. 23	1. 20 . 98 1. 01 . 96	Pacific: Washington Oregon California Total, United States.	35. 1 27. 4 36. 2 41. 1	36. 0 36. 5 50. 1 46. 9	. 96 1. 19 1. 05 1. 03	1.08 .97 .99 .99

to minimize the effects of underregistration of births and deaths, which is greater for the nonwhite population.

Of the 1,024,753 white live births recorded in urban areas in 1939, 15 percent were born to nonresident rural women who had availed themselves of the superior hospital facilities of urban communities. But of the 43,282 white infant deaths recorded in urban areas, 18 percent were of nonresident rural infants. In contrast, 14 percent of the 1,112,943 white rural live births and 15 percent of the 52,148 rural infant deaths were recorded in urban areas. The white infant mortality rates in urban and rural areas of the United States in 1939, based on recorded births and deaths, were 42.2 and 46.5 per 1,000 live births respectively; the corresponding rates based on resident births and deaths for residence decreased the urban rate by 3 percent, and increased the rural rate by 1 percent.

For the United States as a whole, it is safe to conclude that the trends in rural and urban infant mortality rates shown in figure 1 are substantially correct. Any error which has been introduced into the rates by the non-allocation of births and deaths to the place of residence would seem to be on the side of understatement of the difference between the urban and rural rates.

However, the effect of the correction for nonresidents is not uniform throughout the United States. Recorded rates ranged from 23 percent lower than the resident in the case of the urban rate for Vermont, to 38 percent higher than the resident in the urban rate for North Carolina. Urban recorded rates were lower than the corresponding resident rates by at least 10 percent in 9 States, and higher by at least 10 percent in 10 States. Rural recorded rates were lower by at least 10 percent in 3 States, and higher in 4.

In 1939 there were 23 States in which the urban resident rate was higher than the urban recorded rate. Among these we find 5 of the 6 New England States, 3 of the 6 West North Central States, and 6 of the 8 Mountain States. On the other hand, in 7 of the 9 South Atlantic States and 3 of the 4 West South Central States the urban rates were lowered by the correction for residence.

The recorded urban rate for any State is raised by adjustment for residence when a larger proportion of urban recorded births than of urban recorded infant deaths are of rural origin. Correcting the urban recorded rate for these nonresident births and deaths decreases the denominator of the [*infant deaths*—*by live births*] fraction proportionately more than it does the numerator and so increases the rate. Such increased urban rates are most likely to be found in States or sections where a large proportion of the total births are delivered in hospitals. Since most hospitals are located in urban areas, a large proportion of hospital-delivered births to rural residents are delivered in urban areas. A positive, though not very high, correlation does in fact exist between the proportion of all births in each State which took place in hospitals <sup>4</sup> and the corresponding ratio of the recorded to resident rural infant mortality rate. There are, of course, conspicuous exceptions; for example, Maine, Rhode Island, New Jersey, Oregon, and California.

It is probable that sectional or even specifically local differences in economic level and degree of health education account for most of the variation among the States in the use which rural populations make of urban medical facilities. It appears desirable, therefore, to re-evaluate rural and urban infant mortality rates in each State on the basis of data tabulated by residence.

The Division of Vital Statistics of the Bureau of the Census has released white infant mortality rates, calculated on the basis of resident births and deaths, in communities of three sizes, for the year 1939.<sup>5</sup> Rates were presented for cities, defined as all places with a population of 10,000 or more; towns, defined as all places with populations of 2,500 to 10,000; and rural territories, defined as all places with populations of less than 2,500.

For the United States as a whole, the lowest infant mortality rate was found in cities, reflecting superior medical, public health, and educational facilities. The city rate, 41.1 per 1,000 live births, was 11 percent lower than the rural rate of 46.1 per 1,000. Towns provided the least favorable opportunity for infant survival, having apparently sacrificed the healthful environment of the rural area without having attained the superior facilities of the city. The town rate of 50.1 per 1,000 live births was 9 percent higher than the rural rate.

The rate in towns was higher than the corresponding rural rate in all but 10 of the 48 States. These 10 were widely scattered geographically. The town rate was higher than the corresponding city rate in all but 9 States, 4 of which were in New England.

With only two exceptions, rural rates were higher than city rates throughout the Middle Atlantic, East North Central, and South Atlantic States. With five exceptions, city rates were higher than rural in the New England, West North Central, East South Central, West South Central, and Pacific States (fig. 2).

Infant mortality rates for urban areas, arranged in 4 groups of 12 States each, according to the descending order of the rates, are presented in figure 3, and for rural areas in figure 4. The rates used are the white resident rates of table 1, where rural areas include all with populations of less than 10,000.

It is apparent that the rates were generally higher in the South than in other regions, although among the urban rates those of

Vital Statistics-Special Reports. Vol. 12, No. 2, pp. 6-10. November 6, 1940.

<sup>&</sup>lt;sup>4</sup> Vital Statistics--Special Reports: Vol. 12, No. 26, pp. 493-497. June 16, 1941.



FIGURE 2.—Ratio of white infant mortality rate in cities of 10,000 or over to rate in rural areas of less than 2,500 population, births and deaths tabulated according to residence, United States, 1939.



FIGURE 3.—Infant mortality rates for white urban residents, each State, arranged in 4 groups of 12 States each, according to descending order of the rates, 1939.

Maine, New Hampshire, Vermont, North Dakota, and Wyoming, and among the rural those of Maine and California were also very high. Rural rates were generally lowest in the Middle West. The size of the rural rate in California was probably due to the inclusion of Mexicans among the white population.

The preceding tables and discussion have been confined to white infant mortality rates partly because of the unknown but probably



FIGURE 4.—Infant mortality rates for white rural residents, each State, arranged in 4 groups of 12 States each, according to descending order of the rates, 1939.

considerable degree of underregistration of nonwhite births and deaths, and partly because the nonwhite population, principally Negro, is not distributed equally among the States. Resident infant mortality rates for the nonwhite population in urban and rural areas of 17 southern and 9 northern States are presented in table 2.

The urban infant mortality rate among the southern nonwhite population has not been reduced relative to the rural, as it has been for the white population of the total United States and for the nonwhite population in the northern States. The southern urban rate of 85.0 infant deaths per 1,000 live births was 18 percent higher than the rural rate, whereas the corresponding rate of 60.7 per 1,000 for the northern States was 22 percent lower than the rural.

Urban rates for the nonwhite population in the northern States were much lower than those in the southern, 60.7 as compared with 85.0 deaths per 1,000 live births. However, rates in the rural South were lower than those in the rural North. This seeming anomaly arises from the fact that the nonwhite population in rural south areas is not strictly comparable to the non-white population in rural north areas. The former is composed in the main of rural farm

04-4-	Reside	nt rate	<b>24</b> .4.	Resident rate			
State	Urban	Rural	State	Urban	Rural		
Alabama	99.0 •	70.4	West Virginia	55. 9	73. 9		
Arkansas Delaware	67.6 44.9	48.7 79.1	South	85.0	72		
District of Columbia	77.2		Court				
Florida	84.6	78.1	Connecticut	55.8	75. (		
Georgia	86.8	65.8	Illinois	57.3	123. 6		
Kentucky	69.4	94.7	Indiana	60.4	25. 9		
Louisiana	90.8	82.5	Massachusetts	41.1	61. 8		
Maryland	65.4	108.2	Michigan	53.4	93. 9		
Mississippi	94.0	59.5	New Jersey	64. 9	74. 4		
North Carolina	90.9	72.4	New York	61. 1	79. 4		
Oklahoma	84.4	82.7	Ohio	63.8	71. 4		
South Carolina	90. 9	77.2	Pennsylvania	64.7	68. 2		
Tennessee	84.6	70.1					
Texas	86.4	77.3	North	60.7	77. 9		
Virginia	82.3	84.5					

 

 TABLE 2.—Number of infant deaths per 1,000 live births, for nonwhite populations in urban and rural areas, by place of residence, 17 southern and 9 northern States, 1939 (urban includes places of 10,000 or more population)

Negroes, the latter predominantly of rural nonfarm Negroes.<sup>6</sup> In the latter case, then, the higher infant mortality rates of the village and small town would apply.

The evidence of infant mortality rates presented here indicates that the urban rate for the country as a whole has been genuinely reduced relative to the rural, although there is considerable variation among the States in this respect. It is also apparent that towns and villages of 2,500 to 10,000 population present the least favorable record of infant mortality, as compared with cities or with areas of less than 2,500 population.

The reduction in infant mortality which has taken place in cities has probably been due largely to increasing emphasis being placed on the principles of sanitation, to the establishment of well-baby clinics, to increasing use of hospitals for delivery, to compulsory pasteurization of milk, and to the application of modern medical knowledge. Greater extension of such public health practices to town and rural communities should result in a material reduction of infant mortality.

# ORNITHODOROS PARKERI AND RELAPSING FEVER SPIRO-CHETES IN SOUTHERN IDAHO<sup>1</sup>

By GORDON E. DAVIS, Senior Bacteriologist, United States Public Health Service

A. L. Burroughs, of Twin Falls, Idaho, forwarded on June 21, 1941, to the Rocky Mountain Laboratory 10 specimens of *Ornithodoros parkeri* collected from a ground squirrel burrow about 7 miles south of Twin Falls. This was the first collection of ticks of this species in Idaho. In August and September 52 additional lots of *O. parkeri*,

<sup>&</sup>lt;sup>6</sup> Fifteenth Census of the United States: 1930. Population, Vol. II, Chap. 10, table 31.

<sup>&</sup>lt;sup>1</sup> Contribution from the Rocky Mountain Laboratory of the Division of Infectious Diseases, National Institute of Health.

ranging from 1 to 210 ticks, with a total of 1,466, were collected in Twin Falls, Cassia County, and Power County. Of this collection, 1,298 ticks survived for testing for spirochetes by feeding on white mice.

The number of ticks tested on one mouse depended on the size of the ticks. In the case of early nymphs a relatively large number were used, while only a few late stage nymphs or adults could be safely allowed to engorge.

Accordion		Date	Number	of ticks	Sub	olots	
No.	County	collected (1941)	Col- lected	Tested	Posi- tive	Nega- tive	Collectors
18882	Twin Falls	June 21	10	10	· 1	3	Burroughs.
19002	do	Aug. 2	11	11	1	3	Kohls and Burroughs.
18901	do	Aug. 17	194	184	7	10	Burrougns.
18902	do	do			1		Davis, Dake, and Aanan.
18904	do	do	3	3	ō	1	Do.
18905	do	do	3	3	Ŏ	ī	Do.
18906	do	do	· 10	10	1	0	Do.
18908	do	do	15	12	0	2	Do.
18909	do		210	209	26	5	Do. Dorig Luko and Burroughe
18011	do	do	83	76	2	5	Davis, Luke, and Durrougus.
18912	do	do	13	13	õ	ı i	Do.
18913	do	do	1	1	Ŏ	Ī	Do.
18914	do	do	18	17	1	0	Do.
18915	do	do	15	15	1	2	Do.
18916	do	do	3	2	1		Do.
18917	do	do	14	19	1		Do.
18010	do	uo	87	84	3	10	Do
18920	do	do	67	38	ĩ	4	Do.
18921	do	do	62	44	1	2	Do.
18922	do	do	12	10	1	0	Do.
18923	do	do	22	18	1	1	Do.
19058	do		42	39	2	2	Do. Do
19009	do	uo	40 19	37	ő (	2	Do.
19061	do	do	40	33	ĭ	$\overline{2}$	Do.
19062	do	do	9	9	ī	0	Do.
19063	do	`do	11	11	0	1	Davis and Burroughs.
19064	do	do	3	2	0	1	Do.
19065	do	00	8	7	1	0	Do. Do
19000	do		á	ŝ	Ň	1	Do.
19068	do	do	5	5	1	ô	Do.
19069	do	do	17	17	Ō	2	Do.
19070	đo	do	27	17	0	1	Do.
19071	do	do	32	22	0	3	Do.
19072	do	00	24	24	0	2	Do. Do
10073	do	do	2	2	ň	i	Do
19075	do	do	ĩ	ĩ	ŏ	ī	Do.
19076	do	do	ī	ī	Ō	1	Do.
19077	do	do	11	11	0	3	Do.
19078	do	do	24	21	2	1	Do. De mis
19081	Cassia	Aug. 21	2	2		1	Davis.
19083	Power	uo	13	13	, õl	i l	Do.
19314	Twin Falls	Sept. 26	3	2	Ő	î	Do.
19315	do	do	5	4	i	1	Do.
19316	do	do	1	1	0	1	Do.
19317	do	do	3	3	0	1	D0.
18918		ao	4	1	0		D0.
Total			1, 466	1, 298	69	94	

TABLE 1.—Ornithodoros parkeri and relapsing fever spirochetes in southern Idaho

A. L. Burroughs, Bureau of Entomology and Plant Quarantine. Glen M. Kohls, associate entomologist, Rocky Mountain Laboratory. H. C. Luke, bacteriologist, South Central District Health Unit, Twin Falls, Idaho. John B. Kanarr, bacteriologist, South Central District Health Unit, Twin Falls, Idaho.

Beginning on the fifth day after tick feeding, tail blood was examined on 4 successive days unless spirochetes were recovered earlier. Thick blood preparations were stained by Giemsa's method.

Of 163 sublots tested, 69 transmitted spirochetes. One lot of 209 ticks tested in 31 sublots resulted in 26 positives.

A tabulation of all data is presented in table 1.

#### DISCUSSION

In the general area south of Twin Falls much of the arable land is under cultivation but there are numerous interspersed small tracts that are untilled. In such places ground squirrel and prairie dog burrows are numerous, and in some of the latter fecal pellets and feathers of burrowing owls were present. These were the most heavily tick-infested areas. Further examinations of ground squirrel burrows were made to the east, south, and west. To the east, 5 specimens were collected in Cassia County and 13 in Power County. Spirochetes were not recovered. Studies to the west toward Boise and on two occasions toward the south to the Nevada State border were made in September. In these areas the terrain and vegetation are markedly different from the Twin Falls area. A number of Ixodes sp. were collected north of the Nevada-Idaho State line but O. parkeri was not found, although this species appears again in the contiguous county (Elko) in Nevada.

#### SUMMARY

In a relatively restricted area in southern Idaho there is a very heavy infestation of Ornithodoros parkeri in ground squirrel and prairie dog burrows and an unusually high incidence of spirochetes.

Of a total of 1,466 ticks collected, 1,298 were tested in 163 sublots, 69 of which were positive for spirochetes.

This is the heaviest infestation of O. parkeri thus far encountered in any one area in the nine States (Wyoming, Colorado, Utah, Montana, Washington, Oregon, Nevada, California, and Idaho) in which this species has been collected, with the possible exception of an isolated area in central California. The number of spirochete strains recovered far exceeds all others.

Relapsing fever has not been reported from this area.

#### REFERENCES

Davis, Gordon E.: Ornithodoros parkeri: Distribution and host data; spontaneous infection with relapsing fever spirochetes. Pub. Health Rep., 54: 1345-49 (1939).

<sup>2428 (1941).</sup> 

## PREVALENCE OF COMMUNICABLE DISEASES IN THE UNITED STATES

#### August 16-September 12, 1942

The accompanying table summarizes the prevalence of nine important communicable diseases, based on weekly telegraphic reports from State health departments. The reports from each State are published in the Public Health Reports under the section "Prevalence of disease." The table gives the number of cases of these diseases for the 4-week period ended September 12, 1942, the number reported for the corresponding period in 1941, and the median number for the years 1937-41.

#### DISEASES ABOVE MEDIAN PREVALENCE

Influenza.— The number of cases (1,974) of influenza was about 80 percent of the number reported during this period in 1941, but it represented an excess of more than 20 percent over the preceding 5-year average incidence. The lowest incidence of this disease normally occurs during the month of August and while the number of cases was slightly higher during the current period than it was during the preceding 4-week period, for the country as a whole there was nothing to indicate more than the expected seasonal rise.

Meningococcus meningitis.—The incidence of meningococcus meningitis continued considerably above the level of recent years. There were 187 cases reported for the four weeks ended September 12, as compared with 122 cases in 1941, which figure also represents the 1937–41 median incidence for this period. Each region, except the East South Central, West South Central, and Mountain regions reported an excess over the normal seasonal expectancy.

#### DISEASES BELOW MEDIAN PREVALENCE

Diphtheria.—For the four weeks ended September 12 there were 951 cases of diphtheria reported, as compared with 964 cases in 1941 and an average of 1,446 cases for the corresponding period in the years 1937–41. The incidence in the West North Central, South Atlantic, and Pacific regions was considerably above that recorded in 1941, but the number of cases in each region was below the normal seasonal expectancy.

Measles.—All sections of the country showed a continued seasonal decrease of measles during the four weeks ended September 12. The number of cases reported (2,605) was less than 70 percent of the incidence in 1941 and about 90 percent of the 1937–41 average incidence for this period. In the New England, West North Central, and Pacific regions the number of cases was comparatively high,

but in all other regions the disease was less prevalent than in preceding years.

Number of reported cases of 9 communicable diseases in the United States during the 4-week period Aug. 16-Sept. 12, 1942, the number for the corresponding period in 1941, and the median number of cases reported for the corresponding period, 1937-41

Division	Cur- rent period	1941	5-year medi- an	Cur- rent period	1941	5-year medi- an	Cur- rent period	1941	5-year medi- an
	I	Diphther	ia.	L	nfluenza	1	1	Measles 1	
United States New England Middle Atlantic East North Central West North Central South Atlantic East South Central West South Central Mountain Pacific	951 12 51 114 57 344 135 150 40 48	964 14 68 91 80 300 187 154 38 32	1, 446 17 84 159 90 466 232 196 52 68	1, 974 13 32 95 34 859 102 563 204 72	2, 387 0 14 89 51 608 70 1, 270 192 93	1, 561 3 222 121 51 608 70 450 98 67	2,605 423 381 456 193 139 83 106 217 607	3, 884 423 809 631 184 702 130 418 207 380	2, 972 280 809 631 166 240 118 126 184 364
	Me	ningococ neningiti	cus s	Po	oliomyeli	tis	8	carlet fev	rer
United States New England Bast North Central West North Central South Atlantic East South Central West South Central Mountain Pacific	187 16 55 19 14 42 15 9 4 13	122 7 22 19 6 33 15 8 4 8	122 7 23 18 11 23 15 11 8 6	847 33 181 261 106 74 80 49 18 45	2, 370 110 616 336 111 526 545 42 27 57	2, 370 30 390 484 209 130 88 55 42 143	2, 740 298 421 652 283 367 350 113 89 167	2, 388 213 429 551 255 322 194 113 89 222	3, 148 142 455 918 343 329 243 171 116 253
		Smallpox		Typh typ	oid and phoid fev	para- ver	Who	oping co	ugh <sup>3</sup>
United States. New England. Middle Atlantic. East North Central West North Central South Atlantic. East South Central West South Central Mountain. Pacific.	16 0 3 4 1 1 3 3 1	19 0 7 6 2 2 1 0 1	89 0 28 21 2 2 5 7 11	887 34 130 102 59 188 142 168 43 21	1, 356 35 168 158 72 300 256 275 40 52	<b>2,</b> 141 38 168 315 144 383 311 449 78 86	11, 672 1, 233 2, 988 4, 025 519 939 408 527 350 703	12, 552 765 2, 228 3, 793 885 1, 475 483 631 979 1, 313	<ul> <li>11, 761</li> <li>738</li> <li>940</li> <li>3, 379</li> <li>651</li> <li>1, 386</li> <li>447</li> <li>648</li> <li>535</li> <li>983</li> </ul>

<sup>1</sup> Mississippi, New York, and Pennsylvania excluded; New York City included.

<sup>2</sup> Mississippi excluded. <sup>3</sup> Four years (1938-41) only.

Poliomyelitis.-The number of cases of poliomyelitis rose from 570 during the preceding 4-week period to 847 during the current The highest incidence was reported from Illinois, 130 cases; period. New York, 82; New Jersey, 81; Ohio, 50; Michigan, 45; California, 40; Tennessee, 32; Indiana and Kentucky, 28 each; and Nebraska, 27 In the South Central regions the number of cases dropped cases. from 194 cases during the preceding four weeks to 129 during the current period; although each of the other regions reported an increase, none of these was greater than might be expected at this season of the

year. Compared with preceding years the incidence was only about 35 percent of the 1937-41 average incidence for this period which is represented by the 1941 figure (2,370 cases). Each section of the country, except the New England, reported a relatively low incidence.

Scarlet fever.—Since 1935 there has been a gradual decline in the number of cases of scarlet fever, but for the current period the number of cases reported was approximately 20 percent above the 1941 figure for this period. The number of cases (2,740) was, however, still considerably below the preceding 5-year average incidence. The excess over last year was due largely to an increase in the number of cases in the New England, South Atlantic, and East South Central regions. These three regions alone reported excesses over the 1937-41 average incidence, all other regions reporting very significant declines.

Smallpox.—The incidence of smallpox stood at the preceding 4-week level. The number of cases (16) reported during each of the 4-week periods was the lowest number on record for any 4-week period. The average expectancy for this period was 89 cases and to further emphasize the current low incidence in 1929, 1930, and 1931 the cases for this period totaled 753, 660, and 405, respectively.

Typhoid and paratyphoid fever.—The incidence of typhoid fever was also the lowest on record for this period, the number of cases (887) being less than 70 percent of the 1941 figure and slightly more than 40 percent of the 1937–41 median incidence for this period. Each section of the country shared in the favorable situation of this disease that now exists.

Whooping cough.—The number of cases (11,672) of whooping cough was about 10 percent less than the 1941 figure for this period and slightly below the average incidence for the four preceding years. The incidence was particularly high in the New England and East North Central regions, about normal in the Middle Atlantic region, and relatively low in all other regions.

#### MORTALITY, ALL CAUSES

The average mortality rate from all causes in large cities for the four weeks ended September 12, based on data received from the Bureau of the Census, was 10.2 per 1,000 inhabitants (annual basis). The average rate for this period in the three preceding years was 10.1.

# DEATHS DURING WEEK ENDED SEPTEMBER 19, 1942

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

	Week ended Sept. 19, 1942	Correspond- ing week 1941
Data from 87 large cities of the United States: Total deaths	7, 756 7, 494	7, 238
Total deaths, first 37 weeks of year	307, 912	311,088
Deaths under 1 year of age	610	504
A verage for 3 prior years Deaths under 1 year of age, first 37 weeks of year Data from industrial insurance companies:	20, 922	19, 304
Policies in force.	65, 022, 250	64, 464, 679
Death claims per 1,000 policies in force, annual rate.	10, 201	8.9
Death claims per 1,000 policies, first 37 weeks of year, annual rate	9.2	9.6

# **PREVALENCE OF DISEASE**

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

# **UNITED STATES**

#### **REPORTS FROM STATES FOR WEEK ENDED SEPTEMBER 26, 1942**

#### Summary

The number of cases of poliomyelitis declined from 229 for the preceding week to 220, and meningococcus meningitis decreased from 43 to 39 cases. The incidence of poliomyelitis is less than one-half that for the corresponding week of each of the preceding five years with the exception of 1938, while the incidence of meningococcus meningitis is above that for any other year since 1937.

Increases were recorded in the number of reported cases of diphtheria, influenza, measles, and scarlet fever, although of these diseases only influenza is above the 5-year (1937–1941) median. The current incidence of influenza is above that for the corresponding week of each of the preceding 5 years except 1941, but of the 746 cases reported, 231 cases occurred in Texas and 210 in South Carolina, or approximately 60 percent in these two States.

Other reports include 1 case of psittacosis in New York, 28 cases of amebic, 2,785 cases of bacillary  $(2,535 \text{ in Kansas})^1$ , and 196 cases of unspecified dysentery, 18 cases of infectious encephalitis, 6 cases of Rocky Mountain spotted fever, 5 cases of smallpox, 9 cases of tularemia, and 145 cases of endemic typhus fever (42 in Georgia, 38 in Texas, 22 in Alabama, and 20 in Florida). A total of 2,509 cases of endemic typhus fever has been reported to date in 1942, as compared with a total of 2,784 for the entire year 1941, 1,882 in 1940, and an annual 5-year (1937-41) median of 2,784.

The death rate for the current week for 88 large cities in the United States is 10.7 per 1,000 population, as compared with 10.9 for the preceding week and a 3-year average of 10.5. The cumulative rate to date is 11.6, as compared with 11.7 for the same period in 1941.

<sup>&</sup>lt;sup>1</sup>At Newton, caused by contaminated water supply. Cases all occurred between September 2 and 14; no cases have been reported there since the latter date. Source of pollution reported to have been eliminated.

#### Telegraphic morbidity reports from State health officers for the week ended September 26, 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.

	I	Diphth	eria	Influenza				Measle	8	M me	Meningitis meningococce		
	Weel	c ended	Me	Weel	k ended	1	Wee	k ended		Week	ended	Ma	
Division and State	Sept 26, 1942	Sept 27, 1941	dian 1937- 41	Sept. 26, 1942	Sept. 27, 1941	- Me- dian 1937-4	Sept. 26, 1942	Sept. 27, 1941	- Me- dian 1937-41	Sept. 26, 1942	Sept 27, 1941	dian 1937- 41	
NEW ENGLAND													
Maine. New Hampshire Vermont. Massachusetts. Rhode Island. Connecticut.	-			    5			- - 1 - 3	3 1 0 1 5 5 1 5	8 9 1 1 3 2 3 27 1 0 8 3			1 0 0 0 1 1 1 0 1 0	
MID. ATL.	1												
New York New Jersey Pennsylvania				3		3 2 	5 3 3 4 - 2	4 2 4 6	5 48 7 20 7 67				
E. NO. CEN.													
Ohio Indiana Illinois Michigan <sup>3</sup> Wisconsin		5 8 5 8 5 6	9 13 20 6 6 2	3 16 5 2 14	1	5 1 1 3 7 2	$     \begin{array}{cccc}       2 & 1 \\       1 & 1 \\       5 & 1 \\       2 & 1 \\       8 & 2 \\       8 & 2 \\     \end{array} $	9 2 0 1 9 1 8 3 5 2	4 8 3 3 3 18 3 28 3 27				
W. NO. CEN.										Ι.			
Minnesota. Iowa. Missouri. North Dakota. South Dakota. Nebraska. Kansas.		20 20 13 1	3 2 14 2 4 3 3	 1 1  2 4				6 6 6 6 6 7 11 7 1 7 1 7 1 7 1 7 1 7 1 7 1 7 1 7	8 8 8 3 8 3 4 1 3 5	1 0 1 0 0 1 1			
80. ATL.													
Delaware. Maryiand <sup>3</sup> Dist. of Col Virginia West Virginia North Carolina South Carolina Georgia Florida	1 3 1 16 9 47 27 51 7	1 4 0 16 0 69 44 38 6	0 4 2 35 10 103 36 38 9	4 74 1 210 2 1	2 41 185 20 16			$\begin{array}{cccccccccccccccccccccccccccccccccccc$	2 5 1 10 5 26 2 11 1	0 2 0 3 2 0 1 0 0	0 0 3 0 0 3 1 1	0 1 1 1 0 1 0 1	
E. SO. CEN.		10	10										
Tennessee Alabama Mississippi <sup>3</sup>	11 13 28 7	12 19 40 11	19 23 43 15	12 15	7	17	1	20	10 7	0 2 1	0000	2 1 0	
W. 80. CEN.													
Arkansas Louisiana Oklahoma Texas	17 10 8 36	15 6 12 32	15 13 9 33	8 1 9 231	23 12 17 350	13 3 17 71	- 5 - 5 - 2 - 9	18 0 31 15	2 1 1 8	0 1 1 1	1 1 0 2	0 0 0 2	
MOUNTAIN		-											
Montana. Idaho Wyoming Colorado New Mexico. Arizona. Utah <sup>3</sup> . Nevada.	1 0 1 1 1 0 0	7 0 4 0 1 0 0	1 0 7 2 1 0	1 30 24 2 25	8 4 55 36	33 2	3 5 7 5 1 8 36 0	14 2 9 6 29 2 0	14 2 6 4 4 4	0 0 0 0 0 1	0 0 1 1 0 0 0	0 0 1 0 0 0	
Washington Oregon California	1 • 0 13	0 0 12	2 2 14	2 2 28	12 16 14	11 14	42 26 49	4 15 75	8 7 54	1 0 2	000	0 0 0	
Total	385	444	553	746	876	471	· 524	772	668	39	27	28	
38 weeks	8, 926	9, 280	14, 199	33, 811	193, 526	162, 383	469, 401	827, 670	350, 598	2, 623	1, 571	1, 571	

See footnotes at end of table.

Telegraphic morbidity reports from State health officers for the week ended September 26, 1942, and comparison with corresponding week of 1941 and 5-year medium—Continued

	Poliomyelitis		8	carlet i	lever	1	Smallp	0X	Typhoid and para typhoid fever			
Division and State	V er	/eek	Me-	W en	ded	Me-	W en	ded	Me-	Week ended		Me-
	Sept 26, 1942	. Sept. 27, 1941	1937- 41	Sept. 26, 1942	Sept. 27, 1941	1937- 41	Sept. -26, 1942	Sept. 27, 1941	1937- 41	Sept. 26, 1942	Sept. 27, 1941	1937- 41
NEW ENG.												
Mame New Hampshire Vermont Massachusetts Rhode Island Connecticut		2 0 2 0 1 15 1 12	1 0 0 7 0 4	7 5 3 75 4 7	68 2 13	2 1 2 40 2 13	0 0 0 0 0	0 0 0 0 0	000000000000000000000000000000000000000	0 0 13 0 1		1 0 1 0 2
MID. ATL. New York New Jersey Pennsylvania		2 115 29 66	61 21 50	85 33 72	93 31 53	92 31 106	0 0 0	0 0 0	0 0 0	11 1 9	31 9 16	20 9 17
E. NO. CEN. Ohio Indiana Illinois Michigan <sup>3</sup> Wisconsin	13 50 13	42 10 31 26 8	28 10 31 53 8	79 28 61 44 49	81 7 65 55 52	89 27 104 84 60	0 1 0 0	0 0 0 1 0	0 0 1 0	9 6 12 0 4	12 2 13 4 2	12 5 21 11 2
W. NO. CEN. Minnesota Iowa Missouri North Dakota South Dakota Nebraska Kansas		16 0 4 0 2 8 2	25 5 4 0 2 7 3	26 34 12 4 11 7 12	20 26 19 1 4 12 44	34 26 19 6 6 44	000000000000000000000000000000000000000	0000000	1 0 1 0 0	0 3 14 0 0 0	0 0 20 0 0 3	4 3 14 0 0 1 5
SO. ATL. Delaware Maryland <sup>2</sup> Dist. of Col Virginia. West Virginia. North Carolina. South Carolina. Georgia. Florida.	1 2 1 4 6 1 2 2 1 2	4 15 3 8 4 10 11 17 9	0 2 4 3 2 1 1 2	1 14 14 38 37 62 8 37 2	10 23 6 25 45 46 18 26 7	2 19 7 21 45 58 10 26 3	000000000000000000000000000000000000000	000000000000000000000000000000000000000	000000000000000000000000000000000000000	1 3 10 9 6 5 12 1	0 17 18 18 17 9 14 4 4	1 13 1 18 17 9 14 15 4
E. SO. CEN. Kentucky Tennessee Alabama Mississippi <sup>2</sup>	2 6 3 0	6 39 85 3	6 1 1 1	28 45 36 3	47 43 27 9	47 43 26 9	1 0 0 0	0 0 0 0	0 0 0 0	4 11 4 6	14 12 10 6	18 14 10 4
W. SO. CEN. Arkansas Louisiana Oklahoma Texas	5 1 0 1	1 4 2 4	1 4 2 4	7 3 12 17	1 1 12 22	9 6 15 22	2 0 0 0	0 0 0 1	0 0 0 0	11 9 7 17	4 5 4 18	18 17 12 45
MOUNTAIN Montana	0 0 4 2 1 0 0	0 1 0 1 0 0 3 0	2 1 1 1 1 0 2	5 5 1 5 3 0 4 0	7 7 21 1 1 3 0	13 8 1 2 2 4	0 0 1 0 0 0 0	0 0 0 0 0 0 0 0	2 0 0 0 0 0	0 0 1 8 1 0 0	1 2 0 0 6 0 1 0	1 2 0 7 6 1 1
PACIFIC Washington Oregon California	2 0 4	4 5 10	4 3 · 13	19 5 41	21 6 59	16 7 67	0	0000	0 0 2	6 1 1	4 7 7	6 7 9
Total	220	591	591	1, 110	1, 150	1, 270	5	2	31	218	299	444
8 weeks	2, 618	6, 389	6, 320 9	3, 331	93, 965 <sup>1</sup>	121, 178	639	1, 175	8, 233	5, 137	6, 405	9, 662

See footnotes at end of table.

	Whoop	ing cough	g cough Week ended Sept. 26, 1942								
Division and State	Weel	ended		1	Dysente	ry	En-		Rocky		-
	Sept. 26, 1942	Sept. 27, 1941	An- thrax	Ame- bic	Bacil- lary	Un- speci- fied	litis, infec- tious	Lep- rosy	tain spot- ted fever	Tula- remia	phus fever
NEW ENG.											
Maine New Hampshire Vermont Massachusetts Rhode Island Connecticut	50 5 26 194 32 55	35 2 7 109 33 31	0 0 0 0 0	0 0 0 0 0	0 0 3 0 1	0 0 0 0 0	0 0 1 0 1	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0 0
MID. ATL. New York New Jersey Pennsylvania	351 168 205	343 159 173	0 0 0	7 0 0	<b>42</b> 1 1	000	1 0 0	0 0 0	0 0 1	0 0 0	0000
E. NO. CEN. Ohio Indiana Illinois Michigan <sup>3</sup> Wisconsin	220 18 226 311 199	269 19 185 319 265	0 0 0 0	0 0 1 0 0	2 0 4 17 0	0 0 0 0	1 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	000000000000000000000000000000000000000
w. NO. CEN. Minnesota Iowa. Missouri. North Dakota South Dakota Nebraska. Kansas.	49 37 6 15 0 8 33	70 21 18 33 14 24 50	0 0 0 0 0 0	0 0 0 0 0 0	3 0 0 0 0 2,535	0 0 0 0 0 0	0 3 0 2 3 0 2	0 0 0 0 0 0	0 0 0 0 0 0	1 0 0 0 0 0	000000000000000000000000000000000000000
80. ATL. Delaware	2 70 17 34 6 45 37 16 6	3 36 24 45 25 103 94 10 24	0 0 0 0 0 0 0 0 0	0 0 1 0 0 0 1 1	0 0 0 0 0 8 0 2	0 14 0 145 0 0 0 0 0 0	0 1 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0	0 1 0 1 0 2 0 0 0	0 0 0 0 0 0 0 0 0	0 1 2 0 2 7 42 20
E. SO. CEN. Kentucky Tennessee Alabama	40 13 33	79 20 14	0000	001	3 0 0	0 9 0	001	0000	001	0 0	0 2 22
W. SO. CEN. Arkansas Louisiana Oklahoma Texas	10 0 2 68	20 7 14 99	0 0 0 0	6 1 0 6	26 0 111	000000000000000000000000000000000000000	0 0 0 1	00000	0 0 0 0	3 0 0 2	2 0 5 0 <b>3</b> 8
MONTAIN Montana Idabo Vyoming Colorado New Mexico Arizona Utah <sup>3</sup> Nevada	23 10 28 35 8 15 21 0	3 6 62 24 13 19 1	0 0 0 0 0 0 0	0 0 0 0 0 0	0 0 6 8 0 0	0 0 0 28 0	1 0 0 0 0 0 0	0 0 0 0 0 0	0 0 0 0 0 0	0 2 0 0 0 0 0	0 0 0 0 0 0
PACIFIC Washington Oregon California	17 8 170	50 19 202	0 0 0	1 0 3	0 0 12	0 0 0	0 0 0	0 0 0	0 0 0	0 0 1	0 0 1
Total	2, 942	3, 201	0	29	2, 785	196	18	0	6	9	145
38 weeks	136, 936	162, 495									

#### Telegraphic morbidity reports from State health officers for the week ended September 26, 1942—Continued

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

<sup>3</sup> Period ended earlier than Saturday.

#### WEEKLY REPORTS FROM CITIES

#### City reports for week ended Sept. 12, 1942

This table lists the reports from 88 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.

		CEREGE	Influ	ienza		ocurs,					biod	
	Diphtheria cases	Encephalitis, infectious,	Cases	Deaths	Measles cases	Meningitis, meningooo cases	Pneumonia deaths	Pollomyelitis cases	Scarlet fever cases	Smallpox cases	Typhoid and paratyr fever cases	Whooping cough cases
Atlanta, Ga Baltimore, Md Barre, Vt Billings, Mont Birmingham, Ala	4 0 0 0 1	0 0 0 0 0	4 1 	0 1 0 0 1	0 4 0 0 0	0 4 0 0 0	0 7 0 0 1	0 0 0 0 0	2 5 0 1 8	0 0 0 0 0	0 1 0 0 0	1 30 3 3 4
Boston, Mass Bridgeport, Conn Brunswick, Ga	0 0 0	0 0 0		0 0 0	4 0 0	0 0 0	5 2 0	1 0 0	18 3 1	0 0 0	0 0 0	47 2 0
Camden, N. J. Charleston, S. C. Charleston, W. Va. Chicago, Ill. Cincinnati, Ohio	2 1 0 9 0	0 1 0 0 0	2 2 3	0 0 0 1 1	0 0 0 7 1	0 0 0 1	1 0 0 14 1	0 1 0 15 1	0 0 1 13 4	0 0 0 0	0 0 0 3 0	4 0 0 191 10
Cleveland, Ohio Columbus, Ohio Concord, N. H. Cumberland, Md Dallas, Tex	0 0 0 0 0	0 1 0 0 0	6 1 	1 1 0 0 0	2 0 0 0 0	0 0 0 0 0	3 0 0 3	3 0 0 0 1	20 11 1 0 0	0000000	1 0 0 0 0	29 8 0 0 3
Denver, Colo Detroit, Mich Duluth, Minn Fall River, Mass Fargo, N. Dak	6 2 0 3 0	0 0 0 0	8 1 	0 1 0 0 0	0 1 0 0 0	0 0 0 0 0	1 6 1 0 0	0 3 0 0 1	3 13 0 1 0	0 0 0 0 0	0 1 0 0	3 84 4 1 0
Flint, Mich Fort Wayne, Ind Frederick, Md Galveston, Tex Grand Rapids, Mich	0 0 0 0 0	0 0 0 0		0 0 0 0 0	0 0 0 0 1	0 0 0 0 0	1 2 0 3 0	0 0 0 1	1 0 0 0 0	0 0 0 0 0	0 0 0 0 0	13 0 0 1
Great Falls, Mont Hartford, Conn Helena, Mont Houston, Tex Indianapolis, Ind	0 0 0 1 0	0 0 0 0		0 0 0 0 0	0 1 0 0 0	0 0 0 0 0	0 0 2 5	0 2 0 0 4	0 2 0 0 1	0 0 0 0	0 0 1 0	2 14 0 3 12
Kansas City, Mo Kenosha, Wis Little Rock, Ark Los Angeles, Calif Lynchburg, Va	0 0 0 3 1	0 0 0 0	2	0 0 0 0	2 0 0 6 1	0 0 0 0 0	0 0 3 3 1	0 0 3 0	1 1 0 8 0	0 0 0 0	0 0 0 0 0	0 10 0 20 3
Memphis, Tenn Milwaukee, Wis Minneapolis, Minn Missoula, Mont Mobile, Ala	0 0 0 0	0 0 0 0	1	0 0 1 0 0	2 4 1 0 0	0 0 0 0 0	3 0 0 0 1	1 0 3 0 0	2 6 3 0 0	0 0 0 0 0	1 0 0 0 0	26 40 1 1 0
Nashville, Tenn Newark, N. J. New Haven, Conn New Orleans, La New York, N. Y	0 0 0 5	0 0 0 0	4	2 0 0 0 0	0 3 2 0 6	0 1 0 0 5	0 3 1 4 32	0 3 0 0 11	1 5 2 2 28	0 0 0 0 0	0 0 1 4 8	1 20 10 1 109
Omaha, Nebr Philadelphia, Pa Pittsburgh, Pa Portland, Maine Providence, R. I	1 0 1 0 1	0 - 0 - 0 -		0 0 1 0 0	0 5 4 3 2	0 1 0 0 1	2 11 4 0 0	0 1 2 0 0	0 12 0 1 1	000000000000000000000000000000000000000	0 6 3 0 1	6 107 15 16 2

City reports for wee	e <b>k ende</b> d Sep	ot. 12, 1942	Continued
----------------------	-----------------------	--------------	-----------

		CBBBB	Influ	lenz <b>a</b>		ocus,					blod	
	Diphtheria cases	Encephalitis, infectious,	Clases	Deaths	Measles cases	Meningitis, meningoco cases	Pneumonis deaths	Poliomyelitis cases	Scarlet fever cases	Smallpor cases	Typhold and paratyp fever cases	Whooping cough cases
Pueblo, Colo Racine, Wis Raleigh, N. C Reading, Pa Richmond, Va	0 0 0 1	0 0 0 0	 	0000000	0 0 1 0 0	0000000	1 0 1 1 2	0 0 0 0	0 6 0 0	0 0 0 0	0 0 0 0 0	0 8 0 8 1
Roanoke, Va Rochester, N. Y Sacramento, Calif Saint Joseph, Mo Saint Louis, Mo	00000	0 0 0 1	 	0 0 0 0	0 0 1 0 1	0 0 0 0 1	0 2 0 0 7	0 2 0 0 4	0 3 2 0 2	0 0 0 0	0 0 0 0	0 11 0 0 3
Saint Paul, Minn Salt Lake City, Utah San Antonio, Tex San Francisco, Calif Savannah, Ga	0 0 0 0	0 0 0 0		0 0 0 0	0 3 0 7 0	0 0 0 0	0 1 0 4 0	0 0 0 0	2 0 1 1 1	0 0 0 0 0	0 0 0 0	25 4 1 6 2
Seattle, Wash Shreveport, La South Bend, Ind Spokane, Wash Springfield, Ill	0 0 0 0	0 0 0 0		0 0 0 0	1 1 3 4 0	0 0 0 0 0	3 0 0 1 1	0 0 0 0 1	0 0 1 3 1	0 0 0 0 0	0 0 0 0	3 0 0 1 12
Springfield, Mass Superior, Wis Syracuse, N. Y Tacoma, Wash Tampa, Fla	0 0 0 0 0	0 0 0 0	 	0 0 0 0 0	1 0 0 2 0	0 0 0 0 0	1 0 1 1 0	0 0 0 0	2 2 0 2 0	0 0 0 1 0	0 1 1 0 0	2 3 23 2 0
Terre Haute, Ind Topeka, Kans Trenton, N. J Washington, D. C Wheeling, W. Va	1 0 0 4 0	0 0 0 0 0		0 0 0 0 0	0 0 4 0	0 0 1 0	1 0 5 8 0	0 0 0 0 0	1 3 2 6 1	0 1 0 0 0	0 0 0 0 0	0 0 26 0
Wichita, Kans Wilmington, Del Wilmington, N. C Winston-Salem, N. C Worcester, Mass	0 0 0 0 0	0 0 0 0 0		0 0 0 0	1 0 0 0 1	0 0 0 0	4 0 0 1 3	0 0 0 0	0 0 1 0 9	0 0 0 0	0 0 0 0	6 0 3 21

Anthrax—Cases: New Orleans, 1; Philadelphia, 1. Dysentery, amebic—Cases: New York, 2. Dysentery, bacillary—Cases: Columbus, 1; Detroit, 4; Little Rock, 1; Los Angeles, 5; New Haven, 1; New York, 4; Philadelphia, 5; Richmond, 2; St. Louis, 1. Dysentery, unspecified—Cases: San Antonio, 1. Rocky Mountain spotted fever—Cases: Nashville, 1. Typhus fever—Cases: Atlanta, 1; Charleston, 8. C., 1; Galveston, 2; Houston, 1; New York, 1; Philadelphia, 1; Savannah, 5; Shreveport, 1; Tampa, 1.

Rates	(annual	basis)	per 1	00,000	po	pulation,	for	the	group	of	88 '	cities	in	the	pre-
		ceding	table	(estim	ated	d populat	ion,	, 194	2, 33	,53	0,4	97)			-

Period		Influ	ienza				- Small	Ty- phoid	Wheen
	Diph- theria cases	Cases	Deaths	Mea- sles cases	Pneu- monia deaths	Scarlet fever cases	Small- pox cases	and para- typhoid fever cases	ing cough cases
Week ended Sept. 12, 1942 A verage for week 1937-41	7. <b>44</b> 10. 06	6. 22 5. 97	1.71 1.41	14. 46 1 21. 38	27. 37 38. 04	36. 39 37. 25	0. 31 0. 31	5. 13 9. 59	159. 71 178. 88

<sup>1</sup> Median.

## PLAGUE INFECTION IN MONTEREY COUNTY, CALIF.

Under date of September 16, 1942, plague infection was reported demonstrated in a pool of 200 fleas from 36 ground squirrels, *C. beecheyi*, taken August 6 from a ranch 16 miles south of Salinas, Monterey County, Calif., and in a pool of 4 ticks from 1 cottontail rabbit, *Sylvilagus* sp., taken August 7 from the Fort Ord Military Reservation, Area D.

# FOREIGN REPORTS

#### CANADA

Provinces—Communicable diseases—Week ended August 29, 1942.— During the week ended August 29, 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 Bruns- wick	Que- bec	Onta- rio	Mani- toba	Sas- katch- ewan	Alber- ta	British Colum- bia	Total
Cerebrospinal meningitis. Chickenpox	2	1 12 55 7 7 25 1 9 5 6 2 2 10 14	     	2 23 18 6  7 14  7 14  7 14  80 11 1 270 1	35 36 4 7 36 72 37 21 55 4 2 62 287	1 3 3  15 14  3  13 44	9 2 1 4 1 24 18 7 1 1 1 4	  4  1 13  13  4 2	1 48 2 23 6 5 2 3 35 13 	4 127 41 955 10 23 3 3 855 182 19 466 106 106 11 1866 21 5 379 357

#### **SWEDEN**

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

Disease	Cases	Disease	Cases
Cerebrospinal meningitis Diphtheria Dysentery Gonorrhea Paratyphoid fever Poliomyelitis	10 67 102 1, 370 18 37	Scarlet fever	1, 243 25 4 9 3

#### SWITZERLAND

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

Disease	Cases	Disease	Cases
Cerebrospinal meningitis.	12	Mumps	125
Chickenpox	193	Paratyphoid fever.	18
Diptheria.	100	Poliomyelitis.	25
Dysentery.	1	Scarlet fever.	221
German measles.	38	Tuberculosis.	306
Influenza	20	Typhoid fever.	9
Lethargic encephalitis.	3	Undulant fever.	11
Measles.	1, 153	Whooping cough.	58

#### 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.-During the period August 21-31, 1942, one fatal case of plague was reported in Laos, Indochina.

#### **Typhus Fever**

Algeria.—During the period August 1–10, 1942, 329 cases of typhus fever were reported in Algeria.

Morocco.—During the week ended August 29, 1942, 43 cases of typhus fever were reported in Morocco.

Tunisia.—During the period August 11-21, 1942, 172 cases of typhus fever were reported in Tunisia.

#### **Yellow Fever**

Sudan (French)—Koulikoro.—On September 10, 1942, one death from suspected yellow fever was reported in Koulikoro, French Sudan.

#### COURT DECISION ON PUBLIC HEALTH

Sexual sterilization—statute held unconstitutional.—(Washington Supreme Court; In re Hendrickson, 123 P.2d 322; decided March 5, 1942.) By a statute of Washington relating to sexual sterilization, superintendents of State institutions caring for individuals held in restraint had to report quarterly to the institutional board of health "all feeble-minded, insane, epileptic, habitual criminals, moral degenerates, and sexual perverts," potentially capable of producing offspring who would probably become a social menace or wards of the State. If the board decided on sterilization it made an order directing the superintendent of the particular institution to perform or cause to be performed upon the inmate a sterilization operation. No provision was made for notice to an inmate of the hearing before the board nor was he afforded any opportunity to appear and present his defense at such hearing. However, the statute provided for service of the board's order in each of four situations, summarized by the Supreme Court of Washington in the instant case as follows:

First, if the inmate is a criminal or feeble-minded person (more accurately, anyone within the statute not insane), the order of the board shall be served on the inmate. (There is no provision for service on a guardian or next of kin.) Second, in case of an insane person having a legal guardian, service shall be made on such guardian. Third, if an insane person has no legal guardian, then the order shall be served on his nearest known kin within the State (this was the situation of the inmate in the instant case). Fourth, if an insane person has no legal guardian and no known kin within the State, the order shall be served on the custodial guardian of the inmate.

The law also provided that an inmate or, in the case of a person under guardianship or disability, the guardian of the inmate could appeal from the board's order to the superior court within 15 days after receipt of notice of the board's decision by filing an informal notice of appeal with the board's secretary. In the superior court a trial de novo was afforded.

In the instant case the institutional board of health ordered that an insane inmate of a State hospital be sterilized and a copy of the order was served upon the inmate's father as the next of kin. The father's letter of protest was treated as a notice of appeal. The trial court permanently enjoined the hospital superintendent from carrying out the sterilization order and on appeal to the Supreme Court of Washington the principal question presented was whether the sterilization statute contravened (1) the due process clause of the fourteenth amendment to the Federal constitution which forbade any State to deprive any person of life, liberty, or property without due process of law and (2) the corresponding provision of the State constitution.

The supreme court said that the essential elements of the constitutional guaranty of due process, in its procedural aspect, were notice and an opportunity to be heard or defend before a competent tribunal in an orderly proceeding adapted to the nature of the case. With respect to situations one and four stated in the above quotation the appellate court was of the view that the provisions did not meet the requirements of due process. In the first situation involving a feebleminded inmate the entire burden and responsibility of initiating an appeal was placed upon a person held in confinement because of mental incompetency. Very likely, said the court, he could not read the order served upon him, or, if he could, he would be incapable of comprehending its purport. In the last situation involving an insane person who had no guardian or known kin in the State it was pointed -out that the custodial guardian, upon whom notice would be served, would be the superintendent of the hospital in which the inmate was held, which official was the one who started the proceedings by recommending to the institutional board of health that the inmate be sterilized and who would be charged with the duty of carrying out the board's order should sterilization be decreed. Also the head physician of each of the State hospitals was a member of the institutional board. "The statute places a superintendent in an impossible position however fair-minded and conscientious he may be."

The next matter to be disposed of by the supreme court was the contention that the inmate could not question the constitutionality of the notice provisions just discussed because they did not directly affect him. While the court said that it was the general rule that a person could not attack as unconstitutional a statute or provision thereof not applicable to his particular situation, it pointed out that the unconstitutionality of a part of a statute sometimes rendered the remainder legally inoperative and that persons affected by the remainder could question the constitutionality of the invalid part even though it did not apply to them, since that was an essential element in establishing that the remainder was legally inoperative as to them. The question then was-Would the legislature have passed the act with the objectionable portions eliminated? If such portions were stricken from the act all of the feeble-minded and a substantial number of the insane would be exempt from sterilization. It was the court's conclusion that the entire statute had to fall. While, said the court, the unconstitutional provisions and the inclusion of the kinds of defectives to which they pertain may not have been the sole inducement for the passage of the act, "yet they are so connected with and related to the rest of it and so important to its general plan and operation as a whole as to impel the conclusion that the legislature would not have passed the act without them."

×