

PUBLIC HEALTH REPORTS

VOL. 49

MAY 4, 1934

NO. 18

INTRAVENOUS USE OF COPPER SULPHATE COMBINED WITH SODIUM THIOSULPHATE IN TREATMENT OF TRACHOMA

By C. E. RICE, *Surgeon*, A. A. DRAKE, *Acting Assistant Surgeon*, and J. E. SMITH, *Acting Assistant Surgeon, United States Public Health Service*

In 1928 Emanuel Stastnik, of Czechoslovakia, reported very favorably (1) on the use of copper sulphate ($\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$) mixed with sodium thiosulphate, both locally and intravenously, in the treatment of trachoma. The maximum dose of copper sulphate in this combination for intravenous use as reported by him was 100 mg. The weights of patients were not stated. This meant 100 mg of copper sulphate combined with 1,000 mg of sodium thiosulphate. He termed the resulting combination copper thiosulphate.

Stastnik reported again in 1931 (2) concerning his further experience with copper thiosulphate in the treatment of trachoma. He recorded some striking results, all very favorable. In this article he advocated maximum doses of 200 mg of copper sulphate ($\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$) combined with 2,000 mg of sodium thiosulphate. His intravenous injections were given at 4- and 5-day intervals. Weights of patients were not recorded. He considered 10 to 15 injections a course.

Because of these favorable reports it was decided to try out this form of therapy at the Trachoma Hospital at Rolla, Mo. Complete translations of Stastnik's articles were furnished us by Dr. Georgiana Dvorak-Theobald, of Chicago. Dr. Theobald informed us that she had tried out this form of therapy in 10 cases at the Illinois Eye and Ear Infirmary with favorable results (3).

The first group of patients receiving this therapy at the Trachoma Hospital at Rolla consisted of 9 cases of trachoma, 5 showing active lid and corneal lesions and 4 showing corneal lesions only with cicatricial lids. The youngest was 7 years of age and the oldest 35 years. The dosage of copper sulphate ($\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$) used in combination with sodium thiosulphate is recorded as milligrams of copper sulphate to each kilogram of body weight. The copper therapy of this group was approached rather carefully and started with 10- to 20-mg doses of copper sulphate mixed with 1,000 mg of sodium thiosulphate. Injections were given at 4-day intervals, and the amount of copper sulphate used in combination with sodium thiosulphate was gradu-

ally built up until a maximum of 80 mg of copper sulphate with 1,000 mg of sodium thiosulphate ($\text{Na}_2\text{S}_2\text{O}_3 \cdot 5\text{H}_2\text{O}$) was being given in some cases. A course consisted of 10 injections.

There were no unfavorable reactions in this series of 90 injections, the urinalysis remained negative, and the red blood cell count and hemoglobin were practically unchanged.

The copper sulphate and sodium thiosulphate were mixed just before the intravenous injection was given. The solution resulting from mixing these two chemicals is colorless, and there is a very low concentration of free copper ions. After the mixture stands for a few minutes, a white precipitate of sulphur settles out and the concentration of free copper ions is then much higher. The injection must be given before this white precipitate starts to form.

The tabulations of the cases presented herewith show the age, body weight, the maximum amount of copper sulphate, the amount of copper sulphate per kilogram of body weight, the change in lid and corneal pathology, and the symptomatic changes.

Series I

Case	Age	Body weight	Maximum amount of copper sulphate	Milli-grams of copper sulphate to each kilogram of body weight	Change in lid and corneal pathology	Symptomatic change
		<i>Kg</i>	<i>Mg</i>			
A. W.-----	25	86.3	40	0.46	No change.....	None.
L. S.-----	20	82.7	40	.49	Slightly worse.....	Improved.
E. K.-----	26	73.6	40	.54	Slight corneal improvement.....	Do.
M. A.-----	14	48.1	30	.62	No change in pathology.....	None.
L. D.-----	27	49.7	40	.82	No change.....	Do.
S. H.-----	48	46.3	40	.86	do.....	Improved.
D. L.-----	7	20.4	20	.9	Cornese and lids became worse.....	None.
J. M.-----	21	69.5	80	1.15	No change in pathology.....	Improved.
B. E.-----	35	63.1	80	1.26	Slight improvement in lid pathology. Cornea same.	Do.

From this series of cases we could not feel very much encouraged regarding the use of this form of therapy in trachoma as grattage had to be done on five of the cases following the course of treatment. The other four cases were of the corneal type, with the cicatricial lids. There was improvement of slight degree in corneal and lid pathology in only two cases. It should be stated that these trachoma eyes received no local treatment while under this form of therapy, as a properly controlled check on the effect of this intravenous medication was desired. The symptomatic improvement indicated in some of the cases in this series could have come from the improved hygienic surroundings of the patients.

Five other cases were treated with larger dosage of the copper sulphate in combination with sodium thiosulphate. Four of these showed marked lid activity, both of a papillary and granular nature,

together with corneal lesions. One showed only corneal activity with cicatricial lids.

These cases are tabulated as follows:

Series II

Case	Age	Body weight	Maximum dosage of copper sulphate	Milli-grams of copper sulphate to each kilogram of body weight	Change in lid and corneal pathology	Symptomatic change
W.C.-----	47	<i>Kg</i> 73.6	<i>Mg</i> 180	2.4	Corneae improved. Lids cicatricial.....	Improved.
W.S.-----	28	73.6	205	2.7	Lids and corneae improved.....	Do.
B.P.-----	21	66.8	205	3.06	No change.....	Do.
R.J. ¹ -----	33	63.6	205	3.2	Slight corneal and lid improvement.....	Do.
C.C.-----	17	49.5	205	4.1	Lids improved.....	Do.

¹ Returned 3 months later with another flare-up of trachoma.

Three of the cases in series II required grattage after finishing the course of 10 injections of copper thiosulphate. The most improvement was symptomatic. However, these cases showed more improvement in pathology than did those in series I.

In this latter group the amount of copper sulphate used in the combination started at 60 mg and was built up to 205 mg in 5 to 6 doses at 4-day intervals. The amount of sodium thiosulphate varied from 1,000 mg to 2,000 mg.

The rather remarkable finding in this group was the marked reduction in red blood cells and hemoglobin, probably due to excessive dosage of copper thiosulphate. The reduction in the red blood cell count varied from 15 percent to 30 percent. The loss of red blood cells was rapidly made good on stopping the copper therapy and placing the patient on an extranutritious diet.

In preparing the copper sulphate stock solution, the crystals of $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$ selected should be of a clear blue color, and should be sterilized in crystal form. Definite weights of the crystals were wrapped in paper and gauze and sterilized in a pressure sterilizer along with surgical dressings. The crystals become white in this process, owing to loss of water of crystallization. Their blue color becomes reestablished, however, on the addition of water. If sterilization is done after the crystals are dissolved in water, a marked precipitate of a light greenish color occurs, which is basic copper sulphate. The sodium thiosulphate crystals ($\text{Na}_2\text{S}_2\text{O}_3 \cdot 5\text{H}_2\text{O}$) can be dissolved in water and the solution then sterilized. This solution can be kept over a period of several weeks and used as needed. It was our practice to use a 10 percent stock solution of copper sulphate. Thus each cubic centimeter of this solution contained 100 mg of copper sulphate. A tuberculin syringe was used to measure out the proper

amount. The stock solution of sodium thiosulphate was of 20 percent strength, and so each cubic centimeter contained 200 mg of $\text{Na}_2\text{S}_2\text{O}_3 \cdot 5\text{H}_2\text{O}$. When using 100 mg or less of copper sulphate, 1,000 mg of sodium thiosulphate was mixed with it. The injection should be given immediately after mixing, since, as previously stated, a white precipitate starts to form within 3 or 4 minutes after mixing. This precipitate is free sulphur and indicates that the copper is becoming disassociated in the copper thiosulphate union. In using 200 mg of copper sulphate, 2,000 mg of sodium thiosulphate was mixed with it. On mixing the copper sulphate solution with the sodium thiosulphate solution, the blue color of copper sulphate should disappear immediately.

To characterize this therapy as the use of copper thiosulphate only is a mistake, since four different chemicals are being introduced into the blood stream. These are sodium tetrathionate ($\text{Na}_2\text{S}_4\text{O}_6$), sodium sulphate (Na_2SO_4), cuprous thiosulphate ($\text{Cu}_2\text{S}_2\text{O}_3$), and sodium thiosulphate ($\text{Na}_2\text{S}_2\text{O}_3$). When mixing 60 mg of copper sulphate with 1,000 mg of sodium thiosulphate, there results approximately 32.4 mg of sodium tetrathionate, 34 mg of sodium sulphate, 28 mg of cuprous thiosulphate, and an undetermined excess of sodium thiosulphate. It is probable, as Stastnik considers, that the active chemical is the cuprous thiosulphate.

CONCLUSIONS

1. A combination of copper sulphate with sodium thiosulphate was used intravenously in varying doses as a therapeutic measure in trachoma.

2. In the smaller doses no change was seen in the trachoma pathology. There was symptomatic improvement, however, in some cases.

3. In the larger doses there seemed to be some slight effect on the trachoma pathology as well as in symptoms.

4. In the larger doses advocated by Stastnik, there was an undesirable reduction in red blood cells and hemoglobin.

5. It would seem desirable for anyone experimenting further with this method of therapy to use caution in going above 1.25 mg of copper sulphate per kilogram of body weight in combination with sodium thiosulphate, and to keep a close check on the hemoglobin.

6. In none of our cases did we secure the striking beneficial results described by Stastnik in his cases.

7. This form of therapy did not cause any immediate untoward reactions after any of the intravenous injections, neither was there any undesirable effect on the kidneys that could be ascertained by frequent urinalysis.

8. It seems to us that the possible dangers of this form of therapy outweigh any slight benefits obtained from it. Certainly it does not compare with the older established methods of therapy.

ACKNOWLEDGMENTS

We wish to acknowledge our appreciation for much help rendered, to Dr. W. T. Schrenk, of the chemistry department of the Missouri School of Mines, and Dr. L. F. Yntema, of the chemistry department of St. Louis University Medical School.

REFERENCES

- (1) Stastnik, Emanuel: *Oft. Sbornik*, vol. III, 1929, pp. 195-201.
- (2) Stastnik, Emanuel: *Oft. Sbornik*, vol. VI, 1931, pp. 258-60.
- (3) Dvorak-Theobald, Georgiana: Personal communication, May 24, 1933.

MORTALITY IN CERTAIN STATES DURING 1933, WITH COMPARATIVE DATA FOR RECENT YEARS¹

For several years the United States Public Health Service has secured current mortality data from the State health departments of as many States as could furnish the information, and has published death rates for important causes. The rates are computed from preliminary reports, and, because of (a) some lack of uniformity in the method of classifying deaths according to cause, (b) some delayed death certificates, and (c) various other reasons, these preliminary rates cannot be expected to agree in all instances with final rates published by the Bureau of the Census. The final figures are based on a complete review and retabulation of the individual death certificates from each State. The preliminary rates given in the accompanying tables are intended to serve as a current index of mortality until final figures are available.

For purposes of comparison, the mortality rates for a few preceding years are given. These comparative rates are from the same source as are the current reports. Although final figures are often available for earlier years, the provisional figures are retained as being more comparable with current preliminary rates.

In table 1 the death rates for important causes for groups of States have been brought together. The majority of the rates are based on data from 28 States, with a population of nearly 95 million. The detailed tables show rates for each State. The summary table includes for each cause every State that is included for all five years in the detailed tables. While the rates in this group of States may not be the same as those for the total registration area, it is highly

¹ From the Office of Statistical Investigations, U.S. Public Health Service.

probable that the trend of the rates in these States will be comparable with the trend in the total area.

In considering the trend of the rates in the 5-year period shown in the tables it should be remembered that the mortality in 1929 was increased somewhat by the influenza epidemic of the winter of 1928-29. However, 1930 was free from any widespread epidemic, and such epidemics as occurred in 1931, 1932, and 1933 were of a minor character.

The death rate for all causes in the 27 States which could be grouped for this item was 10.5 in 1933, as compared with 10.8 and 11.0 in 1932 and 1931, respectively. Of these 27 States, 14 showed a decline in 1933 from 1932, 6 showed an increase, and 7 remained the same in both years.

In 25 States the infant mortality in 1933 was 56 per 1,000 live births, as compared with 57 and 60 for 1932 and 1931, respectively. Considering the individual States, 12 of the 25 States with data available for both years showed a decrease in 1933 as compared with 1932, with increases in 10 States and 3 States remaining the same.

In spite of the fact that 1933 represents the fourth year of the depression, the death rate from tuberculosis in the group of 28 States was only 57 per 1,000, as compared with 60 and 65 in 1932 and 1931, respectively. Of these 28 States, 24 showed a decline and only 4 an increase.

Typhoid fever continued a rather steady decline, being 2.6 per 100,000 for 1933 as compared with 3.2 and 3.8 for 1932 and 1931, respectively. Eighteen of the 28 States showed a decrease in 1933 as compared with 1932, 2 remained the same, and 8 had a higher rate in 1933 than in 1932. Diarrhea and enteritis was nearly the same this year as last. The deaths of children under 2 years of age amounted to 10.0 per 100,000 total population, as compared with 10.3 and 14.0 in 1932 and 1931, respectively. Of the 27 States with available data, 12 decreased, 13 increased and 2 States remained the same in 1933 as in 1932.

Influenza of apparently mild form was rather prevalent in December of 1932 and January of 1933. Minor epidemics also occurred in 1932 and 1931, but 1930 was free from any excess deaths from this cause. The deaths credited to influenza in 1933 amounted to 24 per 100,000, as compared with 28 and 26 in 1932 and 1931, respectively. All of these figures are above the 1930 rate but are distinctly less than that for 1929, when a more severe epidemic occurred. Mortality from pneumonia was less in 1933 than in preceding years, being 69 in 1933 as compared with 77 and 82 in 1932 and 1931, respectively. Considering both influenza and pneumonia, the mortality rate of 93 per 100,000 in 1933 is slightly less than in 1932 or 1931—105 and 107, respectively.

Of the 28 States, 22 had lower influenza rates and 23 had lower pneumonia rates in 1933 than in 1932.

Because of wave-like fluctuations that occur in the incidence of the communicable diseases of children, the comparison of one year with another means little as to the real trend of the mortality from these diseases. Diphtheria, which has been declining for many years, reached a new low level of 2.9 in these 28 States, as compared with 3.8 and 4.1 in 1932 and 1931, respectively. In both 1933 and 1932 the mortality from this much-dreaded disease was less than that from whooping cough.

The death rate from poliomyelitis was about the same in 1933 as in 1932, but less than in 1931 and 1930. In 1930 the disease was epidemic in certain States, and 1931 marked a considerable epidemic in the Eastern States, particularly in New York City. Fifteen of the 28 States had lower rates in 1933 than in 1932, 12 had higher rates, and in 1 State the 2 years were the same. Meningitis mortality was likewise low in 1933; 20 of the 28 States showed decreases in 1933, as compared with 1932.

The death rate from diabetes was about the same in 1933 as in 1932. In 13 of the 28 States there was a decrease in 1933, as compared with 1932, in 12 States an increase, with the other 3 States remaining the same in the 2 years.

Cancer continued its steady increase, the rate of 103 per 100,000 in 1933 being greater than in any other year included. Twenty-three of the 28 States increased in 1933, as compared with 1932.

Diseases of the heart continued to increase, 19 of the 26 States with available data having higher rates in 1933 than in 1932. The death rate for nephritis was slightly less in 1933 than in 1932. Of the 27 States with data available for both 1933 and 1932, 19 had a lower rate and 8 a higher rate in 1933 than in 1932. In 25 States with available data on cerebral hemorrhage, the rate in 1933 was about the same as in 1932. In 13 of these States there was a decrease and in 12 an increase in 1933 over 1932.

The year 1933 as a whole exhibits an exceptionally favorable mortality record. Table 2 shows death rates from specific causes in each quarter of the year for the 24 States with data available in 3-month periods. The first quarters of 1933, 1932, and 1931 all contain minor influenza epidemics. However, the death rate from all causes in this quarter was less in 1933 than in either of the preceding years. The rates for the second and third quarters were also lower in 1933 than in either 1932 or 1931. In the last quarter of 1933 the rate was less than in 1932 but more than in 1931. The last quarters of 1933 and 1931 were free from excess influenza mortality, but December of 1932 contained a part of the epidemic of 1932-33. The mortality situation

in the last quarter of 1933 was therefore not quite as favorable as in the first three quarters.

TABLE 1.—Summary of mortality from certain causes in a group of States, 1929–33¹

Diseases (numbers in parentheses are from the International List of Causes of Death, fourth revision, 1929)	1933	1932	1931	1930	1929
Death rate per 1,000 population					
27 States (population July 1, 1933: 93,015,000): All causes.....	10.5	10.8	11.0	11.2	11.8
Deaths under 1 year per 1,000 live births					
25 States (live births 1,398,252): Total infant mortality.....	56	57	60	62	66
19 States (live births 1,127,447): All infant mortality except malformation and early infancy.....	24	25	28	27	31
Deaths of mothers per 1,000 live births					
26 States (live births 1,434,711): Maternal mortality.....	5.6	5.9	6.2	6.2	6.4
Death rate per 100,000 population					
28 States (population July 1, 1933: 94,762,000):					
Typhoid fever (1, 2).....	2.6	3.2	3.8	4.0	3.6
Measles (7).....	1.6	1.5	2.5	2.9	2.4
Whooping cough (9).....	3.2	4.2	3.6	4.3	5.8
Scarlet fever (8).....	2.0	2.0	2.1	1.9	2.1
Diphtheria (10).....	2.9	3.8	4.1	4.6	6.4
Acute anterior poliomyelitis (16).....	.6	.7	1.9	1.1	.7
Meningococcus meningitis (18).....	1.0	1.3	2.1	3.1	3.9
Influenza (11).....	23.9	28.0	25.7	19.1	52.8
Pneumonia, all forms (107-109).....	69.4	77.4	82.0	83.2	92.5
Tuberculosis, all forms (23-32).....	55.5	60.4	64.8	68.2	72.8
Cancer (45-53).....	102.6	100.7	97.6	96.5	95.5
Diabetes (59).....	21.5	21.7	20.3	19.1	18.8
27 States (population July 1, 1933: 93,015,000):					
Diarrhea and enteritis under 2 years (119).....	10.0	10.3	14.0	17.9	16.5
Nephritis, all forms (130-132).....	80.8	84.4	83.7	88.0	90.7
26 States (population July 1, 1933: 89,744,000):					
Diseases of the heart (90-96).....	224.8	219.5	211.7	209.6	215.1
25 States (population July 1, 1933: 88,100,000):					
Cerebral hemorrhage, apoplexy (82, a, b).....	79.2	79.3	78.5	78.9	79.6

¹ See tables 3 and 4 for names of States included for each disease. The District of Columbia is counted as a State.

TABLE 2.—Mortality from certain causes in each quarter of 1933, 1932, and 1931, in the 24 States¹ with available data
 (Population July 1, 1933: 79,890,000)

Period	Death rate per 100,000 population (annual basis)										Rate per 1,000 live births																
	All causes, rate per 1,000 population	Total infant mortality	All except malformations and early infancy	Maternal mortality	Typhoid fever (1)	Measles (7)	Scarlet fever (8)	Whooping cough (9)	Diphtheria (10)	Influenza (11)	Poliomyelitis (16)	Lethargic encephalitis (17)	Meningococcus meningitis (18)	Tuberculosis, all forms (23-32)	Cancer, all forms (45-53)	Diabetes (59)	Diseases of the nervous system (78-89)	Cerebral hemorrhage, apoplexy (82a-b)	Diseases of the circulatory system (90-103)	Diseases of the heart (90-95)	Diseases of the respiratory system (104-114)	Pneumonia, all forms (107-109)	Diseases of the digestive system (115-129)	Diarrhea and enteritis under 2 years (119)	Nephritis (140-150)		
January-December:																											
1933.....	10.6	56	25	5.6	2.4	1.7	1.9	3.0	2.9	24.0	0.7	0.8	0.8	56.4	105.8	22.1	102.9	80.2	257.3	225.2	81.8	70.3	68.0	9.8	79.0		
1932.....	10.9	56	27	5.9	2.9	1.6	2.0	4.1	3.7	25.0	.7	.7	1.2	60.4	103.8	22.3	105.4	81.9	254.9	221.4	90.6	78.4	68.5	10.3	81.2		
1931.....	11.0	60	26	6.1	3.5	2.4	1.9	3.5	3.7	24.6	2.0	.9	2.2	64.8	100.5	20.8	106.1	80.6	246.9	212.9	95.5	83.1	74.1	13.9	96.7		
January-March:																											
1933.....	11.7	65	32	6.1	1.2	2.0	2.7	3.0	2.5	64.2	.3	.8	1.2	60.1	104.3	25.4	113.1	88.3	284.9	249.6	121.3	108.3	59.4	5.2	83.5		
1932.....	11.8	60	29	6.3	1.9	2.1	2.0	5.0	4.5	44.2	.4	.8	1.9	65.4	102.1	24.9	114.5	89.1	282.0	245.0	130.7	116.7	61.6	6.5	89.1		
1931.....	12.5	74	40	6.9	1.3	3.3	2.8	3.3	3.6	60.2	.5	1.0	3.2	69.3	100.5	23.4	117.6	89.0	283.9	245.1	165.9	150.3	65.5	7.2	88.7		
April-June:																											
1933.....	10.4	54	23	6.0	1.7	3.3	2.2	2.0	1.4	12.7	.4	.7	.9	59.9	105.7	21.5	103.8	79.7	254.6	221.8	71.7	60.1	67.3	8.8	80.4		
1932.....	10.8	58	27	6.3	1.7	3.3	2.5	4.9	2.4	24.4	.4	.7	1.4	55.5	103.6	22.0	107.4	82.3	265.7	221.8	84.2	73.2	67.2	9.0	82.5		
1931.....	11.1	58	26	6.6	1.8	4.9	2.5	3.4	2.2	22.8	.5	1.1	2.5	69.6	101.5	20.6	109.6	82.8	248.4	214.5	90.5	77.9	70.4	9.2	82.9		
July-September:																											
1933.....	9.4	49	20	5.3	4.1	.5	.8	3.4	1.9	4.8	1.4	.9	.6	53.0	105.6	18.8	89.8	70.0	218.4	190.5	41.9	33.5	77.3	15.5	70.1		
1932.....	9.5	50	22	5.8	5.0	.5	.7	3.9	2.5	5.6	1.3	.7	.8	56.4	102.8	18.2	90.5	70.5	213.2	183.6	42.5	33.8	80.3	18.0	71.4		
1931.....	10.0	54	24	5.8	6.2	.7	.8	4.0	2.3	5.1	5.2	.8	1.4	62.5	99.6	18.0	93.8	70.8	209.8	182.3	44.8	36.2	87.8	24.1	72.2		
October-December:																											
1933.....	10.8	56	25	5.1	2.8	.8	2.1	2.7	5.5	14.9	.6	.7	.9	52.6	107.4	22.7	105.9	83.1	272.0	235.4	93.0	80.2	67.5	9.5	80.2		
1932.....	11.4	59	30	5.4	3.0	.6	1.9	2.7	5.4	41.9	.7	.8	.7	55.3	106.8	24.2	108.9	86.3	263.8	239.3	106.0	90.2	64.7	8.8	81.9		
1931.....	10.6	56	25	5.3	4.8	.6	1.4	3.4	6.9	11.4	1.9	.7	1.5	59.3	102.6	21.6	103.5	80.2	246.4	214.8	82.3	70.6	72.6	15.5	80.7		

¹ Includes all States for which data are available by quarters for the 3 years covered. The States are: Alabama, California, Connecticut, District of Columbia, Georgia, Idaho, Indiana, Iowa, Kansas, Louisiana, Maryland, Michigan, Minnesota, Montana, Nebraska, New Jersey, New York, Ohio, Pennsylvania, South Dakota, Tennessee, Virginia, West Virginia, and Wisconsin.

TABLE 8.—Mortality in certain States, 1929-33

State	Deaths, all causes, per 1,000 population					Maternal mortality per 1,000 live births				
	1933	1932	1931	1930	1929	1933	1932	1931	1930	1929
Total.....	10.5	10.8	11.0	11.2	11.8	5.6	5.9	6.2	6.2	6.4
Alabama.....	9.8	10.0	10.4	11.2	12.2	6.9	7.1	7.4	8.1	8.3
California.....	11.2	10.9	11.3	11.6	11.9	4.8	5.8	6.3	5.3	5.2
Connecticut.....	10.1	10.1	10.4	10.5	11.0	6.0	5.7	6.8	8.5	5.9
District of Columbia.....	15.9	16.1	15.9	15.2	15.4	4.8	7.9	6.1	9.1	6.1
Georgia.....	10.4	10.9	11.1	11.8	11.8	7.7	9.5	10.0	10.6	10.4
Idaho.....	9.6	9.2	9.6	9.7	9.2	2.8	4.4	2.6	4.4	6.1
Illinois.....	10.5	10.5	11.1	10.9	11.6	5.0	5.1	5.4	5.4	6.8
Indiana.....	11.0	11.2	11.3	11.6	12.2	5.7	5.2	5.9	5.8	7.0
Iowa.....	10.2	10.2	10.3	10.6	10.4	4.9	4.4	4.1	7.0	5.4
Kansas.....	10.4	10.1	10.0	10.4	10.4	4.8	5.4	5.8	7.0	6.1
Louisiana.....	10.6	10.6	10.9	11.8	11.8	8.1	8.2	8.9	9.8	10.3
Maryland.....	12.2	12.5	13.2	13.2	13.5	4.9	4.6	6.0	5.3	5.6
Michigan.....	9.6	9.7	9.8	10.6	11.8	5.5	5.7	5.9	5.9	6.1
Minnesota.....	9.6	9.6	9.6	9.7	9.9	4.5	4.1	4.6	4.8	3.9
Mississippi.....	9.8	9.2	9.9	10.8	11.6	.....	.....	.....	.....	.....
Montana.....	9.7	9.7	9.7	9.8	10.7	5.8	5.7	7.0	6.8	8.4
Nebraska.....	9.2	9.2	9.1	9.4	9.6	4.2	5.0	5.1	5.3	5.4
New Jersey.....	10.4	10.1	10.6	10.7	11.5	5.1	5.7	5.9	5.7	5.3
New York.....	11.2	11.3	11.6	11.7	12.4	6.8	6.1	5.9	5.6	5.4
North Carolina.....	9.3	9.4	10.2	11.4	11.9	6.4	6.8	7.8	7.6	7.5
Ohio.....	10.7	11.1	11.1	11.4	12.5	5.9	5.9	6.0	5.5	6.6
Pennsylvania.....	9.7	10.9	11.3	11.3	12.1	5.1	5.4	5.7	5.3	5.9
South Dakota.....	8.8	8.2	8.6	8.5	8.6	4.1	3.7	4.9	5.6	5.5
Tennessee.....	10.4	10.5	10.7	11.4	11.7	5.9	6.6	6.3	7.9	7.8
Virginia.....	10.8	10.9	11.6	11.7	12.0	5.6	6.6	7.4	6.6	6.5
West Virginia.....	9.4	10.0	10.0	10.4	10.6	5.1	5.1	5.2	5.7	5.3
Wisconsin.....	9.8	10.0	10.1	10.3	10.7	4.7	4.3	4.3	4.8	5.3
Hawaii.....	9.6	9.7	9.8	10.4	12.2	5.8	.....	.....	.....	.....
Industrial policyholders, Metropolitan Life Insurance Co., ages 1 and over.....	8.4	8.4	8.5	8.4	8.9	.....	.....	.....	.....	.....

State	Infant mortality rate per 1,000 live births									
	Total infant mortality					All except malformations and early infancy				
	1933	1932	1931	1930	1929	1933	1932	1931	1930	1929
Total.....	56	57	60	62	66	24	25	28	27	31
Alabama.....	66	61	65	73	74	40	36	40	45	44
California.....	53	53	57	59	63	24	23	26	29	32
Connecticut.....	48	48	54	56	65	.....	.....	.....	.....	.....
District of Columbia.....	65	73	71	70	69	27	33	35	36	34
Georgia.....	68	65	69	78	76	.....	.....	.....	.....	.....
Idaho.....	47	58	59	51	55	14	32	27	24	25
Illinois.....	51	52	56	56	61	20	21	25	23	26
Indiana.....	55	56	59	58	66	24	26	28	26	31
Iowa.....	50	48	51	56	52	19	20	22	22	21
Kansas.....	53	48	48	52	57	23	18	19	22	26
Louisiana.....	71	66	68	80	76	39	36	40	49	48
Maryland.....	65	70	79	73	80	31	35	45	38	42
Michigan.....	51	54	56	63	67	18	22	22	27	31
Minnesota.....	50	43	47	47	48	20	15	17	17	18
Montana.....	49	49	56	59	64	.....	.....	.....	.....	.....
Nebraska.....	51	43	47	49	52	19	15	19	19	23
New Jersey.....	46	52	57	57	61	.....	.....	.....	.....	.....
New York.....	54	53	57	58	61	22	22	33	26	27
North Carolina.....	66	67	73	77	79	.....	.....	.....	.....	.....
Ohio.....	52	60	59	58	66	19	26	26	25	23
Pennsylvania.....	53	59	65	66	71	24	31	34	30	28
South Dakota.....	55	51	58	56	56	25	23	28	26	27
Tennessee.....	71	69	70	71	79	44	42	44	44	53
Virginia.....	63	66	72	71	74	.....	.....	.....	.....	.....
Wisconsin.....	49	51	53	56	61	17	19	20	23	27
Hawaii.....	72	76	75	82	101	44	.....	.....	.....	.....

TABLE 4.—Death rates for various causes per 100,000 population

State	Typhoid fever (1,2)					Diarrhea and enteritis under 2 years (119)				
	1933	1932	1931	1930	1929	1933	1932	1931	1930	1929
Total	2.6	3.2	3.8	4.0	3.6	10.0	10.3	14.0	17.9	16.5
Alabama.....	4.3	4.9	6.9	7.9	7.5	18.7	15.4	20.6	31.2	25.3
California.....	1.5	1.3	1.6	1.7	1.7	8.4	8.2	11.5	14.8	15.3
Connecticut.....	.5	.6	1.0	.9	.8	4.7	4.2	7.8	10.5	13.8
District of Columbia.....	3.6	1.4	3.9	3.3	2.7	11.5	16.0	16.7	19.9	18.4
Georgia.....	8.4	12.6	16.7	16.4	11.6	16.7	13.2	18.8	24.8	17.9
Idaho.....	4.5	3.3	3.6	4.7	3.2	2.0	2.0	4.7	4.7	8.3
Illinois.....	1.4	1.7	1.5	1.9	1.4	6.4	6.9	3.9	5.9	12.2
Indiana.....	2.7	2.5	2.8	3.7	3.5	10.9	11.4	13.1	18.4	16.9
Iowa.....	1.0	1.7	1.4	1.6	2.3	2.7	3.1	5.9	6.6	3.9
Kansas.....	1.5	1.7	2.2	3.0	2.9	8.5	7.2	8.1	12.1	10.4
Louisiana.....	11.4	10.8	14.5	11.7	10.6	19.1	14.0	22.4	22.1	26.3
Maryland.....	2.2	3.1	5.4	6.4	4.3	16.7	19.6	31.3	30.0	32.5
Michigan.....	1.0	1.1	1.4	1.8	1.7	5.8	6.3	9.2	14.4	16.0
Minnesota.....	.8	.7	.6	1.0	.9	5.0	3.9	4.4	6.8	4.1
Mississippi.....	6.0	6.3	9.5	10.2	8.8	15.1	10.9	14.4	15.0	19.2
Montana.....	2.8	2.8	2.2	3.2	5.8	5.0	5.0	10.0	15.3	10.6
Nebraska.....	.7	1.4	1.7	1.6	1.8	4.7	4.9	7.1	8.3	6.6
New Jersey.....	1.0	.7	1.0	1.1	1.4	4.3	5.6	9.1	11.5	12.2
New York.....	.8	1.0	1.1	1.2	1.3	6.8	6.4	8.7	11.4	11.9
North Carolina.....	3.9	5.0	5.1	4.4	5.5	21.0	16.8	22.2	29.7	30.1
Ohio.....	1.7	2.0	2.4	3.3	2.2	8.1	9.2	11.7	16.4	12.5
Pennsylvania.....	1.3	1.8	2.1	2.6	2.1	8.7	12.3	17.5	22.5	19.7
South Carolina.....	10.5	14.7	16.6	16.9	14.4					
South Dakota.....	5.0	1.4	2.7	2.9	3.2	8.1	6.4	11.4	11.0	5.5
Tennessee.....	8.9	11.0	10.7	12.2	11.9	24.0	20.4	23.4	28.6	23.9
Virginia.....	4.4	5.1	7.3	5.8	4.4	16.1	14.8	22.5	26.1	19.7
West Virginia.....	8.0	12.1	12.6	12.1	11.5	32.9	48.9	54.3	70.1	57.8
Wisconsin.....	.5	.7	.7	.9	1.4	6.6	6.8	10.4	10.2	11.7
Hawaii.....	5.3	2.4	2.6	2.4	3.9	38.5	45.7	49.3	76.6	103.1
Industrial policyholders, Metropolitan Life Insurance Co., ages 1 and over.....	1.6	1.7	2.4	2.4	2.4	4.6	4.6	5.9	8.0	7.9

State	Measles (7)					Whooping cough (9)				
	1933	1932	1931	1930	1929	1933	1932	1931	1930	1929
Total	1.6	1.5	2.5	2.9	2.4	3.2	4.2	3.6	4.3	5.8
Alabama.....	1.0	.2	6.4	3.1	2.4	6.4	7.4	3.6	9.5	9.2
California.....	1.8	.9	1.9	5.2	.3	3.2	2.9	2.4	3.5	5.0
Connecticut.....	.5	1.1	2.3	.4	3.0	1.6	2.7	2.7	2.0	2.6
District of Columbia.....	.3	.2	2.4	.2	(7)	1.4	4.0	5.7	2.7	5.0
Georgia.....	2.1	.5	2.1	4.4	1.0	7.3	3.8	3.8	9.0	9.4
Idaho.....	.7	.2	1.8	2.0	2.7	.2	.7	6.3	4.3	3.6
Illinois.....	.2	.6	4.2	1.0	3.6	1.0	2.9	2.7	2.1	3.4
Indiana.....	.4	.4	4.5	1.9	3.7	2.1	5.0	4.3	3.0	5.4
Iowa.....	.2	.2	.1	8.1	1.4	2.6	2.0	2.4	3.7	4.1
Kansas.....	.7	1.3	.4	4.2	2.4	3.2	2.5	1.3	3.5	3.9
Louisiana.....	1.7	1.7	.6	4.7	2.5	5.6	4.0	5.4	5.9	5.4
Maryland.....	.2	1.1	5.9	.4	1.4	4.9	5.4	7.6	4.4	7.9
Michigan.....	2.2	3.6	.6	4.7	3.1	3.0	3.9	3.7	3.6	5.4
Minnesota.....	2.7	.5	.3	3.3	3.2	2.9	1.7	2.1	2.9	4.5
Mississippi.....	2.7	.1	.4	1.4	4.3	10.1	4.9	3.4	6.9	9.4
Montana.....	2.6	2.2	.4	2.2	9.3	3.0	4.1	8.9	3.0	3.3
Nebraska.....	.6	.1	.3	6.2	2.4	2.0	1.9	4.0	2.6	3.6
New Jersey.....	1.7	1.0	2.4	3.2	.9	1.0	2.9	3.3	2.2	4.7
New York.....	2.5	1.6	1.8	1.9	1.5	2.2	2.3	2.9	2.8	3.0
North Carolina.....	2.6	1.8	3.2	.1	.6	6.0	6.9	5.7	8.5	8.3
Ohio.....	1.7	2.4	2.1	2.8	3.5	2.3	4.9	2.4	3.0	8.0
Pennsylvania.....	1.2	2.1	4.2	2.3	3.8	1.9	4.4	3.1	3.9	6.0
South Carolina.....	3.5	2.4	2.2	.5	.1	6.2	7.6	5.3	10.8	12.7
South Dakota.....	1.0	(2)	.3	3.0	2.2	6.3	6.3	5.7	2.7	3.8
Tennessee.....	2.9	.3	3.8	4.9	1.0	5.7	7.5	6.3	6.3	7.4
Virginia.....	2.1	.9	3.2	3.9	1.6	4.4	12.5	6.2	10.8	10.9
West Virginia.....	2.5	9.8	2.3	4.9	4.5	6.0	10.2	7.4	12.0	12.8
Wisconsin.....	.9	1.4	1.4	3.3	2.7	2.0	2.2	1.9	3.3	3.8
Hawaii.....	.5	6.6	10.2	4.3	5.0	12.4	1.1	.3	3.5	27.9
Industrial policyholders, Metropolitan Life Insurance Co., ages 1 and over.....	1.3	1.4	2.6	2.3	2.4	1.0	1.4	1.7	1.9	3.0

¹ The Metropolitan Life Insurance Co. data for diarrhea and enteritis includes adults as well as children under 2 years.

² No deaths.

TABLE 4.—Death rates for various causes per 100,000 population—Continued

State	Scarlet fever (8)					Diphtheria (10)				
	1933	1932	1931	1930	1929	1933	1932	1931	1930	1929
Total.....	2.0	2.0	2.1	1.9	2.1	2.9	3.8	4.1	4.6	6.4
Alabama.....	.7	1.3	1.1	1.4	1.4	6.8	7.5	7.6	7.1	9.6
California.....	1.4	.9	.9	1.2	1.7	1.9	3.3	2.9	2.4	3.4
Connecticut.....	1.4	1.1	.7	1.5	.9	1.0	1.0	.9	2.0	3.8
District of Columbia.....	2.6	2.6	1.0	2.3	2.3	2.8	3.2	7.1	3.7	7.0
Georgia.....	.6	.6	1.5	1.3	1.3	6.2	5.7	5.0	4.5	6.0
Idaho.....	.2	1.9	2.2	2.0	.9	1.8	3.1	2.5	3.1	2.3
Illinois.....	3.5	3.3	4.5	3.9	3.9	1.7	3.0	4.7	7.1	9.9
Indiana.....	2.5	2.6	3.4	2.1	3.2	4.4	5.0	4.1	4.1	4.7
Iowa.....	1.8	1.5	1.6	2.5	2.2	2.1	2.3	1.7	1.8	1.3
Kansas.....	2.1	1.7	1.2	2.4	3.3	2.9	3.9	3.7	3.6	3.6
Louisiana.....	.5	.4	.7	.6	.6	4.7	6.5	6.4	5.0	6.6
Maryland.....	2.3	1.9	1.9	2.1	2.3	1.7	3.1	4.0	3.4	4.5
Michigan.....	3.1	2.2	2.3	2.7	3.0	2.2	2.1	3.5	6.2	10.5
Minnesota.....	1.4	1.6	.9	1.4	2.6	1.0	.9	1.4	1.2	2.6
Mississippi.....	.4	.6	.5	.6	.3	5.4	6.2	9.9	6.8	7.1
Montana.....	1.9	1.5	1.9	2.8	3.0	3.0	.9	1.7	.7	1.9
Nebraska.....	1.7	2.0	1.5	2.2	3.8	1.5	4.0	3.5	3.3	3.5
New Jersey.....	1.4	1.7	2.0	1.5	1.1	1.2	2.3	2.9	8.2	11.2
New York.....	1.7	2.8	1.7	1.1	1.4	1.1	2.1	2.2	2.7	5.3
North Carolina.....	1.4	1.1	2.0	1.2	1.7	6.1	4.5	7.3	7.9	11.0
Ohio.....	3.2	3.3	3.3	2.6	2.2	2.5	3.3	2.8	2.8	3.4
Pennsylvania.....	2.8	2.6	2.3	1.9	2.5	2.3	4.0	3.6	5.2	7.2
South Carolina.....	.8	.5	1.0	.7	.9	5.2	4.9	4.9	7.3	8.6
South Dakota.....	1.6	1.3	.6	.6	2.6	2.3	2.9	2.6	2.9	1.6
Tennessee.....	1.8	.8	2.4	1.6	2.4	8.2	8.2	9.3	6.6	8.4
Virginia.....	2.1	1.3	1.4	1.1	1.5	6.3	5.3	8.5	6.1	7.8
West Virginia.....	2.5	2.4	1.7	1.9	1.5	10.7	13.2	9.3	6.2	7.4
Wisconsin.....	1.2	1.5	2.1	3.0	2.5	.6	1.9	1.8	2.4	2.8
Hawaii.....	(?)	.3	(?)	.3	(?)	1.8	4.8	5.7	11.3	8.9
Industrial policyholders, Metropolitan Life Insurance Co., ages 1 and over.....	2.6	2.8	3.2	2.5	2.7	2.5	3.8	4.3	5.7	8.6

State	Poliomyelitis (16)					Meningococcus meningitis (18)				
	1933	1932	1931	1930	1929	1933	1932	1931	1930	1929
Total.....	0.6	0.7	1.9	1.1	0.7	1.0	1.3	2.1	3.1	3.9
Alabama.....	.4	.2	.9	.8	1.0	.4	.6	3.6	1.5	1.0
California.....	.2	.5	.8	2.8	.9	1.3	1.4	2.5	2.8	6.9
Connecticut.....	.2	.4	5.5	1.1	.4	.5	.7	.7	.9	1.3
District of Columbia.....	.4	1.2	.8	.6	.8	2.2	2.6	5.7	2.0	2.9
Georgia.....	.7	.9	1.2	1.1	.7	.4	.8	1.8	3.0	2.3
Idaho.....	.9	.2	.7	1.3	1.4	1.6	3.1	6.9	6.9	22.3
Illinois.....	.4	.5	1.3	.7	.3	2.7	2.0	3.2	2.4	3.3
Indiana.....	.3	.2	.6	.7	.3	1.4	3.9	5.5	8.3	2.7
Iowa.....	1.6	1.0	1.1	1.7	.9	1.4	.9	2.6	3.3	1.6
Kansas.....	.7	.6	.6	3.6	.5	1.1	1.3	1.3	2.8	2.8
Louisiana.....	.4	.5	.9	2.3	.6	1.2	1.2	2.3	3.6	2.7
Maryland.....	.2	.3	.7	.4	.2	1.1	1.1	1.8	1.3	1.8
Michigan.....	.1	.5	2.2	.8	1.0	.6	1.3	2.4	7.5	17.9
Minnesota.....	1.3	.5	2.4	1.6	.4	1.2	.9	1.6	1.9	1.8
Mississippi.....	.3	.8	.4	.5	.6	1.0	1.0	1.5	6.9	.8
Montana.....	.4	1.1	2.8	1.1	(?)	.6	1.3	2.2	4.1	10.0
Nebraska.....	.3	.9	.9	3.4	.7	.6	.5	1.6	2.5	2.6
New Jersey.....	.6	1.1	3.5	.4	.4	.6	.8	1.8	1.8	2.7
New York.....	1.1	.5	5.2	1.0	.9	.7	1.2	2.7	2.6	4.8
North Carolina.....	.4	.5	.6	.4	.6	.3	.5	.6	.8	.5
Ohio.....	.8	.4	.8	1.6	.6	.5	.8	1.5	1.8	2.7
Pennsylvania.....	.6	1.5	1.0	.5	.5	.9	1.3	1.9	2.2	2.8
South Carolina.....	.7	.6	.9	.9	.6	2.0	1.4	2.1	4.1	3.0
South Dakota.....	.9	1.1	2.3	1.6	1.2	.1	.4	.3	.3	1.3
Tennessee.....	1.2	.6	.9	1.0	1.2	.9	1.4	4.3	9.6	2.2
Virginia.....	.4	.7	.6	.8	1.3	1.0	1.1	1.8	2.3	1.5
West Virginia.....	1.2	.7	1.4	.6	.9	.9	1.1	1.0	1.1	.8
Wisconsin.....	.4	.4	1.6	.9	.4	.5	.9	1.3	2.0	3.7
Hawaii.....	.5	.8	.8	(?)	1.1	.8	2.9	2.3	4.3	22.1
Industrial policyholders, Metropolitan Life Insurance Co., ages 1 and over.....	.6	1.0	2.6	1.1	.6					

* No deaths.

TABLE 4.—Death rates for various causes per 100,000 population—Continued

State	Influenza (11)					Pneumonia, all forms (107-109)				
	1933	1932	1931	1930	1929	1933	1932	1931	1930	1929
Total	23.9	28.0	25.7	19.1	52.8	69.4	77.4	82.0	83.2	92.5
Alabama.....	32.7	48.4	40.7	35.5	119.8	59.1	66.0	83.4	85.8	87.5
California.....	13.8	18.3	13.6	9.1	20.0	61.8	64.1	66.5	73.0	78.8
Connecticut.....	21.5	15.3	17.3	13.5	38.7	73.6	66.0	72.3	88.4	102.7
District of Columbia.....	9.9	15.5	13.1	8.2	20.5	115.6	135.5	140.3	122.1	143.3
Georgia.....	41.5	39.0	44.1	32.2	86.3	76.3	82.9	82.9	84.1	77.0
Idaho.....	18.7	21.0	9.2	11.2	36.7	72.8	76.7	76.5	104.0	61.9
Illinois.....	15.4	24.0	20.3	11.7	34.5	63.3	67.4	69.3	63.5	81.9
Indiana.....	30.0	42.1	33.3	19.7	59.2	66.5	84.1	82.3	83.5	98.8
Iowa.....	33.3	35.8	25.7	26.9	51.5	74.1	78.9	66.8	79.6	63.8
Kansas.....	45.9	41.6	30.0	29.3	51.3	53.4	53.5	51.5	54.2	58.0
Louisiana.....	32.4	52.4	42.1	39.9	79.1	64.1	75.5	81.4	91.5	85.9
Maryland.....	17.2	20.1	20.6	10.3	42.5	93.8	103.0	126.3	118.2	137.6
Michigan.....	17.0	22.2	16.5	11.9	37.3	54.4	63.3	57.6	68.2	88.8
Minnesota.....	24.5	30.8	21.8	15.9	39.6	58.9	68.8	69.1	71.1	70.5
Mississippi.....	34.8	40.5	37.5	29.3	105.6	49.6	48.3	56.3	60.9	62.7
Montana.....	35.8	41.6	32.7	22.9	42.4	63.3	63.6	70.3	80.2	81.9
Nebraska.....	34.5	36.9	21.8	17.7	45.9	70.0	62.0	54.3	61.0	60.1
New Jersey.....	12.3	14.0	13.6	8.9	25.2	71.3	61.3	78.0	77.7	103.5
New York.....	13.0	13.0	13.4	8.4	27.0	91.2	96.7	105.6	101.9	124.1
North Carolina.....	28.8	20.5	33.4	24.4	78.2	64.9	80.7	87.1	92.9	90.3
Ohio.....	22.9	34.1	28.8	19.4	59.6	60.6	76.8	77.9	74.6	91.2
Pennsylvania.....	25.4	29.3	28.1	19.8	56.1	70.7	81.5	97.2	92.4	106.4
South Carolina.....	37.5	50.8	65.9	49.7	80.4	87.4	99.0	104.8	102.4	97.0
South Dakota.....	45.1	28.9	26.0	24.4	51.5	61.0	48.6	55.4	58.1	62.6
Tennessee.....	39.7	54.1	37.0	31.3	106.1	77.4	87.1	84.5	88.9	91.5
Virginia.....	37.1	37.3	47.2	29.4	91.9	66.6	71.5	80.6	83.7	76.2
West Virginia.....	33.7	46.9	33.8	27.8	91.2	64.6	78.3	82.5	91.5	79.5
Wisconsin.....	25.6	28.5	18.1	30.7	42.3	51.4	66.5	65.4	72.6	74.6
Hawaii.....	7.4	11.3	11.0	10.5	17.6	97.8	100.1	102.3	118.2	141.1
Industrial policyholders, Metropolitan Life Insurance Co., ages 1 and over.....	18.7	17.7	19.2	13.2	37.7	54.8	56.7	62.1	62.7	74.0

State	Tuberculosis, all forms (23-32)					Cancer (46-53)				
	1933	1932	1931	1930	1929	1933	1932	1931	1930	1929
Total	56.5	60.4	64.8	68.2	72.8	102.6	100.7	97.6	96.5	95.5
Alabama.....	69.1	77.2	86.3	86.0	85.7	55.9	55.5	54.3	53.8	51.3
California.....	76.4	81.0	88.9	98.3	106.3	127.0	120.2	124.2	125.7	118.4
Connecticut.....	47.2	49.0	53.6	60.2	62.0	121.4	121.5	114.0	117.1	112.8
District of Columbia.....	124.6	121.5	120.2	116.8	116.6	149.5	146.7	135.2	136.7	131.8
Georgia.....	59.9	65.5	72.9	73.4	74.0	55.0	52.2	52.7	52.2	48.8
Idaho.....	31.0	28.6	29.8	32.9	42.5	82.6	76.6	66.4	61.4	78.8
Illinois.....	53.4	54.1	59.1	59.6	68.8	117.7	114.4	112.7	112.0	107.2
Indiana.....	54.8	57.3	57.6	63.6	70.2	104.7	105.2	100.6	99.9	99.8
Iowa.....	25.7	28.2	28.5	33.1	32.6	123.0	116.5	112.9	110.8	107.8
Kansas.....	30.3	32.5	37.0	36.8	37.8	108.1	104.2	97.0	96.4	92.6
Louisiana.....	73.0	72.7	81.5	84.1	86.3	71.8	67.1	68.2	68.0	64.4
Maryland.....	46.6	90.4	95.7	98.9	104.6	118.7	116.0	111.6	111.5	109.8
Michigan.....	46.5	48.2	53.3	59.8	66.1	96.9	93.3	90.6	90.7	93.3
Minnesota.....	37.9	39.2	40.0	46.3	54.5	131.1	124.2	121.3	119.1	113.9
Mississippi.....	59.9	62.6	72.1	78.4	74.2	49.5	50.2	48.7	46.8	44.5
Montana.....	59.9	55.0	61.3	62.3	65.7	91.4	92.9	74.5	78.9	87.5
Nebraska.....	50.3	20.3	24.6	24.5	29.9	101.4	100.6	98.5	100.9	94.5
New Jersey.....	21.6	60.6	65.1	69.3	73.1	119.6	112.9	113.4	107.1	109.3
New York.....	69.0	61.3	66.4	71.0	74.8	127.6	124.1	123.8	122.7	121.8
North Carolina.....	53.6	54.9	69.4	74.7	83.3	50.0	46.2	48.2	47.9	51.2
Ohio.....	49.1	65.5	62.0	63.0	69.8	111.2	110.5	100.8	105.2	104.6
Pennsylvania.....	49.1	52.5	56.4	59.9	66.1	104.2	102.1	98.9	94.9	103.0
South Carolina.....	59.2	65.5	70.7	76.5	78.1	48.2	41.6	45.3	39.7	42.5
South Dakota.....	38.3	45.1	43.7	48.6	53.9	82.4	80.7	82.7	72.9	68.0
Tennessee.....	92.7	94.7	107.2	115.7	120.3	60.0	56.8	57.1	58.2	58.0
Virginia.....	77.3	81.0	87.0	85.0	91.4	72.3	67.9	64.3	61.6	62.8
West Virginia.....	53.8	55.4	59.8	65.4	68.0	67.5	62.0	57.7	59.4	57.9
Wisconsin.....	40.7	44.9	48.1	50.5	53.3	116.4	116.4	115.8	112.8	110.0
Hawaii.....	99.6	94.3	98.2	102.3	110.4	68.6	71.5	57.2	59.6	64.5
Industrial policyholders, Metropolitan Life Insurance Co., ages 1 and over.....	65.0	70.2	76.7	81.3	87.3	95.6	92.4	85.4	79.5	78.8

TABLE 4.—Death rates for various causes per 100,000 population—Continued

State	Diabetes mellitus (59)					Cerebral hemorrhage, apoplexy (82, a, b)				
	1933	1932	1931	1930	1929	1933	1932	1931	1930	1929
Total	21.5	21.7	20.3	19.1	18.8	79.2	79.3	78.5	78.9	79.6
Alabama.....	9.6	10.5	10.8	8.8	9.0	56.7	61.8	61.4	65.5	64.5
California.....	22.6	20.8	19.2	18.1	19.0	82.6	77.8	78.6	81.9	80.2
Connecticut.....	24.6	25.1	21.9	17.9	17.7					
District of Columbia.....	29.5	28.2	25.1	26.6	27.5	115.2	107.5	105.7	99.2	83.8
Georgia.....	11.7	11.6	10.9	11.6	10.2	72.6	80.0	84.8	90.1	81.8
Idaho.....	10.7	12.7	12.5	7.8	12.8	74.8	79.9	95.3	71.3	62.7
Illinois.....	26.1	26.3	25.6	22.1	23.5	72.4	73.0	73.0	74.7	76.0
Indiana.....	14.6	15.5	16.4	15.7	15.0	108.0	108.7	105.7	108.1	108.4
Iowa.....	19.5	16.0	19.8	21.0	18.4	112.1	109.0	111.2	95.8	97.1
Kansas.....	23.3	22.1	21.9	20.9	21.4	99.8	101.2	94.8	99.7	108.9
Louisiana.....	14.0	13.7	12.8	12.1	11.2	60.6	60.2	67.5	61.8	60.3
Maryland.....	23.6	25.7	23.0	21.3	19.5	85.1	112.6	108.6	105.1	102.0
Michigan.....	21.9	21.9	19.1	18.1	19.7	81.4	84.1	87.7	89.9	93.6
Minnesota.....	20.7	22.2	19.5	18.2	18.6	80.2	77.8	75.4	79.5	75.3
Mississippi.....	7.6	7.6	7.8	8.9	7.3	65.8	61.9	64.3	66.6	64.9
Montana.....	15.6	15.8	15.4	16.2	15.2	69.6	70.1	68.0	66.6	59.1
Nebraska.....	16.3	22.8	21.2	20.6	21.5	95.0	93.0	84.4	84.5	88.4
New Jersey.....	29.0	26.0	23.9	23.1	23.0	82.3	77.3	79.4	80.4	83.4
New York.....	30.3	29.9	28.2	26.9	26.2	52.9	61.5	52.0	53.2	57.4
North Carolina.....	10.7	10.7	10.6	10.0	9.9					
Ohio.....	23.2	24.2	21.7	21.7	20.7	106.9	110.3	109.1	107.7	112.0
Pennsylvania.....	26.1	25.7	24.7	21.9	22.3	83.4	85.7	87.0	87.1	88.7
South Carolina.....	8.3	11.1	10.3	8.9	8.6					
South Dakota.....	19.6	17.3	20.6	16.9	18.8	78.2	67.0	64.1	61.3	55.0
Tennessee.....	10.6	10.1	10.6	10.8	10.2	66.7	65.6	60.0	62.9	63.0
Virginia.....	14.8	15.8	14.9	14.3	11.9	96.6	91.0	97.7	95.8	89.4
West Virginia.....	11.4	13.0	11.7	12.5	9.7	68.5	76.1	67.9	63.7	49.3
Wisconsin.....	23.6	22.4	22.4	20.7	19.2	85.0	87.3	85.9	88.6	91.6
Hawaii.....	15.8	9.5	12.3	13.0	12.6	49.7	51.8	50.7	48.3	53.9
Industrial policyholders, Metropolitan Life Insurance Co., ages 1 and over.....	24.4	23.3	21.4	18.7	18.6	64.5	62.9	61.3	61.3	-----

State	Heart diseases (90-95)					Nephritis (130-132)				
	1933	1932	1931	1930	1929	1933	1932	1931	1930	1929
Total	224.8	219.5	211.7	209.6	215.1	80.8	84.4	83.7	88.0	90.7
Alabama.....	124.8	117.9	116.9	134.0	136.2	78.4	84.7	88.2	100.4	95.8
California.....	274.6	252.2	253.4	239.7	249.0	78.7	80.6	80.9	84.0	89.2
Connecticut.....	209.7	206.1	203.0	183.6	193.8	85.3	87.8	88.3	73.2	71.1
District of Columbia.....	342.2	330.6	300.2	315.9	325.5	128.9	140.4	146.2	160.4	162.6
Georgia.....	134.0	139.9	132.8	138.0	124.5	105.0	109.6	107.4	127.0	134.5
Idaho.....	161.8	161.2	159.7	174.6	153.1	35.3	43.3	38.7	39.2	61.3
Illinois.....	254.5	231.6	232.1	223.1	233.9	102.6	108.8	107.2	105.8	109.3
Indiana.....	177.0	174.0	167.9	182.5	197.4	73.1	69.7	74.3	84.9	80.9
Iowa.....	196.3	198.3	200.7	195.8	215.4	41.1	45.1	45.9	43.2	49.3
Kansas.....	194.0	178.0	153.9	171.5	163.7	93.9	100.0	95.3	102.7	90.5
Louisiana.....	188.0	182.5	178.0	199.1	191.9	95.9	102.5	108.6	112.0	108.2
Maryland.....	256.0	256.5	251.0	245.2	239.2	144.4	138.4	139.2	149.6	151.0
Michigan.....	226.8	217.9	204.4	229.6	245.8	59.6	57.8	58.8	63.7	66.1
Minnesota.....	198.3	193.6	177.9	173.4	165.3	54.8	54.7	50.8	62.2	56.2
Mississippi.....	97.0	84.2	94.3	104.3	97.2	63.7	68.7	84.7	97.1	95.6
Montana.....	178.8	158.7	139.6	139.4	169.2	68.7	71.4	66.7	77.1	68.0
Nebraska.....	175.9	171.4	159.1	159.4	166.0	57.3	72.0	67.9	58.6	68.5
New Jersey.....	269.0	231.0	234.3	232.1	246.0	86.0	91.0	96.3	102.2	99.5
New York.....	289.6	294.2	288.0	275.9	293.3	76.3	74.8	73.4	76.4	80.6
Ohio.....	236.8	237.5	220.3	225.3	227.1	76.9	78.6	74.0	78.4	84.7
Pennsylvania.....	248.3	238.4	233.5	231.6	236.2	93.9	93.0	92.7	104.3	104.8
South Carolina.....						84.4	125.6	121.2	112.6	105.4
South Dakota.....	145.1	150.3	127.4	123.5	126.5	50.1	41.7	39.1	45.7	53.7
Tennessee.....	114.7	98.6	108.4	120.3	128.9	62.4	67.2	65.6	75.9	71.6
Virginia.....	192.5	198.3	188.3	178.2	176.7	89.2	119.5	101.5	108.3	103.0
West Virginia.....	117.0	113.0	110.6	116.6	112.7	78.6	68.8	64.5	61.3	54.3
Wisconsin.....	223.7	217.4	203.1	204.8	212.3	65.7	66.5	67.7	67.4	68.0
Hawaii.....	115.9	100.1	105.7	121.4	118.2	77.0	60.2	68.4	66.9	-----
Industrial policyholders, Metropolitan Life Insurance Co., ages 1 and over, other (organic) heart only (95).....	163.4	157.5	150.1	147.1	149.0	68.0	69.6	68.1	69.2	70.6

COURT DECISION ON PUBLIC HEALTH

Election by city council of trustees of sanitary district held not subject to veto by mayor.—(Minnesota Supreme Court; *State ex rel. Wenzel et al. v. May et al.*, 251 N.W. 529; decided Dec. 15, 1933.) Chapter 341 of the Minnesota Session Laws for 1933 had reference to the organization into a sanitary district of two or more contiguous first-class cities when there existed certain conditions concerning the discharge of sewage or industrial wastes into a common natural water course. Under this act the State board of health established a sanitary district embracing the contiguous cities of St. Paul and Minneapolis, and the board's final order so doing was properly filed with the governing body of St. Paul and with the clerk of the district court of Ramsey County on August 22, 1933. Portions of section 4 of said chapter 341 read as follows:

The district shall be governed by a board of trustees who shall be appointed or selected as follows: Within 60 days after the filing of the order of the State board of health confirming the order creating said sanitary district, with the clerk of the district court of the county in which each city of the first class is located, * * * the city councils or other governing bodies of the cities within said sanitary district shall each elect one of its own members as trustees to said board and also one trustee from the citizenry of each city or county wherein such cities of the first class are located; * * * The city clerk of each such city shall immediately, upon the election of the two trustees by the city council of his city, file with the secretary of state a certified copy or copies of the resolution or resolutions of the city council of his city electing the said trustees. * * * If the city council, or mayor, of any of said cities of the first class shall within the time specified herein fail to select, and cause to be certified, any of the trustees to be chosen as above provided, the governor shall thereupon select and appoint such trustees as have not been so designated.
* * *

On October 17, 1933, the city council of St. Paul elected two trustees and a resolution to that effect was adopted. On October 20 the city clerk filed with the secretary of state a certified copy of the minutes of the city council as to the election and also a certified copy of the resolution of election, together with the oath of office of the two trustees. It appeared that the resolution, after its adoption was announced, was pocketed by the mayor, and on October 23 he returned it to the council with his purported veto, but the council on the same day repassed it over the veto. On the advice of the attorney general that the council had failed to elect two trustees within the time fixed by the statute, the governor appointed the relators herein as trustees. A quo warranto proceeding was brought by the attorney general on the relation of the plaintiffs, challenging the right and title to the office of trustee of each of the persons who had been elected by the city council.

The supreme court said that it was readily perceived that the claim of the relators depended on whether or not the mayor of St. Paul had

the power to veto the act of the city council of October 17 electing respondents trustees. "If he is given no such power by chapter 341", said the court, "there can be no question as to the legality of respondents' election." It was pointed out that the said chapter placed the duty upon the city councils of the cities concerned to elect two trustees to the sanitary board created thereunder, and that neither by direct words nor by implication was there anything in the act which permitted a court to import that such election was subject to the mayor's approval or disapproval. It was concluded that respondents were the trustees, the opinion closing as follows:

In our opinion respondents were duly elected to the office of trustees on the board of trustees of the sanitary district created by the State board of health, and the record of such election was duly filed as required by chapter 341, Laws 1933, on October 20 last; on which day respondents took and filed their oath of office.

The offices here in controversy were then filled by respondents. Nothing has transpired since that day which could deprive them of their office. Hence the writ issued herein should be quashed.

It is so ordered.

DEATHS DURING WEEK ENDED APR. 14, 1934¹

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

	Week ended Apr. 14, 1934	Correspond- ing week, 1933
Data from 86 large cities of the United States:		
Total deaths.....	8,883	7,935
Deaths per 1,000 population, annual basis.....	12.4	11.1
Deaths under 1 year of age.....	674	547
Deaths under 1 year of age per 1,000 estimated live births.....	63	46
Deaths per 1,000 population, annual basis, first 15 weeks of year.....	12.6	12.1
Data from industrial insurance companies:		
Policies in force.....	67,698,617	68,464,541
Number of death claims.....	14,298	12,859
Death claims per 1,000 policies in force, annual rate.....	11.0	9.8
Death claims per 1,000 policies, first 15 weeks of year, annual rate.....	11.1	11.0

¹ Data for 81 cities.

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

Reports for Weeks Ended Apr. 21, 1934, and Apr. 22, 1933

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended Apr. 21, 1934, and Apr. 22, 1933

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Apr. 21, 1934	Week ended Apr. 22, 1933	Week ended Apr. 21, 1934	Week ended Apr. 22, 1933	Week ended Apr. 21, 1934	Week ended Apr. 22, 1933	Week ended Apr. 21, 1934	Week ended Apr. 22, 1933
New England States:								
Maine.....	1	1		3	14	1	0	0
New Hampshire.....				1	167	4	1	0
Vermont.....					63	58	0	0
Massachusetts.....	14	25		5	1,953	445	2	0
Rhode Island.....		3	2		3	1	0	0
Connecticut.....	1	5	2	10	52	265	1	0
Middle Atlantic States:								
New York.....	62	65	110	111	1,227	3,126	1	6
New Jersey.....	16	24	16	10	657	2,290	0	0
Pennsylvania.....	36	63			4,033	1,353	3	4
East North Central States:								
Ohio.....	31	24	14	15	1,207	768	4	0
Indiana.....	15	17	14	18	1,073	205	1	2
Illinois.....	31	31	21	70	1,813	726	15	27
Michigan.....	17	17	1	6	251	986	2	0
Wisconsin.....	3	4	24	40	1,595	425	2	1
West North Central States:								
Minnesota.....	3	2			231	1,051	0	0
Iowa.....	11	10	4		240	14	0	2
Missouri.....	34	21	49	6	936	211	4	4
North Dakota.....	1	1			152	73	0	0
South Dakota.....	3	3			336	5	0	1
Nebraska.....	1	12	10		232	22	0	5
Kansas.....	9	14	2	1	510	339	0	0
South Atlantic States:								
Delaware.....	1	7			102	7	0	1
Maryland.....	9	6	8	8	1,909	15	0	1
District of Columbia.....	7	4	2	2	226	8	2	2
Virginia.....	18	17			1,400	341	2	2
West Virginia.....	19	10	64	13	89	65	8	0
North Carolina.....	16	12	17	21	2,298	525	1	1
South Carolina.....	7	7	372	273	708	286	0	0
Georgia.....	6	5			692	85	1	0
Florida.....	9	7	2	2	1,187	97	0	0

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended Apr. 21, 1934, and Apr. 22, 1933—Continued

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Apr. 21, 1934	Week ended Apr. 22, 1933	Week ended Apr. 21, 1934	Week ended Apr. 22, 1933	Week ended Apr. 21, 1934	Week ended Apr. 22, 1933	Week ended Apr. 21, 1934	Week ended Apr. 22, 1933
East South Central States:								
Kentucky.....	9	9	6	25	185	128	1	1
Tennessee.....	5	11	39	52	816	69	0	0
Alabama ¹	17	13	53	36	881	58	1	1
Mississippi ²	6	3					0	0
West South Central States:								
Arkansas.....	1	5	7	21	65	305	3	0
Louisiana.....	18	12	6	2	349	55	1	1
Oklahoma ⁴	5	6	39	28	240	195	0	4
Texas ²	79	48	169	234	942	1,635	2	2
Mountain States:								
Montana.....	1		110	1	40	42	0	0
Idaho ¹			2	6	36	48	0	0
Wyoming ¹	3				90	9	0	1
Colorado.....	3	4		31	352	8	1	0
New Mexico.....	2	2	2	1	162	10	0	1
Arizona.....	3		14		58	92	0	0
Utah.....			5		256	7	0	0
Pacific States:								
Washington.....	5	2			196	55	2	1
Oregon ¹		3	37	31	87	87	0	0
California.....	42	42	36	19	942	1,229	3	4
Total	530	577	1161	1,002	30,943	17,826	64	75

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Apr. 21, 1934	Week ended Apr. 22, 1933	Week ended Apr. 21, 1934	Week ended Apr. 22, 1933	Week ended Apr. 21, 1934	Week ended Apr. 22, 1933	Week ended Apr. 21, 1934	Week ended Apr. 22, 1933
New England States:								
Maine.....	0	0	11	34	0	0	1	3
New Hampshire.....	0	0	12	49	0	0	0	0
Vermont.....	0	0	11	12	0	0	0	0
Massachusetts.....	0	0	225	396	0	0	3	5
Rhode Island.....	0	0	22	32	0	0	0	0
Connecticut.....	0	0	91	118	0	2	0	1
Middle Atlantic States:								
New York.....	0	0	874	703	0	0	8	12
New Jersey.....	0	2	212	331	0	0	4	3
Pennsylvania.....	0	1	741	840	0	0	11	3
East North Central States:								
Ohio.....	1	1	796	724	0	3	5	7
Indiana.....	0	0	169	152	0	2	7	1
Illinois.....	2	3	610	469	5	12	4	9
Michigan.....	1	0	803	493	1	0	1	4
Wisconsin.....	0	0	242	137	50	19	2	3
West North Central States:								
Minnesota.....	1	0	66	69	7	3	1	0
Iowa ¹	0	0	55	20	4	17	0	0
Missouri.....	1	0	95	101	7	3	8	0
North Dakota.....	0	0	24	12	0	0	0	1
South Dakota.....	0	0	4	16	6	0	1	1
Nebraska.....	1	0	49	49	2	1	0	0
Kansas.....	0	0	39	60	11	0	2	2
South Atlantic States:								
Delaware.....	0	0	8	14	0	0	1	0
Maryland ¹	0	0	58	88	0	0	7	3
District of Columbia.....	0	0	14	15	0	0	1	0
Virginia.....	0	0	29	46	0	1	5	6
West Virginia.....	1	0	78	21	0	1	20	4
North Carolina.....	0	0	23	47	2	1	1	2
South Carolina.....	1	1	8	5	0	3	0	5
Georgia ¹	0	1	10	6	0	1	16	6
Florida.....	0	0	3	9	2	0	7	1

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended Apr. 21, 1934, and Apr. 22, 1933—Continued

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Apr. 21, 1934	Week ended Apr. 22, 1933	Week ended Apr. 21, 1934	Week ended Apr. 22, 1933	Week ended Apr. 21, 1934	Week ended Apr. 22, 1933	Week ended Apr. 21, 1934	Week ended Apr. 22, 1933
East South Central States:								
Kentucky.....	0	0	43	43	0	0	0	14
Tennessee.....	1	1	26	47	1	1	2	4
Alabama ¹	0	1	9	8	0	2	3	12
Mississippi ¹	0	0	8	4	1	0	1	3
West South Central States:								
Arkansas.....	0	0	3	1	1	8	1	3
Louisiana.....	0	0	24	15	9	1	20	21
Oklahoma ⁴	1	0	9	12	8	2	4	0
Texas ²	0	0	81	69	36	23	14	6
Mountain States:								
Montana.....	1	0	8	22	0	0	0	1
Idaho ¹	0	0	8	0	9	5	0	1
Wyoming ¹	0	0	8	12	0	0	1	0
Colorado.....	0	0	31	22	0	3	2	0
New Mexico.....	0	0	22	10	0	0	4	4
Arizona.....	0	0	15	3	0	0	2	2
Utah.....	0	0	11	1	6	0	0	0
Pacific States:								
Washington.....	0	0	31	47	3	22	4	0
Oregon ¹	0	0	50	30	9	2	1	1
California.....	10	3	213	165	2	63	6	7
Total.....	22	14	5,974	5,579	182	201	181	161

¹ New York City only.

² Week ended earlier than Saturday.

³ Typhus fever, week ended Apr. 21, 1934, 14 cases, as follows: Georgia, 3; Alabama, 2; Texas, 9.

⁴ Exclusive of Oklahoma City and Tulsa.

⁵ Rocky Mountain spotted fever, week ended Apr. 21, 1934, 13 cases, as follows: Idaho, 1; Wyoming, 8; Oregon, 4.

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	Me-ningo-coccus-menin-gitis	Diph-theria	Influ-enza	Mala-ria	Mea-sles	Pel-lagra	Polio-my-e-litis	Scarlet fever	Small-pox	Ty-phoid fever
<i>January 1934</i>										
West Virginia.....	2	108	271		111		4	351	4	20
<i>February 1934</i>										
Colorado.....	1	20			340		3	227	27	7
West Virginia.....	2	73	298		176		1	310	2	14
<i>March 1934</i>										
Arkansas.....	1	27	289	57	2,496	60	5	33	5	10
Illinois.....	38	129	173	7	7,078		4	2,886	11	12
Iowa.....	10	27	47		884	1	1	352	37	3
Louisiana.....	1	113	48	34	1,116	4	0	96	8	44
Maine.....		1	8		109		1	71	0	37
Michigan.....	5	70	23	3	521		0	3,627	17	22
Minnesota.....	5	48	9		1,331		1	316	21	2
Missouri.....	16	241	1,053	50	6,285		3	735	30	14
Montana.....	3	11	192		188		0	47	0	3
New Jersey.....	8	73	84		2,404		1	898	0	12
New Mexico.....	1	33	20	1	471	1	3	96	7	4
Ohio.....	10	129	321		5,376		9	4,065	2	10
Rhode Island.....		7	2		29		0	70	0	0
Virginia.....	23	121	1,077	3	6,911	9	4	204	1	12
West Virginia.....	9	64	292		351		1	411	1	19

January 1934		March 1934—Continued		March 1934—Continued	
West Virginia:	Cases	German Measles—Continued.		Septic sore throat:	
Chicken pox.....	157	Ohio.....	2,830	Illinois.....	27
Dysentery.....	1	Rhode Island.....	1	Iowa.....	1
Mumps.....	23	Hookworm disease:		Louisiana.....	1
Whooping cough.....	228	Louisiana.....	1	Maine.....	2
		Impetigo contagiosa:		Michigan.....	64
		Iowa.....	3	Missouri.....	181
		Montana.....	12	Montana.....	5
		Lead poisoning:		New Mexico.....	4
		Illinois.....	6	Ohio.....	356
		New Jersey.....	1	Virginia.....	20
		Ohio.....	11	West Virginia.....	12
		Leprosy:		Tetanus:	
		Louisiana.....	1	Illinois.....	1
		Lethargic encephalitis:		Louisiana.....	8
		Illinois.....	6	New Jersey.....	1
		Iowa.....	1	Ohio.....	1
		Louisiana.....	2	Trachoma:	
		Maine.....	2	Arkansas.....	1
		Michigan.....	3	Illinois.....	4
		Minnesota.....	2	Montana.....	2
		Missouri.....	3	New Jersey.....	5
		Montana.....	1	Ohio.....	4
		Ohio.....	4	Trichinosis:	
		Virginia.....	4	Illinois.....	2
		Mumps:		Iowa.....	5
		Arkansas.....	190	Michigan.....	9
		Illinois.....	2,192	Montana.....	1
		Iowa.....	367	New Jersey.....	1
		Louisiana.....	7	Tularaemia:	
		Maine.....	15	Arkansas.....	1
		Michigan.....	882	Illinois.....	7
		Missouri.....	930	Louisiana.....	4
		Montana.....	5	Minnesota.....	2
		New Jersey.....	419	Ohio.....	1
		New Mexico.....	38	Virginia.....	1
		Ohio.....	461	West Virginia.....	1
		Rhode Island.....	6	Undulant fever:	
		Virginia.....	254	Arkansas.....	3
		West Virginia.....	37	Illinois.....	6
		Ophthalmia neonatorum:		Iowa.....	22
		Arkansas.....	1	Louisiana.....	2
		Illinois.....	2	Maine.....	2
		Ohio.....	56	Michigan.....	6
		Virginia.....	2	Minnesota.....	6
		Paratyphoid fever:		Missouri.....	3
		Arkansas.....	1	New Jersey.....	3
		Illinois.....	1	Ohio.....	7
		Louisiana.....	1	Rhode Island.....	2
		Michigan.....	1	Virginia.....	1
		Ohio.....	1	Vincent's infection:	
		Virginia.....	1	Illinois.....	55
		Puerperal septicemia:		Maine.....	3
		Illinois.....	2	Michigan.....	21
		New Mexico.....	2	Whooping cough:	
		Ohio.....	1	Arkansas.....	173
		Rabies in animals:		Illinois.....	1,961
		Illinois.....	38	Iowa.....	222
		Louisiana.....	11	Louisiana.....	19
		Maine.....	3	Maine.....	498
		Missouri.....	19	Michigan.....	1,163
		New Jersey.....	20	Minnesota.....	248
		Rabies in man:		Missouri.....	1,077
		Louisiana.....	1	Montana.....	35
		Missouri.....	1	New Jersey.....	895
		Rocky Mountain spotted fever:		New Mexico.....	145
		Montana.....	2	Ohio.....	2,765
		Scabies:		Rhode Island.....	186
		Montana.....	7	Virginia.....	399
				West Virginia.....	319

February 1934		March 1934	
Colorado:	Cases	Chicken pox:	
Chicken pox.....	665	Arkansas.....	73
Impetigo contagiosa.....	67	Illinois.....	2,283
Mumps.....	295	Iowa.....	307
Septic sore throat.....	3	Louisiana.....	125
Undulant fever.....	1	Maine.....	253
Vincent's infection.....	1	Michigan.....	1,690
Whooping cough.....	495	Minnesota.....	611
		Missouri.....	804
West Virginia:		Montana.....	222
Chicken pox.....	178	New Jersey.....	2,014
Mumps.....	24	New Mexico.....	57
Whooping cough.....	158	Ohio.....	2,533
		Rhode Island.....	143
		Virginia.....	447
		West Virginia.....	268
		Dengue:	
		Arkansas.....	2
		Diarrhea and enteritis:	
		Ohio (under 2 years).....	18
		Dysentery:	
		Illinois (amoebic).....	45
		Illinois (bacillary).....	5
		Illinois (amoebic carriers).....	104
		Iowa.....	4
		Louisiana.....	3
		Michigan.....	13
		Minnesota (amoebic).....	4
		Minnesota (bacillary).....	4
		Missouri.....	20
		New Jersey (amoebic).....	2
		New Mexico.....	1
		Virginia (amoebic).....	2
		Dysentery and diarrhea:	
		Virginia.....	54
		Favus:	
		Montana.....	1
		Food poisoning:	
		Ohio.....	26
		German measles:	
		Illinois.....	390
		Iowa.....	1,921
		Maine.....	92
		Montana.....	12
		New Jersey.....	234
		New Mexico.....	105

PLAGUE-INFECTED GROUND SQUIRRELS IN KERN AND TULARE COUNTIES, CALIF.

The Director of Public Health of the State of California has reported that from March 28 to April 19, 1934, 31 lots of ground squirrels (including 125 animals) from Kern and Tulare Counties, in the interior of California, were found to be plague infected. The diagnosis has been confirmed by animal inoculation for some of the lots.

WEEKLY REPORTS FROM CITIES

City reports for week ended Apr. 14, 1934

[This table summarizes the reports received regularly from a selected list of 121 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	Cases	Deaths								
Maine:												
Portland.....	1		0		2	2	1	0	1	0	6	29
New Hampshire:												
Concord.....	0		0		16	0	1	0	1	0	1	11
Nashua.....	0				3		6	0		0	0	
Vermont:												
Barre.....	0		0		0	2	0	0	0	0	0	6
Burlington.....	0		0		0	0	1	0	0	0	11	7
Massachusetts:												
Boston.....	8		2		369	27	63	0	14	0	79	246
Fall River.....	0		1		0	1	4	0	1	0	11	26
Springfield.....	0		0		3	2	8	0	0	0	23	40
Worcester.....	0		0		1	10	14	0	2	0	7	44
Rhode Island:												
Pawtucket.....												25
Providence.....	0		0		1	7	11	0	1	0	8	63
Connecticut:												
Bridgeport.....	0	1	1		2	4	8	0	2	0	0	35
Hartford.....	0	1	0		0	5	11	0	1	0	0	33
New Haven.....	0	1	0		1	3	2	0	0	0	7	39
New York:												
Buffalo.....	5		1		109	31	13	0	6	0	23	161
New York.....	53	11	5		155	206	298	0	87	4	113	1,654
Rochester.....	3		0		1	3	40	0	2	0	14	66
Syracuse.....	0		0		9	2	3	0	1	0	58	52
New Jersey:												
Camden.....	1	1	0		90	2	8	0	1	0	3	38
Newark.....	0	4	0		8	10	33	0	8	0	40	106
Trenton.....	0	2	0		46	1	13	0	3	0	0	29
Pennsylvania:												
Philadelphia.....	2	8	7		762	64	131	0	31	1	56	526
Pittsburgh.....	9	8	5		236	37	25	0	5	0	46	173
Reading.....	1		0		1	0	6	0	1	0	9	33
Scranton.....	0				3		1	0		0	1	
Ohio:												
Cincinnati.....	3		2		15	14	39	0	8	0	12	132
Cleveland.....	2	32	2		98	38	155	0	12	0	157	241
Columbus.....	1	3	3		2	5	57	0	9	0	45	89
Toledo.....	1		0		75	15	32	0	0	0	131	75
Indiana:												
Fort Wayne.....	6		0		11	1	13	0	1	6	4	34
Indianapolis.....	2		0		375	17	20	1	5	0	75	
South Bend.....	0		0		3	1	5	0	0	0	0	22
Terre Haute.....	2		0		0	3	2	0	0	0	0	23
Illinois:												
Chicago.....	1	2	2		374	67	274	0	37	0	185	750
Cicero.....	0		0		0	1	0	0	0	0	0	6
Springfield.....	0	1	0		119	4	0	0	1	0	16	22
Michigan:												
Detroit.....	9	1	1		83	37	151	0	14	0	148	294
Flint.....	0		1		8	19	104	0	0	0	10	62
Grand Rapids.....	0		1		1	4	33	0	1	0	2	35
Wisconsin:												
Kenosha.....	0		0		1	0	18	0	0	0	5	11
Milwaukee.....	1		0		49	5	97	0	5	0	69	104
Racine.....	0		0		1	0	4	1	0	0	4	7
Superior.....	0		0		0	0	0	0	0	0	1	9
Minnesota:												
Duluth.....	0		0		0	5	1	0	2	0	0	26
Minneapolis.....	5		1		9	10	16	0	1	0	42	105
St. Paul.....	0		0		14	4	11	0	7	0	31	71
Iowa:												
Des Moines.....	3				0		16	0		0	0	33
Sioux City.....	0				1		0	0			5	
Waterloo.....	0				0		0	0			13	
Missouri:												
Kansas City.....	2		0		4	15	9	0	5	0	26	95
St. Joseph.....	2		0		15	2	1	0	0	0	0	10
St. Louis.....	21	1	1		56	19	26	3	4	1	57	218

City reports for week ended Apr. 14, 1934—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								
Idaho:											
Boise.....	0			18		2		0	0	1	4
Colorado:											
Denver.....	2	49	0	106	7	19	2	4	0	91	79
Pueblo.....	0		0	8	1	1	0	1	0	28	10
New Mexico:											
Albuquerque.....	0		0	27	1	2	0	4	0	5	17
Utah:											
Salt Lake City.....	0		0	100	1	10	1	0	0	61	24
Nevada:											
Reno.....	0		0	0	0	0	0	0	0	0	2
Washington:											
Seattle.....	0		0	6	6	12	2	4	0	62	80
Spokane.....	0		0	22	2	1	1	0	0	25	25
Tacoma.....											
Oregon:											
Portland.....	1		0	11	4	11	1	2	0	23	78
Salem.....	0	1		0		2	0		0	0	
California:											
Los Angeles.....	14	21	1	59	10	75	0	28	1	94	298
Sacramento.....	1		0	7	5	5	0	2	1	2	28
San Francisco.....	0	2	0	160	6	15	0	12	0	29	167

State and city	Meningococcus meningitis		Polio-myelitis cases	State and city	Meningococcus meningitis		Polio-myelitis cases
	Cases	Deaths			Cases	Deaths	
Massachusetts:				North Dakota:			
Springfield.....	1	0	0	Fargo.....	0	1	0
Connecticut:				Tennessee:			
Hartford.....	1	0	0	Memphis.....	0	1	0
New York:				Arkansas:			
New York.....	0	0	1	Fort Smith.....	1	0	0
New Jersey:				Texas:			
Newark.....	2	0	0	Dallas.....	1	1	0
Pennsylvania:				Colorado:			
Philadelphia.....	1	1	0	Denver.....	1	0	0
Ohio:				Washington:			
Cleveland.....	0	1	0	Seattle.....	0	0	1
Indiana:				Oregon:			
Indianapolis.....	1	0	0	Portland.....	0	0	1
Terre Haute.....	1	1	0	California:			
Illinois:				Los Angeles.....	0	0	2
Chicago.....	5	2	0	Sacramento.....	1	1	0
Missouri:				San Francisco.....	0	1	1
St. Joseph.....	2	0	0				
St. Louis.....	1	1	0				

¹ Nonresident.

Lethargic encephalitis.—Cases: Fall River, 1; Philadelphia, 1; Cleveland, 1; Chicago, 1; Birmingham, 1; San Francisco, 1.

Pellagra.—Cases: Raleigh, 1; Charleston, S.C., 3; Atlanta, 1; Louisville, 1; Birmingham, 1; Dallas, 1.

Typhus fever.—Savannah, Ga., 1 case.

FOREIGN AND INSULAR

CANADA

Provinces—Communicable diseases—2 weeks ended April 7, 1934.—
 During the 2 weeks ended April 7, 1934, cases of certain communicable diseases were reported by the Department of Pensions and National Health of Canada, as follows:

Disease	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia	Total
Cerebrospinal meningitis		1			1	1	1		1	5
Chicken pox		5		118	279	37	37	17	43	536
Diphtheria		2	12	27	7	14	11	6		79
Dysentery				1	2				1	4
Erysipelas				16	10	8	2	2		38
Influenza		63		1	21	2		16	37	140
Lethargic encephalitis					1					2
Measles		4	1	275	100	962	224	3	21	1,590
Mumps		3			420	13	14	4	77	531
Paratyphoid fever					4				1	5
Pneumonia	5	18			36		2		15	76
Polio-myelitis					1			1	1	3
Scarlet fever	2	26	7	136	328	30	27	10	194	760
Trachoma						4	12		7	23
Tuberculosis	2	2	11	96	64	22	16	9	40	262
Typhoid fever			2	54	12	2	3	2	4	79
Undulant fever				1	1					2
Whooping cough		22		213	503	21	46	8	9	822

CUBA

Provinces—Notifiable diseases—4 weeks ended March 24, 1934.—
 During the 4 weeks ended March 24, 1934, cases of certain notifiable diseases were reported in the provinces of Cuba, as follows:

Disease	Pinar del Rio	Havana	Matanzas	Santa Clara	Camaguey	Oriente	Total
Cancer	1	3		11		1	16
Chicken pox		4	8	5	4	4	25
Diphtheria		12	3				15
Hookworm disease		2		4			6
Leprosy			1	3		2	6
Malaria	106	6	15	281	28	919	1,355
Measles		10		2		1	13
Tetanus, infantile				1			1
Tuberculosis	16	44	29	219	12	19	339
Typhoid fever	9	10	7	24	8	12	70

POLAND

Vital statistics—1933.—The central office of statistics of Poland has published the following vital statistics for 1933:

Number of marriages.....	273, 874
Marriages per 1,000 inhabitants.....	8. 3
Number of live births.....	868, 675
Live births per 1,000 inhabitants.....	26. 5
Total deaths.....	466, 210
Deaths per 1,000 inhabitants.....	14. 2
Infant deaths.....	111, 229
Deaths of infants per 100 live births.....	12. 8

VIRGIN ISLANDS

Notifiable diseases—January–March 1934.—During the months of January, February, and March 1934, cases of certain notifiable diseases were reported in the Virgin Islands, as follows:

Disease	January 1934	February 1934	March 1934	Disease	January 1934	February 1934	March 1934
Chicken pox.....			2	Syphilis.....	9	6	14
Filariasis.....	1	3	2	Tetanus.....		1	
Gonorrhea.....	6	7	5	Tuberculosis.....	6	3	1
Hookworm disease.....	2	4	6	Typhoid fever.....		11	
Malaria.....	65	145	60	Whooping cough.....	1		
Pellagra.....	3	1	1				

¹ Includes 3 imported cases.

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. 27, 1934, pp. 541–554. A similar cumulative table will appear in the PUBLIC HEALTH REPORTS to be issued May 25, 1934, and thereafter, at least for the time being, in the issue published on the last Friday of each month.)

Cholera

Philippine Islands.—No cholera was reported in the Philippine Islands during the week ended April 21, 1934.

Plague

United States—California.—From March 28 to April 19, 1934, 19 lots with a total of 72 plague-infected ground squirrels were reported in Kern County, and 12 lots with a total of 53 plague-infected ground squirrels were reported in Tulare County, Calif. (See p. 574.)