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## MORTALITY IN CERTAIN STATES DURING 1936, WITH COMPARATIVE DATA FOR RECENT YEARS<sup>1</sup>

The mortality rates in this report are based on data for 25 States and the District of Columbia for the calendar year 1936. This area includes about 60 percent of the total population of the country.

Because of lack of uniformity in the method of classifying deaths according to cause, and because a certain number of death certificates were not filed in time to be included, these rates are preliminary and may differ in some instances from the final rates for the total country published by the Bureau of the Census. In the past, however, they have provided an accurate index to mortality in the United States as a whole. For the entire country the death rates were 10.9, 10.7, 11.0, and 10.9 in 1932, 1933, 1934, and 1935, respectively, while table 1 shows that the rates for this group of States for the same years were 10.7, 10.5, 10.9, and 10.8. The slight differences between these rates and those for the country as a whole arise mainly from the fact that the Pacific Coast and Southwest States are not well represented in the group furnishing preliminary reports. Somewhat greater differences may be expected when specific causes of death are compared, but the trend should be much the same in the country as in this group of States.

The mortality rates for the immediately preceding years are included for comparative purposes. These comparative rates are from the same sources as the current data. Although the trend in mortality is fairly accurately reflected by these current figures, comparisons of specific causes of death in different States should be based upon the final tabulations published by the Bureau of the Census in order to eliminate varying practices in classifying deaths according to cause and other factors.

Mortality from all causes, which has been unusually low throughout the depression, increased in 1936 about 5 percent over 1935 and was the highest figure recorded in these reports since 1929. The rise occurred in all parts of the country; only Montana, South Dakota, and Iowa reported a lower mortality rate than in 1935. The rate for Connecticut remained unchanged. All the remaining 21 States and the District of Columbia reported increases.

<sup>1</sup> From the Division of Public Health Methods, National Institute of Health, U. S. Public Health Service.

Although the rate during each quarter was above that for corresponding months in the 3 preceding years, the largest increase, 6.8 percent, was in the third quarter, followed by an increase of 5 percent in the first quarter. The unusually severe heat wave in July 1936 undoubtedly accounted for a large proportion of the increase in mortality during the summer months.

#### NEW MINIMUM DEATH RATES

Six diseases registered new minimum death rates during 1936, namely, typhoid fever, measles, whooping cough, diphtheria, poliomyelitis, and diseases of the puerperal state.

The year under report (1936) was the sixth consecutive year in which the death rate from typhoid fever has decreased. However, in spite of the general decline, 11 of the 26 States reported slight increases over 1935.

It is gratifying to note that three of the important diseases of childhood—measles, whooping cough, and diphtheria—each recorded the lowest mortality rate on record for these States. It is true that the rate from these diseases varies irregularly from year to year, and so the low rates of 1936 may not be maintained. For diphtheria, however, 1936 was the eighth consecutive year in which the rate has declined. The reduction in mortality from these three diseases was fairly general throughout the country; of the 26 States a reduction was reported in 22 States for measles, in 21 States for whooping cough, and in 17 States for diphtheria.

The reduction in maternal mortality continued throughout 1936. This makes 8 consecutive years in which the mortality from diseases incidental to pregnancy and childbirth has continuously declined. In the entire country, maternal mortality, which for several years had fluctuated about a constant level since accurate data became available, declined for the fifth consecutive year in 1935 according to reports of the Bureau of the Census. While part of this decrease may be due to the sharp decline in the birth rate in recent years, it may also reflect a real reduction in the hazards of childbirth.

#### DISEASES WITH LITTLE OR NO CHANGE

Scarlet fever was the only major disease of childhood which failed to register a new minimum death rate. Although it declined slightly from 1935, the mortality rate was at the usual level in recent years of 2.0 per 100,000; 12 of the 26 States reported an increase in scarlet fever mortality in 1936.

No change in the relative number of deaths from encephalitis was reported in 1936. Although 17 States reported a lower death rate than in 1935, this reduction was counterbalanced by fairly substantial increases in 7 other States.

Perhaps the most disquieting aspect of mortality conditions in 1936 was the practical cessation in the decline in mortality from tuberculosis. In fact, 12 of the 26 States on which these reports are based reported increases of varying magnitude. This is the first year since these reports have been published that the mortality from tuberculosis has failed to decline. Of course it is inevitable that the rapid decline in mortality from this cause must some day cease. The record for 1937 may indicate whether or not the cessation in decline is more than temporary. However, much the same situation prevails in the United States as a whole according to reports of the Bureau of the Census. Compared with an average annual decline in mortality from tuberculosis of 4.2 percent during 1930-34 the decline during 1935 over the previous year was only 2.8 percent.

#### DISEASES SHOWING INCREASED DEATH RATES

The so-called degenerative diseases—cancer, diabetes, cerebral hemorrhage, and heart conditions—continued their upward trend. Until data are available by age it will not be possible to state the amount of this increase which results from the aging of the population.

The combined mortality from influenza and pneumonia was the highest since 1929 and represented an increase of nearly 10 percent over 1935. The increase was greater and more general for pneumonia than for influenza, 23 States reporting increases in mortality from the former as compared with 12 States reporting increases from the latter.

Although the number of deaths from diseases of the digestive system, including diarrhea and enteritis under 2 years of age, was substantially larger than that reported in 1935, the rates were still well below the average of preceding years. Most of the increase occurred in the last two quarters of the year and may have resulted in part from the prolonged period of high temperatures.

The increase in deaths from epidemic cerebrospinal meningitis which was reported for 1935 continued during the first half of 1936. Although there was a slight decrease in the last 6 months of the year, the average rate was the highest recorded since 1930. Increases were reported in 14 of the 26 States reporting.

While the mortality rate from nephritis was about 1.4 percent above that for 1935, it was still well below the average of preceding years and apparently represents only a minor fluctuation from the downward trend in the recorded mortality from this disease.

#### CHANGES IN INFANT MORTALITY AND THE BIRTH RATE

After a slight rise in 1934, the birth rate continued to decline during 1936. The rate, 16.2 per 1,000 population, was 1.2 percent below that for 1935 and 5.6 percent below the rate reported in 1932. Ten

States reported higher rates than in 1935, 13 States reported lower rates, while 3 States reported no change.

Although the infant mortality rate increased about 2 percent over the previous low rate recorded in 1935, it was still less than any rate previously recorded. It is encouraging to note that infant mortality has declined about 18 percent since 1929. The time will soon come in this country, if present trends continue, when 95 percent of the new-born infants will survive the first 12 months after birth.

TABLE 1.—*Summary of mortality from certain causes in a group of States, 1932-36*<sup>1</sup>

Diseases (numbers in parentheses are from the International List of Causes of Death, fourth revision, 1929)	1936	1935	1934	1933	1932
	Rate per 1,000 population				
25 States (population <sup>2</sup> July 1, 1936, 78,885,000):					
Deaths, all causes.....	11.3	10.8	10.9	10.5	10.7
Births, exclusive of stillbirths.....	16.2	16.4	16.3	16.0	17.1
	Rate per 1,000 live births				
25 States (live births 1936, 1,279,279):					
Infant mortality.....	54	53	58	56	57
Maternal mortality.....	5.1	5.3	5.5	5.6	5.9
	Death rate per 100,000 population				
26 States (population July 1, 1936, 80,745,000):					
Typhoid fever (1, 2).....	1.8	2.0	2.5	2.6	3.2
Measles (7).....	.6	2.9	4.2	1.6	1.6
Scarlet fever (8).....	2.0	2.1	2.0	2.0	2.0
Whooping cough (9).....	1.9	3.6	5.0	2.9	4.0
Diphtheria (10).....	2.0	2.4	2.5	2.8	3.6
Acute poliomyelitis and polioencephalitis (16).....	.4	.8	.6	.6	.7
Encephalitis, epidemic or lethargic (17).....	.6	.6	.7	.9	.7
Epidemic cerebrospinal meningitis (18).....	2.2	2.0	.9	1.0	1.3
Influenza (11).....	21.5	19.7	15.8	24.2	27.0
Pneumonia, all forms (107-108).....	89.7	81.7	80.4	71.5	78.9
Tuberculosis, all forms (23-32).....	51.2	51.2	52.7	54.8	58.0
Cancer (45-53).....	112.4	110.0	107.9	103.9	101.2
Diabetes mellitus (59).....	25.1	23.4	23.4	22.2	22.3
23 States (population July 1, 1936, 73,694,000):					
Cerebral hemorrhage, apoplexy (82, a, b).....	88.4	84.6	79.4	78.3	79.4
24 States (population July 1, 1936, 75,428,000):					
Diseases of the heart (90-95).....	276.7	253.0	248.4	228.9	221.9
25 States (population July 1, 1936, 77,288,000):					
Nephritis, all forms (130-132).....	81.9	80.7	84.7	82.4	85.5
21 States (population July 1, 1936, 69,327,000):					
Diseases of the digestive system (115-129).....	67.5	65.9	70.4	68.6	68.8
25 States (population July 1, 1936, 78,885,000):					
Diarrhea and enteritis under 2 years (119).....	9.3	7.8	10.8	9.7	10.1

<sup>1</sup> See tables 3, 4, and 5 for names of States included for each disease. The District of Columbia is counted as a State.

<sup>2</sup> All populations given or used in computing rates are official estimates of the Bureau of the Census as of July 1 of each year.

TABLE 2.—Mortality from certain causes in each quarter of 1936, 1935, 1934, and 1933 in the 33<sup>1</sup> States with available data  
[Estimated population July 1, 1936: 73,785,000]

Period	All causes, rates per 1,000 popu- lation	Rate per 1,000 live births		Death rate per 100,000 population (annual basis)																	
		Total infant mortality	Maternal mortality	Typhoid fever (1, 2)	Measles (7)	Scarlet Fever (8)	Whooping cough (9)	Diphtheria (10)	Influenza (11)	Acute poliomyelitis and polioencephalitis (16)	Encephalitis, epidem- ic or lethargic (17)	Epidemic cerebrospinal meningitis (18)	Tuberculosis, all forms (23-32)	Cancer, all forms (45-53)	Diabetes mellitus (59)	Cerebral hemorrhage, apoplexy (82a, b)	Diseases of the heart (90-95)	Pneumonia, all forms (107-109)	Diseases of the diges- tive system (115-129)	Diarrhea and enteritis under 2 years (119)	Nephritis (130-133)
January-December:		53	5.0	1.6	0.6	2.1	1.9	1.8	20.2	0.4	0.6	2.3	50.8	116.4	26.1	88.0	276.7	89.1	67.6	8.8	81.8
1936.....	11.3	52	5.2	1.8	.7	.6	3.3	2.3	18.6	.7	.6	2.1	50.9	113.8	24.3	84.3	252.7	81.7	66.0	7.2	80.4
1935.....	10.8	57	5.4	2.4	.5	.7	4.5	2.4	14.9	.5	.7	.9	52.3	111.6	24.3	78.0	248.5	79.8	70.6	10.2	84.5
1934.....	11.0	56	5.5	2.4	1.6	2.1	2.8	2.7	23.7	.7	.9	1.0	54.5	107.5	23.1	78.1	228.6	72.0	68.7	9.3	82.6
1933.....	10.6																				
January-March:		58	5.8	.9	.9	3.6	2.0	2.2	36.4	.2	.6	3.4	53.0	114.6	30.4	98.4	311.5	142.4	62.3	4.8	92.4
1936.....	12.5	53	6.0	.9	5.0	3.2	3.8	2.4	44.2	.2	.6	2.4	54.0	110.4	27.1	90.6	278.5	127.3	61.4	4.2	87.4
1935.....	11.9	63	6.0	.9	5.6	3.3	4.1	2.5	27.6	.3	.6	1.0	54.5	108.6	27.3	86.1	280.1	122.0	63.7	6.7	98.2
1934.....	11.9	64	6.0	.9	5.6	3.3	4.1	2.5	27.6	.3	.6	1.0	54.5	108.6	27.3	86.1	280.1	122.0	63.7	6.7	98.2
1933.....	11.8	66	6.2	1.2	1.9	3.1	2.7	2.5	64.7	.3	.7	1.6	58.0	106.0	26.7	86.8	252.7	112.0	60.7	9.5	89.2
April-June:		52	5.3	1.0	1.1	2.7	1.9	1.2	22.8	.1	.6	2.9	53.0	115.6	25.6	87.5	275.6	87.0	64.2	5.6	83.5
1936.....	11.3	53	5.5	1.2	6.2	3.0	4.9	1.4	14.3	.3	.8	2.9	54.4	115.4	23.6	84.0	255.6	84.1	67.2	7.5	82.6
1935.....	10.9	59	6.2	1.7	7.5	2.4	5.3	1.4	12.4	.4	.6	1.0	56.0	112.8	24.5	79.4	260.0	81.4	69.9	8.2	84.5
1934.....	11.1	54	5.8	1.6	3.2	2.4	2.7	1.3	12.3	.4	.7	1.2	58.2	106.9	22.7	78.3	224.2	61.5	68.6	8.6	83.8
1933.....	10.4																				
July-September:		46	4.7	2.7	.3	.7	1.8	1.2	4.6	.7	.6	1.1	49.1	115.0	22.4	79.4	239.1	36.9	77.0	13.7	71.1
1936.....	10.3	43	4.7	3.3	.8	1.0	2.6	1.6	4.6	1.6	.6	1.5	47.6	112.6	21.2	74.2	216.4	34.4	70.2	10.7	71.0
1935.....	9.6	48	5.0	4.2	1.4	.8	5.0	2.1	5.5	1.0	.9	.7	48.8	111.3	20.8	70.4	212.9	33.4	81.1	17.1	76.1
1934.....	9.9	52	5.2	4.1	.4	.8	3.2	1.7	4.6	1.3	1.1	.6	50.8	107.2	19.7	67.1	193.4	36.9	77.4	14.4	73.3
1933.....	9.4																				
October-December:		56	4.4	1.9	.2	1.4	2.0	2.7	17.0	.7	.4	1.6	48.2	120.4	26.1	87.1	281.0	90.4	66.6	10.9	80.3
1936.....	11.3	49	4.9	2.0	.3	1.9	1.8	3.6	12.5	.7	.5	1.7	47.6	116.8	25.3	88.6	260.1	80.2	63.2	6.4	80.8
1935.....	10.9	55	4.7	2.6	1.0	2.0	3.5	4.1	15.3	.4	.6	.8	49.8	113.6	24.6	80.4	231.6	80.5	67.4	9.9	82.3
1934.....	10.9	55	4.7	2.6	1.0	2.0	3.5	4.1	15.3	.4	.6	.8	49.8	113.6	24.6	80.4	231.6	80.5	67.4	9.9	82.3
1933.....	10.8	55	4.9	2.7	.8	2.1	2.6	5.3	14.2	.6	.9	.9	50.8	109.9	23.4	80.5	244.7	81.8	68.0	8.7	84.0

<sup>1</sup> Includes all States for which data are available by quarters for the 4 years covered. For a few causes 1 to 3 States were omitted because of missing data. The States are Connecticut, District of Columbia, Georgia, Idaho, Illinois, Indiana, Iowa, Kansas, Louisiana, Maryland, Michigan, Minnesota, Montana, Nebraska, New Jersey, New York, Pennsylvania, Rhode Island, South Dakota, Tennessee, Virginia, West Virginia, and Wisconsin.

TABLE 3.—Death rates for all causes and birth rates (exclusive of stillbirths) per 1,000 population

	Deaths, all causes					Births, exclusive of stillbirths				
	1936	1935	1934	1933	1932	1936	1935	1934	1933	1932
Total (25 States) <sup>1</sup> .....	11.3	10.8	10.9	10.5	10.7	16.2	16.4	16.4	16.0	17.1
Alabama.....	10.9	(?)	10.2	9.5	9.9	21.3	(?)	21.8	20.6	22.4
Connecticut.....	10.1	10.1	10.0	10.1	10.0	12.4	12.4	12.4	12.7	13.6
District of Columbia.....	14.7	14.3	14.7	14.5	15.1	19.0	18.3	17.9	18.6	19.4
Georgia.....	11.9	11.0	11.4	10.1	10.7	19.4	19.9	20.8	19.5	21.2
Idaho.....	10.8	10.1	10.0	9.2	9.0	21.4	20.4	20.3	18.2	19.6
Illinois.....	11.8	10.9	11.2	10.6	10.8	14.3	14.3	14.1	13.5	14.4
Indiana.....	11.7	11.0	11.9	10.8	11.2	14.2	14.0	15.4	13.9	14.8
Iowa.....	9.9	10.3	10.5	10.1	10.1	16.7	15.8	16.0	15.2	15.7
Kansas.....	11.5	10.8	10.7	10.6	10.3	18.2	16.8	17.4	16.6	16.9
Louisiana.....	12.1	11.1	10.9	10.8	10.9	19.5	19.4	19.5	18.4	20.0
Maryland.....	13.1	12.7	12.6	12.4	12.7	16.0	16.4	16.6	16.7	17.7
Michigan.....	11.4	10.8	10.7	10.2	10.4	18.5	18.5	17.7	16.9	18.0
Minnesota.....	10.7	9.9	10.0	9.6	9.7	16.9	16.4	16.3	15.7	17.5
Montana.....	11.7	11.8	10.5	9.7	9.8	19.5	19.0	18.7	16.8	16.9
Nebraska.....	10.0	9.6	9.7	9.3	9.3	17.0	16.6	17.9	17.2	17.9
New Jersey.....	10.8	10.1	10.3	10.3	10.3	12.3	12.7	12.8	13.3	14.7
New York.....	11.8	11.5	11.6	11.5	11.5	13.9	14.2	14.3	14.5	15.4
North Carolina.....	10.4	9.9	10.5	9.2	9.5	22.2	23.3	23.5	22.7	23.8
Pennsylvania.....	11.0	10.6	10.8	10.6	11.2	15.7	15.8	15.8	15.6	17.1
Rhode Island.....	12.2	11.5	11.2	11.6	11.8	14.9	14.9	15.2	15.2	16.3
South Carolina.....	11.2	10.9	11.5	.....	.....	21.0	21.5	.....	.....	.....
South Dakota.....	8.9	9.1	9.5	9.0	8.3	18.6	19.0	18.6	18.4	19.2
Tennessee.....	11.2	10.4	10.6	10.0	10.6	17.0	18.1	18.0	17.6	18.7
Virginia.....	11.3	10.8	10.9	10.3	10.6	19.0	19.3	19.5	19.6	20.5
Washington.....	11.7	11.2	10.8	10.4	10.4	13.9	13.7	13.8	12.9	13.4
West Virginia.....	10.8	10.1	10.0	9.3	10.1	22.3	23.0	23.0	20.4	21.6
Wisconsin.....	11.3	10.5	10.4	10.9	10.3	17.7	17.6	17.2	16.8	17.7
Hawaii.....	7.8	7.8	8.3	9.0	9.4	19.7	21.7	22.4	23.8	27.0
Industrial policyholders, Metropolitan Life Insurance Co., ages 1 and over.....	8.4	8.4	8.5	8.6	8.6	.....	.....	.....	.....	.....

<sup>1</sup> States not having data for all 5 years are not included in the total for each disease.<sup>2</sup> Data not available.

TABLE 4.—Infant mortality and maternal mortality per 1,000 live births

State	Infant mortality					Maternal mortality				
	1936	1935	1934	1933	1932	1936	1935	1934	1933	1932
Total (25 States).....	54	53	58	56	57	5.1	5.3	5.5	5.6	5.9
Alabama.....	66	(?)	69	66	61	6.7	(?)	6.1	6.9	7.1
Connecticut.....	43	45	50	49	51	4.5	4.3	5.3	6.0	5.8
District of Columbia.....	72	59	64	65	73	6.0	6.1	3.6	4.8	7.9
Georgia.....	70	69	80	68	65	7.9	7.2	7.4	7.7	9.5
Idaho.....	50	51	50	47	58	3.2	6.2	5.8	2.8	4.4
Illinois.....	47	46	53	51	52	4.2	4.7	4.8	5.0	5.1
Indiana.....	53	54	57	55	56	4.7	5.2	5.3	5.7	5.2
Iowa.....	42	47	53	50	48	4.1	5.4	5.6	4.9	4.4
Kansas.....	51	49	48	53	48	5.1	5.3	5.5	4.8	5.6
Louisiana.....	74	68	70	71	66	9.4	8.0	8.1	8.1	8.2
Maryland.....	68	62	69	65	70	4.3	5.0	5.1	4.9	4.6
Michigan.....	50	47	52	51	54	4.7	4.9	5.3	5.5	5.6
Minnesota.....	46	46	49	50	45	4.4	4.9	4.8	4.5	4.3
Montana.....	53	56	52	49	49	5.5	4.6	5.7	5.8	5.7
Nebraska.....	44	42	46	51	43	5.6	5.7	5.5	4.2	5.0
New Jersey.....	44	47	49	46	52	3.8	4.5	5.4	5.1	5.7
New York.....	47	48	52	54	53	4.9	5.1	5.2	6.3	6.1
North Carolina.....	67	67	77	66	67	6.5	6.6	6.9	6.4	6.8
Pennsylvania.....	50	50	54	53	59	4.6	4.9	5.2	5.0	5.6
Rhode Island.....	49	47	54	56	57	4.1	4.3	5.7	5.4	5.7
South Carolina.....	80	80	87	.....	.....	7.9	9.6	9.2	.....	.....
South Dakota.....	48	50	59	55	51	4.1	5.5	4.5	4.1	5.7
Tennessee.....	68	64	75	71	68	7.0	6.9	6.3	5.9	6.6
Virginia.....	67	64	68	63	64	5.1	5.3	5.7	5.6	6.6
Washington.....	46	45	43	39	45	5.2	5.2	4.7	6.4	6.2
West Virginia.....	71	61	67	77	78	5.3	5.2	5.3	5.1	5.1
Wisconsin.....	47	47	50	49	51	4.0	3.7	4.2	4.7	4.8
Hawaii.....	78	67	78	72	76	4.5	4.3	5.4	5.8	.....
Industrial policyholders, Metropolitan Life Insurance Co., ages 1 and over.....	.....	.....	.....	.....	.....	7.7	8.7	8.8	9.4	10.5

<sup>1</sup> Data not available.

TABLE 5.—Death rates for various causes per 100,000 population

State	Typhoid and paratyphoid fever (1, 2)					Measles (7)				
	1936	1935	1934	1933	1932	1936	1935	1934	1933	1932
Total (26 States).....	1.8	2.0	2.5	2.6	3.2	0.6	2.9	4.2	1.6	1.6
Alabama.....	2.7	( <sup>1</sup> )	4.6	5.1	7.9	.7	( <sup>1</sup> )	11.3	.9	.2
Connecticut.....	.5	.8	.4	.5	.6	.4	1.9	.4	.5	1.0
District of Columbia.....	1.6	2.7	1.4	3.3	1.3	1.3	( <sup>1</sup> )	8.6	.7	.2
Georgia.....	6.2	8.3	10.3	8.2	8.2	.2	.9	17.5	2.0	.5
Idaho.....	2.5	2.5	5.3	3.9	3.3	2.3	2.1	3.4	.4	.2
Illinois.....	.9	1.2	1.7	1.4	1.7	.1	2.7	2.7	.7	.7
Indiana.....	1.7	1.5	3.1	2.7	2.5	.1	2.6	6.6	.4	.4
Iowa.....	1.2	1.3	2.1	1.0	1.1	.1	6.0	2.7	.2	.2
Kansas.....	1.7	1.6	1.4	1.5	1.7	.2	12.0	1.9	.7	1.3
Louisiana.....	7.0	9.1	9.7	11.6	11.1	2.4	6.0	7.8	1.7	1.8
Maryland.....	1.7	2.7	2.5	2.2	3.1	1.6	1.4	9.0	.2	1.1
Michigan.....	.8	.7	1.5	1.1	1.2	.8	3.9	.7	2.3	3.8
Minnesota.....	.5	.6	.5	.6	.7	.9	2.4	1.5	2.7	.5
Montana.....	1.9	2.4	3.0	2.8	2.8	.6	9.2	5.5	2.6	2.2
Nebraska.....	.9	.4	1.2	.7	1.4	.7	6.2	1.6	.6	1.0
New Jersey.....	.7	.6	.9	1.0	.7	.3	1.3	1.2	1.7	.1
New York.....	.6	.5	.7	.8	1.0	1.0	1.5	.6	2.6	1.6
North Carolina.....	2.2	2.3	2.6	3.9	5.0	.3	2.0	9.3	2.5	1.8
Pennsylvania.....	1.0	.8	1.1	1.2	1.8	.3	2.2	2.6	1.2	2.1
Rhode Island.....	.4	.3	.7	.4	.3	.7	1.0	.4	( <sup>1</sup> )	6.1
South Carolina.....	10.0	10.3	8.5	10.1	14.4	.4	1.2	12.7	3.4	2.4
South Dakota.....	1.6	1.4	2.0	5.0	1.4	.3	4.0	16.9	1.0	( <sup>1</sup> )
Tennessee.....	5.0	6.4	7.4	8.6	10.9	.8	1.3	16.0	2.8	.8
Virginia.....	2.7	2.8	3.2	4.2	5.0	1.1	5.1	5.8	2.0	.8
Washington.....	1.1	1.0	1.7	1.5	1.9	2.0	1.5	.9	.6	2.3
West Virginia.....	4.2	5.3	6.9	8.0	12.2	1.6	6.4	3.4	2.5	10.0
Wisconsin.....	.4	.3	.6	.5	.7	.4	2.5	2.3	.9	1.4
Hawaii.....	2.0	2.4	3.1	5.0	9.4	6.2	( <sup>1</sup> )	.2	.5	6.4
Industrial policyholders, Metropolitan Life Insurance Co., ages 1 and over.....	1.0	1.1	1.5	1.6	1.7	.9	2.5	2.7	1.5	1.7

State	Scarlet fever (8)					Whooping cough (9)				
	1936	1935	1934	1933	1932	1936	1935	1934	1933	1932
Total (26 States).....	2.0	2.1	2.0	2.0	2.0	1.9	3.6	5.0	2.9	4.0
Alabama.....	.5	( <sup>1</sup> )	.5	.7	1.3	2.6	( <sup>1</sup> )	12.0	6.2	7.4
Connecticut.....	.6	1.3	.8	1.4	1.2	1.8	1.2	.9	1.6	2.7
District of Columbia.....	.3	1.3	1.4	2.4	2.5	8.4	.5	7.0	1.3	3.8
Georgia.....	.5	.7	.5	.6	.6	2.0	4.9	10.8	7.1	3.7
Idaho.....	10.3	6.1	2.7	.2	1.7	1.6	6.9	3.2	.2	.6
Illinois.....	3.0	5.2	3.9	3.6	3.4	1.9	2.7	4.0	1.0	3.0
Indiana.....	3.3	3.4	3.6	2.5	2.6	1.6	3.9	5.6	2.0	5.0
Iowa.....	3.1	2.8	2.4	1.8	1.5	1.4	1.7	3.8	2.5	2.0
Kansas.....	4.1	2.4	1.8	2.1	1.7	.9	2.8	4.8	3.2	2.6
Louisiana.....	.2	.5	.6	.5	.4	4.7	3.1	10.4	5.7	4.1
Maryland.....	.7	1.7	1.6	2.4	1.9	5.1	2.6	7.5	4.9	5.5
Michigan.....	2.4	2.0	3.7	3.4	2.4	2.2	2.8	3.1	3.2	4.2
Minnesota.....	4.1	3.0	1.2	1.4	1.6	1.2	2.4	4.2	2.8	1.7
Montana.....	8.7	4.0	2.1	1.9	1.5	3.0	4.3	4.7	3.0	4.1
Nebraska.....	4.3	2.9	1.8	1.8	2.0	1.7	1.2	6.1	2.0	1.9
New Jersey.....	.7	.6	1.5	1.4	1.8	1.3	2.3	1.5	1.0	3.0
New York.....	1.4	1.5	1.2	1.7	2.8	1.1	2.5	1.8	2.3	2.3
North Carolina.....	.7	.6	1.2	1.4	1.1	1.1	3.8	12.7	5.9	7.0
Pennsylvania.....	1.6	1.9	2.3	2.7	2.6	1.5	2.0	3.2	1.9	4.3
Rhode Island.....	1.9	.4	.6	1.3	3.6	1.0	1.2	3.2	3.8	1.6
South Carolina.....	.6	.3	.5	.8	.5	3.5	9.4	15.8	6.0	7.4
South Dakota.....	3.6	2.7	1.4	1.6	1.3	.6	4.0	7.9	6.4	6.4
Tennessee.....	.8	1.0	1.5	1.7	.2	2.5	13.4	9.2	5.5	7.4
Virginia.....	.5	.9	1.7	2.0	1.2	4.4	7.5	7.8	4.2	12.1
Washington.....	1.5	1.5	1.6	.9	1.1	.8	1.9	2.6	.3	.9
West Virginia.....	2.2	4.5	4.4	2.5	2.4	3.9	6.9	11.8	6.0	10.3
Wisconsin.....	4.4	3.8	1.8	1.3	1.6	1.4	1.8	3.6	2.0	2.2
Hawaii.....	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	.2	.4	2.6	13.3	11.6	1.0
Industrial policyholders, Metropolitan Life Insurance Co., ages 1 and over.....	2.1	2.6	2.6	2.6	2.8	1.7	2.7	3.7	2.3	3.0

<sup>1</sup> Data not available.<sup>2</sup> No deaths.

TABLE 5.—Death rates for various causes per 100,000 population—Continued

State	Diphtheria (10)					Encephalitis, epidemic or lethargic (17)				
	1936	1935	1934	1933	1932	1936	1935	1934	1933	1932
Total (26 States).....	2.0	2.4	2.5	2.8	3.6	0.6	0.6	0.7	0.9	0.7
Alabama.....	4.0	( <sup>1</sup> )	5.7	5.6	7.4	.3	( <sup>1</sup> )	.5	1.1	.5
Connecticut.....	.4	1.0	.4	1.0	1.0	.2	.3	.4	.8	.7
District of Columbia.....	4.5	4.7	2.7	2.6	3.0	.6	.8	.5	.4	1.7
Georgia.....	3.8	5.2	6.0	6.1	5.6	.3	1	.3	.2	.6
Idaho.....	.6	.6	2.7	1.7	3.0	1.2	2.5	1.9	( <sup>1</sup> )	.7
Illinois.....	2.2	2.6	2.0	1.7	3.1	.4	.5	1.1	.5	.7
Indiana.....	2.9	4.0	3.5	4.3	4.9	.6	.7	1.0	1.4	.7
Iowa.....	.9	2.1	1.6	2.1	2.3	.5	.7	.8	1.4	1.2
Kansas.....	2.3	2.1	2.2	3.2	4.0	1.1	1.4	1.4	2.8	.5
Louisiana.....	4.2	5.3	4.7	4.8	6.7	.2	.4	.3	.2	.4
Maryland.....	1.6	1.3	1.4	1.8	3.1	1.1	.8	.8	.7	.8
Michigan.....	1.1	1.2	.8	2.4	2.2	.4	.3	.3	.6	.5
Minnesota.....	.6	.6	.7	1.0	.9	.6	.9	1.3	1.3	.9
Montana.....	2.1	2.8	1.9	3.0	.9	.4	.9	.9	.6	1.3
Nebraska.....	1.5	1.2	1.7	1.5	3.2	.4	.5	.3	1.4	.6
New Jersey.....	.5	1.1	1.3	1.2	2.4	.8	.6	.7	.8	.8
New York.....	.5	.8	1.0	1.2	2.3	.5	.6	.5	.7	.8
North Carolina.....	5.5	4.6	6.2	5.9	4.6	.4	.4	.5	.4	.6
Pennsylvania.....	1.3	1.5	2.2	2.3	4.0	.6	.7	.6	.7	.7
Rhode Island.....	.1	.7	.3	1.3	4.2	.3	.1	.1	.7	.7
South Carolina.....	4.0	3.3	4.3	5.0	4.8	.2	.8	1.9	1.7	1.3
South Dakota.....	.7	1.7	1.0	2.3	2.9	.3	.6	.3	.6	.4
Tennessee.....	5.3	6.4	7.3	7.9	8.1	.9	.5	.9	.9	.4
Virginia.....	3.8	4.3	5.6	6.0	5.2	.4	.5	.6	.4	.6
Washington.....	.4	.7	.5	1.5	1.2	2.4	1.6	1.7	.9	1.4
West Virginia.....	7.1	8.7	9.4	10.6	13.4	.5	.6	.5	.3	.4
Wisconsin.....	.5	.4	.9	.6	1.9	.8	.8	.5	.6	.8
Hawaii.....	1.6	.7	.5	1.7	4.6	.7	.2	.2	( <sup>1</sup> )	.2
Industrial policy holders, Metropolitan Life Insurance Co., ages 1 and over.....	1.8	2.2	2.1	2.6	3.9	-----	-----	-----	-----	-----

State	Influenza (11)					Pneumonia, all forms (107-109)				
	1936	1935	1934	1933	1932	1936	1935	1934	1933	1932
Total (26 States).....	21.5	19.7	15.8	24.2	27.0	89.7	81.7	80.4	71.5	73.9
Alabama.....	48.5	( <sup>1</sup> )	26.1	31.8	45.4	97.8	( <sup>1</sup> )	78.9	57.6	65.5
Connecticut.....	8.0	8.6	7.2	21.0	15.0	70.3	65.1	62.2	71.6	64.4
District of Columbia.....	7.6	11.4	6.8	9.0	14.6	138.9	127.3	116.8	105.3	127.0
Georgia.....	53.9	43.0	31.8	40.5	38.2	120.3	95.8	97.2	74.3	81.4
Idaho.....	19.0	17.1	14.0	13.0	20.4	110.5	95.6	97.3	70.0	74.6
Illinois.....	14.5	15.7	10.8	15.5	24.6	80.4	77.9	75.8	63.8	68.9
Indiana.....	28.1	24.7	21.9	29.3	41.9	97.0	86.4	83.3	65.0	83.7
Iowa.....	19.9	21.0	17.6	32.9	35.6	71.2	76.2	75.8	73.2	78.3
Kansas.....	47.3	31.2	19.5	46.5	42.3	84.3	79.4	59.2	54.2	54.4
Louisiana.....	49.5	24.2	20.5	33.0	53.9	120.0	87.2	74.3	65.2	77.6
Maryland.....	11.7	14.7	9.0	17.6	20.4	111.0	100.7	99.0	95.7	104.4
Michigan.....	12.0	15.1	11.4	18.1	23.9	85.4	80.4	73.8	58.1	68.1
Minnesota.....	14.2	15.8	14.5	24.4	30.9	85.0	76.5	80.9	53.6	69.1
Montana.....	24.3	42.0	26.7	36.0	41.9	121.5	122.8	82.5	63.8	63.9
Nebraska.....	21.3	22.7	17.8	35.1	37.6	72.0	78.2	74.9	71.3	62.7
New Jersey.....	7.9	9.2	7.3	12.3	14.3	67.7	63.2	66.0	71.1	62.6
New York.....	6.5	6.8	7.0	13.4	13.1	88.9	85.4	88.0	94.4	99.0
North Carolina.....	32.2	28.3	21.1	28.2	20.7	100.7	90.4	99.8	63.7	81.4
Pennsylvania.....	16.1	18.1	15.1	25.1	29.3	82.5	79.8	80.0	69.8	81.4
Rhode Island.....	9.1	8.5	7.9	18.2	11.7	95.9	79.4	74.9	79.5	96.6
South Carolina.....	49.8	44.2	41.1	36.3	49.8	103.6	87.4	92.9	84.7	97.1
South Dakota.....	20.2	31.6	29.6	45.8	29.2	66.2	96.1	85.1	62.0	47.1
Tennessee.....	54.4	39.9	34.2	38.4	16.7	117.3	95.4	89.2	75.0	86.0
Virginia.....	38.0	35.2	25.4	35.4	36.2	94.0	78.7	74.4	63.4	60.4
Washington.....	26.0	16.2	13.7	24.7	33.2	76.9	56.8	54.2	49.2	54.3
West Virginia.....	33.8	31.1	26.4	33.5	47.6	109.3	84.1	79.1	64.2	79.4
Wisconsin.....	15.9	19.3	12.0	26.2	29.3	77.0	65.5	69.8	52.7	68.4
Hawaii.....	11.9	13.2	13.7	6.9	10.9	68.0	69.4	110.4	92.1	96.9
Industrial policyholders, Metropolitan Life Insurance Co., ages 1 and over.....	14.6	14.7	11.4	20.3	19.1	69.8	66.1	65.0	62.5	65.4

<sup>1</sup> Data not available.<sup>2</sup> No deaths.



TABLE 5.—Death rates for various causes per 100,000 population—Continued

State	Acute poliomyelitis and polioencephalitis (16)					Epidemic cerebrospinal meningitis (18)				
	1936	1935	1934	1933	1932	1936	1935	1934	1933	1932
Total (26 States).....	0.4	0.8	0.6	0.6	0.7	2.2	2.0	0.9	1.0	1.3
Alabama.....	1.3	( <sup>1</sup> )	.6	.4	.3	.9	( <sup>1</sup> )	.4	.4	.5
Connecticut.....	.1	1.3	.1	.2	.4	.7	1.0	.4	.5	.7
District of Columbia.....	.3	1.7	.5	.4	1.1	10.5	15.8	.9	2.0	2.5
Georgia.....	.9	.5	.7	.7	.9	2.1	1.0	.6	.4	.8
Idaho.....	1.0	.8	3.2	.9	.2	6.0	4.6	2.7	1.5	3.0
Illinois.....	.9	.5	.4	.4	.5	2.2	2.6	1.5	2.7	2.0
Indiana.....	.4	.3	.6	.3	.2	2.1	2.5	.6	1.4	3.8
Iowa.....	.5	.4	.3	1.6	1.0	2.0	2.0	1.1	1.4	.9
Kansas.....	.6	.5	.6	.7	.6	1.1	2.2	1.1	1.1	1.3
Louisiana.....	.5	.8	.4	.4	.6	1.8	.8	.6	1.2	1.2
Maryland.....	.1	.2	.4	.2	.4	7.1	5.2	.2	1.1	1.1
Michigan.....	.4	.7	.5	.1	.5	1.2	.9	.6	.7	1.4
Minnesota.....	.2	.4	.8	1.3	.6	1.9	1.7	.8	1.2	.9
Montana.....	.6	.2	3.2	.4	1.1	4.3	2.6	1.7	.6	1.3
Nebraska.....	.7	.7	.7	.3	.9	1.4	2.8	1.3	.6	.5
New Jersey.....	.8	.8	.3	.6	1.1	1.8	.7	.8	.6	.8
New York.....	.1	1.1	.4	1.1	.5	2.2	2.2	.7	.7	1.3
North Carolina.....	.3	2.0	.4	.4	.6	1.6	.8	.4	.3	.5
Pennsylvania.....	.2	.3	.3	.6	1.5	1.2	1.2	.7	.9	1.3
Rhode Island.....	( <sup>2</sup> )	3.5	.1	.1	.4	3.1	2.3	.7	.1	.4
South Carolina.....	.9	.7	.6	.7	.6	2.5	1.2	.6	1.9	1.3
South Dakota.....	.1	1.0	1.4	.9	1.2	.6	.4	.4	.1	.4
Tennessee.....	1.5	.8	1.2	1.2	.6	3.6	3.8	1.4	.9	1.4
Virginia.....	.4	1.6	.7	.4	.6	5.2	3.8	1.4	.9	1.1
Washington.....	1.0	.6	3.4	.9	.9	1.5	2.1	1.0	1.1	1.6
West Virginia.....	1.2	.6	.9	1.2	.7	5.8	3.6	2.1	.9	1.1
Wisconsin.....	.1	.2	.6	.4	.4	1.0	1.2	.7	.5	1.0
Hawaii.....	.2	( <sup>2</sup> )	.2	.5	.8	1.6	.7	1.9	.7	2.8

State	Tuberculosis, all forms (23-32)					Cancer, all forms (45-53)				
	1936	1935	1934	1933	1932	1936	1935	1934	1933	1932
Total (26 States).....	51.2	51.2	52.7	54.8	58.0	112.4	110.0	107.9	103.9	101.2
Alabama.....	63.9	( <sup>1</sup> )	61.2	67.3	74.4	59.3	( <sup>1</sup> )	54.0	54.4	53.2
Connecticut.....	38.6	41.9	41.4	46.3	48.2	125.1	126.4	124.7	123.8	117.8
District of Columbia.....	106.6	102.2	108.7	113.6	113.9	136.7	131.0	135.3	136.3	137.5
Georgia.....	55.1	55.7	57.2	58.4	64.2	56.0	54.8	56.8	53.6	51.3
Idaho.....	24.5	24.6	27.3	29.8	27.8	79.6	66.8	71.5	70.4	68.0
Illinois.....	51.6	52.1	52.7	53.8	55.3	131.1	128.4	123.7	118.6	116.9
Indiana.....	47.0	46.2	51.4	53.6	57.0	108.0	109.9	112.2	102.3	104.6
Iowa.....	22.2	25.7	24.5	25.3	28.0	120.8	126.2	124.0	121.6	115.7
Kansas.....	29.0	28.8	27.4	30.8	33.1	117.2	111.2	115.1	109.6	106.0
Louisiana.....	72.6	72.2	76.2	74.2	74.8	80.7	80.3	73.3	73.0	69.0
Maryland.....	82.9	81.1	80.2	82.2	91.4	128.7	130.3	127.6	121.0	117.6
Michigan.....	43.9	43.2	46.9	49.6	51.9	115.7	109.6	109.9	103.5	100.4
Minnesota.....	35.6	34.6	34.7	37.7	39.3	133.5	131.1	130.0	130.4	124.7
Montana.....	41.2	46.9	49.7	50.7	55.3	106.0	97.4	88.5	92.1	93.5
Nebraska.....	18.0	22.4	22.2	22.0	20.6	113.0	108.5	111.5	103.1	102.4
New Jersey.....	50.2	50.1	52.6	56.6	61.8	127.4	123.8	122.8	119.2	115.2
New York.....	58.4	57.3	58.8	61.2	64.2	147.3	143.3	136.8	131.8	127.3
North Carolina.....	60.6	56.6	61.9	63.2	66.0	51.8	50.6	49.9	49.1	46.6
Pennsylvania.....	44.4	44.4	47.2	48.4	52.4	112.0	107.0	107.0	102.8	102.0
Rhode Island.....	47.9	51.0	46.3	51.7	54.0	145.2	147.3	137.3	140.4	145.0
South Carolina.....	53.2	52.1	58.9	57.3	64.2	49.4	47.7	51.4	46.7	40.8
South Dakota.....	34.4	39.3	34.4	38.9	45.7	88.4	89.7	85.8	83.7	81.6
Tennessee.....	87.5	84.3	86.7	89.8	93.8	65.8	64.6	63.0	58.2	56.1
Virginia.....	66.6	69.1	68.5	73.6	78.6	71.1	72.1	70.1	68.8	65.9
Washington.....	49.8	51.6	47.4	53.6	53.3	131.7	132.2	128.5	121.7	113.4
West Virginia.....	54.4	57.3	53.7	53.4	56.2	70.6	70.9	67.0	67.0	62.9
Wisconsin.....	36.2	36.5	38.4	41.7	46.1	132.8	128.7	126.2	119.3	119.8
Hawaii.....	78.0	68.5	76.9	93.8	91.3	62.9	62.1	57.1	64.6	69.2
Industrial policyholders, Metropolitan Life Insurance Co., ages 1 and over.....	54.2	55.8	59.4	64.7	69.8	93.5	96.1	96.1	94.6	91.1

<sup>1</sup> Data not available.<sup>2</sup> No deaths.

TABLE 5.—Death rates for various causes per 100,000 population—Continued

State	Diabetes mellitus (59)					Cerebral hemorrhage, apoplexy (82, a, b)				
	1936	1935	1934	1933	1932	1936	1935	1934	1933	1932
Total <sup>1</sup> .....	25.1	23.4	23.4	22.2	22.3	88.4	84.6	79.4	78.3	79.4
Alabama.....	12.3	( <sup>1</sup> )	10.5	9.4	10.0	69.2	( <sup>1</sup> )	60.1	55.2	58.2
Connecticut.....	28.3	29.8	25.2	24.1	25.1	—	—	—	—	—
District of Columbia.....	26.7	26.1	33.6	26.9	26.4	100.6	99.5	95.5	105.0	100.8
Georgia.....	12.5	12.3	12.6	11.4	11.4	82.7	76.7	74.1	70.5	78.4
Idaho.....	13.6	14.2	12.5	10.3	12.4	73.6	66.2	68.1	71.9	77.8
Illinois.....	29.2	25.3	28.0	26.3	26.9	79.1	72.8	71.9	73.0	74.6
Indiana.....	16.4	15.5	18.2	14.2	15.4	127.4	121.8	123.3	103.6	108.1
Iowa.....	23.2	21.5	24.6	19.2	15.9	105.2	105.7	108.7	110.7	108.2
Kansas.....	22.9	22.2	24.1	23.6	22.4	102.7	98.9	98.6	101.2	102.9
Louisiana.....	17.4	15.8	14.1	14.3	14.1	71.3	66.7	57.3	61.6	61.9
Maryland.....	27.5	26.8	23.9	24.0	26.0	110.6	112.3	104.8	97.0	104.5
Michigan.....	26.5	26.0	23.5	23.3	23.6	94.8	89.1	91.5	86.9	90.6
Minnesota.....	25.8	22.1	22.5	20.6	22.3	86.5	82.7	81.9	79.7	78.0
Montana.....	22.4	19.8	20.0	15.8	15.9	92.1	93.6	76.3	70.2	70.5
Nebraska.....	24.8	20.5	20.3	16.6	23.2	89.4	99.3	97.9	96.6	94.7
New Jersey.....	30.6	28.6	27.3	28.9	26.5	80.8	75.9	80.6	82.1	78.9
New York.....	36.3	32.7	32.3	31.4	31.3	78.7	77.3	51.1	54.4	52.8
North Carolina.....	11.6	10.1	11.1	10.5	10.8	—	—	—	—	—
Pennsylvania.....	27.4	27.2	26.9	25.7	25.6	86.5	81.9	81.3	82.3	85.6
Rhode Island.....	33.8	33.3	33.6	35.6	33.1	98.4	96.2	92.7	99.1	105.5
South Carolina.....	11.0	11.7	11.5	8.0	10.9	106.2	95.6	—	—	—
South Dakota.....	21.4	19.6	22.5	19.9	17.5	81.9	78.9	74.1	79.5	67.8
Tennessee.....	11.3	11.5	10.6	10.2	10.0	80.3	77.4	76.8	64.7	64.3
Virginia.....	15.4	15.2	16.2	14.1	15.3	95.7	95.1	90.2	92.0	89.3
Washington.....	25.3	23.3	21.5	20.3	20.0	103.8	98.7	94.9	86.8	89.2
West Virginia.....	14.6	13.4	11.3	11.3	13.2	78.6	71.2	78.6	68.0	77.2
Wisconsin.....	29.7	25.8	24.8	24.2	23.0	96.0	88.4	88.1	87.1	89.8
Hawaii.....	16.9	15.1	15.7	14.8	9.2	43.7	39.8	36.6	46.8	50.1
Industrial policyholders, Metropolitan Life Insurance Co., ages 1 and over.....	24.6	24.4	24.4	24.1	23.0	61.9	61.2	63.2	63.8	62.1

State	Diseases of the heart (90-95)					Nephritis, all forms (130-132)				
	1936	1935	1934	1933	1932	1936	1935	1934	1933	1932
Total <sup>1</sup> .....	276.7	253.0	248.4	228.9	221.9	81.9	80.7	84.7	82.4	85.5
Alabama.....	147.5	( <sup>1</sup> )	142.3	121.5	116.8	79.3	( <sup>1</sup> )	77.7	76.3	82.0
Connecticut.....	235.4	221.7	213.8	205.3	208.1	84.8	86.8	85.6	83.5	87.8
District of Columbia.....	338.4	330.6	347.3	312.0	309.9	96.9	100.7	111.6	117.5	131.6
Georgia.....	180.1	163.7	161.8	130.6	137.2	108.3	100.8	105.5	102.3	107.5
Idaho.....	186.4	169.1	149.9	155.6	157.0	25.2	34.9	34.2	33.9	42.2
Illinois.....	317.6	276.7	270.0	256.6	236.7	102.0	96.8	104.7	103.4	111.2
Indiana.....	265.5	254.2	264.4	173.0	173.1	74.3	64.7	75.1	71.5	69.3
Iowa.....	231.7	225.7	206.5	193.9	197.0	59.9	62.3	65.6	40.5	44.7
Kansas.....	241.8	217.0	207.4	196.8	181.0	97.1	92.4	96.5	95.2	101.7
Louisiana.....	198.9	183.6	186.7	191.2	187.6	107.7	108.1	110.4	97.5	105.3
Maryland.....	304.6	273.5	270.7	261.0	259.4	142.4	137.4	141.1	147.2	140.3
Michigan.....	278.9	262.8	251.0	242.2	234.6	63.5	62.9	66.1	63.6	62.2
Minnesota.....	244.0	213.9	213.0	197.2	194.3	48.1	48.4	51.7	54.5	54.9
Montana.....	193.8	205.5	179.3	180.1	150.6	73.8	78.7	71.0	69.2	71.8
Nebraska.....	220.6	189.7	184.6	178.9	174.5	69.6	51.5	60.6	58.3	73.3
New Jersey.....	301.9	285.1	284.7	268.0	235.8	75.6	79.0	82.6	85.7	92.9
New York.....	349.8	318.4	322.8	299.1	300.6	78.7	80.3	84.6	79.1	76.7
Pennsylvania.....	292.8	271.7	263.3	244.9	238.1	82.0	83.1	88.7	92.6	92.9
Rhode Island.....	355.1	328.3	312.3	289.3	272.7	107.2	103.8	111.7	117.0	120.7
South Carolina.....	177.8	180.4	—	—	—	93.8	92.6	104.6	81.8	123.2
South Dakota.....	153.6	139.6	146.0	147.4	152.0	60.5	61.1	63.0	60.9	42.2
Tennessee.....	161.3	142.6	144.0	111.1	97.3	67.9	63.1	62.0	60.5	66.4
Virginia.....	231.4	208.0	205.0	183.3	177.6	91.5	88.3	87.4	85.0	91.4
Washington.....	277.0	264.6	244.3	243.3	217.1	74.3	79.2	75.2	74.9	83.7
West Virginia.....	170.5	150.2	124.3	116.2	114.6	67.3	68.5	64.9	78.0	69.8
Wisconsin.....	280.8	256.4	239.9	229.3	223.7	68.8	70.0	69.8	67.3	68.4
Hawaii.....	119.4	100.5	92.8	109.2	96.9	62.2	67.3	61.7	72.5	88.3
Industrial policyholders, Metropolitan Life Insurance Co., ages 1 and over.....	160.6	158.1	162.9	161.5	155.5	59.2	60.2	64.9	67.1	68.7

<sup>1</sup> Data not available.<sup>2</sup> Diabetes mellitus includes 26 States; cerebral hemorrhage, apoplexy, 23 States.<sup>3</sup> Diseases of the heart includes 24 States; nephritis, all forms, 25 States.<sup>4</sup> Heart diseases in data for industrial policyholders exclude pericarditis, acute endocarditis, acute myocarditis, and angina pectoris; nephritis data for industrial policyholders include only chronic nephritis.

TABLE 5.—*Death rates for various causes per 100,000 population—Continued*

State	Diseases of the digestive system (115-129)					Diarrhea and enteritis (under 2 years) (119)				
	1936	1935	1934	1933	1932	1936	1935	1934	1933	1932
Total <sup>1</sup> .....	67.5	65.9	70.4	68.6	68.8	9.3	7.8	10.8	9.7	10.1
Alabama.....	68.0	( <sup>1</sup> )	73.0	69.0	67.1	17.5	( <sup>1</sup> )	19.9	18.2	14.8
Connecticut.....						2.6	1.7	5.0	4.6	4.1
District of Columbia.....	84.2	90.2	98.2	102.4	95.1	15.0	9.9	12.7	10.5	15.0
Georgia.....	72.6	72.5	80.3	70.7	67.4	17.5	15.8	21.3	16.2	12.9
Idaho.....	64.7	60.5	74.8	58.8	56.3	7.2	2.5	11.0	1.9	2.0
Illinois.....	72.6	69.1	75.9	71.1	72.5	6.5	4.4	8.4	6.4	7.0
Indiana.....						8.9	6.3	12.0	10.7	11.3
Iowa.....	56.9	61.0	65.4	55.8	60.2	4.4	3.9	6.8	2.7	3.1
Kansas.....	72.2	70.7	79.3	74.2	71.6	6.8	6.5	8.3	8.6	7.4
Louisiana.....	81.8	81.5	78.4	78.8	71.1	17.4	17.5	21.6	19.4	14.4
Maryland.....	70.3	70.8	71.1	72.5	77.3	16.1	14.0	17.7	17.1	20.5
Michigan.....	75.2	67.3	74.6	69.0	66.7	9.8	4.5	8.2	6.2	6.8
Minnesota.....	62.2	63.2	68.3	61.4	60.2	4.6	3.8	4.0	4.9	3.9
Montana.....	88.5	84.0	84.2	74.7	71.0	11.5	8.1	13.4	5.1	5.0
Nebraska.....	74.6	65.6	72.7	65.3	65.7	4.8	3.7	5.6	4.8	5.0
New Jersey.....	58.2	57.0	59.3	62.4	62.3	3.4	3.4	5.3	4.3	5.7
New York.....	68.3	67.0	69.4	71.3	67.4	6.1	6.2	6.8	7.0	6.6
North Carolina.....						28.5	22.0	26.6	20.6	17.0
Pennsylvania.....	53.7	55.7	60.7	62.2	66.1	5.8	5.5	8.3	8.6	12.3
Rhode Island.....	61.2	66.2	62.7	68.2	70.5	3.8	5.3	4.3	4.4	8.3
South Carolina.....	41.6	36.1	44.8			16.2	7.3			
South Dakota.....	60.4	59.0	66.2	57.9	63.9	10.1	7.8	9.4	8.2	6.5
Tennessee.....	80.3	77.9	87.8	85.0	81.6	20.4	18.9	25.4	23.3	20.1
Virginia.....	57.8	55.4	62.1	58.4	63.0	13.3	10.8	16.3	15.3	14.4
Washington.....	66.3	65.3	63.1	61.6	56.7	3.3	3.7	2.8	2.1	2.3
West Virginia.....	92.1	76.8	79.8	82.5	106.0	34.3	20.1	28.0	32.7	49.6
Wisconsin.....						6.2	4.6	6.8	6.8	7.0
Hawaii.....	64.8	64.2	74.9	103.0	102.8	20.1	18.6	27.2	34.4	44.3
Industrial policyholders, Metropolitan Life Insurance Co., ages 1 and over.....						6.1	5.8	8.1	7.5	8.1

<sup>1</sup> Data not available.<sup>2</sup> Diseases of the digestive system includes 21 States; diarrhea and enteritis (under 2 years), 25 States.

## TUBERCULOSIS CONTROL BY A SMALL COUNTY HEALTH DEPARTMENT<sup>1</sup>

### Brunswick-Greenville Health Administration Studies No. 8

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This study represents a further attempt to determine what part of the total health problem confronting the people is touched in some way by a small county health department. Inasmuch as the control of tuberculosis in these two counties constitutes a large part of the total health problem, it has been selected for special investigation. An analysis of this field of activities offers at the same time a good basis for studying county health administration, since a program of tuberculosis control involves not only active participation by the health department but also the utilization of such assistance as may be available through other agencies.

The two Virginia counties under consideration, Brunswick and Greenville, are classed as entirely rural, since there is no town of 2,500 or more inhabitants in either. The total population of the area

<sup>1</sup> From the Division of Public Health Methods, National Institute of Health, in cooperation with the Division of Domestic Quarantine.

is about 34,000. This population is distributed between the counties and races as follows: Brunswick—total 20,486, white 8,994, Negro, 11,492; Greenville—total 13,388, white 5,259, Negro 8,129.

#### FACILITIES AND THE FACTORS INFLUENCING THEIR USE

A single health department, consisting of one full-time medical officer, two nurses, one sanitation officer, and a clerk, is responsible for public health service in all political units of the two counties. Eighteen physicians who reside in the area are general practitioners, but among this group there is no one especially familiar with the clinical aspects of pulmonary tuberculosis. An itinerant clinic unit of the State health department, which visited the area on four occasions during the study period, afforded the only skilled diagnostic service that was available locally. A relatively few persons suspected of having tuberculosis of the bones or joints were referred to an orthopedic surgeon who visited each county seat once every month. Local civic groups sponsored this clinic, which was organized originally for crippled children.

The county depends almost exclusively on the State for hospitalization of the tuberculous. State sanatoria, 1 for Negro and 2 for white patients, have a combined capacity of 765 beds. For the State as a whole the ratio of total sanatorium beds to deaths from tuberculosis is 0.73. Since this ratio is considerably less than one bed per annual death, it is not surprising that the local health officer should experience on the average a delay of 3 months in securing admission for persons selected for institutional care. Another barrier between patients and sanatoria lay in the fact that a charge of \$1 per day is made for the care of white patients and 50 cents for Negroes. If a patient should be unable to meet such payments, the county authorities or the local charities are petitioned for funds. All these limitations seem to have exerted an influence on the number of persons admitted to State sanatoria, since only nine were accommodated. Patients of the two counties are reported to have obtained 1,260 days of sanatorium care during the study year. This would be the equivalent of about 40 days per death, or approximately 32 percent of standard practice.<sup>2</sup> The local need for hospital care apparently exceeded the facilities used, since the State clinic alone urged sanatorium care for 16 patients and compromised on rest for 43 others. Further data to be presented later suggest that cases in addition to those diagnosed by the State clinic were in need of bed care but could not be placed in an appropriate institution. It would therefore appear that the local program was embarrassed not alone by inadequate sanatorium facilities but, in addition, by inability of the counties to

<sup>2</sup> Appraisal Form for Rural Health Work, second edition, 1932, American Public Health Association.

utilize the full number of beds in State institutions which, on the basis of population, might be regarded as a quota for the area.

A further handicap to the program is to be found in the social and economic situation of many families. The general level of income is low in both counties. When resources are expressed by annual per capita spendable money income<sup>3</sup> it is found that Brunswick, with \$172, is considerably below the median, \$245, for all counties of the United States having county health department services. Greenville, on the other hand, has a spendable money income of \$253, which corresponds very closely to the midpoint just quoted. Generally speaking, the Negro population is poorly housed, and on many farms the dwellings of white tenants likewise are inadequate. Considerable overcrowding must exist among the Negroes, since the average number of individuals per family is 6.1, and the same families have on the average only 4.2 rooms. These unfavorable circumstances of the Negroes are reflected in any statistical description of the area or its problems, since the Negroes comprise more than 50 percent of the total population.

#### AMOUNT OF TUBERCULOSIS PRESENT

The sources of information first consulted in regard to the incidence of tuberculosis were the registers maintained by the local and the State health departments. The local register contained the names of 168 individuals, while 165 were on the State list. Wide discrepancies between the lists were found when an effort was made to compare names and addresses. A precise medical diagnosis had not been established in a fairly large proportion of instances. Furthermore, individuals were not always placed in descriptive categories, such as active or arrested cases, suspects, or contacts. Without a vigorous case-finding program supported by medical diagnosis the registers could not be expected to present the true prevalence of tuberculosis. For reasons stated above and others that will appear later, the tuberculosis case registers were not used as a basis for defining the problem or in appraising the program of the health department.

After exploring other possible sources of information, it was decided to adopt the case-death ratio for establishing the probable incidence of tuberculosis. Since normal variation in the number of deaths produces a disproportionately great fluctuation in rates for small populations, an annual average computed on a period of several years gives a more reliable figure.

According to the records of the State Registrar of Vital Statistics, tuberculosis was given as a cause of death for 332 persons dying in

<sup>3</sup> Survey of Spending Power. Sales Management, Apr. 10, 1935. Spendable money income is defined as money received for goods and services produced and rendered during the calendar year 1934, plus Federal allotments, and the money paid out of savings and surpluses of business institutions.

Brunswick and Greenville Counties during the 10 years preceding the study. In the latter half of this period the annual average number of deaths was 31. Deaths in Virginia are allocated according to place of death rather than legal residence of decedent; consequently there is no practical way of determining exactly how many residents may have died outside of the counties or how many deaths of non-residents are included in the local reports. It is believed that 31 may be taken as a minimum statement of the number of deaths due to tuberculosis that may be expected to occur annually in the two counties.

By using the average annual experience of the preceding 5 years, it was found that these 31 deaths should be distributed between the races and between the counties about as follows: White 6, Negro 25; Brunswick 14, Greenville 17. When expressed in rates per 100,000 population, the figures become: White 48.9, Negro 135.3; Brunswick 68.6, Greenville 125. The discrepancy in county rates is attributable in the main to differences in Negro rates of the two political units, but the reason for the excess of deaths in one Negro group over the other is not understood. Quite likely it is due to chance or to variation in recording practice, since the two counties are strikingly similar in most respects; furthermore, their rates for the preceding 5 years were very nearly alike. While some importance may be attached to differences in county rates, the two areas are treated as a unit, since they constitute one health jurisdiction.

If the figure 31 is accepted as representing approximately the average annual number of recorded deaths, then one would be conservative in stating that there are in the two counties not less than 150 active cases of tuberculosis which should have been known to the health authorities. This estimate is based on the ratio of 5 active cases per annual death, which represents the experience in rural areas<sup>4</sup> where case-finding programs are in keeping with good county health department practice. Cattaraugus County,<sup>5</sup> New York, where a concerted effort was made to locate tuberculous persons, also reported essentially the same ratio of cases to deaths. Under urban<sup>6</sup> conditions with perhaps better than average case-finding machinery, it has been possible to locate 7.3 active cases per annual recorded death. According to general experience, the number of arrested cases equals at least those showing activity. If this minimum proportion remains true for Brunswick and Greenville Counties, then the number of cases, active and arrested, should total about 300. Each of these cases presumably was closely associated with 5 other individuals,

<sup>4</sup> See reference 2.

<sup>5</sup> Douglas, Stephen A.: *The Organization of a Rural Tuberculosis Service*. Milbank Memorial Fund, 1930.

<sup>6</sup> Doust, H. B.: *The Tuberculosis Program in Syracuse*. Transactions of the Twenty-Seventh Annual Meeting (1931), National Tuberculosis Association.

within the household or elsewhere; and, as a result, not less than 1,500 persons must have been sufficiently exposed to be classed as contacts.

TABLE 1.—*Distribution of individuals served according to health department classification of clientele*

	Health department classification of clientele				
	Cases	Suspects	Contacts	Other	Total
Number.....	99	51	248	62	460
Percent.....	22	11	54	13	100

#### FRACTION OF PROBLEM REACHED BY PROGRAM

A total of 460 individuals drawn from 201 families were touched in some way by the tuberculosis program during the study period. The distribution of these individuals according to the classification used is shown in table 1. Records of the health department revealed that, while 99 individuals were classed as cases, this number includes some whose process was not active and a few with nonpulmonary tuberculosis. The group termed "Other" is made up of persons who were not in contact with known cases but who desired a physical examination or service of some other type which was rendered as part of the tuberculosis program. If the 51 suspects are added to the 99 diagnosed cases, the resulting total, or 150 individuals, should represent not more than 50 percent of the estimated number of active and quiescent cases. Very likely the 248 contacts cannot be more than 20 percent of the persons who were exposed to the disease in an intimate way.

Further analysis of the data pertaining to residence and characteristics of the clients suggests that in proportion to deaths the white population received more attention than the Negroes and that the volume of service based on population was larger in Brunswick than in Greenville County. The percentages of individuals served that fell into the age groups 10-19 and 20-29 were greater than the percentages in the general population of corresponding maturity. Perhaps there was a conscious selection of persons for service from those age levels where early tuberculosis is likely to manifest itself with greatest frequency.

Information as to economic status was recorded for only 117 of the 201 families represented in the tuberculosis service. Of the known group, 78.5 percent were in either the poor or the very poor class, whereas only 50 percent of the surveyed families<sup>1</sup> fell into these economic categories. Very likely the apparent preference shown the poor and very poor signifies good practice since tuberculosis as a rule is more prevalent among those having low incomes.

<sup>1</sup> Unpublished data from a survey of 1,009 families.

## SOURCE OF CLIENTS

From the records completed during the study year it was possible to determine the method by which the health department discovered its clientele. These data are presented in table 2. The families of tuberculous patients proved to be the most fruitful source of information, accounting for 51 percent of all new individuals and 36 percent of the new cases that came to the attention of the health department. Nearly one-third of the actual cases were reported by private physicians. A great majority of these were registered as patients referred to the clinic that was operated by the State health department. Contacts and suspects traceable to cases reported by physicians appear in most instances to have been located directly by the health department staff after service was established with tuberculous members of the household.

TABLE 2.—*Distribution of clients according to source of first information, and health department classification*

Source of first information	Health department classification of clientele					
	Cases	Suspects	Contacts	Other	Total	
					Number	Percent
Family of patient.....	26	9	119	20	174	51
Private physician.....	22	7	5	8	37	11
Death in family.....	8	10	68	0	86	25
Neighbor, friend, or teacher.....	10	5	16	2	33	10
Sanatorium.....	3	0	1	0	4	1
Other.....	3	1	3	2	9	3
Total.....	72	32	212	27	1 343	100

<sup>1</sup> Source of first information unknown for 117 patients.

## SERVICE RENDERED

The State tuberculosis clinic and the county health department nurses were responsible for practically all the field service that was performed by the public agencies. This may be noted in table 3. Roughly, half of the clients were registered at the chest clinic and two-thirds of them were visited by the county nurses. However, only 95 individuals, or about 21 percent of the 460 individuals served, received both types of service. The clinician saw half of the cases, somewhat less than half the contacts, and exactly three-fourths of those classed as suspects. Approximately two-thirds of the cases, three-fourths of the contacts, and three-fifths of the suspects were visited by the nurses.



**TABLE 3.—Distribution of clients<sup>1</sup> according to health department classification and to type of service**

Classification of clientele	Total	Type of health department service							
		Chest clinic		Orthopedic clinic		Public health nurse		Other	
		Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent
Cases.....	99	49	50	10	10	66	67	2	2
Suspect.....	51	28	75	1	2	21	61	1	2
Contact.....	248	107	43	0	0	180	72	0	0
Other.....	62	47	76	0	0	29	47	0	0
Total.....	460	241	52	11	2	306	63	3	1

<sup>1</sup> Some individuals received more than 1 type of service.

In the combined clinic and nursing service, 1,029 client contacts were recorded; 260 of these, or about 25 percent, were made by the chest clinic, and 676, or 66 percent, were field visits of the nurse. The remaining 9 percent were accounted for primarily by attendance at the orthopedic clinic. While the average number of visits, both clinic and nursing, was 2.2 per individual, actual cases of tuberculosis received 3.1 visits, suspects 2.5, contacts 2.0, and others 1.8 visits each. These averages fail to disclose the wide variation in intensity which characterized the service. About one-third of the clinic cases and well over half of the household contacts were seen only once during the study year. In general, the concentration of service was rather low, but health department effort appeared to be distributed fairly well according to the relative needs presented by these individuals.

#### STATE CLINIC

The mobile diagnostic unit of the State health department visited the area four times during the study year, and held seven clinic sessions, four in Brunswick and three in Greenville County. These sessions were attended by 241 individuals drawn from 140 families. Brunswick County registered 177 persons and Greenville 64; thus, it will be seen that people of the former county patronized the service more freely than those of the latter. The proportion between the races was 79 white to 162 Negro; this, generally speaking, is in keeping with the relative importance of the tuberculosis problem among each race. Slightly more members of Negro than white families attended the clinic, the average number being 1.8 members per Negro family as compared with 1.5 for the white. Distinctly more people in the age group 10-19 than in any other 10-year age group were attracted to the clinic. As already pointed out, this selection is characteristic of the general program and should be expressive of good practice, since ado-

lescence is the period of life when clinical tuberculosis is most likely to manifest itself for the first time.

Practically all the patients came to the clinic but once during the year, only 17 attended two sessions, and just 1 made 3 visits. This performance did not reflect the advice given by the clinician. Re-examination was recommended to 119 patients seen during the study year, and 78 who had attended previously were specifically instructed to return during the study year. The latter group particularly should have been well represented among the return visits during the study year; yet only 55 percent of those patients actually came back.

As stated previously, 241 individuals attended the State clinic during the year under consideration. Table 4 shows the distribution of these persons according to medical diagnosis. Pulmonary tuberculosis was definitely identified in 43 individuals; but it was not possible from the records to classify these cases on the basis of activity in the disease process. After further examination very likely a number of those classed as "Pulmonary tuberculosis suspected" will be placed in the group with positive diagnosis; consequently, the department probably located more tuberculous individuals than is indicated by the number 43. The nontuberculous group is composed of 107 contacts and 47 persons who for one reason or another wished to have a chest examination. Inasmuch as the records did not always present a complete family roster together with the physical findings on each member, it is not possible to draw direct conclusions regarding the completeness of family service. The ratio of 7 nontuberculous individuals to 4 diagnosed and suspected tuberculous cases, however, would indicate that chest examination was limited to a group well selected from the standpoint of their having tuberculosis. More than half, or 26, of the diagnosed cases attended the clinic for the first time during the study year, and only one of these had prior contact with the health department. This lack of previous contact may be explained to some extent by the unusually high percentage of minimal pulmonary cases among the clinic clientele.

TABLE 4.—*Distribution of clinic patients according to diagnoses*

Total individuals registered at clinic.....	241
Nontuberculous.....	154
Bone or joint tuberculosis.....	2
Pulmonary tuberculosis, suspected.....	42
Pulmonary tuberculosis, diagnosed.....	43
Tracheobronchial tuberculosis.....	10
Minimal pulmonary.....	18
Moderately advanced pulmonary.....	9
Far advanced pulmonary.....	4
Pulmonary unclassified as to type.....	2

Every patient attending the clinic received a general physical examination. Only 63, all of whom were patients of the Brunswick County clinic, were checked by X-ray. This infrequent use of X-ray was due in part to the limited capacity of the mobile unit, and in part to the policy of referring residents of Greensville County to a local private laboratory. Limitations placed on the use of X-ray made it necessary for the State clinician to rely on physical examination for presumptive diagnosis and to reserve X-ray for confirmation in selected instances. This practice is the reverse of that used in many well-organized clinics where the preliminary screening out process is done by X-ray. In this manner the flow of patients through the clinic is accelerated, and the cost per diagnosed case is markedly decreased.

It would appear that the local clinic service for many patients was conducted independently of the field nursing program. For example, 174 of the 241 clinic patients were not seen in the field by a nurse within 6 months either before or after the first visit to the clinic; 132 were recorded as having had no nursing service at any time prior to or during the study period. However, it must be understood that the clinic was operated primarily as a diagnostic service to local physicians. The family physician was expected to assume responsibility for initiating whatever treatment procedures seemed indicated. Under these circumstances it may be expected that the nurses would be somewhat hesitant about establishing contact with the patient except on invitation of the family physician. Cooperation between the nurse and the family physician in relation to tuberculosis is described in other sections of this paper.

#### FIELD NURSING SERVICE

The local field nursing service in relation to tuberculosis is conducted primarily as a control measure, but the approach is essentially that of education. The several acts commonly involved in bringing persons to medical attention, especially for diagnosis, describe a large part of the nurse's effort. Bedside care, when given, is for purposes of demonstrating nursing techniques to some member of the family.

There is a record in the local health department to the effect that the nurses had some type of contact with 306 individuals in the interest of tuberculosis service. This number constitutes about 27 percent of all persons who received a home call for any purpose by the county health department nurses. Tuberculosis can therefore be construed as occupying an important place in the nursing program. The nursing service in common with other elements of the tuberculosis program reached its highest concentration in Brunswick County and among the white population of both counties.

By referring to table 3, it will be noted that the number of clients represented in the nursing service was as follows: Contacts 180, cases

66, suspects 31, and nontuberculous individuals 29. Roughly speaking, the nurses came in contact with about two-thirds of the cases and nearly three-fourths of the contacts encompassed by the health department program.

Nursing visits made to the group seen averaged 2.2, but over half of the individuals received only one visit. The mean number of visits to the positively diagnosed cases was 3.3 although one visit constituted the service extended to about 35 percent of the cases. Service to the contacts was less intensive than it was to cases; the average number of visits to contacts being 2.2, while slightly more than half of these individuals were seen only once during the study year.

As further evidence that the nursing service is not closely linked with the clinic, it may be stated that the nurses carried but 23 of the 49 clinic cases and only 39 of the 107 contacts who attended the clinic. There remained 43 cases and 141 contacts among the nurses' clientele who apparently had no medical supervision except that which may have been supplied by the private physician, but on the subject of private medical care the nurses' records are not clear.

Mention has already been made of the fact that the clinic operated primarily as a consultation service for private physicians. Another explanation for the lack of linkage that the records seem to show between the nursing service and the clinic may be found in the major purpose of many home visits by nurses; namely, that of locating individuals who should attend the clinic. Nurses reported having discussed clinic attendance with 227 individuals. Despite the emphasis placed on clinic attendance, their efforts could not have been very successful, since only 23 cases and 39 contacts who came to the clinic during the study year were the recipients of field nursing service. The nurses also reported having urged 79 persons to consult their personal physicians, but it was not possible from the records to appraise the nurses' efforts in this regard.

Another important purpose of nursing service was to give special instruction on personal hygiene and points mentioned by the clinician. The numbers of individuals with whom different subjects were discussed are as follows:

Subject:	Number of individuals
Health habits .....	183
Nutrition .....	69
Sanatorium care .....	28
Correction of physical defects .....	28

Assistance described as social service was rendered to 33 individuals. Bedside nursing care, for the purpose of demonstrating technique to some member of the family, was given to only four patients. Transportation, apparently to facilitate clinic attendance, was listed for 23 persons. Perhaps the most striking point in the

foregoing account of the service is the small amount of actual bedside nursing care that was given to a population where the need for it must have been great. The omission of bedside service reflected a policy that was laid down by the State health department. This policy, in turn, is an expression of the belief common among health administrators that a nursing staff, small in proportion to the population, is most effective when its activities are limited to educational measures.

In studying the nursing service from a family standpoint it was found that 79 families with a known or suspected case of tuberculosis in the household had contact of some type with a nurse of the health department. Exactly 58 of this number were visited for tuberculosis control. In only 14 instances did the nursing service include all members of the family. Also there were numerous instances where service to but one or perhaps a few members of large families appeared in the nursing records. Apparently the family did not, as a routine matter, constitute the unit for field nursing service in relation to tuberculosis control.

#### SURVEY OF CASES REPORTED TO STATE

According to the records of the tuberculosis bureau of the State health department, there were 165 cases with either positive or presumptive diagnosis of tuberculosis in Brunswick and Greenville Counties at the close of the study. Sixty-five of these cases were among the clientele of the local health department and 100 were not. A special survey was made of the latter group to determine the status of each individual. By interrogating either the person or some member of the family, sufficient information was elicited to classify the reported cases as follows:

Died.....	10
Moved away.....	10
Tuberculosis arrested.....	45
Tuberculosis active.....	9
Tuberculosis, childhood type.....	7
Tuberculosis of bone.....	1
Diagnosis questionable.....	18
<hr/>	
Total.....	100

Of those who had died, 5 died before the beginning of the study year, 1 during the year, and the remaining 4 died in the interim between the close of the year and the visit of the worker. Certainly if the State register were an active one, the names of at least the first 6 cases should not have appeared on it. No information could be obtained locally about those persons who had moved away. Considerable doubt may be raised concerning the existence of tuberculosis in the 18 whose diagnosis was classed as questionable. None of them

admitted having been told that he actually had tuberculosis. Only two were manifestly ill at the time of the survey, but each person attributed his disability to a cause other than tuberculosis. Perhaps this entire group of 18, whose diagnosis appears not to have been established, should never have appeared on the list. When these cases are disregarded and all other reasonable deletions are made from the State list, those individuals that remain of the 100 originally under consideration represent a known tuberculosis problem of considerable magnitude which was not touched by the local program during the study year. It must not be inferred that all persons on the State list, but not registered with the local health department, were without some medical service. As a matter of fact 44 were examined by a private physician during the study year and 35 consulted one previously. Information regarding medical service could not be obtained on 10, thus leaving only 11 who definitely stated that they had not seen a physician in regard to tuberculosis.

#### APPRAISAL OF PROGRAM

Data compiled in connection with this study were assembled primarily to determine the distribution of services by a small county health department in relation to the tuberculosis problem of a rural area. On this point the study revealed that the health department established a relationship of some type with less than half the estimated number of cases and a much smaller proportion of the probable contacts. A large part of the program represents no more than a single service by either the clinic physician or the field nurse.

It must be remembered, however, that the main purpose of the program was to find individuals who might be tuberculous. Once a diagnosis had been established, the family physician was expected to assume major responsibility for directing the future care of those needing attention. Under the circumstances, it is not surprising that there should be so many clinic cases without nursing follow-up service. Very likely the clinic dealt directly with the family physician who, in many instances, had not sought assistance from the nurses. The seemingly high percentage of cases reported to have had nursing service only may be explained in part on the grounds that the nurses were not always careful about recording medical supervision by the family physician. More often the visit by the nurse is likely to represent an unsuccessful attempt to induce attendance at the chest clinic.

Without doubt the clinic served a very important need of the area. It would seem, however, that its limited resources could have been made available to a larger number of individuals if X-ray had been used freely to select those in need of a careful physical examination

and to check the changes in physical findings which might have occurred between visits to the clinic.

It does not seem probable that the program in Brunswick and Greenville Counties could have been very effective as a control measure. Not more than one-half of the estimated cases and perhaps less than 20 percent of contacts were touched in any way. Case-finding procedures were not sufficiently extensive and searching to locate a high proportion of infectious persons. Generally speaking, the local program provided very little, if any, actual care of patients. Those patients who were admitted to the sanatorium perhaps represent the only group that obtained the full effect of the tuberculosis service, but they constitute a very small percentage of the total number who might have been benefited. The outstanding defect in the program, of course, is its lack of intensity. Obviously, the fault rests with the citizens who failed to give adequate financial support to a health organization which in many respects functioned admirably within the limits of its resources.

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## SEASONAL PATTERNS AND TRENDS OF COMMUNICABLE DISEASES

By ROBERT OLESEN, *Assistant Surgeon General*, and BROCK C. HAMPTON, *Junior Administrative Assistant, United States Public Health Service*

The chronological incidence records left behind by some of the communicable diseases are as characteristic as finger or other prints and are as readily identified by experienced epidemiologists as the clinical entity itself is identified by the physician. This fact is well shown in the weekly records of communicable disease incidence kept by the Public Health Service over a period of years. Charts containing these records plotted by weeks furnish a graphic picture of the seasonal epidemiology of these common diseases. In the charts displayed in the present article weekly records of eight diseases are shown for each year from 1928 to 1936, inclusive. The weekly records during the year 1936 are shown by black dots. The seasonal characteristics and trends, when they are present, will be indicated in the following brief discussion of each disease.

*Diphtheria.*—The morbidity experience with diphtheria in 1936 was the most favorable ever recorded. Yet, even for that year the seasonal pattern and trend are clear-cut in their resemblance to previous years. The characteristic features of the graph for this disease are its gradual rise beginning in August, the plateau in October and November, the decline during December and the succeeding months, and the low incidence during May, June, July, and August. The very encouraging experience with diphtheria in 1936 inspires the hope that, with the

specific measures for prevention and control at hand, we may see this former scourge, still too prevalent, descend to even lower levels during the succeeding years.

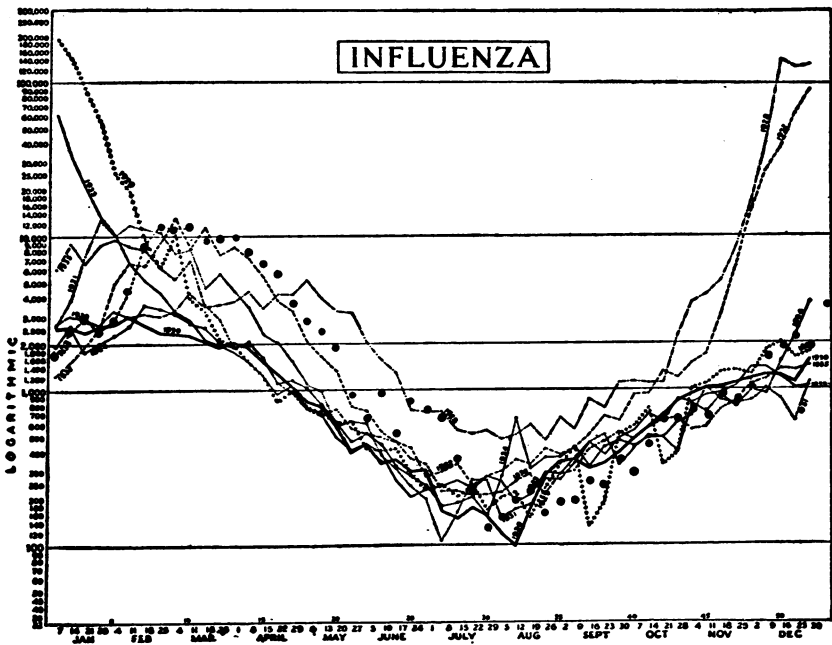
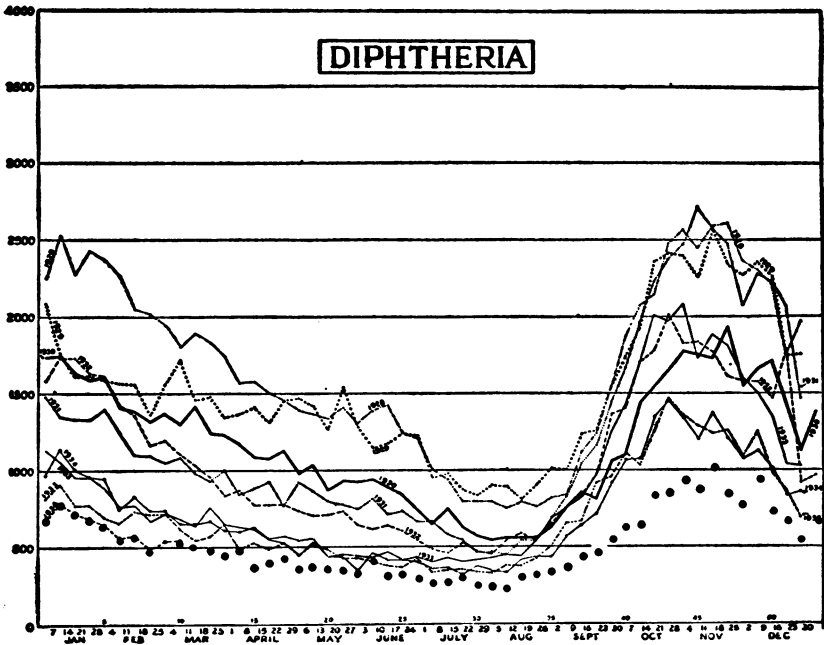
*Influenza*.—Although this disease sometimes departs from its conventional paths, as it did in 1928, 1932, and 1936, it maintains in general a recognizable seasonal pattern. Thus the incidence is usually highest, though gradually declining, during the first 6 months of the year. After its lowest incidence in July and August, there is ordinarily a gradual rise during the remaining months. However, in the minor epidemics of 1928 and 1932 the deviations from the normal curve began late in October and rose rapidly to reach their peaks in January and December, respectively. The considerable rise which occurred in 1937 and reached its peak late in January is seen in its initial departure late in December 1936.

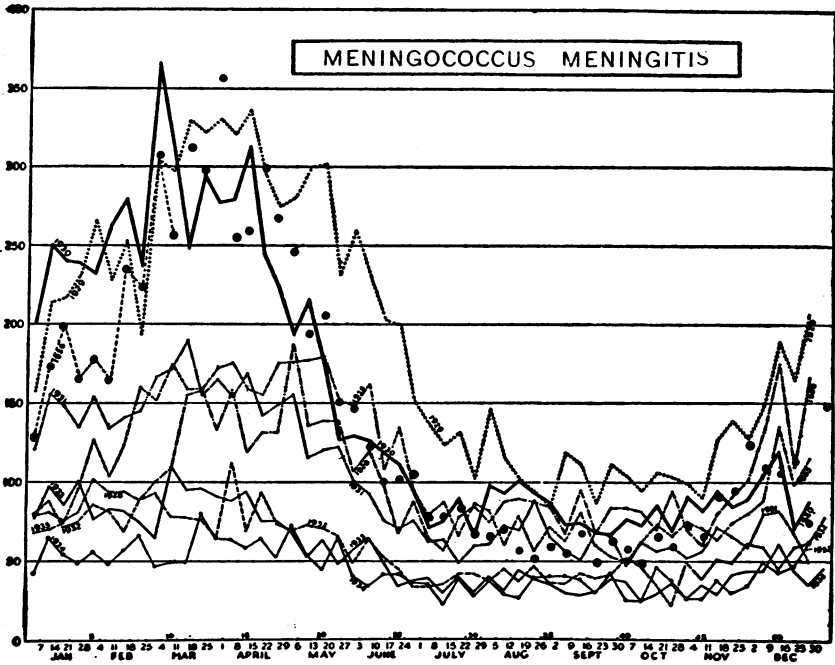
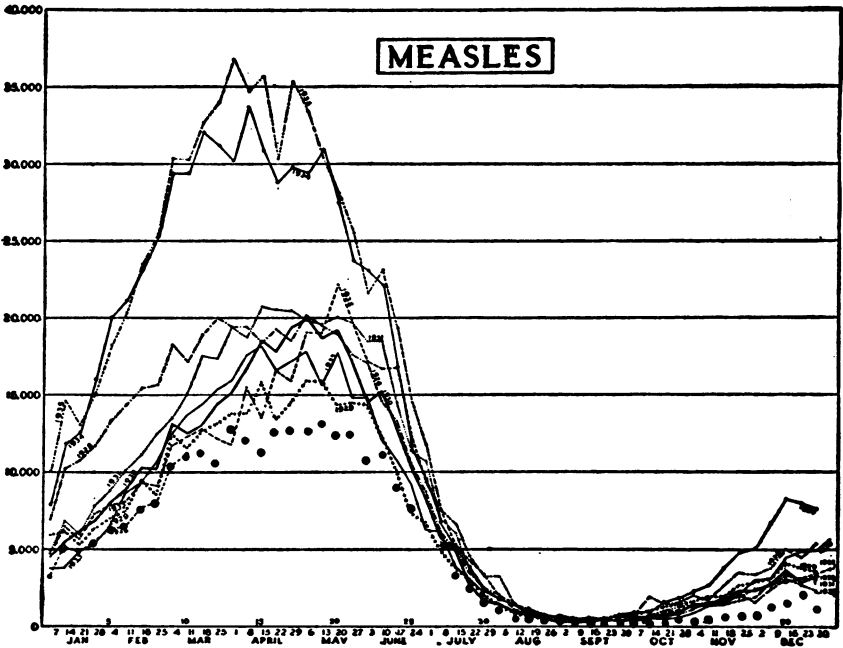
*Measles*.—In some cities and States the picture of measles is marked by alternating years of high and low prevalence. However, when Nation-wide incidence is considered, these local irregularities are more or less ironed out. The abrupt rise in measles incidence which is the beginning of the sharp upward curve customarily starts in January, achieves its height in March or April, and thereafter declines rapidly, reaching low points in August and September, to begin a slow, gradual rise for the remainder of the year. A consideration of the measles chart shows that both 1934 and 1935 were years with high measles incidence. It is also apparent that the experience with measles in 1936 was unusually favorable.

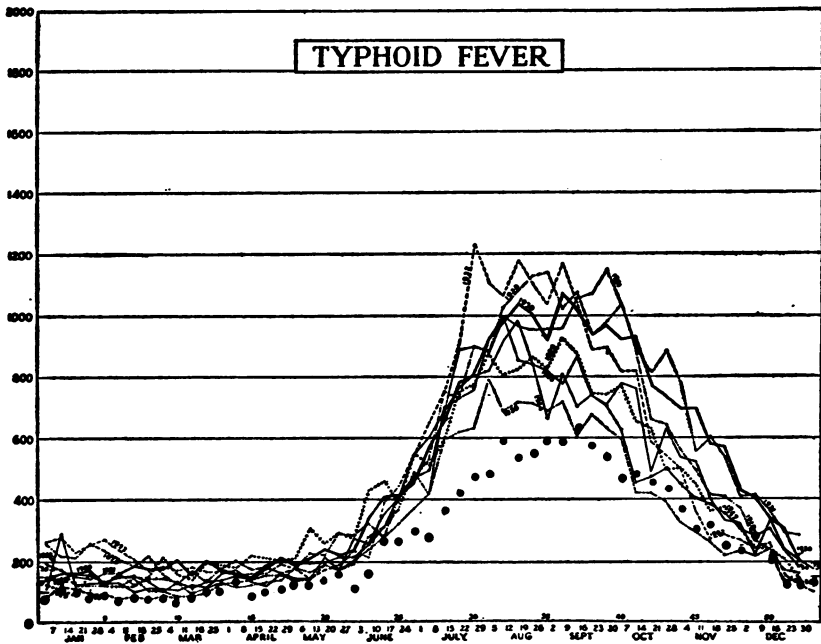
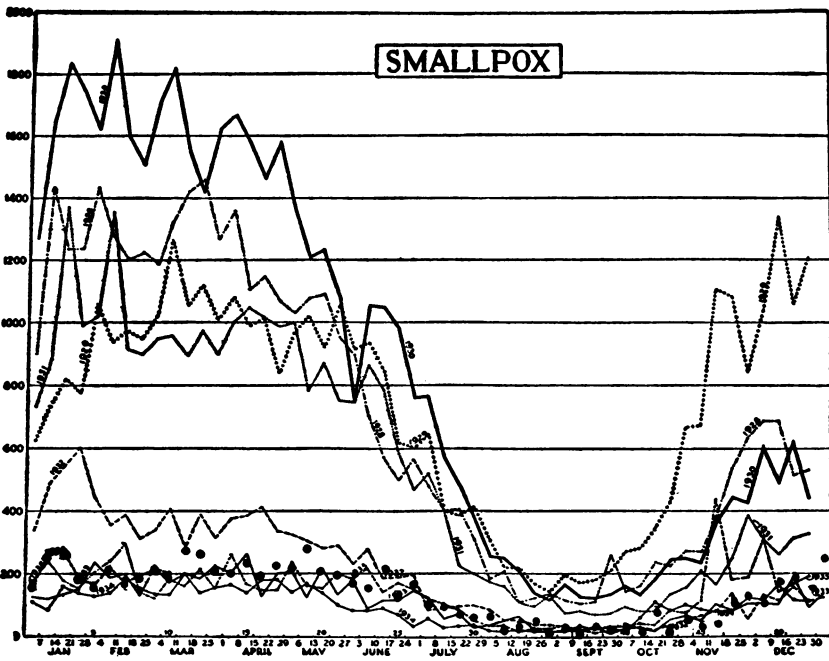
*Meningococcus meningitis*.—This disease, as shown by an experience covering 9 years, though somewhat erratic in its incidence, still follows a general seasonal pattern. With the possible exception that the disease is more frequent in the first 6 months of the year, it does not follow a closely confined, set incidence form, and its anticipated prevalence at a given time cannot be foretold with any degree of accuracy. In 1936 the incidence of this disease was distinctly less favorable than during previous years.

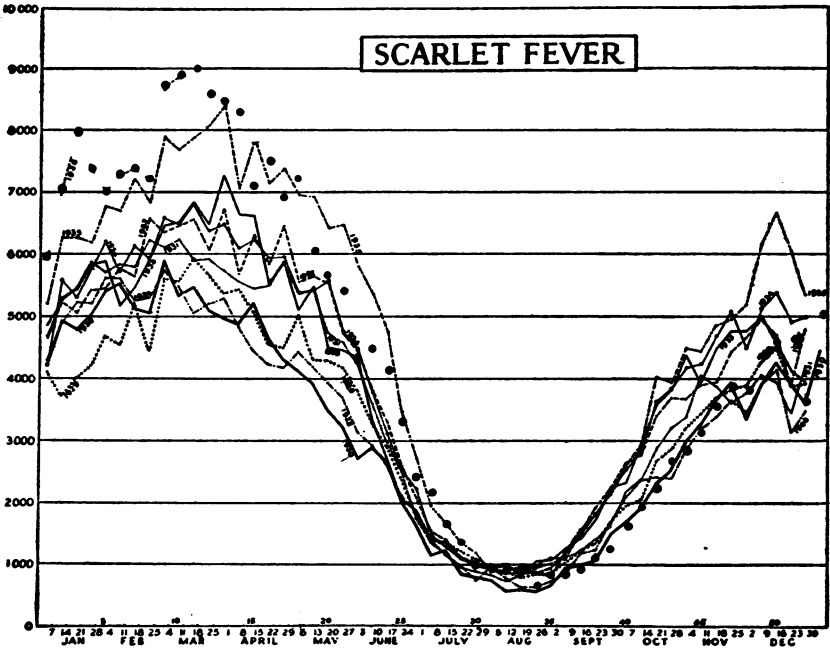
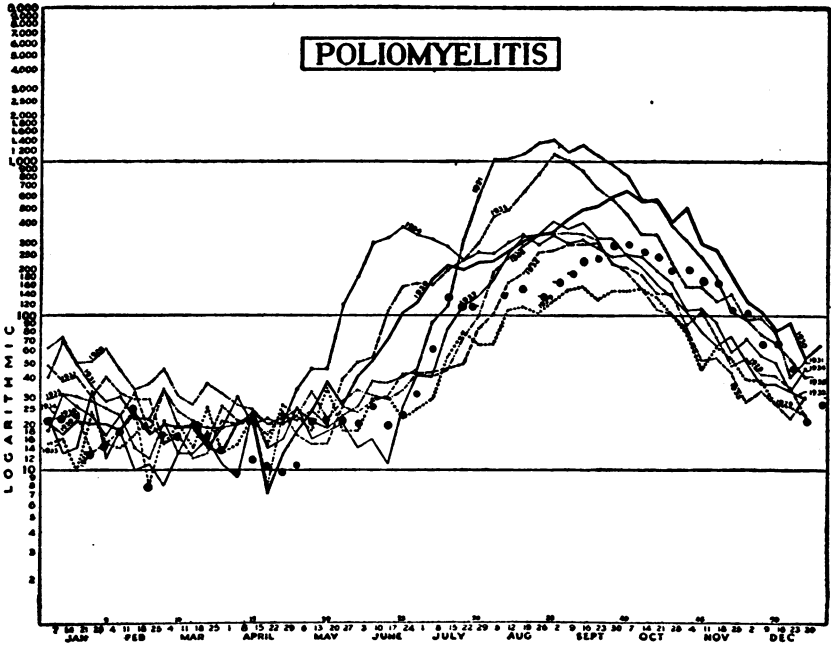
*Poliomyelitis*.—This is another disease which follows a rather stereotyped incidence curve. Prevailing with a rather low and uniform rate during the first 5 months of the year, the number of cases ordinarily increases in June. From this time on there is a steady though gradual rise in incidence until August, after which time there is a tendency to flatten out in a maintained and plateaulike curve which descends reluctantly late in October. Though much apprehension was aroused by the unusual prevalence of poliomyelitis in Alabama, Mississippi, Georgia, and Tennessee in 1936, it will be seen, upon examining the chart, that, for the country as a whole, a greater number of cases was reported during corresponding periods of several previous years.











A point of interest in connection with the incidence of poliomyelitis is the similarity of its seasonal curve to that of typhoid fever. However, in the case of typhoid fever the gradual rise begins slightly earlier in the year, while with poliomyelitis the number of cases increases in June after an even incidence during the preceding months.

*Scarlet fever.*—Scarlet fever is another disease in which the incidence curve follows a clear-cut pattern. During the first 6 months of the year this affection is ordinarily quite prevalent, mostly so during March and April. Thereafter the morbidity rate gradually declines, reaching its lowest points in July and August. However, coincident with the beginning of school there is a steady increase in the number of cases most marked during the last 3 months of the year, usually continuing to the heights previously noted during the first half of the year.

The experience with scarlet fever during 1936 was unfavorable during the first 6 months but more favorable during the latter part of the year as compared with previous records.

*Smallpox.*—The chart shows that smallpox is another disease which has an erratic trend, though obviously more prevalent during the first half of the year. This fact is well shown by the morbidity reported during the 4 years beginning with 1928, when smallpox prevailed to a considerable extent. In 1932 and thereafter the recorded cases of this disease were comparatively fewer and, while still more frequent during the first 6 months of each year, quite uniform in prevalence. The year 1936, like the 4 preceding years, showed a favorable low incidence, with indication of the prospect of an increased prevalence, however, manifested in the last week of December.

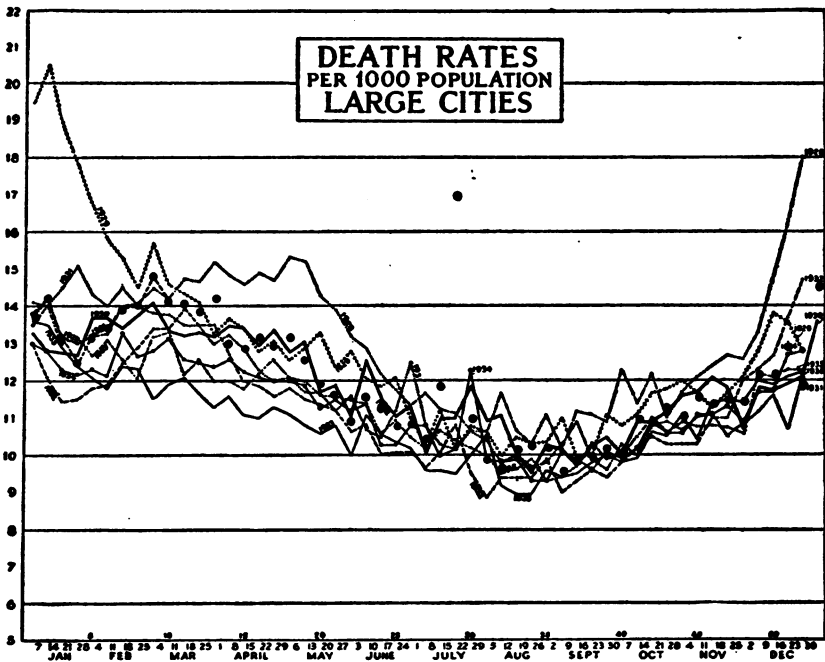
*Typhoid fever.*—An unusually low typhoid fever incidence was recorded in 1936, in fact the lowest of the 9 years shown in the chart. Yet, even so, the 1936 curve of incidence followed an easily recognizable pattern characteristic of the weekly reports of the disease. Typhoid fever is least prevalent during the first 5 months of the year, then rises gradually and reaches a plateau of incidence which lasts from July to October, after which there is a gradual decline.

*Death rates in large cities.*—Another current chart maintained by the Public Health Service may be shown in this connection. This is a record of death rates from all causes per 1,000 population in 86 large cities of the United States, the data for which are obtained from weekly telegraphic reports. Here again a general seasonal pattern may be discerned, although it is not as clearly marked as in some of the morbidity charts. However, the higher death rates in the first 6 months, beginning definitely in November or December, are clearly shown. The expected low rates during the summer months and the gradual rise thereafter are also quite plain. The unfavorable experience in

the summers of 1930, 1931, 1934, and 1936 during the extreme heat which prevailed in July in 1930, 1934, and 1936 and in June in 1931, is shown by the greatly heightened death rate curves. The chart shows very clearly that the death rates are not only lowest in summer but are the least variable at that season.

#### SUMMARY

By plotting weekly morbidity reports over a period of years it is possible to determine the seasonal prevalence picture and the trends



of several communicable diseases, notably, diphtheria, measles, scarlet fever, influenza, and poliomyelitis and, to a less extent, meningococcus meningitis and smallpox. The same information can be obtained through the use of median endemic indexes, thereby eliminating many confusing curves converging and falling for a period in close proximity.

Patterns and trends such as those indicated, while not susceptible of use in accurate forecasting, may be helpful as an index to expectancies and serve a useful purpose in warning health workers of needed action.

**DEATHS DURING WEEK ENDED APRIL 17, 1937**

(From the Weekly Health Index, issued by the Bureau of the Census, Department of Commerce)

	Week ended Apr. 17, 1937	Correspond- ing week, 1936
<b>Data from 86 large cities in the United States:</b>		
Total deaths.....	9,122	9,423
Average for 3 prior years.....	8,840	-----
Total deaths, first 15 weeks of year.....	151,360	146,313
Deaths under 1 year of age.....	594	556
Average for 3 prior years.....	610	-----
Deaths under 1 year of age, first 15 weeks of year.....	9,371	8,817
<b>Data from industrial insurance companies:</b>		
Policies in force.....	69,693,853	68,409,589
Number of death claims.....	14,545	13,836
Death claims per 1,000 policies in force, annual rate.....	10.9	10.6
Death claims per 1,000 policies, first 15 weeks of year, annual rate.....	11.5	11.0

# 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

### CURRENT WEEKLY STATE REPORTS

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers

*Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended Apr. 24, 1937, and Apr. 25, 1936*

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Apr. 24, 1937	Week ended Apr. 25, 1936	Week ended Apr. 24, 1937	Week ended Apr. 25, 1936	Week ended Apr. 24, 1937	Week ended Apr. 25, 1936	Week ended Apr. 24, 1937	Week ended Apr. 25, 1936
<b>New England States:</b>								
Maine.....	2		1	60	21	72	0	1
New Hampshire.....					26	44	0	0
Vermont.....					1	496	0	0
Massachusetts.....	2	6			621	1,400	5	4
Rhode Island.....					194	72	1	1
Connecticut.....	4	1	4	4	632	109	8	1
<b>Middle Atlantic States:</b>								
New York.....	62	40	110	115	1,152	3,454	8	22
New Jersey.....	17	15	7	19	2,082	360	2	15
Pennsylvania.....	28	24			1,112	1,014	8	9
<b>East North Central States:</b>								
Ohio.....	6	17	23	26	1,041	209	1	11
Indiana.....	5	5	13	78	400	21	1	3
Illinois.....	25	25	64	66	188	30	5	22
Michigan.....	20	1	1	6	138	102	2	2
Wisconsin.....	4	1	52	40	34	81	2	5
<b>West North Central States:</b>								
Minnesota.....	1				23	382	1	0
Iowa.....	4	7	51	7	12	1	0	1
Missouri.....	21	17	92	465	56	82	6	4
North Dakota.....	4		27	7	2		1	0
South Dakota.....							5	0
Nebraska.....	1	10			18	13	4	1
Kansas.....	2	11	4	47	47	16	0	1
<b>South Atlantic States:</b>								
Delaware.....	1				67	17	1	0
Maryland.....	14	6	11	11	606	330	4	18
District of Columbia.....	2	13	1	2	107	121	2	4
Virginia.....	9	12		235	617	112	7	11
West Virginia.....	7	9	33	90	108	76	4	13
North Carolina.....	12	20	30	28	133	44	13	2
South Carolina.....	5	3	388	264	64	44	1	2
Georgia.....	3	9	131	170			1	3
Florida.....	1	6		31		18	14	5
<b>East South Central States:</b>								
Kentucky.....	2	9	15	278	375	310	28	62
Tennessee.....	10	12	48	395	36	90	4	7
Alabama.....	9	18	151	333	35	5	18	3
Mississippi.....	5	5					0	1

See footnotes at end of table.



*Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended Apr. 24, 1937, and Apr. 25, 1936—Continued*

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Apr. 24, 1937	Week ended Apr. 25, 1936	Week ended Apr. 24, 1937	Week ended Apr. 25, 1936	Week ended Apr. 24, 1937	Week ended Apr. 25, 1936	Week ended Apr. 24, 1937	Week ended Apr. 25, 1936
West South Central States:								
Arkansas.....	1	10	107	352	1	-----	1	2
Louisiana.....	15	8	18	99	8	49	5	0
Oklahoma.....	12	8	108	490	77	22	1	5
Texas.....	46	43	564	481	811	246	4	9
Mountain States:								
Montana.....	-----	3	6	21	19	17	1	2
Idaho.....	-----	1	10	-----	71	63	0	0
Wyoming.....	-----	-----	-----	1	11	3	0	1
Colorado.....	7	4	-----	-----	6	38	1	0
New Mexico.....	5	2	2	6	134	42	1	1
Arizona.....	3	2	29	119	165	134	0	2
Utah.....	-----	1	-----	-----	24	16	0	0
Pacific States:								
Washington.....	-----	-----	-----	2	52	327	0	0
Oregon.....	-----	3	18	59	10	225	2	0
California.....	50	26	98	74	293	2,841	5	10
Total.....	447	442	2,117	4,398	11,630	13,103	169	267
First 16 weeks of year.....	8,084	9,059	264,910	124,872	115,783	151,488	2,709	3,946

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Apr. 24, 1937	Week ended Apr. 25, 1936	Week ended Apr. 24, 1937	Week ended Apr. 25, 1936	Week ended Apr. 24, 1937	Week ended Apr. 25, 1936	Week ended Apr. 24, 1937	Week ended Apr. 25, 1936
New England States:								
Maine.....	0	0	26	9	0	0	1	0
New Hampshire.....	0	0	6	7	0	0	0	2
Vermont.....	0	0	9	7	0	0	0	1
Massachusetts.....	0	0	245	252	0	0	9	0
Rhode Island.....	0	0	46	33	0	0	1	0
Connecticut.....	0	0	163	57	0	0	0	3
Middle Atlantic States:								
New York.....	0	0	1,026	834	0	0	5	9
New Jersey.....	0	0	205	354	0	0	4	3
Pennsylvania.....	0	2	589	539	0	0	7	21
East North Central States:								
Ohio.....	0	1	229	281	0	0	6	10
Indiana.....	0	0	160	219	19	0	1	0
Illinois.....	0	0	814	823	55	3	3	4
Michigan.....	0	0	816	252	1	1	2	3
Wisconsin.....	1	0	305	507	4	5	2	1
West North Central States:								
Minnesota.....	0	0	158	307	22	5	0	0
Iowa.....	1	0	271	254	34	40	2	0
Missouri.....	0	0	405	253	74	15	3	1
North Dakota.....	0	0	32	45	58	12	1	1
South Dakota.....	0	0	59	49	7	28	0	0
Nebraska.....	1	0	195	122	12	22	0	0
Kansas.....	0	0	289	468	20	23	0	0
South Atlantic States:								
Delaware.....	0	0	6	3	0	0	0	0
Maryland.....	0	0	58	76	0	0	4	0
District of Columbia.....	0	0	18	18	0	0	1	0
Virginia.....	0	0	8	68	0	0	1	5
West Virginia.....	2	1	59	41	1	0	1	3
North Carolina.....	0	1	41	28	1	0	2	1
South Carolina.....	0	0	1	2	0	0	1	1
Georgia.....	0	0	6	10	0	0	3	3
Florida.....	0	0	42	5	0	0	2	2

See footnotes at end of table.

*Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended Apr. 24, 1937, and Apr. 25, 1936—Continued*

Division and State	Polio-myelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Apr. 24, 1937	Week ended Apr. 25, 1936	Week ended Apr. 24, 1937	Week ended Apr. 25, 1936	Week ended Apr. 24, 1937	Week ended Apr. 25, 1936	Week ended Apr. 24, 1937	Week ended Apr. 25, 1936
<b>East South Central States:</b>								
Kentucky.....	0	0	60	47	0	0	4	4
Tennessee.....	0	0	30	27	0	0	1	2
Alabama <sup>1</sup> .....	0	1	10	5	0	0	0	4
Mississippi <sup>2</sup> .....	3	0	1	2	0	0	0	0
<b>West South Central States:</b>								
Arkansas.....	0	1	13	8	5	1	3	1
Louisiana.....	0	0	13	5	0	1	6	1
Oklahoma <sup>4</sup> .....	0	0	41	52	3	0	11	4
Texas <sup>5</sup> .....	5	0	123	39	7	0	7	4
<b>Mountain States:</b>								
Montana.....	0	0	25	99	14	7	2	0
Idaho <sup>3</sup> .....	0	0	27	45	3	1	0	0
Wyoming.....	0	0	5	24	2	6	0	0
Colorado.....	0	0	40	102	9	0	1	0
New Mexico.....	1	0	44	59	0	0	3	3
Arizona.....	2	0	19	28	0	0	0	0
Utah <sup>3</sup> .....	0	0	22	66	0	2	0	0
<b>Pacific States:</b>								
Washington.....	1	0	26	90	14	10	1	2
Oregon <sup>3</sup> .....	0	0	30	37	19	53	0	4
California.....	2	3	202	311	14	0	6	14
<b>Total.....</b>	<b>19</b>	<b>10</b>	<b>7, 018</b>	<b>6, 982</b>	<b>399</b>	<b>235</b>	<b>107</b>	<b>117</b>
First 16 weeks of year.....	355	259	110, 251	125, 198	5, 097	3, 558	1, 751	1, 697

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

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

<sup>3</sup> Typhus fever, week ended Apr. 24, 1937, 28 cases, as follows: North Carolina, 2; Georgia, 13; Alabama, 5; Texas, 8.

<sup>4</sup> Exclusive of Oklahoma City and Tulsa.

<sup>5</sup> Rocky Mountain spotted fever, week ended Apr. 24, 1937, 6 cases, as follows: Idaho, 3; Oregon, 3.

## SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of cases reported monthly by States is published weekly and covers only those States from which reports are received during the current week:

State	Menin- gococ- cus menin- gitis	Diph- theria	Influ- enza	Mala- ria	Mea- sles	Pei- lagra	Polio- mye- litis	Scarlet fever	Small- pox	Ty- phoid fever
<i>March 1937</i>										
Alabama.....	55	48	7, 731	82	69	15	4	58	0	8
Georgia.....	9	40	4, 154	278	54	29	2	86	1	7
Illinois.....	26	179	431	9	268	1	9	3, 705	141	19
Indiana.....	12	50	357	-----	172	-----	2	1, 016	17	3
Iowa.....	4	15	45	1	12	-----	4	1, 585	150	3
Kansas.....	8	40	226	1	68	-----	0	1, 762	165	3
Louisiana.....	23	73	785	39	205	3	1	42	11	37
Maine.....	5	5	328	-----	84	-----	0	94	0	3
Missouri.....	14	89	1, 212	13	70	-----	0	1, 907	355	18
New York.....	53	153	-----	4	3, 092	-----	2	4, 582	5	26
North Dakota.....	1	5	3	-----	6	-----	0	174	29	0
Oklahoma <sup>1</sup> .....	30	34	913	15	115	7	1	118	13	12
Oregon.....	3	1	191	1	29	-----	2	108	119	5
South Dakota.....	5	-----	25	-----	12	-----	0	325	7	2
Texas.....	41	171	8, 697	1, 060	1, 957	76	9	433	14	48
Washington.....	12	10	46	-----	167	-----	1	145	48	10

<sup>1</sup> Exclusive of Oklahoma City and Tulsa.

## Summary of monthly reports from States—Continued

March 1937	Cases	March 1937—Continued	Cases	March 1937—Continued	Cases
<b>Anthrax:</b>		<b>Impetigo contagiosa:</b>		<b>Tetanus:</b>	
New York.....	2	Kansas.....	2	Georgia.....	1
<b>Botulism:</b>		Oregon.....	38	Illinois.....	2
Oregon.....	1	Washington.....	3	Louisiana.....	3
<b>Chicken pox:</b>		<b>Jaundice, infectious:</b>		New York.....	1
Alabama.....	180	Oregon.....	6	<b>Trachoma:</b>	
Georgia.....	163	<b>Lead poisoning:</b>		Alabama.....	1
Illinois.....	1,917	Illinois.....	2	Illinois.....	3
Indiana.....	446	<b>Mumps:</b>		Missouri.....	10
Iowa.....	285	Alabama.....	210	Oklahoma <sup>1</sup> .....	9
Kansas.....	663	Georgia.....	285	Oregon.....	3
Louisiana.....	70	Illinois.....	803	Washington.....	14
Maine.....	284	Indiana.....	222	<b>Trichinosis:</b>	
Missouri.....	393	Iowa.....	154	Illinois.....	1
New York.....	4,003	Kansas.....	1,312	New York.....	22
North Dakota.....	43	Louisiana.....	38	<b>Tularaemia:</b>	
Oklahoma <sup>1</sup> .....	33	Maine.....	371	Alabama.....	5
Oregon.....	128	Missouri.....	148	Georgia.....	12
South Dakota.....	46	North Dakota.....	6	Illinois.....	9
Texas.....	928	Oklahoma <sup>1</sup> .....	14	Louisiana.....	7
Washington.....	914	Oregon.....	96	Missouri.....	2
<b>Conjunctivitis:</b>		South Dakota.....	5	Texas.....	5
Georgia.....	8	Texas.....	1,514	<b>Typhus fever:</b>	
Oklahoma <sup>1</sup> .....	1	Washington.....	607	Alabama.....	12
<b>Dengue:</b>		<b>Ophthalmia neonatorum:</b>		Georgia.....	41
Texas.....	19	Alabama.....	2	New York.....	1
<b>Dysentery:</b>		Illinois.....	8	Texas.....	21
Georgia (amoebic).....	29	Kansas.....	1	<b>Undulant fever:</b>	
Georgia (bacillary).....	2	Louisiana.....	1	Alabama.....	1
Illinois (amoebic).....	6	New York <sup>2</sup> .....	8	Georgia.....	4
Illinois (amoebic carriers).....	7	<b>Paratyphoid fever:</b>		Illinois.....	4
Illinois (bacillary).....	11	Georgia.....	1	Indiana.....	1
Iowa (bacillary).....	1	Illinois.....	4	Iowa.....	12
Kansas (amoebic).....	3	New York.....	5	Kansas.....	2
Kansas (bacillary).....	1	Texas.....	1	Louisiana.....	1
Louisiana (amoebic).....	13	Washington.....	3	Maine.....	2
Maine.....	1	<b>Puerperal septicemia:</b>		Missouri.....	1
New York (amoebic).....	6	Georgia.....	2	New York.....	10
New York (bacillary).....	49	Illinois.....	1	Oklahoma <sup>1</sup> .....	5
Oklahoma <sup>1</sup> .....	4	<b>Rabies in animals:</b>		Texas.....	7
Oregon (amoebic).....	1	Alabama.....	99	Washington.....	2
Oklahoma <sup>1</sup> .....	10	Illinois.....	36	<b>Vincent's infection:</b>	
Texas (bacillary).....	1	Indiana.....	48	Illinois.....	52
Washington (bacillary).....	1	Louisiana.....	37	Kansas.....	1
<b>Encephalitis, epidemic or</b>		Maine.....	1	Maine.....	5
<b>lethargic:</b>		Missouri.....	2	Missouri.....	136
Alabama.....	2	New York <sup>2</sup> .....	6	New York <sup>2</sup> .....	74
Georgia.....	1	Oregon.....	4	North Dakota.....	1
Illinois.....	4	Texas.....	6	Oklahoma <sup>1</sup> .....	2
Indiana.....	1	Washington.....	21	Oregon.....	2
Kansas.....	2	<b>Rocky Mountain spotted</b>		Washington.....	1
New York.....	10	<b>fever:</b>		<b>Whooping cough:</b>	
Oklahoma <sup>1</sup> .....	1	Oregon.....	3	Alabama.....	153
South Dakota.....	1	<b>Scabies:</b>		Georgia.....	94
Texas.....	5	Kansas.....	13	Illinois.....	862
Washington.....	1	Oregon.....	52	Indiana.....	263
<b>Favus:</b>		<b>Septic sore throat:</b>		Iowa.....	211
Georgia.....	1	Georgia.....	51	Kansas.....	232
<b>German measles:</b>		Illinois.....	14	Louisiana.....	40
Alabama.....	1	Kansas.....	17	Maine.....	186
Illinois.....	54	Louisiana.....	7	Missouri.....	663
Kansas.....	16	Missouri.....	47	New York.....	1,721
Maine.....	16	New York.....	82	North Dakota.....	14
New York.....	189	Oklahoma <sup>1</sup> .....	36	Oklahoma <sup>1</sup> .....	26
Washington.....	43	Oregon.....	14	Oregon.....	123
<b>Hookworm disease:</b>		South Dakota.....	2	South Dakota.....	3
Georgia.....	2,300	Washington.....	3	Texas.....	737
Louisiana.....	12			Washington.....	275

<sup>1</sup> Exclusive of Oklahoma City and Tulsa.<sup>2</sup> Exclusive of New York City.

## WEEKLY REPORTS FROM CITIES

City reports for week ended Apr. 17, 1937

This table summarizes the reports received weekly from a selected list of 140 cities for the purpose of showing a cross section of the current urban incidence of the communicable diseases listed in the table. Weekly reports are received from about 700 cities, from which the data are tabulated and filed for reference.

State and city	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Small-pox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
		Cases	Deaths								
Data for 90 cities: 5-year average.....	219	313	93	7,773	812	2,599	24	436	26	1,522	-----
Current week.....	153	128	69	3,709	855	2,729	41	383	23	1,533	-----
<b>Maine:</b>											
Portland.....	0	-----	0	0	2	5	0	0	0	6	35
<b>New Hampshire:</b>											
Concord.....	0	-----	0	0	2	1	0	0	0	0	14
Manchester.....	0	-----	1	9	1	4	0	0	0	0	28
Nashua.....	0	-----	0	2	1	1	0	0	0	1	5
<b>Vermont:</b>											
Barre.....	0	-----	0	0	0	3	0	0	0	3	1
Rutland.....	0	-----	0	0	0	0	0	0	0	0	6
<b>Massachusetts:</b>											
Boston.....	0	-----	2	32	23	73	0	12	0	58	269
Fall River.....	0	-----	1	18	1	1	0	0	0	5	30
Springfield.....	0	-----	0	3	3	5	0	0	0	15	42
Worcester.....	0	-----	0	86	7	7	0	0	0	19	66
<b>Rhode Island:</b>											
Pawtucket.....	0	-----	0	4	0	3	0	0	0	2	17
Providence.....	2	-----	0	171	4	41	0	4	0	15	74
<b>Connecticut:</b>											
Bridgeport.....	0	-----	0	14	2	51	0	0	0	0	34
Hartford.....	0	-----	0	2	3	11	0	1	0	5	43
New Haven.....	0	-----	0	1	5	11	0	2	0	8	54
<b>New York:</b>											
Buffalo.....	1	-----	1	114	14	14	0	8	0	27	125
New York.....	40	23	6	450	138	485	0	82	3	75	1,668
Rochester.....	0	-----	0	2	7	6	0	1	0	7	64
Syracuse.....	0	-----	1	13	4	33	0	2	0	26	62
<b>New Jersey:</b>											
Camden.....	2	1	1	1	5	6	0	2	0	13	47
Newark.....	0	2	0	616	14	34	0	5	0	22	91
Trenton.....	0	-----	1	1	4	8	0	1	0	0	41
<b>Pennsylvania:</b>											
Philadelphia.....	4	6	5	36	48	271	0	28	0	66	521
Pittsburgh.....	3	6	3	69	34	49	0	4	1	11	198
Reading.....	0	-----	0	313	2	23	0	2	0	10	33
Scranton.....	1	-----	-----	0	-----	16	0	-----	0	1	-----
<b>Ohio:</b>											
Cincinnati.....	3	-----	1	212	18	17	0	2	0	9	137
Cleveland.....	2	6	2	157	31	82	0	10	0	47	210
Columbus.....	1	-----	0	10	3	17	0	3	0	16	79
Toledo.....	0	2	2	152	6	4	0	4	0	45	84
<b>Indiana:</b>											
Anderson.....	0	-----	0	1	2	13	0	0	0	0	10
Fort Wayne.....	1	-----	0	0	0	5	0	0	0	0	27
Indianapolis.....	8	-----	2	128	16	33	1	1	0	36	124
Muncie.....	0	-----	0	0	0	4	0	1	0	2	11
South Bend.....	0	-----	0	1	2	4	0	0	0	7	22
Terre Haute.....	3	-----	0	1	0	0	1	0	0	0	24
<b>Illinois:</b>											
Alton.....	0	-----	0	0	0	11	0	1	0	0	11
Chicago.....	6	9	3	73	63	328	0	39	0	70	748
Elgin.....	2	-----	0	0	2	2	0	2	0	6	11
Moline.....	0	-----	0	3	2	2	0	0	0	2	11
Springfield.....	0	-----	0	0	1	8	0	1	0	8	28
<b>Michigan:</b>											
Detroit.....	7	-----	4	12	45	382	0	19	1	82	289
Flint.....	1	-----	0	0	10	23	0	2	0	7	31
Grand Rapids.....	0	-----	1	48	2	11	0	0	1	30	39
<b>Wisconsin:</b>											
Kenosha.....	1	-----	0	1	2	6	0	0	0	2	6
Madison.....	0	-----	0	0	1	15	0	1	0	4	28
Milwaukee.....	0	2	2	5	13	66	0	4	0	18	121
Racine.....	0	-----	0	1	0	13	0	1	0	1	15
Superior.....	0	-----	0	0	1	6	0	0	0	4	9
<b>Minnesota:</b>											
Duluth.....	0	-----	0	2	3	21	0	4	0	3	29
M'neapolis.....	4	-----	6	1	9	19	0	3	0	54	91
St. Paul.....	0	2	2	2	4	13	0	2	0	152	57

## City reports for week ended Apr. 17, 1937—Continued

State and city	Diph- theria cases	Influenza		Meas- les cases	Pneu- monia deaths	Scar- let fever cases	Small- pox cases	Tuber- culosis deaths	Ty- phoid fever cases	Whoop- ing cough cases	Deaths, all causes
		Cases	Deaths								
<b>Iowa:</b>											
Cedar Rapids.....	0			0		2	0		0	0	
Davenport.....	0			0		1	0		0	0	
Des Moines.....	0			1		42	0		0	1	44
Sioux City.....	0		0	0	0	17	0	0	0	1	
Waterloo.....	1			0		12	0		1	12	
<b>Missouri:</b>											
Kansas City.....	0		1	2	12	107	1	3	0	25	109
St. Joseph.....	0		0	0	7	23	22	0	0	0	25
St. Louis.....	12	1	3	2	15	153	1	4	3	93	230
<b>North Dakota:</b>											
Fargo.....	0		0	0	1	2	10	0	0	0	17
Grand Forks.....	0			0		0	0		0	5	
Minot.....	1		0	1	0	0	1	0	0	0	5
<b>South Dakota:</b>											
Aberdeen.....	0			0		1	0		0	0	
Sioux Falls.....	0		0	0	0	0	0	0	0	0	8
<b>Nebraska: Omaha.....</b>	0		0	0	5	8	3	0	1	11	46
<b>Kansas:</b>											
Lawrence.....	0		0	0	0	1	0	0	0	0	14
Topeka.....	1		0	0	0	11	0	0	0	10	16
Wichita.....	0		0	29	1	9	4	1	0	26	34
<b>Delaware:</b>											
Wilmington.....	2		0	3	4	6	0	0	0	0	34
<b>Maryland:</b>											
Baltimore.....	6	6	3	576	30	30	0	15	0	72	237
Cumberland.....	0		0	0	1	1	0	0	0	0	11
Frederick.....	0		0	7	0	1	0	1	0	0	5
<b>District of Columbia:</b>											
Washington.....	4		1	94	14	21	0	12	2	11	175
<b>Virginia:</b>											
Lynchburg.....	1		1	4	3	0	0	0	0	12	22
Norfolk.....	0		0	0	5	3	0	1	0	7	25
Richmond.....	2		1	0	5	5	0	2	1	3	65
Roanoke.....	0		0	199	3	0	0	2	0	0	18
<b>West Virginia:</b>											
Charleston.....	0		0	0	5	6	0	1	0	2	24
Huntington.....	1			1		5	0		0	0	
Wheeling.....	0		0	4	5	1	0	0	0	11	19
<b>North Carolina:</b>											
Gastonia.....	0		0	0	0	0	0	0	0	0	
Raleigh.....	0		0	2	3	1	0	0	0	0	18
Wilmington.....	0		0	2	5	0	0	0	0	0	13
Winston-Salem.....	1		0	1	4	2	0	0	0	0	15
<b>South Carolina:</b>											
Charleston.....	1	10	0	0	4	1	0	1	0	0	25
Florence.....	0		0	0	1	0	0	0	0	0	5
Greenville.....	1		0	0	0	0	0	0	0	0	10
<b>Georgia:</b>											
Atlanta.....	1	22	1	1	5	3	0	2	1	2	62
Brunswick.....	0		0	0	1	0	0	0	0	2	5
Savannah.....	1	11	1	0	6	2	0	3	0	0	33
<b>Florida:</b>											
Miami.....	0	6	0	3	2	2	0	2	3	0	39
Tampa.....	0	1	1	0	2	0	0	0	1	1	25
<b>Kentucky:</b>											
Ashland.....	0	1	1	33	8	0	0	1	0	0	21
Covington.....	0	1	0	14	1	1	0	1	1	0	14
Lexington.....	0		0	6	2	2	0	2	0	10	22
Louisville.....	0	11	0	19	13	19	0	2	0	36	99
<b>Tennessee:</b>											
Knoxville.....	0		3	0	2	0	0	0	2	0	21
Memphis.....	2		1	4	14	4	0	11	0	27	107
Nashville.....	0		0	0	9	4	0	0	0	7	56
<b>Alabama:</b>											
Birmingham.....	1	7	1	5	9	1	0	1	0	4	68
Mobile.....	0	1	0	0	6	0	0	0	0	2	31
Montgomery.....	0	4		0		0	0		0	2	
<b>Arkansas:</b>											
Fort Smith.....	0			0		0	0		0	3	
Little Rock.....	0		0	0	7	5	0	4	0	0	12
<b>Louisiana:</b>											
Lake Charles.....	0		0	0	1	0	0	0	1	0	4
New Orleans.....	6	1	6	2	18	9	0	11	4	1	156
Shreveport.....	2		0	0	7	0	0	0	0	2	51
<b>Oklahoma:</b>											
Muskogee.....	1			0		0	0		0	0	
Oklahoma City.....	0		0	12	12	8	1	1	0	0	39
Tulsa.....	0			3		9	0		0	3	

## City reports for week ended Apr. 17, 1937—Continued

State and city	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Small-pox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
		Cases	Deaths								
<b>Texas:</b>											
Dallas.....	0	2	1	70	8	10	0	4	0	15	61
Fort Worth.....	0		1	20	8	12	0	3	0	3	56
Galveston.....	0		0	0	4	1	0	0	0	0	18
Houston.....	9		0	0	17	5	0	3	0	4	87
San Antonio.....	3		1	10	5	0	0	11	1	0	55
<b>Montana:</b>											
Billings.....	1		0	2	1	3	0	0	0	0	11
Great Falls.....	0		0	0	1	0	0	0	0	2	5
Helena.....	0		0	0	0	8	0	0	0	0	5
Missoula.....	0		0	0	2	0	0	0	0	0	8
<b>Idaho:</b>											
Boise.....	0		0	0	0	1	0	0	0	0	7
<b>Colorado:</b>											
Colorado Springs.....	0		0	1	3	9	1	2	0	0	14
Denver.....	6		0	3	10	19	1	5	0	47	85
Pueblo.....	0	1	0	0	0	0	0	0	0	6	6
<b>New Mexico:</b>											
Albuquerque.....	0		0	6	1	5	0	1	0	9	7
<b>Utah:</b>											
Salt Lake City.....	0		0	22	2	9	0	1	0	17	31
<b>Washington:</b>											
Seattle.....	0		1	2	6	3	1	9	0	22	129
Spokane.....	0	1	1	6	2	5	0	1	0	5	29
Tacoma.....	0		0	0	5	1	0	0	0	0	26
<b>Oregon:</b>											
Portland.....	0		1	3	4	11	6	0	0	5	83
Salem.....	0	1		0		1	0		0	1	
<b>California:</b>											
Los Angeles.....	5	5	0	19	22	26	5	21	2	117	334
Sacramento.....	1		0	31	6	6	0	2	0	0	35
San Francisco.....	1	1	0	2	8	24	0	7	1	37	183

State and city	Meningococcus meningitis		Polio-myelitis cases	State and city	Meningococcus meningitis		Polio-myelitis cases
	Cases	Deaths			Cases	Deaths	
<b>Maine:</b>				<b>Virginia:</b>			
Portland.....	0	1	0	Richmond.....	0	2	0
<b>Massachusetts:</b>				<b>North Carolina:</b>			
Boston.....	7	0	0	Wilmington.....	3	1	0
Springfield.....	1	1	0	<b>South Carolina:</b>			
<b>Rhode Island:</b>				Charleston.....	0	0	1
Providence.....	1	1	0	<b>Georgia:</b>			
<b>New York:</b>				Savannah.....	1	0	0
New York.....	7	5	2	<b>Florida:</b>			
Rochester.....	0	0	1	Miami.....	4	2	0
<b>Pennsylvania:</b>				Tampa.....	1	0	0
Pittsburgh.....	1	1	0	<b>Kentucky:</b>			
<b>Ohio:</b>				Louisville.....	1	1	0
Cincinnati.....	5	3	0	<b>Tennessee:</b>			
Cleveland.....	2	1	0	Memphis.....	2	1	0
<b>Indiana:</b>				<b>Alabama:</b>			
Indianapolis.....	1	0	0	Birmingham.....	4	3	0
Muncie.....	0	1	0	Mobile.....	0	1	0
<b>Illinois:</b>				<b>Arkansas:</b>			
Alton.....	0	1	0	Little Rock.....	0	1	0
Chicago.....	3	1	1	<b>Louisiana:</b>			
<b>Michigan:</b>				Lake Charles.....	1	0	0
Detroit.....	2	0	0	New Orleans.....	1	0	0
<b>Wisconsin:</b>				Shreveport.....	1	0	0
Milwaukee.....	1	0	0	<b>Oklahoma:</b>			
<b>Minnesota:</b>				Oklahoma City.....	1	0	0
Minneapolis.....	0	1	0	Tulsa.....	1	0	0
<b>Missouri:</b>				<b>Texas:</b>			
St. Joseph.....	1	0	0	Fort Worth.....	0	0	1
<b>Delaware:</b>				Houston.....	1	0	0
Wilmington.....	0	1	0	San Antonio.....	0	0	2
<b>Maryland:</b>				<b>California:</b>			
Baltimore.....	3	1	0	Los Angeles.....	0	1	1
<b>District of Columbia:</b>				San Francisco.....	0	1	0
Washington.....	3	2	1				

*Encephalitis, epidemic or lethargic.*—Cases: Providence, 1; New York, 7; Mobile, 1.

*Pellagra.*—Cases: Baltimore, 1; Winston-Salem, 1; Charleston, S. C. 1; Savannah, 5; Birmingham, 1; New Orleans, 1; Los Angeles, 2.

*Typhus fever.*—Cases: Wilmington, N. C., 1; Montgomery, 1.

## FOREIGN AND INSULAR

### CUBA

*Habana—Communicable diseases—4 weeks ended April 10, 1937.*—During the 4 weeks ended April 10, 1937, certain communicable diseases were reported in Habana, Cuba, as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Diphtheria.....	29	1	Scarlet fever.....	5	-----
Malaria.....	138	2	Tuberculosis.....	14	2
Poliomyelitis.....	16	-----	Typhoid fever.....	139	8

<sup>1</sup> Includes imported cases.

### CZECHOSLOVAKIA

*Communicable diseases—February 1937.*—During the month of February 1937, certain communicable diseases were reported in Czechoslovakia as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Anthrax.....	1	-----	Paratyphoid fever.....	6	1
Cerebrospinal meningitis.....	13	4	Poliomyelitis.....	2	-----
Chicken pox.....	256	-----	Puerperal fever.....	35	16
Diphtheria.....	1,691	125	Scarlet fever.....	1,431	26
Dysentery.....	25	1	Trachoma.....	56	-----
Influenza.....	7,758	68	Typhoid fever.....	299	81
Malaria.....	9	-----	Typhus fever.....	12	-----

### JAMAICA

*Communicable diseases—4 weeks ended April 17, 1937.*—During the 4 weeks ended April 17, 1937, cases of certain communicable diseases were reported in Kingston, Jamaica, and in the island outside of Kingston, as follows:

Disease	Kingston	Other localities	Disease	Kingston	Other localities
Chicken pox.....	5	31	Puerperal fever.....	-----	3
Diphtheria.....	2	2	Scarlet fever.....	1	1
Dysentery.....	8	3	Tuberculosis.....	29	105
Erysipelas.....	1	1	Typhoid fever.....	8	61
Leprosy.....	-----	2			

**CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER**

NOTE.—A table giving current information of the world prevalence of quarantinable diseases appeared in the PUBLIC HEALTH REPORTS for Apr. 30, 1937, pp. 571-586. A similar cumulative table will appear in the PUBLIC HEALTH REPORTS to be issued May 28, 1937, and thereafter, at least for the time being, in the issue published on the last Friday of each month.

**Cholera**

*Philippine Islands—Manila.*—On April 23, 1937, 1 fatal case of cholera was reported in Manila, Philippine Islands.

**Plague**

*Dutch East Indies—Java—Batavia.*—During the week ended April 10, 1937, 1 imported case of plague was reported in Batavia, Java, Dutch East Indies.

*Hawaii Territory—Island of Hawaii—Hamakua District—Paauhau Sector.*—Two rats found on April 22, 1937, in Paauhau Sector, Hamakua District, Island of Hawaii, Hawaii Territory, have been found plague-infected.

*Malta—Rabat.*—A report dated April 20, 1937, states that 1 case of plague was reported in Rabat, Malta, about 5 miles from the port of Valletta.

**Smallpox**

*Mexico.*—During the month of January 1937, smallpox was reported in Mexico as follows: Aguascalientes, Aguascalientes State, 1 case; Ciudad Juarez, Chihuahua State, 9 cases; Coahuila State, 1 case; Guadalajara, Jalisco State, 1 case; Mexico, D. F., 12 cases, 5 deaths; Morelos State, 4 cases; Nayarit State, 1 case; Puebla, Puebla State, 1 case; San Luis Potosi, San Luis Potosi State, 1 case; Tamaulipas State, 8 cases.

**Typhus Fever**

*Mexico.*—During the month of January 1937, typhus fever was reported in Mexico as follows: Aguascalientes, Aguascalientes State, 2 cases, 1 death; Toluca, Mexico State, 8 cases, 1 death; Mexico, D. F., 14 cases, 6 deaths; Puebla, Puebla State, 7 cases; Queretaro, Queretaro State, 1 case; San Luis Potosi, San Luis Potosi State, 7 cases, 1 death.

**Yellow Fever**

*Brazil.*—Yellow fever has been reported in Brazil as follows: Tres Lagoas, Matto Grosso State, 1 death, Mar. 16. Minas Geraes State—Campos Geraes, 1 death, Mar. 4; Conceicao da Aparecida (first appearance) 1 death, Mar. 3.

*French Equatorial Africa—Brazzaville.*—On April 19, 1937, 1 death from suspected yellow fever was reported in Brazzaville, French Equatorial Africa.