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A UNIT FOR SCARLET FEVER STREPTOCOCCUS ANTITOXIN[1]

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During the past few years several methods of testing the potency of scarlet fever streptococcus antitoxin have been tried. Dick and Dick (1) (2) (3), whose work furnishes the basis of the unit here suggested, tested the neutralization of scarlet fever streptococcus toxin by the antitoxin by means of a skin test on human beings; and Wadsworth, Kirkbride, and Wheeler (4) applied this method to the skin of goats. Dochez and Sherman (5) and Blake, Trask, and Lynch (6) (7) measured the antitoxic potency of serums by determining the smallest volume of the antitoxin which, when injected intracutaneously in the area of the rash in an early case of scarlet fever, would produce local blanching (Schultz-Charlton reaction). O'Brien (8) and Okell (9) tested the activity of antitoxins in producing passive immunity in individuals who were susceptible to the toxin of *Streptococcus scarlatinae*, while Parish and Okell (10) compared the potency of antitoxic serums in protecting rabbits against the septicemia produced by inoculation with broth cultures of the scarlet fever streptococcus. Dyer (11), Povitsky (12), Eagles (13), and others have attempted to apply the Ramon flocculation test, which has been employed for testing other antitoxins.

Of the methods cited, those based on testing the potency of antitoxin in neutralizing toxin as shown by skin tests have been used more extensively than any others, and seem to be the most useful. In these methods, as in methods early in use for testing other antitoxins, a fixed amount of a toxin is mixed with different amounts of antitoxin. The amount of toxin used in the mixtures is spoken of as the test dose and, in the case of the scarlet fever streptococcus toxin which we have used, contains five skin test doses—a skin test dose being the amount of toxin necessary to produce a reaction at least 1

[1] EDITORIAL NOTE.—The Permanent Commission on the Standardization of Sera, etc., of the Health Organization of the League of Nations has selected as a basis for study the standard scarlet fever streptococcus serum here described. The report of the commission (Frankfort-on-Main, Apr. 25 to 28, 1928) states:

"Without expressing an opinion on the etiology of scarlet fever or on the methods of testing sera prepared with the products of culture of hemolytic streptococci isolated from cases of scarlet fever, it would be useful to render future researches along this line more readily comparable. To this end, the standard serum adopted by the Federal Government of the United States may be selected as a basis for study; the Hygienic Laboratory has agreed to place at the disposition of the Health Organization of the League of Nations a sufficient quantity of the standard serum."

centimeter in diameter about 24 hours after intracutaneous injection in the majority of individuals susceptible to scarlet fever (1) (14). In using such a method it has been found that a great deal depends on the test subject, due to differences in susceptibility of individuals. In some individuals a certain volume of antitoxin when mixed with a given amount of toxin will show neutralization, while on other subjects several times as much antitoxin may be required to neutralize the same test dose of toxin.

Protocol I illustrates wide variations encountered in attempting to titrate an antitoxin against the toxin.

PROTOCOL I

Illustrating conflicting results obtained in testing the potency of scarlet fever streptococcus antitoxin by the toxin neutralization method without a control serum [1]

Case No.	Toxin [2]	Antitoxin					
	One skin test dose	1/10,000 c. c. [3]	1/10,000 c. c. plus toxin—one skin test dose	1/20,000 c. c. plus toxin—one skin test dose	1/30,000 c. c. plus toxin—one skin test dose	1/40,000 c. c. plus toxin—one skin test dose	1/50,000 c. c. plus toxin—one skin test dose
659	+	0	0	0	0	0	0
418	+	0	0	0	0	0	+
519	+	0	0	0	0	+	+
608	+	0	0	0	+	+	+
529	+	0	0	+	+	+	+
555	+	0	+	+	+	+	+

[1] The same toxin and the same antitoxin were used throughout these tests.
[2] Toxin control.
[3] Serum control.
0=Negative reaction.
+=Positive reaction.

From the foregoing protocol the necessity for some means of eliminating irregularities in results due to the varying susceptibility of subjects is obvious. It would seem that this could be accomplished best by a method similar to that used in the present official standardization of other antitoxins—that is, by the establishing of a standard serum as the fixed basis with which the antitoxins to be tested could be compared. To serve this purpose a serum was selected and dried to insure stability. The redissolved serum was then carefully titrated against the previously selected test dose of toxin on a sufficient number of subjects to determine the reciprocal neutralizing value of the serum and the toxin, one against the other. In applying the standardization test in practice, a range of doses of the standard serum are mixed each with a test dose of toxin and injected intracutaneously. On the same subject, at the same time, a range of doses of the antitoxin to be tested, mixed with the same test dose of toxin, are injected. Thus, the volume of a new antitoxin is determined which will neutralize one test dose of toxin on a given subject, and this volume is compared with the volume of the standard control serum

which also shows neutralization of one test dose of toxin on the same subject at the same time. As the neutralizing value of the standard serum is known, the potency of the new antitoxin may be calculated readily. Thus, if, on a certain individual, 1/400 of a cubic centimeter is found to be the smallest volume of the standard serum which will neutralize one test dose of toxin, and 1/6,000 of a cubic centimeter of a new antitoxin also shows neutralization of one test dose of toxin, then the new antitoxin is 15 times as strong as the standard serum.

It seems desirable that the definition of the potency of scarlet fever streptococcus antitoxin should be expressed in terms of "units" as with other antitoxins in common use. To avoid confusion, possibly arising from different-sized doses of similar products, it also seems desirable that the average therapeutic dose of scarlet fever streptococcus antitoxin should be approximately the same as that of diphtheria antitoxin, the doses of both being expressed in units. It has been found by clinicians that the average therapeutic dose of scarlet fever streptococcus antitoxin should contain enough antitoxin to neutralize from 300,000 to 500,000 skin test doses of toxin. Establishing as a unit 10 times the smallest amount of the standard serum which has been found necessary to neutralize one test dose of toxin, each test dose representing five skin test doses, the therapeutic dose of the antitoxin will approximate in number of units the average dose of diphtheria antitoxin.

The standard scarlet fever streptococcus serum is kept at the Hygienic Laboratory under the same conditions of storage that have been maintained with the standard diphtheria and tetanus unit serums for several years, during which time no measurable deterioration has taken place in the latter serums.

A definite amount of this standard serum is therefore suggested as a permanent unit. This unit has been selected to equal 10 times the smallest amount of scarlet fever streptococcus antitoxin necessary to neutralize one test dose of toxin, but the designated amount of serum, and not the toxin dose, is the final measurement of reference; that is, the unit will remain the same without regard to the dose of toxin used from time to time for comparing the standard with other antitoxins, or the method of test employed. The standard serum as dissolved at present contains 40 such units per cubic centimeter.

Protocol II illustrates the results of tests to determine the toxin neutralizing potency of a new antitoxin in comparison with the standard serum.

PROTOCOL II

Potency test on scarlet fever streptococcus antitoxin Lot X

Case	Hour of reading	Antitoxin X					Hygienic laboratory standard serum lot C[1]					Toxin,[3] one skin test dose	Number of units per c. c. of antitoxin Lot X
		1/4,000 c. c.[2]	1/4,000 c. c. plus one test dose of toxin	1/5,000 c. c. plus one test dose of toxin	1/6,250 c. c. plus one test dose of toxin	1/7,800 c. c. plus one dose test of toxin	1/400 c. c.[2]	1/400 c. c. plus one test dose of toxin	1/500 c. c. plus one test dose of toxin	1/625 c. c. plus one test dose of toxin	1/780 c. c. plus one test dose of toxin		
490	24	0	0	0	0	0	0	0	0	0	0	15x17	500.
	48	0	0	8x7	8x11	8x11	0	7x8	8x10	7x11	12x14	0	
324	24	0	0	0	0	3x3	0	3x3	3x6	5x5	7x9	20x25	500.
	48	0	5x5	0	9x14	6x10	0	5x6	8x10	9x12	10x15	Fading.	
237	24	0	4x4	3x4	3x4	3x2	0	3x3	5x5	6x7	7x8	20x21	500.
	48	0	0	0	0	8x8	0	7x9	8x8	8x9	10x12	0	
676	24	0	0	0	4x5	0	0	0	0	0	0	15x15	No end point.
	48	0	0	0	0	0	0	0	0	0	0	0	
270	24	0	3x5	0	8x11	10x11	0	6x6	5x4	10x14	10x15	25x25	No end point.
	48	0	9x11	15x19	15x20	15x25	0	9x14	15x19	17x19	15x21	Fading.	
663	24	10x11	10x11	8x10	10x11	8x11	8x12	11x15	10x15	12x15	10x14	15x22	Serum sensitive.
	48	0	3x4	7x8	8x12	9x7	0	0	7x8	9x11	8x9	15x25	

[1] Standard serum containing 40 units per c. c.
[2] Serum control.
[3] Toxin control.

0=No reaction.
NOTE.—Measurements of two diameters of each reaction are recorded in millimeters.

The fraction of a cubic centimeter of serum is stated in each instance. Reactions less than 1 centimeter in diameter are considered negative. Neutralization is considered complete only when reactions to toxin-antitoxin mixtures are negative at both the 24 and 48 hour readings.

Protocol III illustrates the titration of a new lot of antitoxin by a manufacturer, while Protocol IV gives the results of tests made at the Hygienic Laboratory on the same lot.

PROTOCOL III

Manufacturer's protocol giving the results of his tests to determine potency of a new lot of antitoxin

Case	Hour of reading	Manufacturer's antitoxin Lot 50			Hygienic Laboratory standard serum Lot C				Hygienic Laboratory control toxin, one skin test dose	Number of units per c. c. of antitoxin Lot 50
		1/5,000 c. c.	1/5,000 c. c. plus one test dose of toxin	1/6,000 c. c. plus one test dose of toxin	1/400 c. c.	1/400 c. c. plus one test dose of toxin	1/600 c. c. plus one test dose of toxin	1/800 c. c. plus one test dose of toxin		
R. J.	24	0	0	0	0	0	9 x 7	9 x 9	15 x 15	500
	48	0	8 x 8	10 x 13	0	0	9 x 15	12 x 9	15 x 15	
M. V.	24	0	0	6 x 6	0	0	8 x 9	7 x 10	19 x 20	500
	48	0	0	9 x 14	0	0	7 x 10	10 x 11	15 x 18	
K. A.	24	0	0	17 x 17	0	0	10 x 9	10 x 10	25 x 25	500
	48	0	0	22 x 23	0	0	10 x 10	12 x 11	25 x 25	

NOTE.—See footnotes with Protocol II.

PROTOCOL IV

Results of tests made at the Hygienic Laboratory on same lot of manufacturer's antitoxin shown in Protocol III

Case	Hour of reading	Antitoxin Lot 50				Hygienic Laboratory standard serum Lot C					Hygienic Laboratory control toxin, one skin test dose	Number of units per c. c. of antitoxin, Lot 50
		1/5000 c. c.	1/5000 c. c. plus one test dose of toxin	1/6250 c. c. plus one test dose of toxin	1/7800 c. c. plus one test dose of toxin	1/400 c. c.	1/400 c. c. plus one test dose of toxin	1/500 c. c. plus one test dose of toxin	1/625 c. c. plus one test dose of toxin	1/780 c. c. plus one test dose of toxin		
674	24	0	5x5	5x5	8x10	0	0	0	4x4	6x6	16x17	500.
	48	0	6x8	13x14	18x28	0	0	10x15	10x18	13x15	0	
505	24	0	0	0	0	0	0	0	0	0	17x25	500.
	48	0	0	10x10	11x14	0	7x9	9x13	9x11	14x12	0	
324	24	0	5x6	9x9	8x9	0	3x3	3x6	5x5	7x9	20x25	500.
	48	0	8x8	11x20	15x27	0	5x6	8x10	9x12	10x15	Fading.	
332	24	0	4x4	5x4	14x13	0	0	0	4x5	3x5	30x25	No end point.
	48	0	18x22	25x25	25x30	0	20x18	20x20	15x20	20x20	0	
745	24	30x30	30x30	30x35	30x30	25x25	30x30	30x30	30x30	25x25	20x30	Serum sensitive.
	48	Serum reactions approximately the same size as at 24-hour reading									0	

NOTE.—See footnotes with Protocol II.

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CURRENT WORLD PREVALENCE OF COMMUNICABLE DISEASES [1]

United States, May 6–June 2, 1928

The mortality rate from all causes in 67 large cities in the United States dropped off rapidly after the second week in May from the high level which had prevailed since the middle of March. Nevertheless, the general death rate in these cities remained relatively high; for the week ended June 2 it was 13.3 per 1,000 population (annual basis), as against 11.8 in the corresponding week of 1927 and 12.3 in the corresponding week of 1926. Although the death rate at no time rose sharply to an epidemic height, the maximum rate for a single week being 15.5 in the week ended May 5, the mortality rate averaged approximately 15 per 1,000 for a period of 8 weeks, and the death rate in these cities from January 1 to June 2 has been 14.3 as against 13.5 in the corresponding period of 1927. The rate is more favorable to date for the year, however, than it was in 1926, when there was a marked respiratory epidemic, and is about the same as it was in 1925.

Influenza and pneumonia.—The mortality from influenza and pneumonia in the principal cities also remained on a relatively high level as compared with the preceding year, but in the week ended May 19 the deaths from these causes turned downward. The death rate from influenza and pneumonia combined in the week ended May 19 was higher, on the average, than last year in the cities in all sections of the country except in the South Atlantic, West South Central, and Pacific divisions.

The number of cases of influenza reported by 31 States declined sharply, however, during the month of May. The maximum was reported for the week ended May 5, with 4,185 cases, and the weekly incidence dropped to 1,212 for the week ended June 2. The reported incidence in the early winter showed only a normal seasonal increase and compared very favorably with the same period of 1927; but in 1927 the maximum incidence was passed in the early part of March, when 2,532 cases were reported for the week ended March 10, whereas in the current year the most marked increase in cases occurred unusually late. This may have some relation to the fact that no real epidemic prevalence, such as occurred in February and March, 1926, took place, although cases of the disease were numerous throughout April. The decline in cases during May was noted in practically all States.

Meningococcus meningitis.—A decrease in the reported incidence of meningococcus meningitis occurred in the week ended June 2, when 101 cases were reported by 42 States, which is the smallest number reported by these States since the week ended March 3. During the four weeks ended June 2, these 42 States reported 493 cases, of

[1] From the Office of Statistical Investigations, United States Public Health Service.

which 359 were in the following eight States: California, Illinois, Michigan, Missouri, New Jersey, New York, Pennsylvania, and Wisconsin. Of these eight States, only New York showed a decline from the total cases reported in the preceding four-week period, and Michigan, Missouri, New Jersey, and Wisconsin reported an increased number.

Smallpox.—The incidence of smallpox continued to decline during the month of May, the total number of cases reported by 42 States during the four-week period ended June 2 being 3,519, as compared with 3,900 for the preceding four-week period. The decline has been general, with no very marked change in the number of cases in any State. A slight increase in the number of cases was reported in Alabama, where the cases for the two weeks ended June 2 numbered 58, as compared with 15 in the preceding two weeks.

Scarlet fever.—The number of cases of scarlet fever reported weekly by 42 States and the District of Columbia has declined steadily though slowly since March. In the week ended June 2, the total number reported was 2,762 cases, as compared with 4,022 in the week ended May 5. The decline may be expected to continue throughout the summer, as the lowest incidence is usually reached at the end of August. The total reported incidence has been somewhat less in the current year than in 1927, but about equal to that in 1926. The case incidence reported in cities, however, indicates that the disease has been more prevalent than a year ago in the South Atlantic, East South Central, and West South Central divisions of the country, but much less prevalent in all other sections.

Diphtheria.—A gradual decline in the incidence of diphtheria continued through May and there were about 900 cases reported by 42 States for the week ended June 2, approximately 200 less than the weekly totals in the first half of May. During the four-week period ended June 2, 3,951 cases were reported, which was 1,000 less than the number reported for the same period in 1927, but only slightly less than in 1926. Throughout April and May the number of cases reported by the individual States showed very little change. In May a slight increase occurred in California, New Jersey, and Michigan, but the general trend in nearly all States was downward.

Typhoid fever.—The number of cases of typhoid fever reported weekly by 42 States began to increase during the month of May. For the four-week period ended June 2, there were 873 cases reported, as compared with 687 cases for the preceding four-week period. A slight increase occurred in several of the States. In Alabama the number of cases increased from 17 in the four-week period ended May 5 to 36 in the four-week period ended June 2; in California the number increased from 20 to 62; in Georgia from 13 to 53; in Tennessee from 16 to 39; in Wisconsin from 11 to 126. The increase in typhoid fever cases is normal for this season of the year, and the incidence is considerably lower than that of last year and slightly less than in 1926.

Poliomyelitis.—The number of cases of poliomyelitis increased during May; 102 cases were reported by 43 States during the four weeks ended June 5, as compared with 81 the preceding four weeks. In California the number of cases declined from 23 to 18, but in New York the number increased from 4 to 13; in Massachusetts, cases increased from 3 to 7; and in Pennsylvania 5 cases were reported in the earlier four weeks and 6 cases in the later. No other States reported more than five cases in either period.

Measles.—The expected seasonal decline in the incidence of measles began during May, as is evident from the reports of 38 States, which showed a total of 32,000 cases for the two weeks ended June 2, as compared with 36,500 cases for the two-week period ended May 5. In general, measles has maintained a higher level throughout the present year than in 1927, but is lower than in 1926. Among the States showing a significant decrease in the number of cases of measles reported are Arkansas, Georgia, Indiana, Louisiana, Maryland, Massachusetts, North Carolina, and Tennessee. On the other hand, several of the States reported a slight increase in the number of cases for the same period. In New York the number of cases reported increased from 7,012 in the two weeks ended May 5 to 8,157 in the two weeks ended June 2, and in Pennsylvania, from 4,689 to 5,548. The decrease should become more general during June, as the incidence reaches its lowest point in midsummer.

Foreign Countries[1]

The general prevalence for certain epidemic diseases in most foreign countries during March and April is summarized below.

Plague.—The plague outbreak at Aden decreased rapidly in April; 314 cases were reported in the two weeks ending April 7, 167 cases were reported in the next two weeks, and only 66 cases in the two weeks ending May 5. The reported fatality of cases has averaged about 75 per cent, and the deaths since the beginning of the year give a death rate of no less than 20 per 1,000 population. The population of Aden is about 55,000.

At Baghdad sporadic cases continued to occur, but only 18 cases had been reported from January 1 to May 12, 1928.

In India, plague was very much more in evidence in the United Provinces in March than elsewhere. During the four weeks ended March 24 14,875 deaths were attributed to plague in that Province, being 73.5 per cent of all India's plague mortality during those weeks. There were two main centers—an eastern one, including the districts of Azamgarh, Ghazipur, Gorakhpur, Bastia, and Fyzabad, and a northwestern one, in which the districts of Muzaffarnagar, Moradabad, Badaun, Bareilly, Pilibhit, Shahjahanpur, and Hardoi reported the largest number of cases.

[1] Data from the Monthly Epidemiological Report of the Health Section of the League of Nations' Secretariat, May 15, 1928, supplemented by information published in the PUBLIC HEALTH REPORTS.

The maximum plague mortality in the eastern center of the United Provinces is normally reached in March, so no further considerable increase is likely to occur. In the western center, however, the peak of the curve is not likely to be reached before the middle of April. The present outbreak, in so far as the United Provinces is concerned, is likely to reach the same intensity as that of 1923; it is considerably more severe than those which occurred between 1924 and 1927.

The plague situation remains very favorable in the Punjab, only Ambala and neighboring districts in the northern part of the Province being affected by the disease.

At Hong Kong, one case of plague was reported on May 4, the first since September, 1923.

At Suez, 8 cases of plague occurred during April, and 42 cases had been reported since the beginning of the year. One case of plague was reported from Algiers on May 2, the only case to occur in the current year. No cases were reported in April in Mediterranean countries.

The number of plague cases reported in Senegal increased as usual in April, and during the first 20 days of that month 51 cases were reported in the district of Tivaouane and 30 cases in that of Thies. No plague case has been reported at Dakar since November. There were 12 plague cases at Lagos during the four weeks ended April 28, but none elsewhere in Nigeria; no case has been reported at Ijebu since February 11.

Plague was reported in several localities in Brazil during the early months of the year. In January there was a small outbreak at Parnahyba in the State of Sao Paulo; in March there were 2 cases at Porto Alegre. Thirty cases were reported at Bahia and 12 at Rio de Janeiro during the first quarter of the year. The Federal Health Service stated on April 19 that the last cases in those towns occurred 20 and 30 days previously, respectively.

In the Argentine, sporadic plague cases have been reported since the beginning of the year at Rosario, Buenos Aires, and at various inland localities in the Provinces of Cordoba, Santa Fe, and Santiago, which comprise the great plains west of the Parana River.

In Peru, 71 plague cases were reported in January and 41 in February, which is more than were reported last year but less than were reported in earlier years; 8 of these cases occurred in the town of Lima. Only 10 cases were reported at Guayaquil during the two first months of the year, as compared with 52 and 56 cases during the corresponding periods of 1926 and 1927, respectively.

Plague was reported in March about 60 miles from Caracas, in the State of Miranda in Venezuela.

Cholera.—The number of cholera cases reported in India increased from 9,293 during the three weeks ended March 3 to 14,144 in the following three weeks. This is the season, however, when such an increase usually occurs. A large majority of the cases (81 per cent) occurred in Bengal and the adjoining districts of Bihar and Orissa; the increase was confined to this area, whereas the incidence has decreased in Madras Presidency since the beginning of February.

In Siam, 768 cholera cases were reported during the first quarter of 1928, which is slightly more than the number reported during the corresponding period of the preceding year. There has been no increase of the incidence since early in February.

Cholera cases have increased steadily during the current year in Cochin-China, where 593 cases were reported in the first 20 days of April as against 462 in the preceding 20 days. In Cambodia, the number of cases began to increase at the end of March, and 145 cases were reported in the first 20 days of April, as compared with 55 cases in the first 20 days of March. The disease is more prevalent than it was last year in Cochin-China, but less prevalent in Cambodia. Very few cases have been reported in other parts of Indo-China.

Influenza.—No epidemics of influenza occurred during the first four months of the year anywhere in Europe, and the past winter can be described as one of the most favorable influenza years since 1918. In English towns, the mortality from influenza during the first four months was equally low only in 1921 and 1923.

There was a small increase of influenza deaths at the end of March in English, Dutch, and German towns, but the incidence soon decreased again. In Vienna, where influenza was little in evidence during the preceding winter, it caused 50 deaths in March, as compared with 6 in February.

In the Netherlands, the number of deaths attributed to influenza increased from 122 in February to 419 in March, giving a total of 688 deaths during the first quarter of 1928, as compared with 2,824 and 432 deaths during the corresponding period of 1927 and 1926, respectively. In March, 73 deaths occurred at Rotterdam, 32 at The Hague, and 22 at Amsterdam.

In the Union of Soviet Socialist Republics, influenza was more prevalent in January, the latest month for which figures are available, than in the corresponding month a year ago. Moscow town and Government reported 63,481 cases and Leningrad town and Government 10,931 cases, as compared with 16,486 and 2,163 cases, respectively, in January, 1927. During the same month, there were only 63 deaths from influenza in Leningrad and 46 in Moscow, which shows that the disease was of a benign type. The increase over last year seems to have extended over the whole country, but to have been least marked in Siberia.

Influenza was reported to be epidemic and causing a considerable mortality in December, 1927, in the Province of Chihli in Northern China; in November it had been epidemic in Shantung and Kiangsu, the two Provinces south of Chihli. Influenza was epidemic in December also in Yunnan, but was of a mild type, causing no appreciable mortality.

There was a slight increase of deaths attributed to influenza in towns in Japan in March, the number being 450 during the four weeks ended March 31, as compared with 228 during the preceding four weeks.

CURRENT STATE MORTALITY STATISTICS

For the information of public health officials and others interested, the data in the following tables have been compiled from the monthly mortality reports of State health departments for the latest month for which published records are available. Statistics of most communicable diseases are not included, since they are available in other tabulations in the Public Health Reports. Statistics of deaths from other causes are limited for the most part to those causes which appear in the State reports. In the case of States which publish detailed mortality reports each month, the record of only the principal groups of causes and certain important specific causes have been used.

For purposes of comparison, the mortality records for a few preceding years are given, the rates being for the month corresponding to the last month for which the 1928 rate is available.

These tabulations will be enlarged as the current data on mortality from additional States become available.

Monthly State mortality statistics

(All rates are per 100,000, except mortality from all causes and infant mortality)

	1928			Corresponding month for—			
	Jan.	Feb.	Mar.	1927	1926	1925	1924
ALL CAUSES: ANNUAL RATE PER 1,000							
Alabama:							
White	10.4	10.1	10.7	8.4	12.4	----	----
Colored	14.6	17.3	17.7	13.6	20.5	----	----
Connecticut	11.7	12.0	12.0	11.6	15.3	13.1	13.7
Indiana	12.4	11.7	13.6	11.9	15.9	14.4	13.6
Iowa	----	----	12.1	----	----	----	----
Kansas	10.9	----	----	----	----	----	----
Minnesota	9.5	9.6	9.6	----	----	----	----
New Jersey	11.3	12.4	13.3	12.8	11.8	12.6	13.2
New York	13.6	14.2	14.4	13.7	19.8	16.2	15.8
Oklahoma	10.5	----	----	----	----	----	----
Pennsylvania	12.4	13.3	13.8	13.4	17.5	14.5	15.1
Tennessee	11.8	12.9	12.3	11.9	----	----	----

Monthly State mortality statistics—Continued

(All rates are per 100,000, except mortality from all causes and infant mortality)

INFANT MORTALITY: RATE PER 1,000 LIVE BIRTHS

	1928			Corresponding month for—			
	Jan.	Feb.	Mar.	1927	1926	1925	1924
Alabama:							
White	80.3	78.4	77.6	56.2	70.2		
Colored	126.2	118.0	108.5	76.1	108.0		
Connecticut	68.4	55.7	65.7	68.6	89.2	85.6	89.2
Indiana	68.7	59.8	67.9	60.7	77.5	76.4	67.6
Iowa			66.4				
Kansas	70.0						
New York	68.0	72.0	73.0	69.0	95.0	82.0	84.0
Oklahoma	86.2						
Pennsylvania	70.6	81.0	83.0	82.0	109.0	94.0	

INFLUENZA (11)

Alabama:							
White	89.1	83.9	98.8	48.1	239.5		
Colored	86.0	112.8	124.0	56.6	348.3		
Connecticut	28.5	25.8	19.7	37.1	110.3	57.0	26.6
Indiana	48.1	44.0	69.3	39.6	167.0	138.1	43.8
Iowa			79.5				
Kansas	53.3						
Minnesota	21.2	22.7	29.8				
New Jersey	12.6	16.1	24.7	25.1	87.3	19.3	21.4
New York	20.0	20.7	25.3	24.9	128.7	29.1	18.3
North Carolina			63.7				
Oklahoma	21.8						
Pennsylvania	37.3	38.2	51.3	46.7	143.0	65.7	72.0
South Carolina	49.9	81.7	132.6	28.7			
Tennessee	77.2	89.5	88.5	68.2			

TUBERCULOSIS, ALL FORMS (31–37)

Alabama:							
White	58.1	53.9	57.5	41.5	68.7		
Colored	136.9	179.1	162.2	163.2	182.7		
Connecticut	63.5	75.1	83.9	75.7	95.9	87.0	82.3
Indiana	67.8	67.4	88.2	82.2	100.6	95.1	97.9
Iowa			38.8				
Kansas	29.5						
Minnesota	51.5	64.7	60.1				
New Jersey	65.0	70.8	78.9	92.3	101.1	96.5	86.3
New York	66.5	82.1	82.5	85.0	109.3	103.5	106.6
North Carolina			86.6				
Oklahoma	59.7						
Pennsylvania	64.7	78.5	78.4	87.0	96.7	92.4	90.6
South Carolina	72.6	74.9	87.2	102.1			
Tennessee	121.9	150.9	140.7	138.8			

CANCER, ALL FORMS (43–49)

Alabama:							
White	46.8	36.0	44.9	50.3	49.5		
Colored	41.2	39.5	48.8	42.1	36.8		
Connecticut	113.8	106.6	105.8	113.6	102.0	107.0	98.0
Indiana	99.3	87.6	117.1	96.4	95.0	94.3	84.5
Iowa			121.2				
Kansas	95.6						
Minnesota	112.0	94.8	115.1				
New Jersey	99.2	102.4	107.9	107.1	105.3	99.4	95.9
New York	127.5	121.2	128.6	117.6	125.7	132.6	129.7
Oklahoma	58.7						
Pennsylvania	95.5	102.0	95.4	101.0	104.0	90.4	97.5
South Carolina	30.3	39.2	51.2	36.4			
Tennessee	58.8	51.3	53.2	63.5			

Monthly State mortality statistics—Continued

(All rates are per 100,000, except mortality from all causes and infant mortality)

DIABETES (57)

	1928			Corresponding month for—			
	Jan.	Feb.	Mar.	1927	1926	1925	1924
Alabama:							
White	12.8	6.0	9.8	9.5	8.9		
Colored	14.5	14.1	18.5	5.3	7.9		
Iowa			19.9				
Kansas	24.4						
Minnesota	19.9	19.4	24.7				
New York	27.6	27.2	27.4	26.4	34.7	25.2	26.2
Oklahoma	12.6						
Pennsylvania	21.7	23.5	27.8	20.6	23.8	20.0	14.4
South Carolina	12.6	13.5	11.4	11.5			

DISEASES OF THE NERVOUS SYSTEM AND OF THE ORGANS OF SPECIAL SENSE (70–86)

Iowa			153.2				
Kansas	146.9						
New Jersey	112.5	120.9	126.3	142.3	173.1	139.3	141.7
New York	159.1	169.8	176.1	167.5	212.8	203.0	196.7
Oklahoma	114.5						

CEREBRAL HEMORRHAGE, APOPLEXY (74)

Alabama:							
White	42.3	47.2	57.5	51.0	51.7		
Colored	58.1	84.6	87.1	78.9	55.2		
Indiana	121.5	122.5	[1]	107.6	121.0	109.5	
Iowa			111.5				
Kansas	114.2						
New York	121.0	131.8	134.7	121.5	166.3	154.4	146.9
Oklahoma	63.6						
Pennsylvania	100.0	101.0	97.2	[1]	[1]	[1]	[1]

DISEASES OF THE CIRCULATORY SYSTEM (87–96)

Iowa			310.8				
Kansas	213.7						
New Jersey	272.7	272.4	281.6	272.6	350.7	231.9	265.8
New York	375.0	399.7	369.1	356.3	496.3	383.8	366.8
Oklahoma	90.8						
South Carolina	220.5	278.2	277.9	277.0			

DISEASES OF THE HEART (87–90)

Alabama:							
White	114.7	116.9	96.0	80.9	102.7		
Colored	124.8	150.9	189.9	126.3	142.0		
Connecticut	168.5	200.3	198.4	194.5	250.7	188.6	
Indiana	[2] 198.5	[2] 158.1	[2] 188.0	[2] 168.2	[2] 207.3	[2] 167.4	
Iowa			279.8				
Kansas	181.6						
Minnesota	156.2	165.5	160.9				
New York	328.3	345.5	323.7	308.5	433.9		
Oklahoma	82.0						
Pennsylvania	246.0	256.0	272.0	251.0	301.0	198.0	
Tennessee	105.9	137.3	101.9				

[1] Not available.
[2] Reported as organic heart.

Monthly State mortality statistics—Continued

(All rates are per 100,000, except mortality from all causes and infant mortality)

PNEUMONIA, ALL FORMS (100, 101)

	1928			Corresponding month for—			
	Jan.	Feb.	Mar.	1927	1926	1925	1924
Alabama:							
White	167.6	144.6	162.6	81.6	164.8		
Colored	191.4	200.2	203.1	118.4	286.6		
Connecticut	140.8	148.6	151.7	125.4	227.3	180.9	207.7
Indiana	137.0	120.1	151.3	107.6	217.1	191.0	178.2
Iowa			98.4				
Kansas	105.9						
Minnesota	80.5	77.7	87.4				
New Jersey	80.4	108.7	111.2	86.1	220.1	101.1	104.0
New York	120.4	131.3	152.8	126.0	296.2	169.5	151.2
North Carolina			168.7				
Oklahoma	198.0						
Pennsylvania	131.0	154.0	191.5	161.0	295.0	209.0	271.0
South Carolina	178.1	155.3	161.7	157.6			
Tennessee	163.8	163.0	162.8	129.8			

DISEASES OF THE DIGESTIVE SYSTEM (108–127)

Iowa			65.5				
Kansas	62.9						
New Jersey	[1] 47.5	[1] 58.0	[1] 60.4	[1] 62.5	[1] 62.4	[1] 59.2	[1] 67.9
New York	69.0	86.2	79.8	68.3	80.5	89.0	96.4
Oklahoma	62.1						

DIARRHEA AND ENTERITIS UNDER 2 YEARS (113)

Alabama:							
White	11.3	6.0	5.6	7.3	6.7		
Colored	4.8	9.9	9.2	7.9	9.2		
Connecticut	9.5	4.8	3.6	7.4	10.6	9.2	14.1
Indiana	7.0	10.7	9.3	9.3	9.0	11.0	12.7
Iowa			5.8				
Kansas	7.7						
Minnesota	[2] 10.4	[2] 8.8	[2] 10.8				
New Jersey	[2] 9.6	[2] 10.5	[2] 10.2	[2] 11.3	[2] 14.1	[2] 17.0	[2] 16.0
New York	10.9	11.5	10.3	7.9	15.1	21.8	19.9
North Carolina			10.0				
Oklahoma	11.2						
Pennsylvania	16.7	19.0	16.1	17.0	19.7	24.0	22.6
South Carolina	[4] 3.8	[4] 8.8	[4] 8.2	[4] 10.8			
Tennessee	4.7	3.5	4.7	6.6			

NEPHRITIS (128, 129)

Alabama:							
White	[5] 74.7	[5] 66.7	[5] 75.7	[5] 59.8	[5] 73.9		
Colored	[5] 92.1	[5] 90.2	[5] 91.0	[5] 101.3	[5] 97.3		
Connecticut			71.5				
Indiana	[6] 70.4	[6] 86.8	[6] 85.6	[6] 93.4	[6] 94.2	[6] 91.3	
Iowa			53.8				
Kansas	85.3						
Minnesota	[7] 66.2	[7] 62.4	[7] 54.5				
New Jersey	[6] 108.5	[6] 118.6	[6] 124.8	[6] 107.7	[6] 125.7	[6] 109.9	[6] 118.7
New York	121.8	117.6	120.0	120.2	147.8	138.7	126.8
Oklahoma	64.1						
Pennsylvania	117.0	122.0	115.0	114.0	141.0	118.0	128.0
South Carolina	[8] 83.4	[8] 99.9	[8] 108.6	[8] 93.2			

[1] Infantile diarrhea excepted.
[2] Reported as diarrhea of children.
[3] Reported as infantile diarrhea.
[4] Reported as intestinal diseases of children under 1 year.
[5] Reported as chronic nephritis.
[6] Reported as Bright's disease.
[7] Reported as nephritis.
[8] Reported as kidney diseases.

Monthly State mortality statistics—Continued

(All rates are per 100,000, except mortality from all causes and infant mortality)

PUERPERAL STATE (143-150)

	1928			Corresponding month for—			
	Jan.	Feb.	Mar.	1927	1926	1925	1924
Alabama:							
White		[5] 21.0	[5] 20.3	[5] 14.6	[5] 19.2		
Colored		[5] 16.9	[5] 25.1	[5] 23.7	[5] 39.4		
Connecticut	[6] 9.5	[6] 8.9	[6] 13.1	[6] 8.2	[6] 21.9	[6] 9.2	[6] 10.2
Indiana	[7] 11.9	[7] 8.7	[7] 11.5	[7] 14.2	[7] 17.0	[7] 14.5	[7] 6.5
Iowa			11.2				
Kansas	7.1						
Minnesota	[5] 9.5	[5] 10.2	[5] 14.3				
New York	10.9	13.3	12.0	13.1	13.3	14.0	14.6
Oklahoma	11.6						
Pennsylvania	[5] 5.3	[5] 5.3	[5] 6.6	[5] 6.9	[5] 7.9	[5] 7.2	
Tennessee	[7] 6.1	[7] 4.5	[7] 7.1	[7] 7.6			

CONGENITAL MALFORMATION AND DISEASES OF EARLY INFANCY (159-163)

Alabama:							
White	67.2	70.4	69.4	83.1	84.3		
Colored	69.0	98.7	92.3	73.7	74.9		
Iowa			61.1				
Kansas	53.9						
New York	65.2	70.2	69.4	70.3	84.2	86.9	90.1
Oklahoma	86.9						
Pennsylvania	[1] 34.9	[1] 37.6	[1] 35.1	[1] 37.6	[1] 42.2	[1] 39.0	

AUTOMOBILE ACCIDENTS (188c)

Alabama:							
White	14.3	14.2	15.4	8.0	10.3		
Colored	10.9	7.0	13.2	13.2	9.0		
Iowa			12.1				
Kansas	10.9						
Minnesota	8.7	8.3	2.2				
New Jersey	12.9	17.1	28.0	18.8	16.3		
New York	17.0	15.3	15.4	14.1	11.1	13.8	14.1
North Carolina			8.8				
Oklahoma	8.7						
Pennsylvania	13.5	12.2	11.8	14.9	11.2	10.9	8.9
South Carolina	11.4	10.8	11.4	9.6			
Tennessee	13.2	10.6	9.4				

[1] Rate per 1,000 live births.
[5] Puerperal state.
[6] Reported as puerperal diseases.
[7] Reported as puerperal septicemia.
[8] Rate per 1,000 total births.

COURT DECISION RELATING TO PUBLIC HEALTH

Issuance of permit for conduct and maintenance of stable.—(California First District Court of Appeal, Division 2; Ryan *v.* Andriano et al., 266 P. 831; decided April 19, 1928.) The plaintiff operated a stable under a permit issued in the name of the person from whom he had purchased the stable. On application to the board of supervisors of the city of San Francisco for permission to make additional improvements, it was noticed that the permit was not in the plaintiff's name, and he was instructed first to procure such a permit. Application for a permit was made, but protests against the granting of the same were received by the board, and finally, after two years,

the application was denied. During the pendency of the application the board did not specify objectionable features of the stable and did not fix a time within which the plaintiff was required to remove same. The stable ordinance of the city required a permit for the maintenance of a stable, and also contained the following provisions:

SEC. 4. The board of supervisors shall not refuse a permit for the maintenance of a stable in a building now constructed and maintained as a stable except upon satisfactory evidence that such stable is conducted in an insanitary manner and the failure to remove the objection to the manner of its maintenance within a time to be prescribed by the board of supervisors.

SEC. 6. No permit shall be refused or revoked by the board of supervisors except after a full hearing, and then only in the exercise of a sound and reasonable discretion by said board.

The plaintiff's stable was in operation when the said ordinance was passed. Upon the board's denial of his application, the plaintiff sought by mandamus to compel the granting of a permit. The appellate court reversed the lower court's judgment denying a writ of mandamus, and held that the plaintiff's application for a stable permit could not be denied without opportunity being first given him to remove objections to be specified by the board within a time to be also specified by the board, as provided in section 4 of the ordinance.

PUBLIC HEALTH ENGINEERING ABSTRACTS

Tests with the Activated Sludge Method of Sewage Treatment at Waldenburg (Silesia). G. Jordan. Gesundh. Ign. 51, 150–6 (1928). (Abstract by Wayne L. Denman in *Chemical Abstracts*, vol. 22, No. 9, May 10, 1928, p. 1641.)

"The purification plant used in this work consists essentially of a concrete basin which is alternately divided by baffles. Circulation of the sewage is accomplished by means of paddle wheels. The plant handles a mixture of domestic and industrial sewage. The industrial sewage amounts to about 8 per cent of the domestic sewage. Three series of tests were made to determine the normal and high rates of treatment. These rates were 2, 1.5, and 1.1 per second. At 1.1 per second a good sludge is obtained. It is in large clumps and its volume is reduced to 25 per cent in 15 minutes. Its water content is 98.5 per cent. At 2 per second very poor results were obtained. The sludge was of a fine structure, and in 15 minutes its volume was 80–90 per cent, with a water content of 99.5 per cent. At a rate of 1.5 per second better results were obtained but were not up to those obtained at 1.1 per second. The effect of suspended matter such as finely powdered coal was tried and found to be very harmful, but the trouble vanishes as soon as the sewage clears. The addition of a substance such as $Al_2(SO_4)_3$ will overcome this difficulty. The action of phenol was noted, as the industrial sewage contained a small quantity from coke plants. It was found that phenol present in considerable amounts did little if any harm. The effluent was clear and had a slight earthy odor. Sewage consisting of 10 per cent phenol sewage (13 days at 457 p. p. m. phenol and 21 days at 191 p. p. m. phenol) may be satisfactorily treated by the activated sludge process. A very high bacterial removal is obtained. For a plant of this type exact and rigorous attention to details must be observed if the operation is to be successful."

Seeding New Tanks. Willem Rudolfs. Report of the Department of Sewage Disposal of the New Jersey Agriculture Experiment Station for year ending June 30, 1927, pp. 284–294. (Abstract by W. L. Havens.)

The difficulty sometimes experienced in starting the operation of a new tank was deemed of sufficient importance to warrant laboratory experiments in order to determine what could be substituted for ripe sludge when the latter was not available. Definite quantities of fresh solids were mixed with ripe sludge, horse manure, cow manure, and muck from a creek and results compared with fresh solids seeded with ripe Imhoff sludge. It was found that neither manure nor muck is as effective for seeding as ripe sludge. Muck was about half as good as ripe sludge and horse and cow manure still less. If sludge from a polluted stream is available for seeding, it is to be favored. Seeding with horse manure and additions of lime are beneficial, but still inferior to seeding with ripe sludge. Additions of lime to fresh solids when ripe sludge is present for seeding keeps floating solids down.

Sanitary Districts in Missouri. Anon. *The American City*, vol. 38, No. 4, April 1928, p. 125. (Abstract by J. B. Harrington.)

In March, 1927, the State law of Missouri was reframed to provide for the construction of sanitary sewers in all suburban districts of any county having a population of over 75,000 people. The procedure to be followed requires that a petition signed by 100 property owners must be submitted to the circuit court. The circuit judge, upon favorable decision, appoints three supervisors, who organize and appoint a secretary, an attorney, and an engineer, and levy a tax not to exceed 10 cents per 100 square feet of area for preliminary work.

Studies on the Decomposition of Cellulose. H. Heukelekian. Report of the Department of Sewage Disposal of the New Jersey Agricultural Experiment Station for year ending June 30, 1927, pp. 272–284. (Abstract by W. L. Havens.)

Experiments were carried on during the past year in an effort to study the fundamental processes of sludge digestion, not from the standpoint of changes in bacterial life, but as measured by the decomposition of organic material. Two methods were employed—first, following the changes in the cellulose content of digesting material, and, second, adding cellulosic substance to ripe sludge and following the changes induced. The following conclusions were reached as a result of these experiments: (1) The native cellulose of fresh solids as well as cellulose added to ripe sludge in the form of filter paper decomposes rapidly; (2) the decomposition of cellulose takes place in the early part of the digestion, namely, the first three weeks; (3) the decomposition of cellulose gives rise to acidity, which retards the general course of the digestion; (4) cellulose decomposition takes place under acid conditions, but the addition of lime accelerates the rate of decomposition; (5) the decomposition of cellulose is accompanied by the production of gas, the volume of which is much smaller than that produced in the decomposition of an equal amount of mixed organic matter in fresh solids; (6) there is a lag of 5 or 6 days before the decomposition of cellulose starts; (7) the rapidity of decomposition of cellulosic substances is correlated with their cellulose content; (8) cellulose content of the solids collected from the inlet end of an Imhoff tank is higher than that from the outlet end; (9) the digestion of the material from the inlet end was similar to the type of digestion obtained from the mixture of solids. The material from the outlet end had a shorter period of acid digestion, lower acidity, and a higher alkalinity and higher ash content than the material from the inlet end.

Design and Operation of Storm Tanks. C. Chamberlain. *The Canadian Engineer*, vol. 54, No. 1, January 3, 1928, pp. 101–103. (Abstract by R. E. Thompson.)

The storm water at the York Township plant flows into a small creek, and it was therefore considered necessary to provide for more than the usual "three times the dry weather flow." As this condition was expected to last for only a few years, two tanks, 77 feet square, with sloping bottoms and equipped with Dorr scrapers, were constructed which could be used without alteration for treatment of domestic sewage in the future. The material collected is of two types—(1) coarse material such as stones, cinders, and brick fragments; and (2) material varying from fine sand to mud, containing a certain amount of organic matter. The former material interfered with the operation of the diaphragm pump used for removing the sludge, and the plant has now been rearranged somewhat to provide an extra grit chamber for removal of this coarse material. The fine material is removed from the tanks with a Stereophagus pump and deposited in sand beds. After being dried, it is utilized for fill around the beds. The streets are unpaved and a great deal of material is carried into the sewers during storm periods. Following one storm of 2½ hours' duration, 175 cubic yards of material was removed from the tank and 10 cubic yards from the additional grit chambers.

Returned Sludge in Water Purification. A. W. Bull. *Water Works*, vol. 67, No. 3, March, 1928, p. 112. (Abstract by C. R. Cox.)

This is a summary of experiments made at Columbus and Pittsburgh to ascertain the effect of adding settled sludge to water dosed with lime and soda ash, such as is the practice at Benton Harbor, Mich., Piqua, Ohio, and Hinsdale and Springfield, Ill. Results indicate that the addition of sludge increases the speed of the softening reaction to a marked extent, although the hardness could not be reduced much below 100 p. p. m. by even larger amounts of added sludge. Thus, 19 hours' agitation of the treated water was necessary to produce the same softening reaction secured by 2 hours' agitation with the same chemical doses plus 50 c. c. of sludge per gallon, or by 1 hours' agitation with 100 c. c. of sludge. Best results were secured at Columbus with initial concentrations of 15,000 p. p. m. suspended solids, whereas at Pittsburgh 7,100 p. p. m. was the best initial concentration. The beneficial results "are due to either a catalytic speeding up of the reaction or, more probably, to a reduction in supersaturation." Settled sludge may be easily returned to raw water through the use of continuously cleaned sedimentation basins, such as the Dorr clarifier.

Reservoir Protection. Carl Wilson. *Water Works*, vol. 67, No. 2, February, 1928, p. 50. (Abstract by H. B. Hommon.)

Storage reservoirs: There are no communities on the tributary watersheds; and for control over pollution from landowners and other sources the city enforces the State laws regarding pollution of domestic waters. All reservoirs are fenced and patrolled, and hunting, fishing, boating, bathing, and picnicking are prohibited inside the fenced areas. Grazing is prohibited within half a mile of the reservoirs, and leaching cesspools and earth privies are not permitted closer than 250 feet.

Distribution reservoirs: These reservoirs are protected by (1) strong wire fencing that practically excludes the public; (2) resident patrolmen; (3) bypassing storm water and carrying domestic sewage outside the drainage basins; (4) prohibiting leaching cesspools and privy vaults on the land draining to the reservoirs; and (5) requiring that domestic animals, including chickens, be kept 100 feet away from the water.

Chlorination: All water is chlorinated as it leaves the distribution reservoirs. No other purification is considered necessary.

Abolition of Cross Connections Causes Lively Discussion. Anon. *Engineering News-Record*, vol. 100, No. 12, March 22, 1928, pp. 488–490. (Abstract by C. R. Cox.)

A special committee of the New England Water Works Association reported upon cross connections at the March 14, 1928, meeting. The report was in the nature of a compromise in which the details of the problems involved were discussed in a report of 45 pages, including 25 pages of appendices.

Subcommittee No. 1 on fire hazards recorded 12 cases where fires broke out simultaneously with the interruption of the public water supplies. This committee emphasizes the fact that the New York State labor law permits double the number of employees in buildings equipped with sprinkling systems supplied from two individual sources. The committee concluded that secondary supplies of sufficient capacity were impracticable in cost unless ponds or rivers were utilized and that cross connections should be used to combine the two supplies for common fire-protection systems.

Subcommittee No. 2 on health hazards cited 22 epidemics due to cross connections containing a single gate or check valve. The committee reviewed the position of the public health authorities by stating that, although it was necessary seriously to consider economical phases of fire losses, the saving of life rather than money must be the predominant consideration. This committee stated that the courts had placed responsibilities upon the municipalities for water-borne epidemics when such are due to a negligence in design, installation, operation, or inspections of cross connections. The responsibility also rests upon State authorities, although such responsibility is moral rather than legal.

The committee, therefore, compared the relative fire and health hazards by weighing the economic losses resulting from the 12 fires mentioned above in contrast to the intangible as well as economic losses of 8,028 cases of typhoid fever with 26 deaths and more than 1,000 cases of enteric disturbances occurring with losses by death and disability running into the millions of dollars. They therefore concluded that cross connections with single check valves were too hazardous and that even the best installations of double check valves may fail from lack of inspection. Statistics are given regarding the frequency that leaky valves were found during tests at New Bedford, Mass., and in Connecticut.

In general the committee feels that double check valves of the latest improved type, properly installed and adequately safeguarded, furnish the best protection of any device now known. It is hoped that recent installations of these valves will provide data upon the actual effectiveness of these devices. The committee feels that State regulations should be promulgated, but that our responsibility should rest upon the municipalities wherein cross connections are maintained. The report recommends cooperative inspection of double check valves by municipal and State authorities and by the owners and the insurance companies at quarterly intervals.

The final resolutions recommended by the committee were not adopted by the association, pending the printing of the full report in the June issue of the *Journal* of the association and a detailed study of the report by the members.

DEATHS DURING WEEK ENDED JUNE 16, 1928

Summary of information received by telegraph from industrial insurance companies for the week ended June 16, 1928, and corresponding week of 1927. (From the Weekly Health Index, June 20, 1928, issued by the Bureau of the Census, Department of Commerce)

	Week ended June 16, 1928	Corresponding week, 1927
Policies in force	65, 735, 862	62, 918, 546
Number of death claims	12, 187	11, 891
Death claims per 1,000 policies in force, annual rate	9. 7	9. 9

Deaths from all causes in certain large cities of the United States during the week ended June 16, 1928, infant mortality, annual death rate, and comparison with corresponding week of 1927. (From the Weekly Health Index, June 20, 1928, issued by the Bureau of the Census, Department of Commerce)

City	Week ended June 16, 1928		Annual death rate per 1,000, corresponding week, 1927	Deaths under 1 year		Infant mortality rate, week ended June 16, 1928 [2]
	Total deaths	Death rate [1]		Week ended June 16, 1928	Corresponding week, 1927	
Total (69 cities)	7,160	12.2	11.6	721	736	58
Akron	46			9	3	98
Albany [3]	37	16.1	10.9	4	3	82
Atlanta	78	16.0	13.2	11	11	
White	38		9.2	6	7	
Colored	40	(4)	22.6	5	4	
Baltimore [3]	185	11.6	12.2	10	22	32
White	139		10.1	6	13	24
Colored	46	(4)	24.7	4	9	63
Birmingham	75	17.6	14.9	10	8	86
White	41		11.0	4	4	55
Colored	34	(4)	20.9	6	4	135
Boston	199	13.0	14.1	25	36	69
Bridgeport	28			2	1	37
Buffalo	138	13.0	12.5	17	17	73
Cambridge	23	9.6	8.8	2	1	36
Camden	29	11.2	12.1	3	1	48
Canton	23	10.3	11.5	4	4	95
Chicago [3]	760	12.6	11.3	69	77	59
Cincinnati	136	17.2	14.0	9	8	54
Cleveland	180	9.3	10.1	17	13	46
Columbus	87	15.3	12.0	6	3	56
Dallas	42	10.1	9.6	5	8	
White	31		8.8	5	6	
Colored	11	(4)	15.2	0	2	
Denver	78	13.9	15.5	8	7	
Des Moines	28	9.6	11.9	4	7	66
Detroit	330	12.5	10.7	44	51	68
Duluth	17	7.6	8.6	1	1	23
El Paso	27	12.0	14.7	8	3	
Erie	17			1	2	21
Fall River [3]	25	9.7	10.2	1	2	17
Flint	25	8.8	9.9	4	6	51
Fort Worth	40	12.4	10.2	4	5	
White	33		9.1	3	3	
Colored	7	(4)	18.6	1	2	
Grand Rapids	21	6.7	10.0	2	1	30
Houston	80			13	3	
White	51			9	2	
Colored	29	(4)		4	1	
Indianapolis	103	14.1	12.0	8	4	61
White	83		9.8	7	1	61
Colored	20	(4)	27.9	1	3	61
Jersey City	63	10.1	11.4	8	8	69
Kansas City, Kans	19	8.4	15.1	0	4	0
White	14		15.7	0	3	0
Colored	5	(4)	12.3	0	1	0
Kansas City, Mo	119	15.9	10.8	16	6	113
Knoxville	13	6.4	11.2	1	3	22
White	7		9.9	1	3	24
Colored	6	(4)	21.4	0	0	0
Los Angeles	228			24	21	69
Louisville	81	12.9	9.6	6	1	50
White	62		7.5	1	1	10
Colored	19	(4)	21.3	5	0	344
Lowell	23	10.9	13.7	2	4	42
Lynn	27	13.4	5.5	3	1	76
Memphis	66	18.1	18.9	8	9	94
White	34		15.3	3	4	56
Colored	32	(4)	25.5	5	5	157
Milwaukee	110	10.6	8.6	18	12	80
Minneapolis	70	8.0	11.2	8	9	48
Nashville	60	22.6	16.6	9	4	142
White	36		13.7	9	2	192
Colored	24	(4)	24.1	0	2	0

[1] Annual rate per 1,000 population.
[2] Deaths under 1 year per 1,000 births. Cities left blank are not in the registration area for births.
[3] Deaths for week ended Friday, June 15, 1928.
[4] In the cities for which deaths are shown by color, the colored population in 1920 constituted the following percentages of the total population: Atlanta, 31; Baltimore, 15; Birmingham, 39; Dallas, 15; Fort Worth, 14; Houston, 25; Indianapolis, 11; Kansas City, Kans., 14; Knoxville, 15; Louisville, 17; Memphis, 38; Nashville, 30; New Orleans, 26; Richmond, 32; and Washington, D. C., 25.

Deaths from all causes in certain large cities of the United States during the week ended June 16, 1928, infant mortality, annual death rate, and comparison with corresponding week of 1927. (From the Weekly Health Index, June 20, 1928, issued by the Bureau of the Census, Department of Commerce)—Continued

City	Week ended June 16, 1928		Annual death rate per 1,000, corresponding week, 1927	Deaths under 1 year		Infant mortality rate, week ended June 16, 1928
	Total deaths	Death rate		Week ended June 16, 1928	Corresponding week, 1927	
New Bedford	30	13.1	6.1	5	2	108
New Haven	38	10.6	9.6	5	2	71
New Orleans	122	14.9	18.6	10	30	48
White	65		14.4	1	15	7
Colored	57	(4)	30.3	9	15	131
New York	1,420	12.3	11.4	144	146	58
Bronx Borough	183	10.1	8.8	9	13	27
Brooklyn Borough	464	10.5	10.0	54	60	54
Manhattan Borough	614	18.3	15.1	69	56	82
Queens Borough	120	7.3	9.0	11	13	44
Richmond Borough	39	13.5	16.0	1	4	18
Newark, N. J	109	12.0	12.4	8	15	41
Oakland	52	9.9	9.0	2	5	22
Oklahoma City	22			3	2	
Omaha	51	12.0	13.1	5	6	58
Paterson	40	14.4	12.3	3	6	52
Philadelphia	455	11.5	11.4	48	41	65
Pittsburgh	166	12.9	12.8	16	17	52
Portland, Oreg	52			4	2	43
Providence	78	14.2	8.9	11	4	96
Richmond	53	14.3	13.3	9	3	118
White	34		9.6	3	1	61
Colored	19	(4)	22.5	6	2	220
Rochester	75	11.9	11.1	6	12	49
St. Louis	192	11.8	12.2	8	16	27
St. Paul	60	12.4	8.1	4	2	38
Salt Lake City [3]	37	14.0	10.8	4	1	65
San Antonio	65	15.6	11.3	15	4	
San Diego	50	21.8	13.1	4	5	76
San Francisco	156	13.9	13.6	7	8	44
Schenectady	14	7.8	8.4	4	1	125
Seattle	67	9.1	8.8	4	9	41
Somerville	17	8.7	6.2	2	0	60
Spokane	29	13.9	14.4	3	1	77
Springfield, Mass	25	8.7	9.9	1	4	16
Syracuse	53	13.9	13.5	6	6	73
Tacoma	23	10.9	11.2	0	1	0
Toledo	50	8.3	11.1	4	3	38
Trenton	40	15.0	14.5	5	3	85
Utica	34	17.1	15.1	0	3	0
Washington, D. C	116	11.0	12.2	10	7	57
White	66		9.6	4	0	33
Colored	50	(4)	19.9	6	7	111
Waterbury	21			3	2	87
Wilmington, Del	17	6.9	7.4	2	0	53
Worcester	41	10.8	13.9	6	6	73
Yonkers	22	9.5	9.2	3	3	68
Youngstown	26	7.8	6.5	2	4	27

[3] Deaths for week ended Friday, June 15, 1928.

[4] In the cities for which deaths are shown by color, the colored population in 1920 constituted the following percentages of the total population: Atlanta, 31; Baltimore, 15; Birmingham, 39; Dallas, 15; Fort Worth, 14; Houston, 25; Indianapolis, 11; Kansas City, Kans., 14; Knoxville, 15; Louisville, 17; Memphis, 38; Nashville, 30; New Orleans, 26; Richmond, 32; and Washington, D. C., 25.

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 June 23, 1928, and June 25, 1927

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended June 23, 1928, and June 25, 1927

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended June 23, 1928	Week ended June 25, 1927	Week ended June 23, 1928	Week ended June 25, 1927	Week ended June 23, 1928	Week ended June 25, 1927	Week ended June 23, 1928	Week ended June 25, 1927
New England States:								
Maine	3	2	31	3	51	55	0	0
New Hampshire					45		0	
Vermont		2			34	39	0	0
Massachusetts	51	84	7	9	614	351	3	0
Rhode Island	9	15			195	2	0	0
Connecticut	15	34	2		293	68	1	0
Middle Atlantic States:								
New York	299	487	[1] 18	[1] 9	2,569	805	17	6
New Jersey	148	91	18	3	969	38	4	3
Pennsylvania	114	149			2,280	449	9	2
East North Central States:								
Ohio	27		23		700		2	
Indiana	20	22	5	2	230	68	0	0
Illinois	140	112	21	6	186	416	3	8
Michigan	108	88	3	1	770	106	7	2
Wisconsin	18	32	56	23	64	710	1	4
West North Central States:								
Minnesota	44	12		2	32	62	1	2
Iowa	3						1	
Missouri	27	22	4		197	67	6	0
North Dakota	1	2	2		8	30	0	0
South Dakota		1			6	6	0	0
Nebraska	3	12			28	60	0	0
Kansas	9	14	1	2	50	257	0	1
South Atlantic States:								
Delaware		2			18	6	0	0
Maryland [2]	31	52	5		207	14	0	0
District of Columbia	7	6	1		130	8	0	0
Virginia								
West Virginia	5	17	42	8	39	145	0	0
North Carolina	12	5			235	759	0	1
South Carolina	7	6	231	150	75	269	0	0
Georgia	3	10	23	13		27	0	1
Florida	2	7	3		92	36	0	2
East South Central States:								
Kentucky	5				90		1	
Tennessee	3	3	27	10	53	17	0	1
Alabama	4	11	75	7	127	142	0	0
Mississippi	2	3						
West South Central States:								
Arkansas		4	63	17	34	73	0	0
Louisiana	9	12	25	16	36	67	0	0
Oklahoma [3]	4	8	17	40	53	276	1	0
Texas	3	17	17	19	86	80	0	0

[1] New York City only. [2] Week ended Friday. [3] Exclusive of Tulsa.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended June 23, 1928, and June 25, 1927—Continued

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended June 23, 1928	Week ended June 25, 1927	Week ended June 23, 1928	Week ended June 25, 1927	Week ended June 23, 1928	Week ended June 25, 1927	Week ended June 23, 1928	Week ended June 25, 1927
Mountain States:								
Montana	8	4			2	9	3	2
Idaho	1	1			6	6	0	0
Wyoming			1		2	36	0	0
Colorado		12			59	54	1	0
New Mexico		3			5	31	0	0
Arizona	5	1					2	0
Utah [2]	3	7				11	1	0
Pacific States:								
Washington	8	6			65	371	1	4
Oregon	8	10		4	40	115	0	2
California	72	98	23	12	38	402	2	2

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended June 23, 1928	Week ended June 25, 1927	Week ended June 23, 1928	Week ended June 25, 1927	Week ended June 23, 1928	Week ended June 25, 1927	Week ended June 23, 1928	Week ended June 25, 1927
New England States:								
Maine	0	0	25	19	0	0	2	1
New Hampshire	0		12		0		0	
Vermont	0	0	8	2	0	0	0	0
Massachusetts	3	3	135	362	0	0	4	4
Rhode Island	0	0	9	18	0	0	2	0
Connecticut	1	0	30	48	0	0	1	0
Middle Atlantic States:								
New York	2	7	326	450	5	4	17	16
New Jersey	0	3	104	202	0	0	3	1
Pennsylvania	3	0	248	305	0	1	15	14
East North Central States:								
Ohio	2		74		16		4	
Indiana	2	1	42	48	54	96	5	7
Illinois	0	1	173	205	25	25	11	19
Michigan	1	1	191	214	45	32	7	5
Wisconsin	0	2	110	76	9	10	1	3
West North Central States:								
Minnesota	1	1	73	98	3	1	1	3
Iowa	0		23		20		5	
Missouri	0	0	58	30	22	29	10	10
North Dakota	1	0	18	19	1	5	0	1
South Dakota	1	0	7	11	5	9	0	1
Nebraska	0	0	33	8	20	6	0	4
Kansas	0	1	37	38	43	20	2	4
South Atlantic States:								
Delaware	0	0	1	0	0	0	0	1
Maryland [3]	2	0	36	33	0	0	7	11
District of Columbia	0	0	22	14	0	10	0	1
Virginia								
West Virginia	1	0	18	25	12	28	4	14
North Carolina	0	0	10	13	29	25	14	52
South Carolina	4	5	1	3	1	3	72	97
Georgia	0	1	7	12	0	6	29	49
Florida	0	2	1	4	2	12	7	4
East South Central States:								
Kentucky	1		23		8		5	
Tennessee	1	4	10	6	11	4	18	82
Alabama	0	3	4	12	2	6	21	69
Mississippi	0	0	4	2	0	1	26	30
West South Central States:								
Arkansas	0	1	5	1	1	1	13	30
Louisiana	1	1	4	4	10	4	29	26
Oklahoma [3]	0	3	25	8	29	59	18	49
Texas	0	4	25	6	16	10	5	33
Mountain States:								
Montana	1	0	3	8	20	14	2	2
Idaho	1	0	2	3	5	9	2	1
Wyoming	0	0	9	13	1	1	5	0
Colorado	0	0	12	60	5	2	0	3
New Mexico	0	1	11	5	4	0	12	4
Arizona	0	1	0	1	2	0	2	1
Utah [2]	0	0	5	8	3	3	0	0
Pacific States:								
Washington	0	0	23	42	16	26	3	3
Oregon	1	0	11	8	39	17	0	5
California	3	24	102	108	19	8	13	16

[2] Week ended Friday.

[3] Exclusive of Tulsa.

SUMMARY OF MONTHLY REPORTS FROM STATES

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

State	Meningococcus meningitis	Diphtheria	Influenza	Malaria	Measles	Pellagra	Poliomyelitis	Scarlet fever	Smallpox	Typhoid fever
May, 1928										
Iowa	4	38	-------	-------	51	-------	0	233	211	2
Maryland	1	154	85	-------	3,125	-------	4	289	2	29
Minnesota	15	74	35	-------	437	-------	4	535	14	4
Ohio	32	370	663	1	4,739	-------	9	914	165	21

May, 1928.

	Cases
Chicken pox:	
Iowa	142
Maryland	358
Minnesota	326
Ohio	969
Dysentery:	
Maryland	3
Minnesota	1
German measles:	
Maryland	535
Ohio	64
Impetigo contagiosa:	
Maryland	2
Lead poisoning:	
Ohio	9
Lethargic encephalitis:	
Maryland	1
Minnesota	5
Ohio	5
Mumps:	
Iowa	255
Maryland	320
Ohio	953
Ophthalmia neonatorum:	
Maryland	2
Ohio	93
Paratyphoid fever:	
Ohio	1

May, 1928—Continued.

	Cases
Puerperal septicemia:	
Ohio	3
Rabies in animals:	
Maryland	5
Rabies in man:	
Iowa	1
Scabies:	
Maryland	1
Septic sore throat:	
Maryland	10
Ohio	65
Tetanus:	
Maryland	8
Ohio	3
Trachoma:	
Minnesota	8
Ohio	11
Tularaemia:	
Maryland	1
Undulant (Malta) fever:	
Iowa	2
Minnesota	1
Vincent's angina:	
Maryland	13
Whooping cough:	
Iowa	39
Maryland	265
Minnesota	297
Ohio	548

RECIPROCAL NOTIFICATIONS

Notifications regarding communicable diseases sent during the month of May, 1928, by departments of health of certain States to other State health departments

Disease	California	Illinois	Minnesota	New Hampshire	New Jersey	New Mexico	New York	Washington
Diphtheria	-------	2	-------	-------	-------	-------	-------	-------
Dysentery (amebic)	-------	-------	1	-------	-------	-------	-------	-------
Encephalitis (epidemic)	-------	-------	1	-------	-------	-------	-------	-------
Measles	-------	-------	-------	-------	-------	-------	1	-------
Scarlet fever	-------	-------	-------	-------	-------	-------	3	-------
Smallpox	1	4	-------	1	1	-------	-------	1
Tuberculosis	2	-------	50	-------	-------	-------	-------	-------
Typhoid fever	-------	-------	-------	-------	-------	1	-------	-------
Undulant (Malta) fever	-------	-------	1	-------	-------	-------	-------	-------

GENERAL CURRENT SUMMARY AND WEEKLY REPORTS FROM CITIES

The 98 cities reporting cases used in the following table are situated in all parts of the country and have an estimated aggregate population of more than 31,560,000. The estimated population of the 93 cities reporting deaths is more than 30,900,000. The estimated expectancy is based on the experience of the last nine years, excluding epidemics.

Weeks ended June 9, 1928, and June 11, 1927

	1928	1927	Estimated expectancy
Cases reported			
Diphtheria:			
43 States	1,337	1,520	
98 cities	808	959	791
Measles:			
42 States	13,859	9,192	
98 cities	6,191	2,529	
Poliomyelitis:			
43 States	30	30	
Scarlet fever:			
43 States	2,682	3,078	
98 cities	1,193	1,426	902
Smallpox:			
43 States	683	631	
98 cities	66	120	89
Typhoid fever:			
43 States	313	609	
98 cities	55	65	70
Deaths reported			
Influenza and pneumonia:			
93 cities	848	577	
Smallpox:			
93 cities	0	0	

City reports for week ended June 9, 1928

The "estimated expectancy" given for diphtheria, poliomyelitis, scarlet fever, smallpox, and typhoid fever is the result of an attempt to ascertain from previous occurrence the number of cases of the disease under consideration that may be expected to occur during a certain week in the absence of epidemics. It is based on reports to the Public Health Service during the past nine years. It is in most instances the median number of cases reported in the corresponding weeks of the preceding years. When the reports include several epidemics or when for other reasons the median is unsatisfactory, the epidemic periods are excluded and the estimated expectancy is the mean number of cases reported for the week during non-epidemic years.

If the reports have not been received for the full nine years, data are used for as many years as possible but no year earlier than 1919 is included. In obtaining the estimated expectacy, the figures are smoothed when necessary to avoid abrupt deviations from the usual trend. For some of the diseases given in the table the available data were not sufficient to make it practicable to compute the estimated expectancy.

Division, State, and city	Population, July 1, 1926, estimated	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
			Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
NEW ENGLAND									
Maine:									
Portland	76,400	9	2	0	0	1	17	4	1
New Hampshire:									
Concord	[1] 22,546	0	0	0	0	0	7	0	0
Manchester	84,000	0	1	0	0	0	0	0	2

[1] Estimated, July 1, 1925.

City reports for week ended June 9, 1928—Continued

Division, State, and city	Population, July 1, 1926, estimated	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
			Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
NEW ENGLAND—con.									
Vermont:									
Barre	[1] 10,008	0	0	0	0	0	0	0	0
Burlington	[1] 24,089	2	1	0	0	0	9	0	0
Massachusetts:									
Boston	787,000	38	44	28	8	2	51	3	47
Fall River	131,000	2	3	1	0	0	22	1	4
Springfield	145,000	5	2	0	0	0	2	11	1
Worcester	193,000	14	3	2	0	1	41	17	0
Rhode Island:									
Pawtucket	71,000	0	0	1	0	0	15	15	1
Providence	275,000	0	6	3	2	0	150	1	4
Connecticut:									
Bridgeport	[2]	1	5	3	0	0	12	0	5
Hartford	164,000	0	5	4	0	1	66	6	6
New Haven	182,000	8	1	0	0	1	31	23	4
MIDDLE ATLANTIC									
New York:									
Buffalo	544,000	10	8	17	-------	0	41	27	23
New York	5,924,000	157	240	296	52	19	2,121	27	194
Rochester	321,000	5	9	3	-------	0	145	30	3
Syracuse	185,000	23	4	5	-------	0	72	12	4
New Jersey:									
Camden	131,000	1	5	11	1	0	37	3	3
Newark	459,000	26	10	50	4	1	128	8	12
Trenton	134,000	3	3	0	0	2	21	0	1
Pennsylvania:									
Philadelphia	2,008,000	62	61	51	0	8	954	43	44
Pittsburgh	637,000	29	17	18	0	7	77	52	18
Reading	114,000	6	2	1	0	1	30	0	0
EAST NORTH CENTRAL									
Ohio:									
Cincinnati	411,000	3	7	8	1	0	8	0	13
Cleveland	960,000	70	24	26	5	4	134	38	25
Columbus	285,000	6	3	1	0	0	83	1	1
Toledo	295,000	25	4	1	0	0	73	1	5
Indiana:									
Fort Wayne	99,900	0	2	3	0	1	0	0	5
Indianapolis	367,000	18	3	1	0	0	151	27	8
South Bend	81,700	0	1	2	0	0	2	0	3
Terre Haute	71,900	3	1	0	0	0	4	0	3
Illinois:									
Chicago	3,048,000	97	68	80	21	13	47	40	65
Springfield	64,700	5	1	1	1	1	0	1	0
Michigan:									
Detroit	[1] 1,242,044	44	42	35	6	3	400	17	24
Flint	136,000	9	3	1	0	0	204	9	4
Grand Rapids	156,000	1	2	0	0	2	15	2	0
Wisconsin:									
Kenosha	52,700	26	1	0	0	0	1	0	0
Milwaukee	517,000	82	12	6	1	1	1	11	24
Racine	69,400	1	1	0	1	1	2	1	1
Superior	[1] 39,671	0	0	1	0	0	0	0	0
WEST NORTH CENTRAL									
Minnesota:									
Duluth	113,000	4	0	1	0	3	0	2	2
Minneapolis	434,000	53	14	3	0	1	53	101	5
St. Paul	248,000	6	9	0	0	1	17	11	10
Iowa:									
Davenport	[1] 52,469	2	1	0	0	-------	0	0	-------
Des Moines	146,000	0	1	0	0	-------	0	0	-------
Sioux City	78,000	3	0	0	0	-------	0	10	-------
Waterloo	36,900	-------	0	-------	-------	-------	-------	-------	-------
Missouri:									
Kansas City	375,000	22	5	4	0	1	36	10	11
St. Joseph	78,400	1	0	0	0	0	0	0	1
St. Louis	830,000	7	33	15	0	0	185	15	-------

[1] Estimated, July 1, 1925.

[2] No estimate made.

City reports for week ended June 9, 1928—Continued

Division, State, and city	Population, July 1, 1926, estimated	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
			Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
WEST NORTH CENTRAL—continued									
North Dakota:									
Fargo	[1] 26,403	1	0	0	0	0	0	0	0
Grand Forks	[1] 14,811	0	0	0	0	----	0	0	----
South Dakota:									
Aberdeen	[1] 15,036	1	0	0	0	----	0	0	----
Sioux Falls	[1] 30,127	0	0	0	0	----	0	0	----
Nebraska:									
Lincoln	62,000	3	1	2	0	0	0	6	0
Omaha	216,000	9	2	2	0	0	0	1	1
Kansas:									
Topeka	56,500	12	1	0	1	1	4	4	1
Wichita	92,500	3	1	0	0	0	10	0	0
SOUTH ATLANTIC									
Delaware:									
Wilmington	124,000	2	1	2	0	0	30	3	1
Maryland:									
Baltimore	808,000	37	19	31	2	1	126	59	24
Cumberland	[1] 33,741	2	0	0	0	0	2	0	1
Frederick	[1] 12,035	0	0	0	0	0	6	0	0
District of Columbia:									
Washington	528,000	8	8	18	1	1	192	0	11
Virginia:									
Lynchburg	[3] 38,493	2	0	1	0	0	14	5	2
Norfolk	174,000	2	0	0	0	0	9	0	5
Richmond	189,000	1	1	1	0	1	39	2	4
Roanoke	61,900	4	1	0	0	0	12	0	2
West Virginia:									
Charleston	50,700	4	0	1	1	0	0	0	1
Wheeling	[1] 56,208	1	0	0	0	0	10	0	2
North Carolina:									
Raleigh	[1] 30,371	1	0	0	0	0	17	0	0
Wilmington	37,700	3	0	0	0	0	0	0	4
Winston-Salem	71,800	0	0	0	0	0	5	7	0
South Carolina:									
Charleston	74,100	0	0	0	2	0	2	0	3
Columbia	41,800	5	0	1	0	2	0	8	1
Greenville	[1] 27,311	0	0	0	0	0	0	3	0
Georgia:									
Atlanta	[2]	3	1	1	9	0	11	4	
Brunswick	[1] 16,809	3	0	0	0	0	0	7	7
Savannah	94,900	2	0	0	7	0	0	1	0
Florida:									4
Miami	[3] 131,286	1	4	2	0	0	5	1	2
St. Petersburg	[3] 47,629	----	0	----	----	0	----	----	1
Tampa	102,000	0	0	0	0	0	0	0	2
EAST SOUTH CENTRAL									
Kentucky:									
Covington	58,500	0	0	1	0	1	1	0	3
Louisville	311,000	0	2	0	0	0	91	5	9
Tennessee:									
Memphis	177,000	1	1	1	0	1	3	4	1
Nashville	137,000	1	0	0	0	1	19	1	3
Alabama:									
Birmingham	211,000	5	1	0	9	7	30	2	13
Mobile	66,800	0	1	1	0	0	6	0	1
Montgomery	47,000	0	0	1	1	----	3	0	----
WEST SOUTH CENTRAL									
Arkansas:									
Fort Smith	[1] 31,643	1	1	0	0	----	0	0	----
Little Rock	75,900	4	0	0	0	0	2	0	2
Louisiana:									
New Orleans	419,000	1	5	10	3	6	0	0	6
Shreveport	59,500	0	0	1	0	0	2	0	2
Oklahoma:									
Tulsa	133,000	1	0	0	0	----	3	2	----

[1] Estimated, July 1, 1925. [2] No estimate made. [3] Special census.

City reports for week ended June 9, 1928—Continued

Division, State, and city	Population, July 1, 1926, estimated	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
			Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
WEST SOUTH CENTRAL—continued									
Texas:									
Dallas	203,000	3	3	2	0	1	9	0	0
Fort Worth	159,000	8	1	0	0	1	1	1	3
Galveston	49,100	0	0	0	0	0	0	0	2
Houston	[1] 164,954	0	2	2	0	0	1	0	6
San Antonio	205,000	0	1	0	0	1	1	0	8
MOUNTAIN									
Montana:									
Billings	[1] 17,971	0	0	0	0	0	0	0	0
Great Falls	[1] 29,883	0	0	0	0	0	11	0	0
Helena	[1] 12,037	0	0	0	0	0	0	0	0
Missoula	[1] 12,668	0	0	0	0	0	0	0	0
Idaho:									
Boise	[1] 23,042	1	0	0	0	0	0	0	0
Colorado:									
Denver	285,000	39	8	3	----	0	51	74	8
Pueblo	43,900	10	1	0	0	0	20	0	1
New Mexico:									
Albuquerque	[1] 21,000	0	0	0	0	0	2	0	0
Utah:									
Salt Lake City	133,000	16	4	1	0	0	1	0	1
Nevada:									
Reno	[1] 12,665	0	0	0	0	0	0	0	0
PACIFIC									
Washington:									
Seattle	(2)	35	5	6	0	----	15	9	----
Spokane	109,000	32	2	3	0	----	0	0	----
Tacoma	106,000	2	2	0	0	0	23	29	1
Oregon:									
Portland	[1] 282,383	22	5	4	0	0	17	4	6
California:									
Los Angeles	(2)	67	38	26	14	1	20	24	17
Sacramento	73,400	6	3	0	0	0	0	10	3
San Francisco	567,000	37	15	10	6	1	10	31	3

Division, State, and city	Scarlet fever		Smallpox			Tuberculosis, deaths reported	Typhoid fever			Whooping cough, cases reported	Deaths, all causes
	Cases, estimated expectancy	Cases reported	Cases, estimated expectancy	Cases reported	Deaths reported		Cases, estimated expectancy	Cases reported	Deaths reported		
NEW ENGLAND											
Maine:											
Portland	1	3	0	0	0	0	0	0	0	3	18
New Hampshire:											
Concord	0	2	0	0	0	1	0	0	0	0	9
Manchester	0	0	0	0	0	2	0	0	0	0	21
Vermont:											
Barre	0	0	0	0	0	1	0	0	0	0	3
Burlington	0	0	0	0	0	0	0	0	0	0	10
Massachusetts:											
Boston	49	67	0	0	0	12	2	1	0	24	246
Fall River	2	6	0	0	0	1	1	0	0	6	26
Springfield	5	12	0	0	0	1	0	0	0	0	27
Worcester	7	10	0	0	0	1	1	0	0	8	44
Rhode Island:											
Pawtucket	1	2	0	0	0	0	0	0	0	2	16
Providence	7	21	0	0	0	3	0	0	0	1	65
Connecticut:											
Bridgeport	8	0	0	0	0	1	0	0	0	8	25
Hartford	3	3	0	0	0	0	0	0	0	9	41
New Haven	4	0	0	0	0	4	1	0	0	11	49

[1] Estimated, July 1, 1925.

[2] No estimate made.

City reports for week ended June 9, 1928—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuberculosis, deaths reported	Typhoid fever			Whooping cough, cases reported	Deaths, all causes
	Cases, estimated expectancy	Cases reported	Cases, estimated expectancy	Cases reported	Deaths reported		Cases, estimated expectancy	Cases reported	Deaths reported		
MIDDLE ATLANTIC											
New York:											
Buffalo	16	28	0	0	0	0	1	11	10	23	161
New York	180	225	0	0	0	93	10	7	0	142	1,536
Rochester	11	5	0	0	0	1	0	0	1	4	72
Syracuse	6	8	0	0	0	2	0	0	0	17	51
New Jersey:											
Camden	5	6	0	0	0	5	0	0	0	0	34
Newark	18	22	0	0	0	8	0	0	0	19	118
Trenton	2	0	0	0	0	4	1	0	0	0	36
Pennsylvania:											
Philadelphia	74	66	1	0	0	40	3	3	1	85	496
Pittsburgh	27	20	1	0	0	8	1	0	0	24	181
Reading	2	11	0	0	0	1	0	0	0	6	28
EAST NORTH CENTRAL											
Ohio:											
Cincinnati	11	32	2	2	0	8	1	0	0	3	139
Cleveland	27	11	1	1	0	14	1	4	0	51	214
Columbus	6	1	1	0	0	4	0	0	0	5	66
Toledo	11	5	1	0	0	5	0	0	0	6	68
Indiana:											
Fort Wayne	2	2	2	0	0	1	0	0	0	1	26
Indianapolis	7	13	10	1	0	7	1	0	0	5	105
South Bend	2	0	1	0	0	0	0	0	0	0	15
Terre Haute	2	1	0	5	0	0	0	0	0	0	19
Illinois:											
Chicago	93	99	1	1	0	54	3	4	1	54	706
Springfield	2	9	0	1	0	0	0	0	0	8	22
Michigan:											
Detroit	65	121	2	0	0	33	2	2	0	79	282
Flint	5	14	0	3	0	1	0	0	0	9	29
Grand Rapids	5	5	0	0	0	2	0	0	0	3	31
Wisconsin:											
Kenosha	1	0	0	0	0	0	0	0	0	23	6
Milwaukee	17	49	1	0	0	6	0	0	0	37	133
Racine	3	1	0	0	0	1	0	0	0	2	11
Superior	2	4	1	0	0	0	0	0	0	0	-------
WEST NORTH CENTRAL											
Minnesota:											
Duluth	6	9	2	0	0	0	0	2	0	4	23
Minneapolis	27	24	7	0	0	1	1	0	0	34	81
St. Paul	18	8	2	0	0	7	0	0	0	60	60
Iowa:											
Davenport	0	1	1	0	-------	-------	0	0	-------	0	-------
Des Moines	5	7	3	10	-------	-------	0	0	-------	0	32
Sioux City	1	2	2	0	-------	-------	0	0	-------	3	-------
Waterloo	1	-------	0	-------	-------	-------	0	-------	-------	-------	-------
Missouri:											
Kansas City	6	13	1	0	0	9	1	0	0	9	104
St. Joseph	0	1	0	2	0	1	0	0	0	0	28
St. Louis	22	15	2	3	0	20	2	0	0	17	238
North Dakota:											
Fargo	1	3	0	0	0	0	0	0	0	4	6
Grand Forks	0	2	0	0	-------	-------	0	0	-------	0	-------
South Dakota:											
Aberdeen	2	0	0	0	-------	-------	0	0	-------	0	-------
Sioux Falls	1	0	0	0	-------	-------	0	0	-------	0	4
Nebraska:											
Lincoln	1	5	0	2	0	0	1	0	0	3	17
Omaha	4	6	5	4	0	1	0	0	1	2	30
Kansas:											
Topeka	1	3	0	0	0	0	0	0	0	1	9
Wichita	1	0	0	2	0	1	1	0	0	5	29

City reports for week ended June 9, 1928—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuberculosis, deaths reported	Typhoid fever			Whooping cough, cases reported	Deaths, all causes
	Cases, estimated expectancy	Cases reported	Cases, estimated expectancy	Cases reported	Deaths reported		Cases, estimated expectancy	Cases reported	Deaths reported		
SOUTH ATLANTIC											
Delaware:											
Wilmington	3	0	0	0	0	2	1	0	0	1	25
Maryland:											
Baltimore	26	15	0	0	0	12	2	1	2	56	226
Cumberland	0	1	0	0	0	0	0	0	0	0	8
Frederick	0	0	0	0	0	0	0	0	0	0	1
District of Columbia:											
Washington	15	44	1	1	0	8	2	0	0	17	146
Virginia:											
Lynchburg	0	0	0	0	0	0	0	0	0	1	17
Norfolk	1	3	0	1	0	2	0	0	0	0	----
Richmond	2	6	0	0	0	6	1	1	0	3	54
Roanoke	0	1	1	0	0	3	0	0	0	0	18
West Virginia:											
Charleston	0	1	0	0	0	1	0	0	1	4	17
Wheeling	2	0	0	0	0	0	1	0	0	0	15
North Carolina:											
Raleigh	0	1	0	3	0	0	1	0	0	7	8
Wilmington	0	0	0	2	0	0	0	1	0	0	18
Winston-Salem	1	6	1	1	0	0	1	0	0	0	----
South Carolina:											
Charleston	0	0	0	7	0	1	0	0	0	0	19
Columbia	0	0	1	0	0	0	2	0	0	3	16
Greenville	0	0	0	0	0	0	1	0	0	2	10
Georgia:											
Atlanta	3	5	6	2	0	7	2	0	0	0	95
Brunswick	0	1	0	0	0	0	1	0	0	0	5
Savannah	0	1	0	0	0	3	2	1	0	0	26
Florida:											
Miami	0	0	0	0	0	2	1	0	0	2	18
St. Petersburg	0	----	0	----	0	0	0	----	0	----	9
Tampa	1	0	0	0	0	1	1	2	0	0	28
EAST SOUTH CENTRAL											
Kentucky:											
Covington	1	3	0	0	0	0	0	0	0	0	28
Louisville	5	45	1	0	0	7	1	0	0	0	91
Tennessee:											
Memphis	3	4	1	0	0	9	1	2	0	1	63
Nashville	1	0	1	5	0	2	1	0	2	0	48
Alabama:											
Birmingham	1	0	5	0	0	6	2	0	0	8	77
Mobile	0	0	1	0	0	1	1	0	0	0	20
Montgomery	0	0	1	0	----	----	1	0	----	2	----
WEST SOUTH CENTRAL											
Arkansas:											
Fort Smith	1	2	0	0	----	----	0	0	----	10	----
Little Rock	1	4	1	0	0	7	1	0	0	0	----
Louisiana:											
New Orleans	3	7	1	1	0	14	2	4	0	4	165
Shreveport	0	1	1	0	0	3	1	2	2	1	27
Oklahoma:											
Tulsa	0	4	1	1	----	----	1	1	----	1	----
Texas:											
Dallas	2	6	2	3	0	1	1	1	0	29	39
Fort Worth	1	3	1	1	0	0	1	0	1	0	38
Galveston	0	0	0	0	0	0	0	0	0	0	15
Houston	0	2	0	2	0	3	1	1	0	0	72
San Antonio	0	1	0	0	0	8	1	0	0	0	67
MOUNTAIN											
Montana:											
Billings	2	0	0	0	0	0	0	0	0	1	3
Great Falls	1	1	1	0	0	0	0	0	0	0	10
Helena	0	1	0	2	0	1	0	0	0	0	7
Missoula	0	0	0	0	0	0	0	0	0	0	5

City reports for week ended June 9, 1928—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuberculosis, deaths reported	Typhoid fever			Whooping cough, cases reported	Deaths, all causes
	Cases, estimated expectancy	Cases reported	Cases, estimated expectancy	Cases reported	Deaths reported		Cases, estimated expectancy	Cases reported	Deaths reported		
MOUNTAIN—con.											
Idaho:											
Boise	0	0	0	0	0	0	0	0	0	0	9
Colorado:											
Denver	9	7	1	0	0	7	0	1	0	31	72
Pueblo	1	0	0	0	0	1	0	0	0	0	9
New Mexico:											
Albuquerque	0	0	0	0	0	3	0	0	0	0	8
Utah:											
Salt Lake City	2	3	1	6	0	0	0	0	0	12	36
Nevada:											
Reno	0	0	0	0	0	0	0	0	0	0	5
PACIFIC											
Washington:											
Seattle	9	5	2	0	----	----	1	2	----	8	----
Spokane	4	6	3	5	----	----	0	0	----	1	----
Tacoma	2	7	3	0	0	2	0	0	0	0	26
Oregon:											
Portland	4	3	7	16	0	4	0	0	0	0	103
California:											
Los Angeles	22	14	6	0	0	25	2	0	0	89	238
Sacramento	1	5	1	0	0	1	1	0	0	3	32
San Francisco	13	24	1	0	0	6	1	2	2	12	160

Division, State, and city	Meningococcus meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
NEW ENGLAND									
Massachusetts:									
Boston	2	1	0	0	1	1	0	0	0
MIDDLE ATLANTIC									
New York:									
New York	31	11	2	2	0	0	1	0	0
New Jersey:									
Camden	0	0	0	1	0	0	0	0	0
Pennsylvania:									
Philadelphia	2	3	3	2	0	0	0	0	0
Pittsburgh	3	1	0	0	0	0	1	0	0
EAST NORTH CENTRAL									
Ohio:									
Cincinnati	1	2	0	0	0	0	0	0	0
Cleveland	4	0	0	1	0	0	0	0	0
Columbus	0	0	0	0	0	0	0	1	0
Indiana:									
Indianapolis	1	1	0	0	0	0	0	0	0
Illinois:									
Chicago	5	2	2	2	0	0	0	1	0
Michigan:									
Detroit	4	3	0	0	0	0	0	0	0
Wisconsin:									
Milwaukee	3	0	0	0	0	0	0	0	0
WEST NORTH CENTRAL									
Missouri:									
Kansas City	2	2	0	1	0	0	0	0	0
St. Louis	3	0	1	0	0	0	0	0	0
North Dakota:									
Fargo	0	0	1	0	0	0	0	0	0

City reports for week ended June 9, 1928—Continued

Division, State, and city	Meningococcus meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Csaes	Deaths	Cases, estimated expectancy	Cases	Deaths
SOUTH ATLANTIC									
Maryland:									
Baltimore	0	0	1	0	0	0	1	1	0
North Carolina:									
Raleigh	0	0	0	0	0	1	0	0	0
Wilmington	0	0	0	0	0	1	0	0	0
South Carolina:									
Charleston[1]	0	1	0	0	1	0	0	0	0
Columbia	0	0	0	0	0	1	0	0	0
Georgia:									
Atlanta	1	0	0	0	4	0	0	0	0
Florida:									
Miami	0	0	0	0	1	0	0	0	0
EAST SOUTH CENTRAL									
Alabama:									
Mobile	0	0	0	0	1	0	0	0	0
WEST SOUTH CENTRAL									
Arkansas:									
Fort Smith	0	0	0	0	1	0	0	0	0
Louisiana:									
New Orleans	1	0	0	0	7	0	0	0	0
Shreveport	0	0	0	0	0	1	0	0	0
Texas:									
Houston	0	2	0	0	0	0	0	0	0
San Antonio	0	0	0	0	0	1	0	0	0
MOUNTAIN									
Colorado:									
Denver	1	0	0	0	0	0	0	0	0
PACIFIC									
California:									
Los Angeles	0	0	0	0	1	1	0	0	0
Sacramento	0	0	0	0	2	3	0	0	0
San Francisco	1	1	0	0	0	0	0	0	0

[1] Dengue: 1 case at Charleston, S. C.

The following table gives the rates per 100,000 population for 101 cities for the five-week period ended June 9, 1928, compared with those for a like period ended June 11, 1927. The population figures used in computing the rates are approximate estimates as of July 1, 1928 and 1927, respectively, authoritative figures for many of the cities not being available. The 101 cities reporting cases had estimated aggregate populations of approximately 31,657,000 in 1928 and 31,050,000 in 1927. The 95 cities reporting deaths had nearly 30,961,000 estimated population in 1928 and nearly 30,370,000 in 1927. The number of cities included in each group and the estimated aggregate populations are shown in a separate table below.

Summary of weekly reports from cities, May 6 to June 9, 1928—Annual rates per 100,000 population compared with rates for the corresponding period of 1927 [1]

DIPHTHERIA CASE RATES

	Week ended—									
	May 12, 1928	May 14, 1927	May 19, 1928	May 21, 1927	May 26, 1928	May 28, 1927	June 2, 1928	June 4, 1927	June 9, 1928	June 11, 1927
101 cities	121	174	137	174	128	171	122	158	[2] 134	[3] 161
New England	113	105	110	153	64	160	99	160	97	133
Middle Atlantic	177	282	204	267	213	233	178	234	220	247
East North Central	109	132	114	160	102	145	105	123	108	125
West North Central	55	135	95	105	72	91	84	81	[2] 50	81
South Atlantic	82	115	103	110	109	144	93	126	98	[3] 124
East South Central	35	81	20	35	35	96	45	61	20	20
West South Central	92	112	64	50	28	83	56	66	60	45
Mountain	71	99	97	108	71	143	71	179	35	368
Pacific	102	94	120	104	92	196	107	128	115	125

MEASLES CASE RATES

101 cities	1,376	602	1,346	620	1,305	548	1,215	447	[2] 1,025	[3] 425
New England	1,120	346	1,159	416	1,290	435	1,129	314	952	458
Middle Atlantic	2,254	297	2,274	323	2,185	365	2,164	282	1,767	298
East North Central	788	450	680	492	773	372	661	324	688	295
West North Central	937	932	1,116	952	939	653	752	459	[2] 609	372
South Atlantic	1,704	1,546	1,436	1,537	1,219	1,358	1,021	1,001	833	[3] 847
East South Central	1,062	345	1,237	355	1,077	319	1,037	380	763	157
West South Central	336	567	268	620	260	459	176	496	60	418
Mountain	1,141	1,300	1,150	906	831	1,049	991	619	734	565
Pacific	327	1,259	263	1,215	304	1,060	217	1,094	174	1,136

SCARLET FEVER CASE RATES

101 cities	253	340	253	309	234	294	206	219	[2] 197	[3] 240
New England	347	439	292	432	306	365	248	288	290	323
Middle Atlantic	285	474	279	415	267	363	200	255	190	286
East North Central	265	289	272	267	254	301	228	212	237	247
West North Central	242	319	279	289	207	245	232	236	[2] 162	194
South Atlantic	167	148	195	101	163	121	184	78	149	[3] 109
East South Central	155	152	190	132	219	137	284	101	259	66
West South Central	184	21	216	33	204	25	144	21	92	33
Mountain	115	726	133	986	18	897	71	780	106	717
Pacific	204	201	143	167	130	209	148	185	156	204

SMALLPOX CASE RATES

101 cities	18	21	24	26	17	29	13	21	[2] 11	[3] 20
New England	0	0	0	0	0	0	0	0	0	0
Middle Atlantic	0	0	0	0	0	0	0	0	0	0
East North Central	20	20	22	37	16	49	10	33	9	21
West North Central	43	26	64	48	27	42	29	24	[2] 22	32
South Atlantic	21	38	32	36	26	40	12	32	30	[3] 20
East South Central	45	56	30	76	60	61	45	91	25	106
West South Central	8	58	60	17	24	29	24	17	24	8
Mountain	159	9	159	45	133	27	53	36	71	27
Pacific	36	91	54	71	38	84	49	60	13	91

[1] The figures given in this table are rates per 100,000 population, annual basis, and not the number of cases reported. Populations used are estimated as of July 1, 1928 and 1927, respectively.
[2] Waterloo, Iowa, and Fargo, N. Dak., not included.
[3] Greenville, S. C., not included.

Summary of weekly reports from cities, May 6 to June 9, 1928—Annual rates per 100,000 population compared with rates for the corresponding period of 1927—Continued

TYPHOID FEVER CASE RATES

	Week ended—									
	May 12, 1928	May 14, 1927	May 19, 1928	May 21, 1927	May 26, 1928	May 28, 1927	June 2, 1928	June 4, 1927	June 9, 1928	June 11, 1927
101 cities	8	8	6	10	8	9	12	13	[2] 9	[3] 11
New England	5	5	7	5	11	9	57	9		5
Middle Atlantic	2	5	4	6	6	6	1	5	2	6
East North Central	3	3	2	5	5	7	3	7	10	6
West North Central	8	2	2	6	4	4	4	12	7	14
South Atlantic	19	9	7	13	7	18	16	29	[2] 4	[3] 18
East South Central	20	66	20	56	10	30	65	61	11	41
West South Central	16	25	4	45	12	25	32	37	10	33
Mountain	18	9	0	9	0	18	0	9	32	0
Pacific	31	10	23	10	36	8	18	26	9	21
									10	

INFLUENZA DEATH RATES

95 cities	33	13	29	12	25	9	20	7	[4] 17	[3] 6
New England	16	14	41	14	18	9	16	2	14	0
Middle Atlantic	31	14	28	10	21	8	24	9	19	5
East North Central	43	10	36	12	33	4	21	4	17	4
West North Central	43	4	18	8	12	12	14	6	[4] 14	4
South Atlantic	9	25	16	11	11	13	9	16	9	[3] 9
East South Central	73	32	63	43	89	27	26	5	52	11
West South Central	37	13	16	25	33	25	25	17	33	25
Mountain	27	9	27	9	53	9	44	0	0	9
Pacific	17	7	10	0	7	3	7	3	7	7

PNEUMONIA DEATH RATES

95 cities	210	123	189	110	176	100	145	93	[4] 126	[3] 93
New England	257	144	207	100	253	144	172	116	168	88
Middle Atlantic	267	151	218	119	211	116	182	107	147	112
East North Central	232	97	222	104	175	85	130	79	115	93
West North Central	120	70	88	58	84	87	59	58	[4] 64	50
South Atlantic	89	128	146	148	119	85	137	112	130	[2] 64
East South Central	193	128	240	112	230	64	204	53	157	117
West South Central	164	140	123	106	144	89	127	81	107	102
Mountain	133	54	97	63	124	36	106	72	88	90
Pacific	98	114	105	121	91	100	71	97	81	83

[2] Waterloo, Iowa, and Fargo, N. Dak., not included.
[3] Greenville, S. C., not included.
[4] Fargo, N. Dak., not included.

Number of cities included in summary of weekly reports, and aggregate population of cities in each group, approximated as of July 1, 1928 and 1927, respectively

Group of cities	Number of cities reporting cases	Number of cities reporting deaths	Aggregate population of cities reporting cases		Aggregate population of cities reporting deaths	
			1928	1927	1928	1927
Total	101	95	31,657,060	31,050,300	30,960,700	30,369,500
New England	12	12	2,274,400	2,242,700	2,274,400	2,242,700
Middle Atlantic	10	10	10,732,400	10,594,700	10,732,400	10,594,700
East North Central	16	16	7,991,400	7,820,700	7,991,400	7,820,700
West North Central	12	10	2,683,500	2,634,500	2,566,400	2,518,500
South Atlantic	21	21	2,981,900	2,890,700	2,981,900	2,890,700
East South Central	7	6	1,048,300	1,028,300	1,000,100	980,700
West South Central	8	7	1,307,600	1,260,700	1,274,100	1,227,800
Mountain	9	9	591,100	581,600	591,100	581,600
Pacific	6	4	2,046,400	1,996,400	1,548,900	1,512,100

FOREIGN AND INSULAR

THE FAR EAST

Report for the week ended June 2, 1928.—The following report for the week ended June 2, 1928, was transmitted by the Eastern Bureau of the Health Section of the Secretariat of the League of Nations, located at Singapore, to the headquarters at Geneva:

Plague, cholera, or smallpox was reported present in the following ports:

PLAGUE

Ceylon.—Colombo.
India.—Bassein, Bombay, Rangoon.
China.—Amoy.

CHOLERA

India.—Bassein, Calcutta, Madras, Moulmein, Rangoon.
Siam.—Bangkok.
French Indo-China.—Haiphong, Saigon.
China.—Canton.

SMALLPOX

India.—Bombay, Calcutta, Madras, Rangoon.
French India.—Pondicherry.
Dutch East Indies.—Belawan-Deli.
China.—Shanghai, Hong Kong.
Japan.—Kobe.
Kwantung.—Dairen, Port Arthur.
Manchuria.—Changchun, Mukden.
Korea.—Fusan.

BRAZIL

Bahia—Interior of Province—Yellow fever.—Under date of June 20, 1928, three cases of yellow fever were reported at Bahia, with spread of the disease in the interior. Two of the reported cases at Bahia were stated to be mild.

CANADA

Provinces—Communicable diseases—Week ended June 2, 1928.—The Canadian Ministry of Health reports cases of certain communicable diseases from five Provinces of Canada for the week ended June 2, 1928, as follows:

Disease	Nova Scotia	New Brunswick	Quebec	Ontario	Alberta	Total
Cerebrospinal fever			2	3		5
Influenza	15			9		24
Lethargic encephalitis				2		2
Poliomyelitis				1		1
Smallpox			19	8	1	28
Typhoid fever			10	9		19

Quebec—Communicable diseases—Week ended June 9, 1928.—The Bureau of Health of the Province of Quebec reports cases of certain communicable diseases for the week ended June 9, 1928, as follows:

Disease	Cases	Disease	Cases
Chicken pox	17	Scarlet fever	85
Diphtheria	35	Smallpox	21
German measles	7	Tuberculosis	2
Influenza	4	Typhoid fever	12
Measles	136	Whooping cough	6

Vital statistics—April, 1928.—Births and deaths in the Province of Quebec for the month of April, 1928, were reported as follows:

Estimated population	2,650,400
Births	6,635
Birth rate per 1,000 population	30.5
Deaths	2,984
Death rate per 1,000 population	13.7
Deaths under 1 year	886
Infant mortality rate	133.5
Deaths from—	
Cancer	125
Cerebrospinal meningitis	5
Diabetes	22
Diarrhea	112
Diphtheria	27
Heart disease	248
Deaths from—Continued.	
Influenza	100
Measles	40
Pneumonia	371
Poliomyelitis	2
Scarlet fever	17
Smallpox	0
Syphilis	5
Tuberculosis (pulmonary)	279
Tuberculosis (all other forms)	55
Typhoid fever	16
Violence	67
Whooping cough	30

GREAT BRITAIN

England and Wales—Vital statistics—January to March, 1928.—During the first quarter of the year 1928, 168,099 births and 136,315 deaths were registered in England and Wales, giving a birth rate on an annual basis, of 17.4 per 1,000 population and a death rate of 14.1 per 1,000. The infant mortality was 80 per 1,000 births.

During the 13 weeks ended March 31, 1928, communicable diseases were notified in England and Wales as follows:

Disease	Cases	Disease	Cases
Diphtheria	18,433	Puerperal pyrexia	1,526
Ophthalmia neonatorum	1,437	Scarlet fever	23,411
Pneumonia	22,296	Smallpox	4,730
Puerperal fever	630	Typhoid fever	622

Scotland—Vital statistics—January to March, 1928.—The Registrar-General of Scotland has published statistics for the first quarter of 1928 which show that the birth rate for Scotland for that quarter was 19.9 per 1,000 population, the death rate 15.9 per 1,000, and the deaths of infants under 1 year of age was 107 per 1,000 births.

The following items are taken from quarterly returns of births, deaths, and marriages registered in Scotland during the quarter ended March 31, 1928:

Births	24,246
Marriages	7,382
Deaths (total)	19,385
Deaths under 1 year	2,594
Deaths from—	
Bronchitis	1,290
Bronchopneumonia	1,017
Cancer	1,736
Cerebrospinal meningitis	42
Diabetes	133
Diarrhea and enteritis (under 2 years)	145
Diphtheria	191
Dysentery	2
Heart disease	2,397
Influenza—	
Sole cause	81
With other causes	350
Deaths from—Continued.	
Lethargic encephalitis	24
Malaria	2
Measles	558
Nephritis (acute)	59
Nephritis (chronic)	485
Paratyphoid fever	6
Pneumonia	1,030
Poliomyelitis	6
Puerperal sepsis	72
Scarlet fever	47
Syphilis	29
Tetanus	2
Tuberculosis (pulmonary)	848
Tuberculosis (all other forms)	391
Typhoid fever	12
Whooping cough	361

GREECE

Corfu—Plague—June 20, 1928.—Under date of June 20, 1928, 15 cases of plague with 3 deaths were reported at Corfu, Greece.

NOVA SCOTIA

Halifax—Communicable diseases—1926–27.—The report of the City Health Department of Halifax, Nova Scotia, for the year ended April 30, 1928, shows a decided decrease in the prevalence of communicable diseases as compared with the preceding year.

The numbers of reported cases of certain communicable diseases in Halifax for the years ended April 30, 1927, and April 30, 1928, are shown in the table below:

Disease	1926–27	1927–28	Disease	1926–27	1927–28
Cancer	4	1	Poliomyelitis	1	2
Cerebrospinal meningitis	1	2	Scarlet fever	193	162
Chicken pox	9	13	Smallpox	0	2
Diphtheria	123	84	Tuberculosis	20	17
Erysipelas	1		Typhoid fever	1	6
Measles	296	20	Whooping cough	100	4
Paratyphoid fever		2			

VENEZUELA

Births and deaths, 1922–1926.—The following table gives the numbers of births and deaths in Venezuela for the years 1922 to 1926, inclusive. The population of Venezuela is given as 2,490,604 in 1923 and 3,026,878 in 1926.

Year	Births	Deaths	Year	Births	Deaths
1922	76,385	56,498	1925	95,741	51,782
1923	82,137	54,509	1926	91,648	66,092
1924	81,750	54,261			

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

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

CHOLERA

[C indicates cases; D, deaths; P, present]

Place		Oct. 23–Nov. 19, 1927	Nov. 20–Dec. 17, 1927	Dec. 18, 1927–Jan. 14, 1928	Jan. 15–Feb. 11, 1928	Feb. 12–Mar. 10, 1928	Week ended— March, 1928			April, 1928				May, 1928				June, 2, 1928
							17	24	31	7	14	21	28	5	12	19	26	
China:																		
Canton	C	12	1					1	1									1
	D	11	1					1	1									1
Swatow	C	P																
	D	P																
Tientsin	C	P	1															
Dutch East Indies: Java—Batavia	C	28	3															
	D	18	3															
India	C	23,047	25,139	15,377	12,391	13,236	4,546	5,384	5,856	5,529	7,746	7,897						
	D	12,863	15,026	8,863	6,750	7,282	2,605	2,931	3,182	3,159	4,920	5,157						
Bassein	D				1	2		4	25	22	20	6	6	9	9	16	8	7
Bombay	C	2			1	1	1	1	1									
	D	2				1	1		1	1								
Calcutta	C	199	428	156	203	341	164	190	148	162	163	131	152					
	D	138	281	125	112	241	94	122	114	112	111	97	105	115	126	102	92	90
Madras	C	13	1	1	2	14		7	1	2	5	5	5	7	7			
	D	7	2	1	4	18		2	1	1	4	5	4	5	3		5	4
Madras Presidency	C	3,073	3,702	1,864	4,681	2,961	510	455	243	275								
	D	1,736	2,104	984	2,660	1,618	280	244	131	157								
Negapatam	C				4	4												
	D				6	4					1			1				
Rangoon	C	2	8	4	6	29	4	7	8	3	5	10	7	1				
	D	5	6	3	2	18	2	3	6	5	2	7	5	1				2
Tuticorin	C		8							10	43	45	19	3				
	D	37	14				1			8	26	32	10	3				
India (French):																		
Chandernagor	C	6	10	14	6	5	2	1		4								
	D	6	10	9	1	5	1	1		4								
Karikal	C	1	1	8	32	6					1							
	D	1	1	4	19	5					1							
Pondicherry	C	1	25	11	12	33				1	2	3	2	1				
	D	1	21	12	10	19				1	2	3	2	1				

Indo-China (see also table below):																		
Saigon	C			3	4	16	27	13	21	35	50	28	23	15	10		4	1
	D			1	1	8	19	8	12	20	37	17	12	10	7		2	
Iraq [1]																		
Kwangchow-Wan (see table below)																		
Siam	C	110	88	110	200	295	53	88	70	80	120	85	88	56	46			
	D	76	64	80	139	214	39	67	54	58	84	61	63	26	29			
Bangkok	C	4	3	21	101	60	8	12	16	24		30	24	20	17	14	11	8
	D	2	2	11	66	36	5	5	12	11		13	14	8	6	9	7	4
Trad [2]	C																	
Straits Settlements: Singapore	C	7	5	23	3		1	1					1					
	D	5	4	12	1		1	1					1					
On vessel:																		
S. S. Hawaii Maru at Singapore from Saigon, French Indo-China	C								•	11								

Place		July–September, 1927	October–December, 1927	January, 1928	February, 1928			March, 1928			April, 1928			May, 1928		
					1–10	11–20	21–29	1–10	11–20	21–31	1–10	11–20	21–30	1–10	11–20	21–31
Indo-China (French) (see also table above):																
Annam	C	3,179	370	267	23	36	14	18	18	23	17	11	18	4	26	13
Cambodia	C	251	337	54	38	22	51	33	22	92	43	102	51	34	47	20
Cochin-China	C	469	391	295	178	113	153	206	217	245	277	316	240	140	139	125
Laos	C	246	77													
Tonkin	C	1,297	3	1							1	4	1	9	1	16
Kwangchow-Wan	C	16													16	

PLAGUE

[C indicates cases; D, deaths; P, present]

Place		Nov. 20–Dec. 17, 1927	Dec. 18, 1927–Jan. 14, 1928	Jan. 15–Feb. 11, 1928	Feb. 12–Mar. 10, 1928	Week ended—													
						March, 1928			April, 1928				May, 1928				June, 1928			
						17	24	31	7	14	21	28	5	12	19	26	2	9	16	23
Algeria (see also table below):																				
Algiers	C												1							
Oran	C													1				2		

[1] From July 19 to Dec. 26, 1927, 1,479 cases of cholera were reported in Iraq, with 1,063 deaths, as follows: Amarah Liwa, 261 cases, 205 deaths; Baghdad Liwa, 80 cases, 60 deaths; Basra Liwa, 421 cases, 330 deaths; Diwaniah Liwa, 122 cases, 72 deaths; Diyalah Liwa, 1 case, 1 death; Duliam Liwa, 100 cases, 69 deaths; Hillah Liwa, 105 cases, 71 deaths; Kerbalah Liwa, 79 cases, 60 deaths; Kut Liwa, 66 cases, 44 deaths; Muntafiq Liwa, 244 cases, 151 deaths.

[2] 1 death from cholera reported June 15 as first case from Trad, Siam.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

PLAGUE—Continued

[C indicates cases; D, deaths; P, present]

Place		Nov. 20–Dec. 17, 1927	Dec. 18, 1927–Jan. 14, 1928	Jan. 15–Feb. 11, 1928	Feb. 12–Mar. 10, 1928	Week ended— March, 1928			April, 1928				May, 1928				June, 1928			
						17	24	31	7	14	21	28	5	12	19	26	2	9	16	23
Arabia: Aden	C		19	178	343	189	148	151	163	108	59	53	13	5	1	1				
	D		7	104	206	134	135	134	126	97	48	16	16	7	1	1				
Plague-infected rats				P	P															
Argentina:																				
Avellaneda	C																1			
	D																1			
Bahia Blanca district	C	3																		
Buenos Aires	C			2										(1)	6					
	D														3					
Cordoba Province	C	10	2							5										
Entre Rios	C																	2	1	
Firmat	C	1																		
Loreto	C																3			
Quilino	C	3																		
Rosario	C	4	5	4	1												1			
Santa Fe	C																	7	1	
Santiago del Estero	C				1													9	1	
Suardi	C																2			
Ucacha	C	1																		
Azores: St. Michaels Island	C	3	2	8	3	1	1		1		2	1	2							
	D	1	1	4	1	1			1		1	1								
Brazil:																				
Bahia	C		4	5	8			P	2	1										
	D		4	4	5															
Porto Alegre	C				2															
Rio de Janeiro	C			4	3	2	1													
	D			1	2	2	1													
Plague-infected rats				1																
British East Africa (see also table below):																				
Tanganyiki	C	P	P	2	3															
	D			2	3					5			5							
Uganda	C	67	70	23	13															
	D	61	64	18	10															

Canary Islands:																					
Arrecife	C															1					
	D															1					
Las Palmas	C	3	3	1	1	2		2													
	D	1	1	1	1																
Teneriffe	C				10																
	D				4																
Ceylon: Colombo	C	6	7	3	11	3		4						1	1	2		1			
	D	6	6	2	6	3		2						1	1	1					
Plague-infected rats			2	5	6																
China:																					
Amoy	C														1	1	2	1			
Hong Kong	C													2							
Dutch East Indies:																					
Balik-Papan	C		1																		
	D		1																		
Celebes—Makassar	C	2	6	5	1																
	D	2	5	5	1																
Java	D	1,017	754	737	454																
Batavia and West Java	C	154	128	137	103	19	18	17	26	13	10	14									
	D	152	128	135	103	19	18	17	26	13	10	14									
Cheribon	C	1																			
	D	1																			
Plague-infected rats						1		1	1	1	3	2	1	1	4	2	2				
East Java and Madura	C	8	7	7		1	1	2		1	2										
	D	8	7	7		1	1	2		1	2										
Kedoe Residency	C									P											
Pasoeroean Residency	C	P																			
Surabaya Residency	C	P						1					1								
	D							1					1								
Surakarta Residency	C	P																			
Ecuador: Guayaquil (see table below).																					
Egypt:																					
Alexandria	C	12	5	2	1											1					
	D	7	2	2	1											2					
Beni-Souef	C											4	8	4	14	34	17	14	3		
	D											1	2	4	6	8	5	7			
Cairo	C		2																		
	D		2																		
Maghagha District	C										1										
	D										1										
Menufia	C																6	5			
	D																	2			
Minieh Province	C										32	9	7	13	15	36	12	22	23		
	D										5	4		5	2	9	1	9	5		
Suez	C		1	4	13		4	7	3		3	2			1	2					
	D		1	2	9		2	3	4		2	2			1						
Plague-infected rats							2														
Tanta	C														1						
	D														1						

[1] 6 cases of plague reported in Buenos Aires, Argentina, before May 14, 1928.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

PLAGUE—Continued

[C indicates cases; D, deaths; P, present]

Place		Nov. 20–Dec. 17, 1927	Dec. 18, 1927–Jan. 14, 1928	Jan. 15–Feb. 11, 1928	Feb. 12–Mar. 10, 1928	Week ended— March, 1928			April, 1928				May, 1928				June, 1928			
						17	24	31	7	14	21	28	5	12	19	26	2	9	16	23
Greece:																				
Athens and Piræus	C	------	3	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------
	D	------	1	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------
Corfu	C	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	1	14
	D	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	3
Mitylene	C	3	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------
Hawaii Territory: Hawaii	D	------	------	------	1	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------
India	C	5,518	7,697	12,652	23,174	7,517	6,077	6,634	5,851	6,690	5,080	------	------	------	------	------	------	------	------	------
	D	3,269	4,925	8,521	16,998	6,031	4,724	5,372	4,780	5,911	4,719	------	------	------	------	------	------	------	------	------
Bassein	D	4	17	8	12	5	5	7	5	4	5	1	3	2	1	------	1	------	------	------
Bombay	C	------	3	14	33	4	16	28	21	17	------	------	------	------	------	------	------	------	------	------
	D	------	3	9	33	4	11	25	21	15	14	19	21	17	14	------	6	------	------	------
Calcutta	C	------	2	------	------	------	------	------	2	------	------	------	------	------	------	------	------	------	------	------
	D	------	------	1	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------
Madras Presidency	C	791	550	452	271	25	19	13	5	14	6	------	------	------	------	------	------	------	------	------
	D	359	206	256	212	18	16	9	5	7	5	------	------	------	------	------	------	------	------	------
Rangoon	C	15	17	35	48	5	11	3	11	5	2	5	4	3	------	------	------	------	------	------
	D	15	16	30	43	4	9	5	8	5	1	3	5	3	3	3	------	4	------	------
Indo-China (see table below)		------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------
Iraq:																				
Baghdad	C	------	------	4	2	2	2	1	------	1	4	4	2	4	3	4	2	3	2	------
	D	------	------	2	2	2	2	1	------	1	------	4	1	------	1	1	1	1	1	------
Plague-infected rats		------	------	------	------	------	------	------	------	------	------	4	------	3	------	------	------	------	------	------
Dulaim Liwa	C	------	------	1	------	------	------	------	------	1	------	------	------	------	------	------	------	------	------	------
Kwangchow-Wan (see table below)		------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------
Madagascar (see table below)		------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------
Mauritius (see table below)		------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------
Nigeria (see also table below):																				
Lagos	C	18	10	10	8	2	------	2	3	2	6	7	2	4	8	6	------	------	------	------
	D	13	8	11	8	2	------	2	2	2	7	7	2	4	8	6	------	------	------	------
Peru (see table below)		------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------
Senegal (see also table below):																				
Baol	C	P	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------
	D	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------
Thies and vicinity	C	------	------	------	------	------	------	8	------	------	------	------	------	------	------	------	------	------	------	------
	D	------	------	------	------	------	------	4	------	------	------	------	------	------	------	------	------	------	------	------

Siam	C	3	16	20	42	7	8	13	5	6	11	8	2	3					
	D	2	11	12	36	6	9	10	5	4		6	3	2					
Ayudhaya	C																2		
	D																1		
Bangkok	C		1	2	1			1			3	1							
	D		1	2	1			1			2								
Nagara	C															1			
Straits Settlements: Singapore	C			1	3		1												
	D			1	2		1												
Syria (see table below)																			
Tunisia [1]																			
Turkey: Constantinople	C	2																	
	D	1																	
Union of South Africa:																			
Cape Province	C	2		1															
	D	1		1															
Orange Free State	C	8		5	5	3	2												
	D	6		4	1	3	2												
Venezuela: State of Miranda—Tacata and Cua	C				P														
On vessel:																			
S. S. Cadwallen, at La Plata, from Rosario, Argentina	C		1																
S. S. Aghios Gerasimos, at Vigo, Spain	C	3																	
S. S. Tymeric, at Barbados, from New Orleans	C														1				

Place		July-September, 1927	October-December, 1927	January, 1928	February, 1928	March, 1928	April, 1928	May, 1928
Algeria (see also table above):								
Algiers	C		2					1
Angola	C		3					
British East Africa (see also table above):								
Kenya	C	95	62	26	24	19	17	
	D						5	
Ecuador: Guayaquil	C	15	18	4	6	10		1
	D		5	4	3	1		
Plague-infected rats		34	31	23	31	21		1
Indo-China (French)	C	14	10	7		5	9	16
Kwangchow-Wan	C					18	17	10
Madagascar	C	314	692	427	342	171		
	D	286	605	388	317	150		
Ambositra Province	C	7	25	105	67	30		
	D	7	17	96	66	29		
Antsirabe Province	C	39	109	117	108	56		
	D	38	108	117	108	54		

Place		July-September, 1927	October-December, 1927	January, 1928	February, 1928	March, 1928	April, 1928	May, 1928
Madagascar—Continued.								
Itasy Province	C	36	104	33	19	3		
	D	41	94	29	17	3		
Moramanga Province	C	12	95	19	25	12		
	D	12	83	19	24	12		
Tananarive Province	C	211	408	155	123	70		
	D	189	354	129	102	61		
Mauritius	C	1						
Nigeria (see also table above)	C	32	63	16	16			
	D	29	61	16	16			
Peru	C	34	34		41	52		
	D	19	11		14	9		
Callao	D	3	3					
Lima	C		7	6				
	D		3					
Senegal (see also table above)	C			5	17	8	81	14
	D				13	4	40	5
Syria: Beirut	C		2					

[1] 8 cases of plague with 6 deaths were reported in Bengardane region, Tunisia, Mar. 17 to 27, 1928.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

PLAGUE RATS ON VESSELS

S. S. *Modemi* at Goteborg, Sweden, from Bahia and Buenos Aires via Cape Verde Islands, December 22, 1927.
S. S. *Gyderore* at Landskrona, Sweden, from Rosario via Canary Islands, January 22, 1928.
S. S. *Dryden* at Liverpool from La Plata River ports, January 20, 1928.
S. S. *Sicily* at Liverpool from Buenos Aires and Rosario, June 8, 1928, 7 plague-infected rats.

SMALLPOX

[C indicates cases; D, deaths; P, present]

Place		Oct. 23–Nov. 19, 1927	Nov. 20–Dec. 17, 1927	Dec. 18, 1927–Jan. 14, 1928	Jan. 15–Feb. 11, 1928	Feb. 12–Mar. 10, 1928	Week ended— March, 1928			April, 1928				May, 1928				June, 1928	
							17	24	31	7	14	21	28	5	12	19	26	2	9
Algeria (see also table below)	C	661	170	129	71	72	3				12								
Algiers	C		3	9	15	10		2	2	1		2		2	1	1	3		
Oran	C	20	39	29	11	5		2	10		3	1	2	11	4	1			
Angola (see table below).																			
Arabia: Aden	C	1	3	1		1													
Brazil (see also table below):																			
Rio de Janeiro	C	1					1												
	D	1					1												
British East Africa (see also table below):																			
Kenya—Mombasa	C							1		1				1					
Tanganyiki	D	P	P	8	5														
British South Africa:																			
Northern Rhodesia	C	185	252	236	233	297		54	8	5	26	7	4	591					
	D	64	62	31	23	42		9			1	1	1	48					
Southern Rhodesia	C	3	2	1	3	7	4	1	2		21	3			13				
	D					1					10								
Canada:																			
Alberta	C	10	10	11	27	10	7	20	7	13	4	2	3	3	13	10	18	1	
Calgary	C						1												
Edmonton	C	1	8	5	3	13	1	11	1	7	2			1	12	10			
British Columbia—Vancouver	C		4	8	26	10	2	5	6	4	11	6	1	6	4	2	5		1
Manitoba	C	19	7	11	1									7					
Winnipeg	C	2	2	2	2														
New Brunswick	C			1		1										1			
Ontario	C	264	347	212	243	147	19	35	20	9	6	18	18	8	15	12	6	8	
Hamilton	C		2																
Kingston	C	1		1	1						2		1						
Ottawa	C	134	63	60	68	22	6	8	10	2		3	1		4	2			1
Toronto	C	34	39	28	20	14	2	3	3	1	2	4	4	1	2	7		3	

Quebec	C	25	16	44	26	54	22	40	35	15	21	25	4	33	13	31	15	19	21
Montreal	C	1		8	8	9	6	3				6	2	1			1	2	3
Quebec	C		4	10	16	13	3	2	4	1	3	7	5	8	7	17	9	14	17
Riviere du Loup	C	3																	
Sherbrooke	C								3										
Saskatchewan	C	34	58	52	97	22	14	7		12	2	23	15	12	12	13	3		
Moose Jaw	C		1	4	11	13	2	5			3					1			
Regina	C	1	1						1	2	3	2		3	1				
Saskatoon	C		2	4	15	2													
Ceylon: Colombo	C	1	2		4	6				1									
	D		1		1			1											
China:																			
Amoy	C					1	1	2	1	2	3	2	1	3	1			1	
Antung	C			1								1		2					
Canton	C					2	3	2		2	1				1		1		
Chefoo	C		P				P												
	D					1													
Foochow	C	P	P	P	P	P				P	P	P	P	P					
Hong Kong	C			1	2	7	5	7	10	10	4	4	9	8	8	10	3	9	
	D			1	2	4		2	5	12	7	2	10	7	11	5	4	3	
Manchuria—																			
Changchun	C		1		4						2		1	1	3			3	
Dairen	C	2	1	5	15	13	1	3	5	6	7	3	6		12	10	13		
	D				8	7		3	5										
Fushun	C	1																	
Harbin	C		2	1	5	7	2	3		2	2	3	2						
Mukden	C	1			4	21			1			3	1					3	
Shanghai—																			
Foreigners only	C				5	6	1	1	3	2		1	1	1	2				
Including natives	D				11	19	2	1	3	3	3	1	3	2	1	7	5	6	
Tientsin	C	8	9	8	48	20	4	3	3	3	9	1	3	4					
Chosen (see table below)																			
Curacao (alastrim)	C				2	3													
Dominican Republic: Santo Domingo	C						2							1					
Dutch East Indies:																			
Borneo—																			
Pontianak	C					1													
Samarinda district	C	P																	
Java—																			
Batavia and West Java	C	25			4	2	4			1	1								
	D	15																	
East Java and Madura	C	9	9	5	2	9					1								
	D					1													
Sumatra—Medan	C		3	9	23	14	6			1	2			2					
	D		2	3	11	2	4			1	2			1					
Ecuador (see table below)																			
Egypt	C		4	4	1	2				52	11		1		1				
	D		1							33	6		1				1		
Cairo	C		2		1														
France (see table below)																			
Gold Coast (see table below)																			

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

SMALLPOX—Continued

Place		Oct. 23–Nov. 19, 1927	Nov. 20–Dec. 17, 1927	Dec. 18, 1927–Jan. 14, 1928	Jan. 15–Feb. 11, 1928	Feb. 12–Mar. 10, 1928	Week ended— March, 1928 17	24	31	April, 1928 7	14	21	28	May, 1928 5	12	19	26	June, 1928 2	9
Great Britain:																			
England and Wales	C	902	1,041	1,175	1,530	1,473	359	342	322	318	321	326	376	321	319	336	258	286	
Birmingham	C				44	3	1				1								
Bradford	C	11	19	32	24	12	9		5	5	3	2	7	2	2	7	2	8	
Bristol	C	4	8		3	4		2	8	2	1	10	1	5	4	1	4	1	
Cardiff	C	1		1					5				1	2		1		1	
Castleford	C					4	2	16	7	11	27	11	20	11	11	6	4	3	
Leeds	C	5	16	11	3	9	3	5	3	3	2	2	1	1					
Liverpool	C			1		1													
London	C				4	14	10	5	1	1	7	5	3	27	5	10	5	5	
Manchester	C	6	25	5	25	8	4	3	3	4	2	4	2		1	1	2	1	
Newcastle on Tyne	C	9	55	22	27	12	3	4		2			4		1	6	3	2	
Nottingham	C			13	27	11	5	1	6	1	4	4	6	3	5	10		5	
Sheffield	C	6	9	14	8	6				1		10	2	2	2			2	
Stoke on Trent	C			4	1	15	11			1	4	10	5	13	9	8	6	1	
Greece (see table below)																			
India	C	4,052	6,731	10,676	17,777	18,850	6,004	6,169	8,101	7,760	8,789	8,038							
	D	927	1,650	2,429	3,709	3,826	1,212	1,207	1,500	1,621	1,988	1,739							
Bassein	C				1									1					
Bombay	C	4	9	14	61	149	49	58	62	49	56	57	54	33	46	37	26	27	
	D	3	2		24	73	24	33	36	27	32	34	27	25	25	22	18	13	
Calcutta	C	5	25	36	58	71	20	29	45	40	49	51	31	40	41	29	31	29	
	D	2	11	27	34	50	15	21	33	35	32	42	21	35	30	26	23	22	
Karachi	C					1	1							2			3		
	D					1								1			1		
Madras	C	7	11	21	74	100	30	27	45	81	49	36	60	24	17	22	11	9	
	D	2	3	6	8	19	5	3	6	15	16	8	7	7	5	5		5	
Negapatam	C			5	8	3					1		5	1	3	4	1		
	D			3	3						1		2			1			
Rangoon	C	6	14	136	275	377	96	82	92	50	62	45	37	23	15	2	6	7	
	D	1	4	31	64	104	28	17	34	23	24	17	12	16	4	2	2	5	
Tuticorin	C														3				
Vizagapatam	C			3	10	2			3			2			2		1		
	D				8												1		
India (French):																			
Chandernagor	C									5									
	D									1									

Pondicherry	C	42	41	65	47	9	------	6	5	7	12	------	15	9	16	------	7	9	------
	D	42	41	50	47	9	------	6	5	7	12	------	15	9	16	------	6	1	------
Indo-China (see also table below):																			
Saigon	C	------	1	3	------	3	------	------	------	------	------	------	------	------	------	------	------	------	------
Iraq:																			
Baghdad	C	5	25	23	19	7	3	1	------	1	1	3	------	1	6	------	3	7	3
	D	4	14	12	11	4	3	1	------	------	1	1	------	1	1	------	2	3	1
Basra	C	3	4	2	1	7	4	1	------	------	------	1	1	2	------	1	2	------	------
	D	1	3	1	------	------	1	1	------	------	------	1	1	------	------	1	2	------	------
Italy:																			
Leghorn	C	------	------	------	------	1	1	------	------	------	------	------	------	------	------	------	------	------	------
Palermo	C	------	------	------	------	------	------	------	3	2	1	3	3	3	2	------	4	------	------
Rome and vicinity	C	------	------	------	3	------	------	------	------	------	------	------	------	------	------	------	------	------	------
Jamaica (outside Kingston) (alastrim)	C	7	3	2	5	10	3	2	1	7	------	1	2	1	------	------	1	------	------
Japan:																			
Kobe	C	------	------	------	------	------	------	------	------	------	------	------	------	------	------	6	3	1	------
Nagoya	C	------	------	------	------	------	------	------	------	------	------	------	1	5	2	------	------	------	------
Tokyo	C	------	------	------	4	4	1	3	1	10	8	------	------	------	------	------	------	------	------
	D	------	------	------	1	2	------	------	------	1	1	------	------	------	------	------	------	------	------
Tokyo Prefecture	C	------	------	------	------	------	------	17	5	2	1	------	------	------	------	------	------	------	------
	D	------	------	------	------	------	------	------	------	1	1	1	------	------	------	------	------	------	------
Yokohama	C	------	------	------	------	------	------	------	------	------	------	------	1	1	1	------	1	------	------
Latvia (see table below).																			
Mauretania	C	------	------	------	------	P	------	------	------	------	------	------	------	------	------	------	------	------	------
Mexico (see also table below):																			
Acapulco	C	1	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------
	D	1	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------
Chihuahua	D	------	------	1	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------
Jalisco (State)	C	------	------	------	------	P	P	P	P	P	P	P	P	------	------	------	------	------	------
Guadalakara	D	------	2	------	------	1	------	------	------	2	2	1	4	5	7	4	------	2	4
Manzanillo	D	------	------	1	------	------	1	------	------	------	------	------	------	------	------	------	------	------	------
Mazatlan	D	------	------	------	------	------	------	------	------	------	------	------	------	------	------	2	------	1	------
Mexico City and surrounding territory	C	------	4	------	2	2	------	------	------	------	------	------	1	------	1	------	1	------	------
Saltillo	D	------	------	------	------	------	------	------	------	------	------	------	------	------	1	1	------	------	------
Tampico	C	------	------	------	------	1	------	------	------	------	------	------	------	------	------	------	------	------	------
Morocco (see table below):																			
Nigeria (see also table below):																			
Lagos	C	------	------	------	------	------	------	------	------	1	------	------	------	------	------	------	------	------	------
Southern Provinces	C	------	------	------	------	7	------	40	26	27	------	------	------	------	------	------	------	------	------
	D	------	------	------	------	------	------	28	1	6	------	------	------	------	------	------	------	------	------
Palestine: Jerusalem	C	------	1	------	1	------	------	------	------	------	------	------	------	------	------	------	------	------	------
	D	------	------	------	1	------	------	------	------	------	------	------	------	------	------	------	------	------	------
Persia (see table below).																			
Poland	C	------	1	6	3	1	1	------	------	------	------	5	2	2	------	------	------	------	------
	D	------	------	------	------	------	------	------	------	------	------	1	------	------	------	------	------	------	------
Portugal (see also table below):																			
Lisbon	C	4	10	12	12	20	------	------	2	3	------	3	2	1	------	------	------	------	------
	D	------	1	------	------	1	------	------	------	------	------	------	------	------	------	------	------	------	------
Oporto	C	------	------	------	------	------	------	------	------	------	------	------	1	------	------	------	------	------	------
Senegal (see also table below):																			
Dakar	C	------	------	------	------	34	17	------	------	12	5	11	------	------	12	7	------	------	------
	D	------	------	------	------	------	12	------	------	8	------	8	------	------	4	3	------	------	------

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

SMALLPOX—Continued

Place		Oct. 23–Nov. 19, 1927	Nov. 20–Dec. 17, 1927	Dec. 18, 1927–Jan. 14, 1928	Jan. 15–Feb. 11, 1928	Feb. 12–Mar. 10, 1928	Week ended— March, 1928			April, 1928				May, 1928				June, 1928	
							17	24	31	7	14	21	28	5	12	19	26	2	9
Siam	C	1	9	23	35	12		2	14	12	1		3						
	D		1	2	4	3			4		1		1						
Bangkok	C	1	1	3									1						
	D			1															
Spain (see also table below):																			
Malaga	D	1	1																
Seville	C			1															
Valencia	C			2		1		1	1										
Straits Settlements: Singapore	C	1			1	1	1				2	1							
Sudan (Anglo-Egyptian)	C			4	85	109	10	28	250	54	29	18	78	35	39	7	75		
	D			4	48	27	7	8	75	10	6	8	4	14	4	1	6		
Sudan (French) (see table below).																			
Switzerland	C			2															
Syria (see table below).																			
Tunisia: Tunis	C			4	3	14	1		1	2		4		2		1			
Union of South Africa:																			
Cape Province	C				P														
Natal	C				P	P	P	P	P										
Orange Free State	C	P	P	P	P				P										
Transvaal	C	1											P						
Union of Soviet Socialist Republics (see table below).																			
Upper Volta	C					5		2			P		4	5					
Venezuela:																			
Maracaibo	D				1	1													
On vessel:																			
S. S. Arendskerk at Singapore, from Amoy, China	C								P										
S. S. Kashgar at Kobe, from Shanghai	C													P					
S. S. Rohna at Penang from Negapatam	C																P		
S. S. Tjileboet at Hong Kong, from Shanghai	C													P					
S. S. Yarmouth at Kingston, Jamaica, from Habana, Cuba	C									1									

Place		July-September, 1927	October-December, 1927	January, 1928	February, 1928			March, 1928			April, 1928			May, 1928		
					1-10	11-20	21-29	1-10	11-20	21-31	1-10	11-20	21-30	1-10	11-20	21-31
Algeria (see also table above)	C	1,217	682													
Oran	C	51	11													
Indo-China (French) (see also table above)	C	68	97	58	50	31	90	57	71	69		35		36	6	37
Ivory Coast	C														7	
Senegal (see also table above)	C											51				
	D											7				
Dakar	C											11		12	7	
	D											8		4	3	
Sudan (French)	C			4		5	1	P.	5			4		30	P.	
	D													6		
Syria:																
Aleppo	C		1	1												
Beirut	C		2	15	11	26		12	7	4	3	5	1	2	3	
	D									2	1					
Damascus	C		47	13					1							

Place		July-September, 1927	October-December, 1927	January, 1928	February, 1928	March, 1928	April, 1928	May, 1928
Angola	C	51	151	10	36			
	D		2					
Congo	C	5	77		36			
Cuanza-Norte	C	1				1		
Cuanza-Sul	C		9	10				
Loanda	C	1						
Zaire	C	3	5					
Brazil (see also table above):								
Porto Alegre	C	11	5		1			
British East Africa (see also table above):								
Zanzibar	C		2					
	D		1					
Chosen	C	21	4	4	21	23		
	D	6	1	2	8	6		
Seoul	C					1		
Ecuador: Guayaquil	C	4	6	2	9	24	19	31
	D					1		
France	C	37	25	11	10	13	6	

Place		July-September, 1927	October-December, 1927	January, 1928	February, 1928	March, 1928	April, 1928	May 1928
Gold Coast	C	7	4		1	3		
Greece	C	10	9	6	11	19		
	D				2	2		
Latvia	C		2		1			
Mexico (see also table above)	D	221	346	256				
Moroceo	C	180	622	55	47	30	19	
Nigeria (see also table above)	C	820	316	275	217			
	D	173	81	39	45			
Persia	D		2	7				
Portugal (see also table above)	C			143	115			
	D			22	8			
Spain (see also table above):								
Madrid	D		1					
U. S. S. R.:								
Railways, etc	C	26	33	18	20			
Other territories in Europe	C	366	1,256		998			
Transcaucasus, Siberia, and Central Asia	C	80	81					
Ukraine	C	27	48	6	11			

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

TYPHUS FEVER

[C indicates cases; D, deaths; P, present]

Place		Sept. 25–Oct. 22, 1927	Oct. 23–Nov. 19, 1927	Nov. 20–Dec. 17, 1927	Dec. 18, 1927–Jan. 14, 1928	Jan. 15–Feb. 11, 1928	Feb. 12–Mar. 10, 1928	Week ended— March, 1928			April, 1928				May, 1928				June, 1928		
								17	24	31	7	14	21	28	5	12	19	26	2	9	16
Algeria (see also table below):																					
Algeria	C					1	3	1	1	2	5	1	3			1	1	2			
	D						1						2								
Oran	C				4	2	10	1		2	1	1	6	2	2	1		3			
	D												1								
Austria: Vienna	C					1															
Bulgaria (see also table below):																					
Sofia	C	17	6	1	6	1		3		3	14				1	1		9			
	D		1																		
Chile:																					
Antofagasta	D	1																			
Talcahuano	D								1												
Valparaiso	C		1	2	1		1														
	D		2																		
China (see also table below):																					
Manchuria—																					
Dairen	C											7		3							
Harbin	C		1										1	1							
Chosen (see table below)																					
Czechoslovakia (see table below)																					
Egypt	C	12	4	14	8	9	17		1	1		2	1				11				
	D	5		8	4	2	8		1								2				
Cairo	C			3							2	3			1						
	D			3							1	3			1						
Port Said	C	1		1																	
Behera Province	C										29	23			2	7	5	15			
	D											4				3	1				
Gharbieh Province	C										23	5		5	4	1	2				
	D											3		2							
Keneh Province	C										5	29		9							
	D											1		6							
Menoufieh	C													5	23	5	1				
	D													1	2		1				

Greece (see table below)																					
Ireland (Irish Free State)	C					1						1							4		
Cork County	C			3	1																
Donegal County, Letterkenny	C	4																			
Japan (see table below)																					
Latvia (see table below)																					
Lithuania (see table below)																					
Mexico (see also table below):																					
Guadalajara	D			1																	
Mexico City, including municipalities in Federal District	C	18	28	17	15	5	8	6	6			4		4		7	4	4			
	D		2	1	5		4		3					1							
Monterey	D								1												
Morocco (see table below)	C				32	1,051	316	172	167	219	190	186	167	136	102	62	63	72			
Palestine	C	5	3	9	8	5	10	5			2	3		1	2	2	1	1		2	1
Peru (see table below)																					
Poland	C	19	64	93	195	346	265	90	90	125	77	93		71	80	90					
	D	4	11	10	16	19	26	5	6	7	7	8		2	2	7					
Portugal (see table below): Oporto	C		1			1															
Rumania	C	17	22	35	68	39	68	29	34	33	45	36	38	30	38	39					
	D	2			3	9	5	2	2	3	4		6	5	1	1					
Syria (see also table below): Aleppo	C				2																
Tunisia	C	3	1	1	6	4	1	13		5			2	16	1	3					
Union of South Africa:																					
Cape Province	C	P	P	P	1	1	P		P	P	P	P	P	P	P						
Natal	C	P	P	2	3	1	2	P	P	P		P	P	P	P						
Orange Free State	C	P		P		P			P	P	P	P	P	P	P						
Transvaal	C	5	P	P					P	P											
Union of Soviet Socialist Republics (see table below)																					
Yugoslavia (see table below)																					
On vessel S. S. Galka at Durban, Natal, from Mauritius	C						1														

Place		1927		January, 1928			February, 1928			March, 1928			April, 1928			May 1-10 1928
		July-September	October-December	1-10	11-20	21-31	1-10	11-20	21-29	1-10	11-20	21-31	1-10	11-20	21-30	
Algeria (see also table above)	C	110	12													
	D	13	1													
Algiers	C	10	2													
Bulgaria (see also table above)	C	43	4	7	6		8	12	6							26
	D	3	2		1		1	2	2							
Morocco (see also table above)	C	231	123													

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

TYPHUS FEVER—Continued

Place		July-September, 1927	October-December, 1927	January, 1928	February, 1928	March, 1928	April, 1928
China (see also table above):							
Shanghai	D		1				
Chosen	C	90	80	183	400	313	
	D	8	6	19	44	25	
Chemulpo	C	3		1		1	
Gensan	C	2		1			
	D			1			
Seoul	C	5	2			10	
	D	1	1			1	
Czechoslovakia	C	12	7			25	
Greece: Athens	C	3	1	2	2		13
	D						2
Japan	C	1	1				
Latvia	C	6			1	26	
Lithuania	C	69	54	86	137		
	D	14	3	10	12		
Mexico (see also table above)	D	64	98	46			

Place		July-September, 1927	October-December, 1927	January, 1928	February, 1928	March, 1928	April, 1928
Peru:							
Arequipa	D	3	3	2			1
La Oroya	C			P	P	P	
Lima	C	8					
Turkey	C				17		
	D				1		
Union of Soviet Socialist Republics:							
Railways, etc	C	77	102	41	107		
Transcaucasus, Siberia, and Central Asia	C	208	190	7			
Ukraine	C	295	631	533	459		
Other territories in Europe	C	1,839	1,924		1,853		
Yugoslavia	C	20	2	7	24	3	10
	D	5		3			1

YELLOW FEVER

Place		Aug. 28–Sept. 24, 1927	Sept. 25–Oct. 22, 1927	Oct. 23–Nov. 19, 1927	Nov. 20–Dec. 17, 1927	Dec. 18, 1927–Jan. 14, 1928	Jan. 15–Feb. 11, 1928	Feb. 12–Mar. 10, 1928	Week ended— March, 1928			April, 1928				May, 1928				June, 1928			
									17	24	31	7	14	21	28	5	12	19	26	2	9	16	23
Belgian Congo:																							
Boma	C					3																	
	D					2																	
Matadi	C					29	14	1												2			
	D					16	13																
Brazil:																							
Bahia	C																						3
Estancia								1															
Rio de Janeiro	C																			2			
	D																			2			

Place		July	August	September	October	November	December	January	February	March	April	May
Dahomey:												
Grand Popo	C				1							1
	D				1							1
Gold Coast (see table below)	C					1						
	D					1						
Ivory Coast	C											
	D											
Liberia: Monrovia	C	1										
Nigeria	C	2										
	D	2										
Senegal	C	21	31	38								
	D	21	31	28								
Dakar	C		12	14	7	2						
	D		7	10	7	2						

Place		July	August	September	October	November	December	January	February	March	April	May
Gold Coast	C	15	2	6	1							1
	D	4	2	4	1							