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INFLUENZA-PNEUMONIA MORTALITY IN A GROUP OF ABOUT 95 CITIES IN THE UNITED STATES, 1920-1929 [1]

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CONTENTS

Since the influenza pandemic of 1918–19 there have occurred at various times in the United States, as elsewhere, prominent epidemics of respiratory disease which have in some respects resembled the epidemic of 1918–19. It is not the purpose of this paper to enter into any discussion of the etiological relationship between these several epidemics nor to attempt any definition of the features which serve to identify an influenza epidemic. What is undertaken is to study the course of the recorded mortality from certain respiratory diseases week by week in a large group of cities of the United States; to identify from this record the more distinct periods of notably excessive mortality; to measure the excess, as well as may be; to study its distribution in various sections of the United States in each period; and to study the indicated movement of these epidemics from one part of the country to another.

However objective an approach one may wish to make in the study of the phenomena, the fact that the epidemic manifestations are ordinarily recorded as "influenza" in morbidity statistics and "influenza" and "pneumonia" in mortality statistics carries with it an implication that these manifestations were epidemic influenza. In other words, we have been accustomed to call these respiratory epidemics by a single name—"influenza." It may be that this is a correct interpretation. On the other hand, it may be argued that

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

This study was made as one of a series of studies of influenza under the general direction of the United States Public Health Service Board for the Study of Respiratory Diseases consisting of Consultant W. H. Frost, Statistician Edgar Sydenstricker, and Associate Statistician Selwyn D. Collins. In the preparation of the study, the author has had the advice and assistance of the other members of this board and of the statistical staff of the Office of Statistical Investigations and associated offices of the Public Health Service. The clerical work was done by or under the direction of Senior Statistical Clerk F. Ruth Phillips.

what we are dealing with is not a single etiological unit but more than one. What should be emphasized at the outset of this paper is that we are not concerned here with this point. On the contrary, the hope may be expressed that the mortality statistics which form the data of this study, even though they are officially recorded as "influenza" and "pneumonia," will be regarded by the reader without any prejudice one way or the other from the etiological point of view.

As will be shown in the succeeding pages, since the pandemic of 1918–19 there have occurred for the country as a whole six brief periods of rather sharply defined increases in mortality from respiratory diseases. (See fig. 3.) These increases have manifested themselves in so clear-cut a manner from the point of view of duration, spread, and sharpness in rise and fall, as to justify the use of the term "epidemic." Judging by the data for this article, these six epidemics caused in excess of the normal seasonal expectancy about 250,000 deaths recorded as influenza and pneumonia, or about half as many deaths from these causes as occurred in the United States during the great pandemic of 1918–19. Of the total of 250,000 excess deaths recorded as influenza and pneumonia, about 50,000 occurred during the epidemic of the winter of 1928–29 and about 100,000 during the epidemic of 1920.[2] If in these same epidemic periods the excess deaths from all causes be taken as the measure of the severity of the epidemics, the estimated deaths would be considerably larger.

SOURCE OF DATA FOR THE STUDY

To study in any detail the rise and fall of death rates during the epidemics which come under consideration, it is essential that the data be used in weekly intervals. Since the data for the country as a whole are not published in shorter periods than monthly intervals, it was deemed advisable to consider influenza and pneumonia deaths in a group of cities that have been sending to the Public Health Service weekly reports of deaths from a number of causes, among them being influenza and pneumonia. Since January 1, 1925, there have been published in the Public Health Reports weekly death rates from influenza and pneumonia for a group of about 95 cities and for groups of cities in each of the nine geographical areas of the United States. Data were available for carrying these rates back to January 1, 1920, for a large proportion of the cities. Figure 1 shows the locations of the 95 cities and also the geographical areas according to which they are classified. Table 3 in the appendix lists the cities and gives their populations.

[2] Rough estimates based on the whole registration area for the first four of the six epidemics (no data are available on the last two) indicate that the estimate of 250,000 excess deaths reported as influenza or pneumonia in the whole United States during the six epidemics, which estimate was based on excess rates in 95 cities, is not more than 5 or 10 per cent too high.

These 95 cities, with an estimated population in 1928 of 30,700,000, were selected chiefly on the basis of their geographical distribution, so that every section of the United States would be represented in

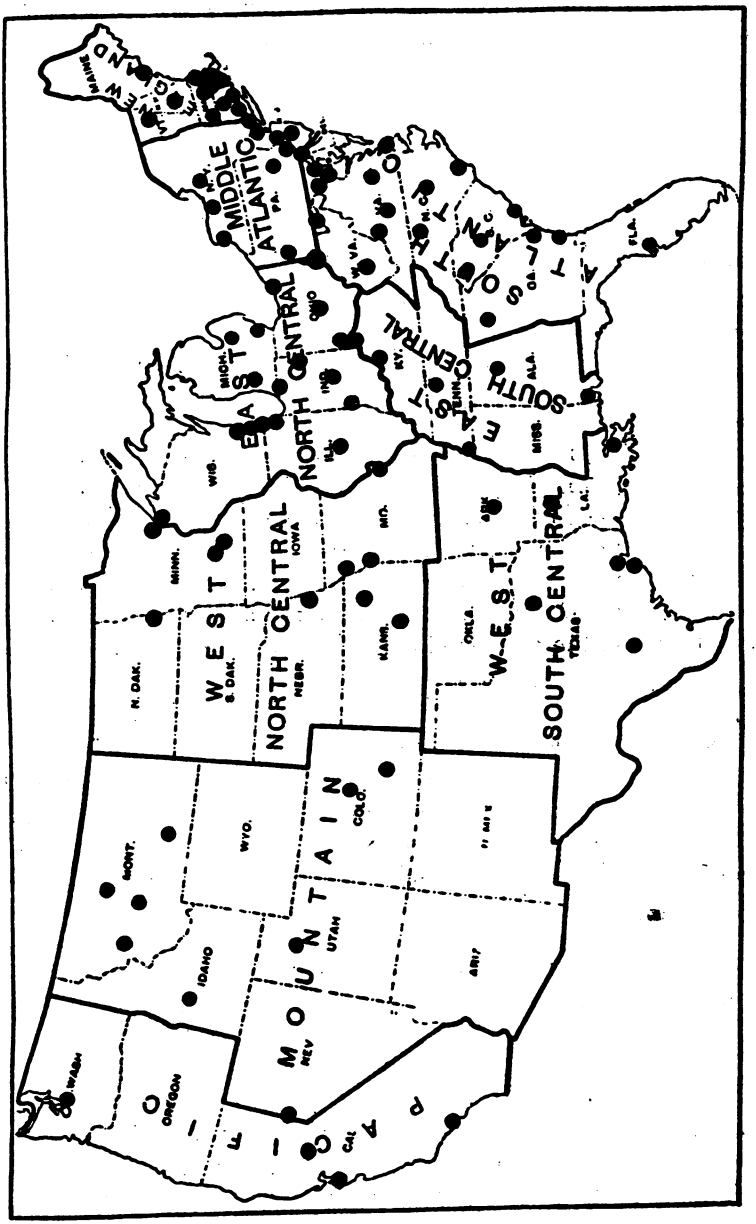

FIGURE 1.—Locations of the 95 cities whose influenza and pneumonia mortality records are the basis for this study. (For a list of the cities and their populations, see Appendix, Table 3)

the group. They include a number of rather small cities, such as Helena and Missoula, Mont., and Reno, Nev., with populations of little more than 12,000. The total enumerated population of the 95

cities was in 1920 about 26,500,000, or approximately the same as that of the 68 cities in the United States that were 100,000 or more in population in 1920. The distribution of this group of 95 cities, however, is quite different from the distribution of the large cities of

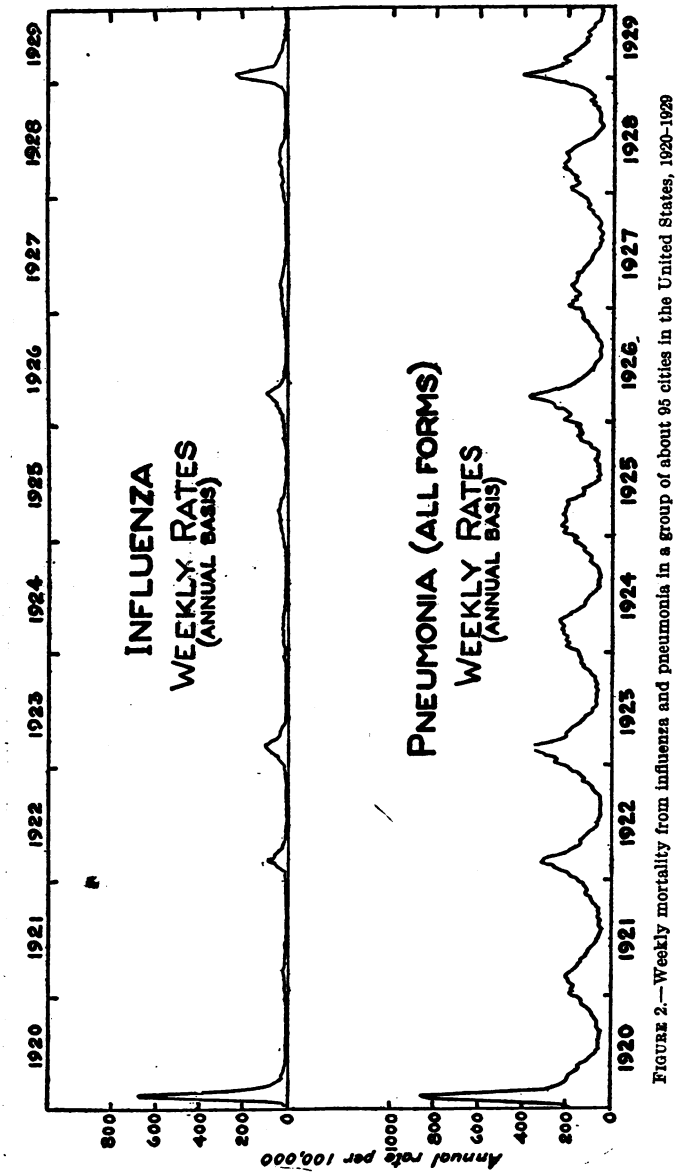

FIGURE 2.—Weekly mortality from influenza and pneumonia in a group of about 95 cities in the United States, 1920–1929

the United States. Of the cities of 100,000 or more population in 1920, Denver and Salt Lake City are the only ones in the whole mountain area. In fact, of the 68 cities that had 100,000 or more population in 1920, only 16 are west of the Mississippi River and

only 8 are west of the one-hundredth meridian, which cuts through the Dakotas, Nebraska, Kansas, Oklahoma, and Texas. This fact is emphasized to indicate that the 95 cities from which data for this paper are taken are geographically much more representative of the

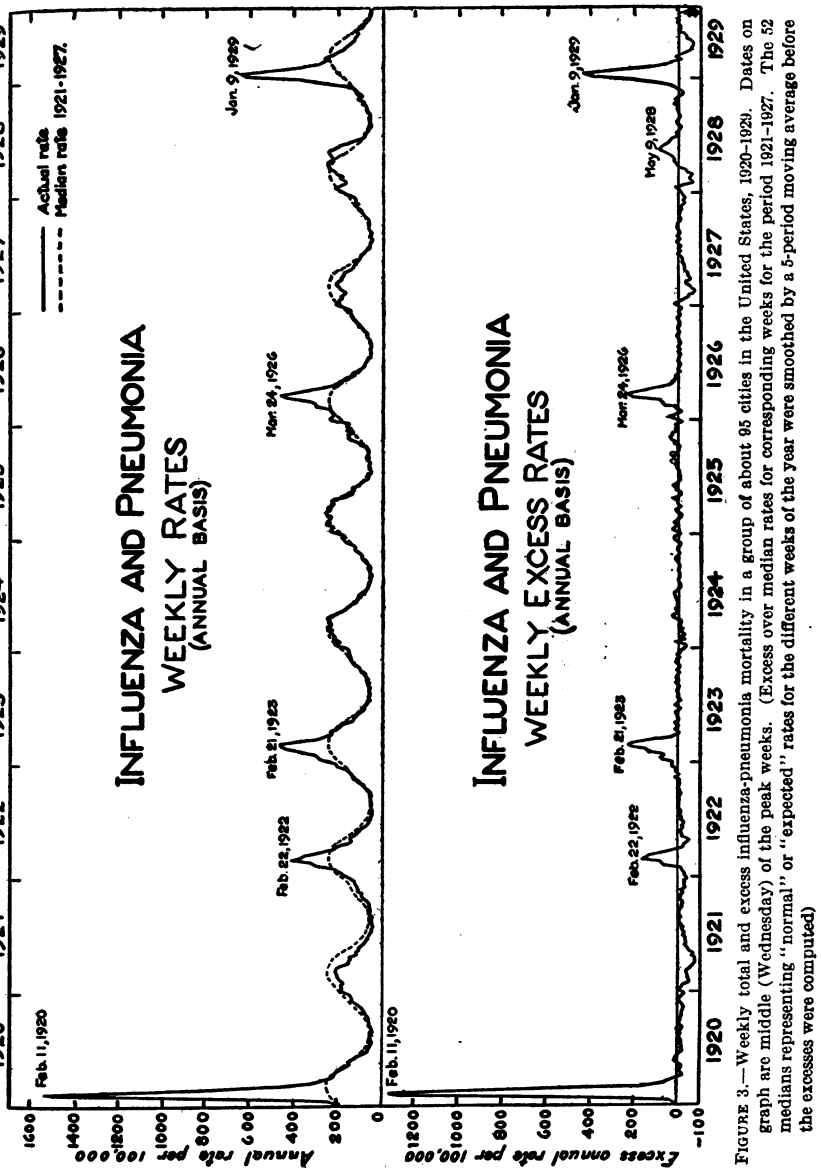

FIGURE 3.—Weekly total and excess influenza-pneumonia mortality in a group of about 95 cities in the United States, 1920–1929. Dates on graph are middle (Wednesday) of the peak weeks. (Excess over median rates for corresponding weeks for the period 1921–1927. The 52 medians representing "normal" or "expected" rates for the different weeks of the year were smoothed by a 5-period moving average before the excesses were computed)

United States as a whole than an equal population drawn only from the large cities. So far as the rural population of the United States is concerned, it, obviously, can not be represented in any group of cities. Since data covering the recent epidemic are not available for

the total United States, the urban population is about the only group that can be studied at present.

INFLUENZA IN THE GROUP OF CITIES CONSIDERED AS A WHOLE

Figure 2 shows for the group of 95 cities as a whole the weekly recorded death rates[3] from influenza and from pneumonia during the period 1920–1929. The deaths credited to influenza serve to indicate the presence of an epidemic, but it will be noted that at every period when there is a definite peak of influenza there is also quite a definite peak in deaths credited to pneumonia. At the same time, it will be seen that there is a definite seasonal rise and fall in the death rate from pneumonia, and, therefore, the peaks in the pneumonia rate can be considered a part of the influenza epidemic only in so far as they exceed the pneumonia rates that would be expected to prevail at the particular season of the year when the epidemic occurs. The best method of approximating the extent of the epidemics seems, therefore, to combine influenza and pneumonia and compute the excess of that death rate over some expression which represents the normal seasonal death rate from these diseases.

In Figure 3 there is plotted the weekly death rates from influenza and pneumonia combined. Superimposed is a broken line representing the median weekly rates during the 7-year period 1921–1927. After determining the median of the seven rates for each calendar week, the 52 medians representing normal seasonal mortality from influenza and pneumonia were smoothed by a 5-period moving average, and this smoothed series of 52 medians is repeated from year to year in Figure 3. Since there is little or no evidence of any trend in the influenza-pneumonia death rates since 1920, this simple method seems to be fairly adequate to eliminate seasonal variation. As may be seen from the graph, a few years during this period stand out as having exceptionally low rates. Throughout the year 1921 the rates are somewhat below the median rate. The same is true of a part of the year 1922, except during the definite epidemic that occurred in that year, and the year 1927 is also below the median for a considerable period during the winter. During the other years the median seems to represent fairly well the normal or expected seasonal variation. Because of its simplicity, the median was selected rather than a more complicated method which might have given slightly more accurate results.[4]

[3] Nearly all of the rates used in this article are on an annual basis. An annual rate for a week is the rate that would occur in a year if the daily average number of deaths for the week continued throughout a year.

[4] It is realized that because of the frequent epidemics occurring for the most part in the early months of the calendar year, the median for that period of the year may be unduly increased by the epidemic items. Because of this fact, the excess death rates are a minimum statement of the extent of the excess mortality recorded as influenza and pneumonia.

In the lower half of Figure 3, there have been plotted the deviations from this median seasonal curve. This process serves to put each epidemic on the same base line regardless of whether it occurred at a period when the normal seasonal mortality was at its height or at a period later in the spring when lower rates would be expected. The six epidemics already referred to as occurring since January 1, 1920, may now be clearly seen on this graph. The first had its peak in February, 1920. After a period of nearly two years during which the influenza and pneumonia mortality was somewhat below the median rate, a small epidemic occurred with its peak in February, 1922, and a somewhat larger epidemic with its peak in February, 1923. The last nine months of 1923 and all of 1924 and 1925 are relatively free from influenza, so far as the data for the 95 cities as a group indicate its presence. In 1926 an epidemic of about the magnitude of that of 1923 occurred fairly late in the spring, having its peak in the latter part of March. The mortality rates during the year 1927 and in the early months of 1928 were somewhat below the median rates, but in the late spring of 1928 a definite but small peak occurred, the maximum coming in May. In the late fall of 1928 there began the epidemic of 1928–29, which proved to be the most serious since 1920.

The extent of the recorded influenza-pneumonia mortality during these various epidemics may be judged moderately well by the size of the maximum weekly excess death rate; but a better measure is the total excess death rate during the whole epidemic. In Figure 3 the maximum weekly excess rate is represented by the height of the peak and the total excess rate by the area under the whole curve which represents the epidemic.

To estimate the total excess rate there must be selected dates of beginning and ending of the epidemic and the exercise of judgment would enter into the selection. However, a matter of the inclusion or exclusion of a week or two when the rate is hardly above the normal or median rate would not change greatly the total excess as indicated by the total area under the curve. In computing the total excess rate for the purposes of this study, the period of the epidemic was considered as beginning when the rate was definitely above the median and as ending when the curve had returned to approximately the median rate, between these dates the positive excesses being added and considered as the total excess rate.[5] The sum of annual rates for such a period would be without meaning; but when the sum is reduced to an actual basis by dividing by the number of weeks in a calendar year, we obtain an excess rate per 100,000 people for the

[5] The last two columns of Table 2 show just what weeks were included as above normal for each epidemic.

whole epidemic, whether that excess occurred in a period of 2 or of 10 weeks.[6]

In Figure 4 the total excess influenza-pneumonia death rates for each of the epidemics are shown and also the maximum weekly excess rate. The total excess rate for the 1923 epidemic was slightly greater than that of 1926, but the maximum excess rate in the latter epidemic was about the same as in 1923. The 1920 outbreak was of a very explosive character, spreading over the whole country in a short

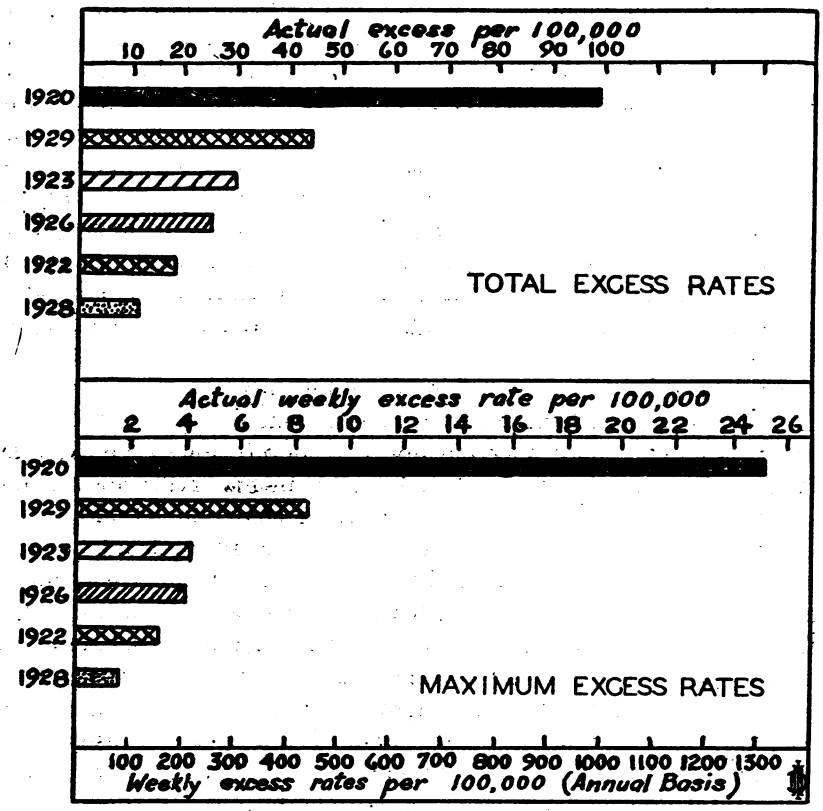

FIGURE 4.—Total excess influenza-pneumonia mortality rate during the whole epidemic and the maximum weekly excess rate for each epidemic in a group of about 95 cities in the United States, 1920–1929. (Excess over median rates for corresponding weeks for the period 1921–1927. Correction made for 1922 and other details of computation are described in footnotes to Table 1)

time. The maximum weekly excess rate during that epidemic was nearly three times the corresponding rate during the epidemic of 1928–29, but the total excess was only a little more than twice as

[6] As may be seen from the graphs already presented, the median rate does not give a correct base line from which to measure the excess for the year 1922, the rate before and after that epidemic being consistently below the median rate. In computing the total excess for this epidemic, therefore, a correction was made so that the excess for this outbreak is measured from a point approximating the rate in the months immediately before and after the epidemic. The amount of correction was 25; in other words the excess above a line 25 units (in the rate per 100,000) below the zero base line was computed instead of the excess above the zero base line or median. (Fig. 3.)

great in 1920 as in 1928–29. The difference is due to the fact that the 1928–29 epidemic, although not so explosive, continued over a somewhat longer period. On the whole there is quite a high correlation between maximum weekly excess rates and total excess rates.

INFLUENZA EPIDEMICS IN CITIES CLASSIFIED ACCORDING TO GEOGRAPHIC LOCATION

As already noted, the cities were classified according to the geographic area in which they are located and rates computed for nine groups of cities representing the nine geographical areas of the country. By computations like those already outlined for the group of cities as a whole, a similar representation of epidemics that have occurred in the cities of each geographical area was secured. From these data we are able to study, for each of the nine geographical areas, (*a*) the median or expected death rates in the different weeks of the year, (*b*) the severity of each epidemic as indicated by the total excess recorded influenza-pneumonia death rate, (*c*) the date of the maximum rate in each epidemic, and (*d*) the area in which the epidemic began and the rapidity of its progress to other sections of the country.

Figure 5 shows the median influenza and pneumonia weekly death rates, 1921–1927, for each geographical area. These medians were computed and smoothed as already described in connection with the medians for all sections combined. The median rates for the nine areas are plotted in three sections of the figure, the medians for all sections combined being repeated for comparison. It will be noted that in so far as the median influenza-pneumonia death rates are concerned, the cities of the southern sections have higher rates than those of the more northern sections. This fact may have considerable significance, but, on the other hand, may be due solely to the presence of large numbers of Negroes in the southern sections, with higher mortality from pneumonia and other respiratory diseases. A comparison of influenza and pneumonia death rates among white persons in Southern States with rates in the more rural of the Northern States for the years between 1910 and 1920 suggests that the presence of the large Negro population in the South may be the factor which causes the high median rates, inasmuch as the rates for white persons in the South are as low as, if not lower than, the rates in Northern States where the Negro population is negligible. The data available for the present study are not separated by color. The excess rates are measured from the medians for each section, both the median and the total rates being for white and colored combined. The effect on these rates of the large colored population in the South is mentioned merely as one of the possible explanations of the rather high median rates in southern cities.

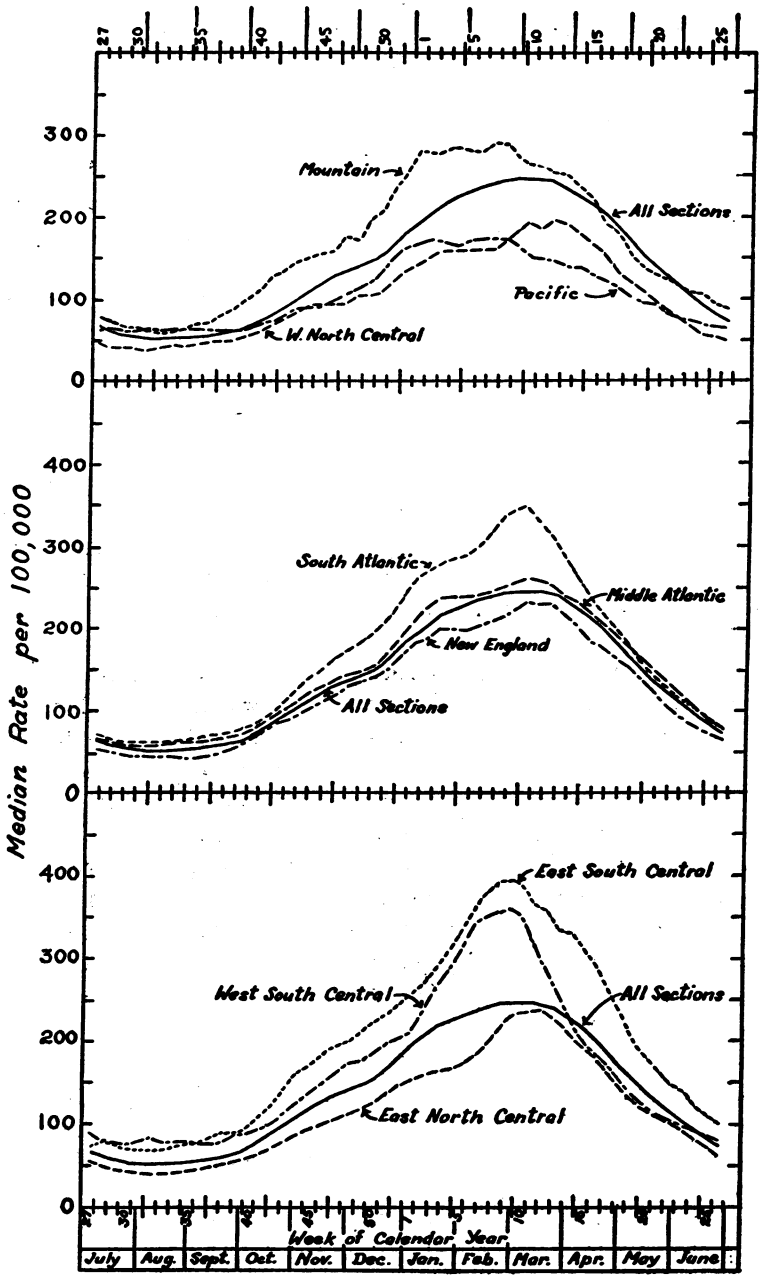

FIGURE 5.—Weekly median influenza-pneumonia mortality rates (annual basis) in a group of cities in each geographic section of the United States, 1921–1927. (Each series of 52 median rates for the different weeks of the year has been smoothed by a 5-period moving average)

Figure 6 shows for the cities of each geographical area the deviations from the median rates for that area (excess rates), just as Figure 3 shows for all cities combined the deviations from the median rates. For some of the areas the total population of the cities considered is not very large and there is considerable chance variation in the rates. This is particularly true of cities of the Mountain area and to some extent of the East and West South Central cities.

The relative severity of the different epidemics has been considered for the total group of cities. It is apparent from Figure 6 that not every epidemic affected every area, and it is also true that not every epidemic affected every area equally. For example, in the cities considered as a whole, the 1923 epidemic was considerably greater than that of 1922, but on the Pacific coast and in the cities of the Mountain area the 1922 epidemic was of much greater importance than that of 1923. On the Pacific coast the 1926 epidemic was likewise unimportant. On the other hand, it will be noted that certain sections experienced epidemics of considerable proportions in years that appeared approximately normal so far as the group of cities as a whole was concerned, notably the West South Central cities in 1925 and the Mountain cities in the winter of 1920–21.

For the cities as a whole the maximum weekly excess rate in the 1928–29 epidemic was about one-third of the corresponding rate in the 1920 epidemic, but in the East South Central area the maximum weekly excess rate in the 1928–29 epidemic was actually higher than the corresponding rate in the same cities in 1920, and in the West South Central cities the maximum rates were about the same in the two epidemics. These facts indicate the great variation in the severity of the various epidemics in different localities. If data were examined for individual cities there would, of course, be even greater variations than those indicated for these groups of cities. The six epidemics that have been mentioned as occurring since January 1, 1920, were more or less nation-wide in extent, but in every case except the first and the last epidemic there were whole sections in which the outbreak was very small, or even completely absent.

There is an exceedingly marked synchronization in the occurrence of the epidemics. The similarity in the times at which the epidemics occurred in different sections of the country is the most striking feature shown in these charts. Differences of a few weeks in the dates of the peaks of the epidemics in different sections do occur, but they can not be detected when the graphs are drawn on the scale used in Figure 6. The spread of the epidemics from one section of the country to another will be considered later.

As mentioned in connection with the discussion of the 95 cities considered as a whole, the heights of the peaks in Figure 6 are not always accurate indicators of the severity of the epidemics, a much

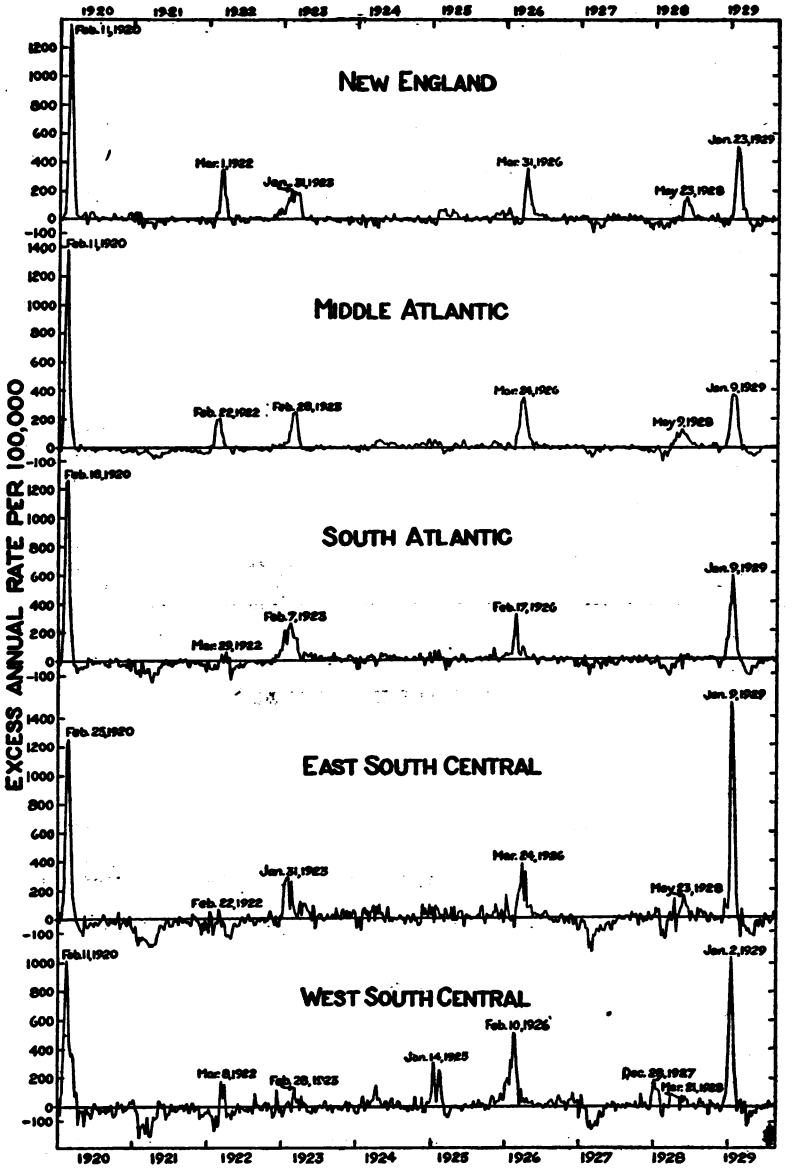

FIGURE 6.—Weekly excess influenza-pneumonia mortality rates (annual basis) in a group of cities in each geographic section of the United States, 1920–1929. Dates on graph are middle (Wednesday) of peak weeks. (Excess over median rates in the same geographic section for corresponding weeks for the period 1921–1927. For each section the 52 medians representing "normal" or "expected" rates for that group of cities for the different weeks of the year were smoothed by a 5-period moving average before the excesses were computed)

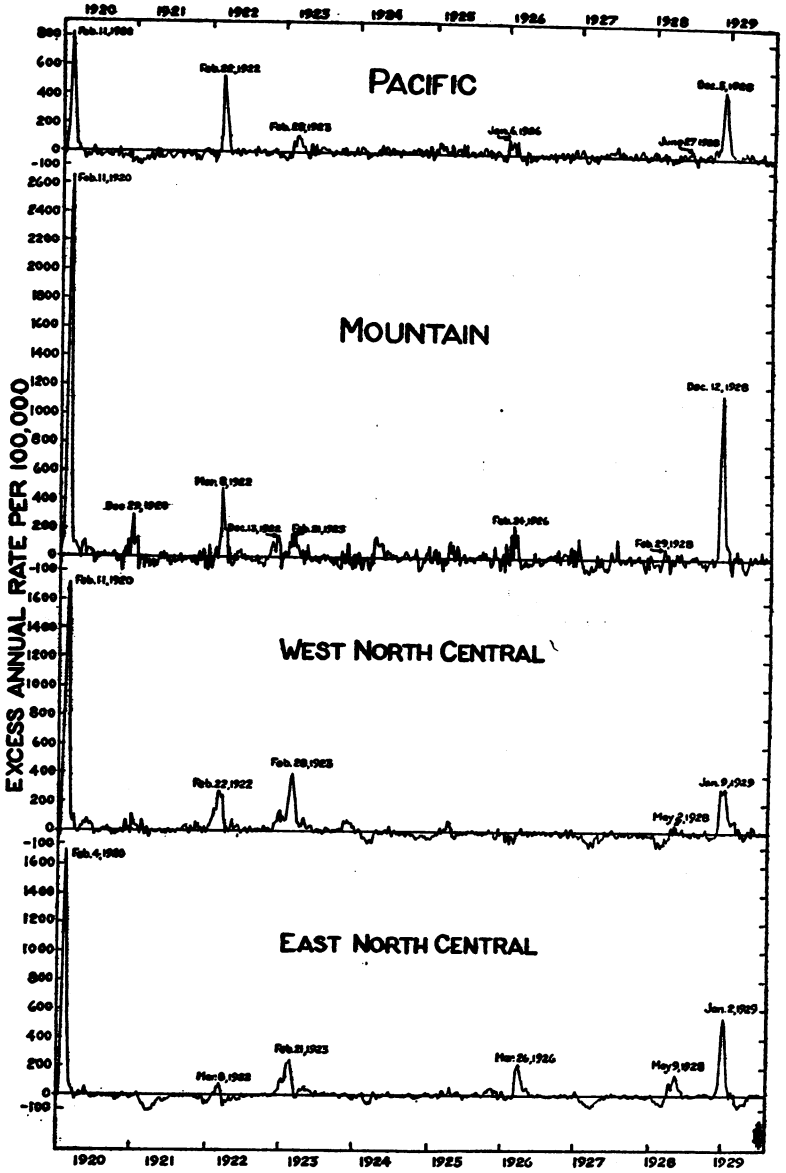

FIGURE 6 (continued).—Weekly excess influenza-pneumonia mortality rates (annual basis) in a group of cities in each geographic section of the United States, 1920-1929. Dates on graph are middle (Wednesday) of peak week

better measure being the total excess rate that occurred during the whole epidemic. Total excess rates were computed for each epidemic in each geographical area in the manner already described for the group of cities as a whole. Figure 7 shows graphically these total excess rates. The same graph includes for comparison the maximum weekly excess rates for each section and epidemic.

TABLE 1.—*Total excess influenza-pneumonia death rate and the maximum weekly excess death rate in epidemics in the cities of different geographic sections of the United States, 1920–1929* [1]

Epidemic	All cities	New England	Middle Atlantic	South Atlantic	East North Central	East South Central	West North Central	West South Central	Mountain	Pacific
	Total excess [1] influenza-pneumonia death rate per 100,000 during whole epidemic									
ACTUAL BASIS										
1920	99.3	96.6	95.2	94.2	109.4	99.1	121.9	91.2	159.5	57.7
1922	18.3	29.5	24.7	9.4	11.4	16.0	34.8	14.6	36.2	36.3
1923	29.9	36.6	26.5	42.7	32.2	44.0	53.3	6.7	17.6	11.3
1926	25.3	30.0	41.2	26.2	22.2	38.2	None.	58.8	16.8	9.3
1928 (spring)	11.6	15.4	20.9	None.	17.9	11.9	4.9	13.7	7.7	None.
1928–29 (winter)	44.4	42.3	43.0	47.6	43.7	92.0	42.8	68.2	68.7	43.0
	Maximum [2] weekly excess [1] influenza-pneumonia death rate per 100,000									
ACTUAL OR WEEKLY BASIS										
1920	25.2	26.2	26.5	24.4	32.5	24.5	33.0	19.5	50.8	15.5
1922	3.1	5.9	4.3	1.5	2.0	2.1	5.0	3.9	7.0	8.5
1923	4.1	3.4	4.7	4.7	4.4	5.4	7.1	1.4	2.5	1.9
1926	4.0	5.5	6.3	4.4	3.9	5.3	None.	8.1	3.1	1.4
1928 (spring)	1.6	2.6	2.1	None.	2.5	2.3	.8	1.5	1.2	None.
1928–29 (winter)	8.4	9.7	7.2	11.2	10.6	28.8	6.2	19.9	22.2	9.0
ANNUAL BASIS										
1920	1,312	1,366	1,381	1,270	1,697	1,279	1,723	1,017	2,650	810
1922	162	306	224	76	106	107	262	205	366	443
1923	213	179	244	244	231	281	370	74	131	99
1926	206	289	331	232	203	277	None.	424	160	75
1928 (spring)	83	138	112	None.	130	120	41	76	60	None.
1928–29 (winter)	440	507	376	584	553	1,504	321	1,038	1,157	468

[1] Excess over the median rates for corresponding weeks for the period 1921–1927. The series of 52 medians representing "normal" or "expected" rates for the different weeks of the year were smoothed by a 5-period moving average before the excesses were computed.

Because the rates in nonepidemic weeks of 1922 are nearly all lower than the median rate 1921–1927, a correction was made for that epidemic by measuring the excess not over the zero base line representing the median rate (fig. 3) but over a line parallel to the base line but 25 points (in the rate per 100,000) below it. The amount of this correction varied in the different geographic areas as follows: New England 20, Middle Atlantic 25, South Atlantic 45, East North Central 40, East South Central 80, West North Central 0, West South Central 80, Mountain 20, Pacific 10. All of the 1922 excesses given in this table and plotted in figs. 4 and 7 are computed from the corrected base line.

[2] Because of the considerable irregularity in the rates for the different weeks, particularly in the less populous sections, the excess rates for the 4 minor epidemics (1922, 1923, 1926, and the spring of 1928) were smoothed by a 3-period moving average and the maximum rates given in this table and plotted in figs. 4 and 7 are from the moving average curve. For these minor epidemics the maxima therefore represent the average rate in the three highest consecutive weeks. For the 1920 and the 1928–29 epidemics, no moving averages were used. Also, in computing the total excess rate (shown in the top section of this table) the unsmoothed values were used in all the epidemics.

Considering first the recent epidemic of the winter of 1928–29, it may be seen that the total excess rates in six of the different sections are remarkably close together. Reference to Table 1 shows that the rates for these six sections vary only from 42 to 48 per 100,000 persons.

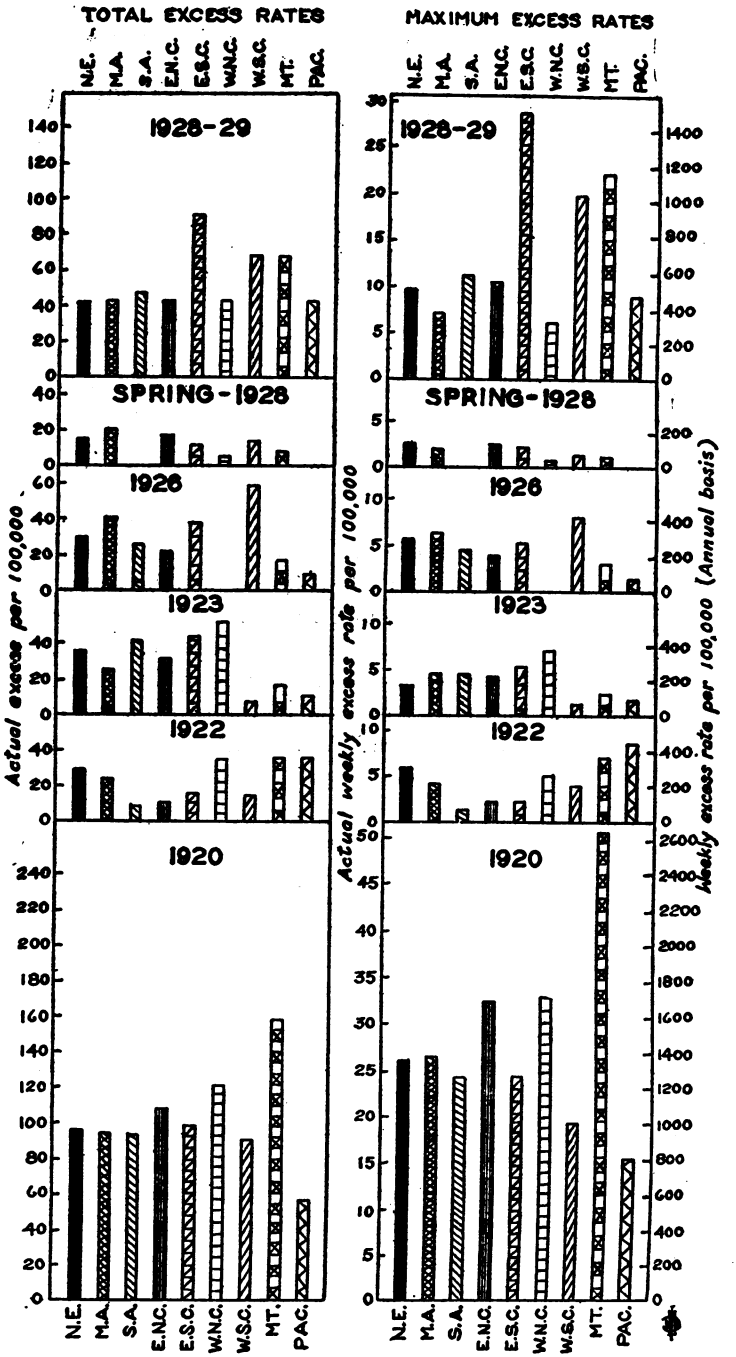

FIGURE 7.—Total excess influenza-pneumonia mortality rate during the whole epidemic and the maximum weekly excess rate for each epidemic in a group of cities in each geographic section of the United States, 1920–1929. (Excess over median rates in the same geographic section for corresponding weeks for the period 1921–1927. Correction made for 1922 and other details of computation are described in footnotes to Table 1)

The total excess rates for the other three sections are somewhat higher, the East South Central having the greatest excess, about 92, and the West South Central and the Mountain cities having rates of 68 and 69 per 100,000, respectively. There appears to be greater similarity in the total excess rates in the different sections in this recent epidemic than in the instance of any of the other epidemics shown in Figure 7. As already mentioned, there are, in the case of each of the four smaller epidemics, 1922, 1923, 1926, and the spring of 1928, geographic sections that did not show any excess deaths or that showed only a very slight excess over the median rate. In the 1920 epidemic every section had a considerable excess, but it was materially less in the Pacific cities than in the other areas. The majority of the sections had total excess rates of between 90 and 100, or just about twice the excesses of 40 to 50 per 100,000 that were shown by the majority of the sections in the 1928–29 epidemic.

It appears from Figure 7 that the section that is high in one epidemic is not necessarily high in another. The East South Central cities that had the highest excess in 1928–29 were not excessively high in any of the preceding epidemics, and in at least two instances were considerably below the average. The Mountain cities had a very high excess in the 1920 epidemic and were among the higher areas in 1922 and 1928–29, but were rather low in the other three epidemics. Judging from Figure 7, it could not be said that there was any great tendency for either a positive or a negative correlation between these different epidemics.

The 1922 outbreak seemed to be less severe in the central and southern parts of the country, the East North Central, West and East South Central, and the South Atlantic cities all being among the lower sections. The 1923 epidemic seemed to be less severe in the West; the Pacific, Mountain, and West South Central cities had lower rates than the other sections. The 1926 epidemic was also low in the Mountain and Pacific cities, but the West South Central cities show the highest rate of any section. The West North Central cities, however, appear to be entirely missed by the 1926 epidemic. The outbreak of the spring of 1928 was of a minor character in all sections, but particularly in the West; the Pacific, Mountain, and West North Central cities had very low rates. The South Atlantic cities seemed to be entirely missed by the epidemic of the spring of 1928, at least so far as mortality was concerned.

PROGRESS OF THE DIFFERENT EPIDEMICS FROM ONE SECTION TO ANOTHER

The remarkable synchronization of the epidemics in different sections of the country has already been mentioned in connection with Figure 6. It has also been mentioned that there were differences of

several weeks in the time of the occurrence of these epidemics, which differences can not be detected from a graph drawn on such a scale as that used in Figure 6. It is, however, of considerable interest to determine in what section each epidemic started and the course and time of its progress to the different sections. Perhaps the most desirable indicator of the difference in the time of occurrence of an epidemic in the different sections would be the date of the beginning of the epidemic or some date very near the time when the epidemic had definitely started. The difficulty of estimating this date has already been mentioned. In sections where the total population of the cities considered is small, such as the Mountain area, it is exceedingly difficult if not impossible to estimate with any degree of accuracy the date of the beginning of the epidemic.

Another measure of the time of occurrence of an epidemic would be the date of the peak day—that is, the date on which the greatest excess occurred—or, if we think of the curves as a frequency distribution, the date of the mode of that distribution. In the larger epidemics, such as that of 1920 and the winter of 1928–29, this peak is very well marked. However, there are instances in which two weeks have nearly the same excess rate, and it seemed more accurate to estimate the peak day of the peak week by an interpolation which would take account of the rates in the two adjacent weeks as well as the rate in the peak week. The usual difference method [2] of interpolating for the mode in a frequency distribution seems to be a reasonable method of approximating the modal or peak day and it was, therefore, used in this study.

[1] For details of the method see footnotes to Table 2.

TABLE 2.—*Estimated constants of the curves of excess influenza-pneumonia mortality in the various epidemics in cities of different geographic sections of the United States, 1920–1929*

Year of epidemic and geographic section	Modal or peak day [1]	Day on which the specified proportion of the excess deaths had occurred			Interquartile range (number of days between first and third quartiles)	Number of days between first quartile and median	Number of days between median and third quartile	Total period considered as above normal	
		One-fourth (first quartile) [2]	One-half (median) [2]	Three-fourths (third quartile) [2]				Total number of weeks	Dates (in calendar weeks) of first and last week
1920									
All cities	Feb. 9	Feb. 2	Feb. 10	Feb. 18	16	8	8	12	1–12
New England	Feb. 14	Feb. 9	Feb. 15	Feb. 23	14	6	8	12	2–13
Middle Atlantic	Feb. 9	Feb. 3	Feb. 9	Feb. 16	13	6	7	8	3–10
South Atlantic	Feb. 15	Feb. 6	Feb. 14	Feb. 20	14	8	6	9	2–10
East North Central	Feb. 4	Jan. 30	Feb. 5	Feb. 13	14	6	8	11	1–11
East South Central	Feb. 22	Feb. 15	Feb. 22	Mar. 1	15	7	8	11	2–12
West North Central	Feb. 8	Feb. 1	Feb. 8	Feb. 14	13	7	6	12	1–12
West South Central	Feb. 12	Feb. 7	Feb. 15	Feb. 28	21	8	13	12	2–13
Mountain	Feb. 9	Feb. 4	Feb. 10	Feb. 17	13	6	7	14	1–14
Pacific	Feb. 12	Feb. 8	Feb. 14	Feb. 23	15	6	9	11	3–13
1922									
All cities	Feb. 27	Feb. 14	Feb. 25	Mar. 8	22	11	11	12	2–13
New England	Feb. 26	Feb. 20	Feb. 27	Mar. 9	17	7	10	13	3–15
Middle Atlantic	Feb. 14	Feb. 6	Feb. 16	Feb. 27	21	10	11	14	2–15
South Atlantic	Mar. 24	Mar. 7	Mar. 21	Mar. 30	23	14	9	8	8–15
East North Central	Mar. 3	Feb. 15	Feb. 27	Mar. 9	22	12	10	10	3–12
East South Central	Feb. 24	Jan. 14	Feb. 16	Feb. 28	45	33	12	14	51–12
West North Central	Mar. 3	Feb. 7	Feb. 24	Mar. 8	29	17	12	12	1–12
West South Central	Mar. 15	Mar. 8	Mar. 14	Mar. 22	14	6	8	5	9–13
Mountain	Mar. 12	Mar. 4	Mar. 11	Mar. 20	16	7	9	11	5–15
Pacific	Feb. 28	Feb. 22	Mar. 1	Mar. 10	16	7	9	9	5–13
1923									
All cities	Feb. 22	Jan. 28	Feb. 15	Feb. 27	30	18	12	17	48–12
New England	Feb. 24	Jan. 16	Feb. 7	...do	42	22	20	17	48–12
Middle Atlantic	Feb. 22	Feb. 6	Feb. 18	Feb. 28	22	12	10	16	49–12
South Atlantic	Feb. 4	Jan. 13	Feb. 2	Feb. 18	36	20	16	17	48–12
East North Central	Feb. 16	Jan. 23	Feb. 10	Feb. 22	30	18	12	14	50–11
East South Central	Jan. 22	Jan. 21	Feb. 4	Mar. 22	60	14	46	20	1–20
West North Central	Feb. 26	Jan. 20	Feb. 18	Mar. 3	42	29	13	18	48–13
West South Central	Mar. 1	Feb. 22	Mar. 1	Mar. 8	14	7	7	10	3–12
Mountain	Feb. 28	Feb. 9	Feb. 23	Mar. 9	28	14	14	14	1–14
Pacific	Mar. 3	Feb. 20	Mar. 2	Mar. 13	21	10	11	9	6–14

1926									
All cities	Mar. 23	Mar. 11	Mar. 23	Apr. 3	23	12	11	17	5-21
New England	Mar. 30	Mar. 26	Apr. 3	Apr. 16	21	8	13	15	10-24
Middle Atlantic	Mar. 20	Mar. 11	Mar. 22	Apr. 3	23	11	12	16	7-22
South Atlantic	Feb. 16	Feb. 7	Feb. 18	Feb. 27	20	11	9	18	51-16
East North Central	Mar. 25	Mar. 21	Mar. 31	Apr. 14	24	10	14	14	10-23
East South Central	Mar. 29	Mar. 14	Mar. 25	Apr. 9	26	11	15	17	7-23
West South Central	Feb. 13	Jan. 15	Feb. 7	Feb. 17	33	23	10	20	45-12
Mountain	Mar. 3	Feb. 6	Feb. 22	Mar. 3	25	16	9	11	52-10
Pacific	Jan. 27	Jan. 10	Jan. 26	Feb. 5	26	16	10	9	52- 8
1928 (spring of)									
All cities	May 13	May 1	May 14	May 28	27	13	14	19	11-29
New England	May 18	May 13	May 24	June 5	23	11	12	12	18-29
Middle Atlantic	May 8	Apr. 18	May 8	May 27	39	20	19	19	11-29
East North Central	May 12	Apr. 22	...do...	May 19	27	16	11	13	12-24
East South Central	May 21	May 11	May 20	May 28	17	9	8	9	16-24
West North Central	May 7	Apr. 19	May 4	May 12	23	15	8	10	15-24
West South Central	Mar. 25	Mar. 27	Apr. 14	...do...	46	18	28	13	11-23
Mountain	Mar. 7	Mar. 5	Mar. 20	May 8	64	15	49	14	9-22
1928-29 (winter of)									
All cities	Jan. 7	Dec. 27	Jan. 7	Jan. 17	21	11	10	12	48- 7
New England	Jan. 24	Jan. 17	Jan. 25	Feb. 3	17	8	9	9	1- 9
Middle Atlantic	Jan. 10	Jan. 1	Jan. 12	Jan. 23	22	11	11	11	49- 7
South Atlantic	...do...	Dec. 29	Jan. 8	Jan. 16	18	10	8	10	49- 6
East North Central	Jan. 3	Dec. 25	Jan. 2	Jan. 10	16	8	8	10	48- 5
East South Central	Jan. 9	Jan. 4	Jan. 10	Jan. 17	13	6	7	9	49- 5
West North Central	Jan. 6	Dec. 22	Jan. 11	Jan. 18	27	20	7	13	49- 9
West South Central	Jan. 4	Dec. 28	Jan. 4	Jan. 11	14	7	7	10	48- 5
Mountain	Dec. 12	Dec. 7	Dec. 13	Dec. 20	13	6	7	9	47- 3
Pacific	Dec. 6	Nov. 28	Dec. 7	Dec. 17	19	9	10	13	43- 3

[1] The modal or peak day was estimated by interpolation within the modal or peak week (determined by inspection) of the excess death rates by the method of differences, the following formula being used:

$$\text{Mode} = L + \left[-\frac{\Delta f_{-1}}{\Delta^2 f_{-1}} \right] \text{ in which—}$$

L = Lower limit of modal class (first day of peak week).
f_0 = Frequency (excess rate) in modal week.
f_{-1} = Frequency (excess rate) in week prior to modal week.
f_{+1} = Frequency (excess rate) in week following modal week.

First and second differences (Δ and Δ^2, respectively) for use in the formula are computed as follows:

$\Delta f_{-1} = f_0 - f_{-1}$.
$\Delta^2 f_{-1} = (f_{+1} - f_0) - (f_0 - f_{-1})$.

The expression in the formula which is added to the lower limit of the modal class always comes out in the form of a fraction or decimal less than unity and is in usual frequency distributions multiplied by the class interval and added to the lower limit of the class. This was adapted to the weekly intervals by reducing this decimal to sevenths; if it was less than one-seventh, the estimated modal day was the first day of the week; if it was between one-seventh and two-sevenths, the modal day was the second day of the week, etc.

For the minor epidemics (1922, 1923, 1926, and the spring of 1928) the computations are based on the 3-period moving average of the excess rates rather than the actual value. (For details see footnote to Table 1.)

[2] The median and quartile days were determined in the manner in which those constants are determined for a frequency distribution (the excess rates for this purpose being considered as frequencies), the interpolation within the median or quartile week to estimate the median or quartile day being done, as is usual in computing these constants, on a straight-line basis.

In the case of the four minor outbreaks that occurred between the 1920 and 1928–29 epidemics, the weekly excess rates are in many instances quite irregular. In these epidemics it seemed more accurate to determine the peak week from a 3-period moving average than to determine it from the rather irregular rates. In these minor epidemics (1922, 1923, 1926, and the spring of 1928) the maximum weekly rates shown in Table 1 and Figures 4 and 7 are based on the moving average curve, and, therefore, represent the average rate for the three highest consecutive weeks, although in some instances the actual unsmoothed rate in some other week is slightly higher. In the 1920 and the 1928–29 epidemics no moving averages were used.

Figures 8, 9, 10, and 11 show the weekly excess rates for the cities of each section in each of the epidemics for the short period during which the outbreak occurred. These rates are the same as those plotted in Figure 6, except that the horizontal, or abscissa, scale has been greatly lengthened so that a difference of a few weeks in the occurrence of the peak of the epidemic can be detected. In each figure the geographic sections are arranged from top to bottom in the order of the occurrence of the peak. For example, in the 1928-29 epidemic the Pacific cities had the earliest peak and the Pacific section is, therefore, at the top of the graph, the other sections following in accordance with the dates of the peak days. At the bottom is a graph for the total of all cities combined, and a broken line has been drawn from top to bottom representing the date of the peak day in all cities combined. The sections at the top of the graph, therefore, have their peaks to the left of this line and those at the bottom have their peaks to the right of the line. On all the graphs except the graph for 1920, the distance on the horizontal scale representing an interval of two weeks is equal to the distance on the vertical scale representing an excess rate of 100. In order to carry this same scale for all of these graphs it was necessary to make the 1928–29 graph cover both the left and right halves of the page, but in the instance of the four minor epidemics, all sections are on one-half of the page. For the 1920 epidemic this scale did not seem suitable and the vertical or ordinate scale has been made smaller.

A comparison of the curves for the different geographic sections in these graphs serves to indicate the section in which the epidemic arose and its progress to other sections of the country. However, the same facts can be depicted perhaps even more graphically by maps colored or cross-hatched in such a way that the area first attacked will be the darkest and proceed to lighter shades with the section last attacked as the lightest shade. A series of maps of this character has been prepared and is presented in Figure 12.

With both the charts and maps before us, we may discuss the geographic section in which the various epidemics arose and their direc-

tion and progress to other sections. Considering first the recent epidemic of 1928–29, the excess mortality peak in the Pacific cities

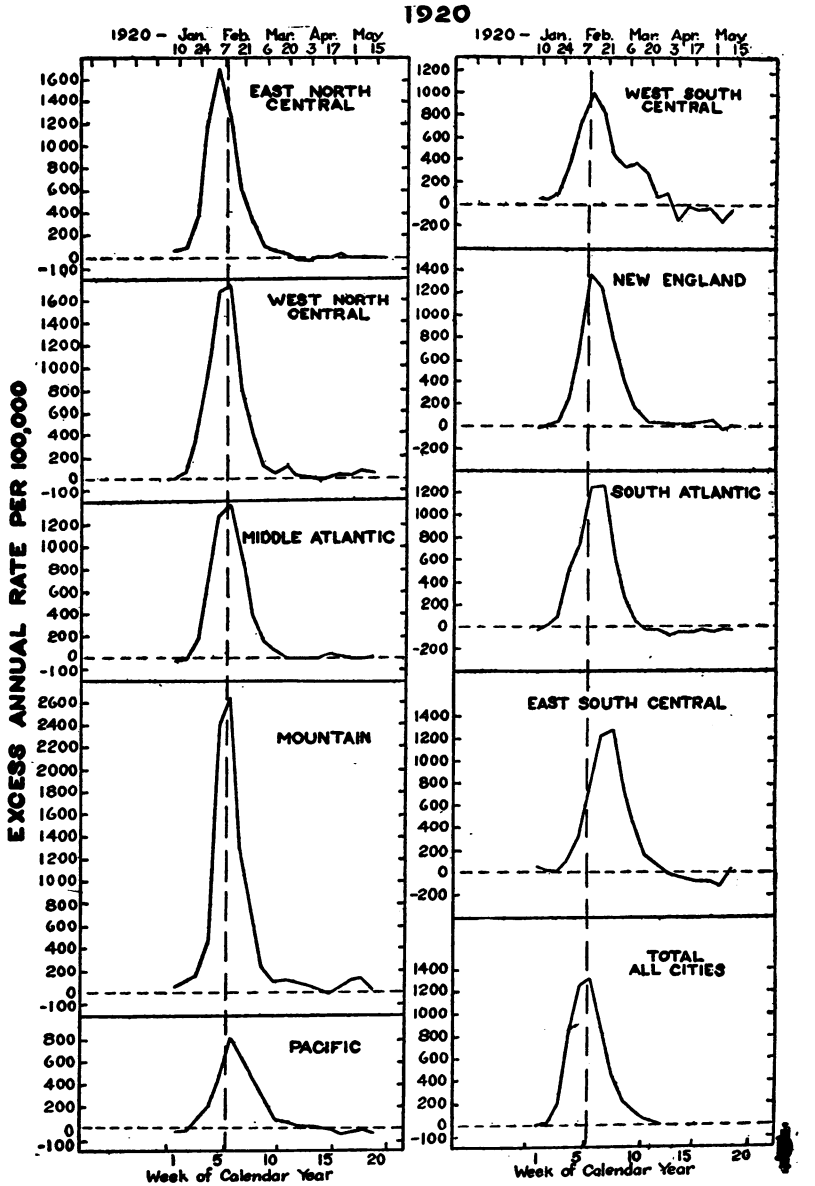

FIGURE 8.—Weekly excess influenza-pneumonia mortality rates (annual basis) in a group of cities in each geographic section of the United States during the epidemic of 1920. Sections arranged in order of dates of peak mortality given in Table 2. (Excess over median rates in the same geographic section for corresponding weeks for period 1921–1927. For details, see footnotes to Table 1)

is estimated as occurring on December 6. Progress across the country as indicated by the dates of the peaks in the various sections is

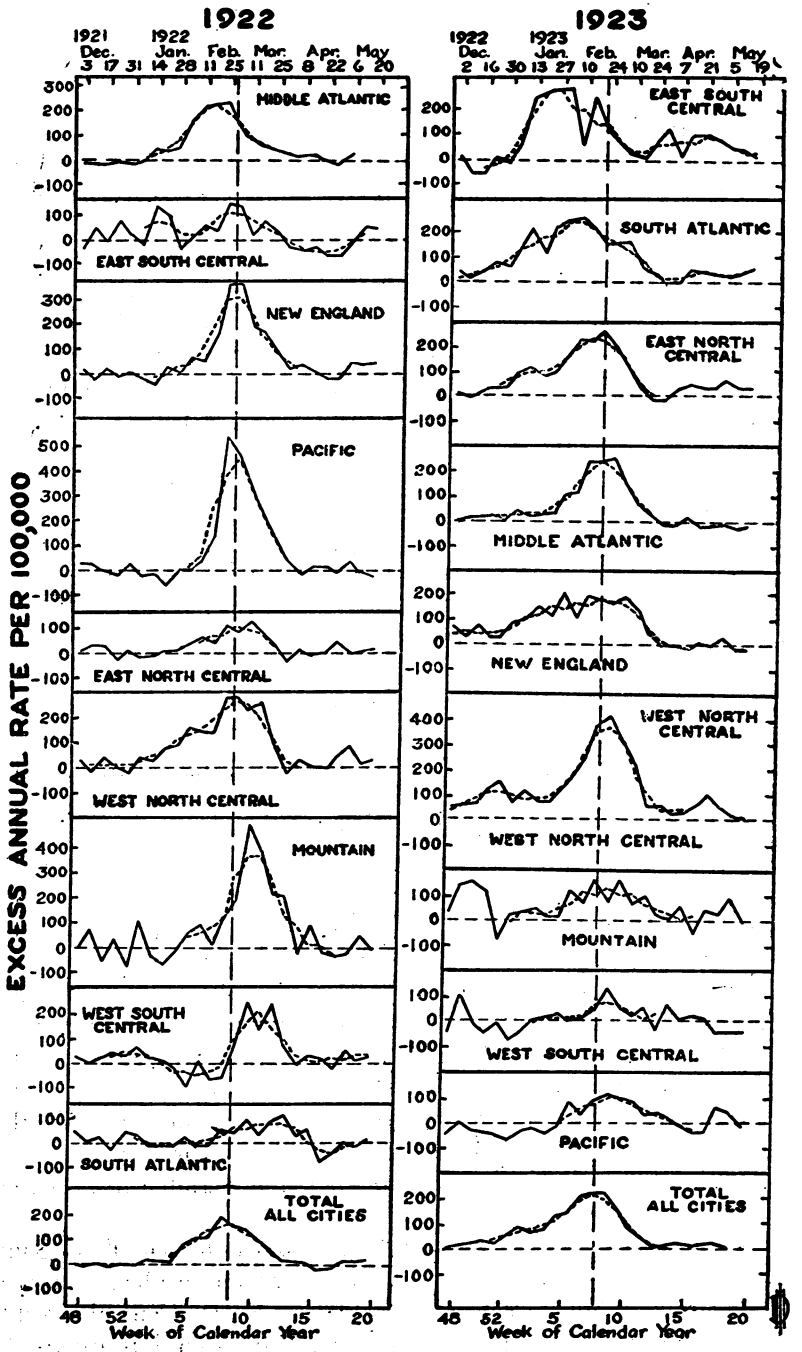

FIGURE 9.—Weekly excess influenza-pneumonia mortality rates (annual basis) in a group of cities in each geographic section of the United States during the epidemics of 1922 and 1923. Continuous line represents actual excess; broken line, 3-period moving average. Sections arranged in order of dates of peak mortality as indicated by the moving average curve and given in Table 2. (Excess over median rates in the same geographic section for corresponding weeks for the period 1921–1927. Correction made for 1922 and other details of computation are described in footnotes to Table 1)

fairly consistent, although it reached the East North Central cities (around Chicago) at about the same time or slightly before the cities of the West North and South Central Sections. Peaks in the East South Central, South Atlantic, and Middle Atlantic sections came practically on the same date. New England came last with a peak about seven weeks later than the peak in the Pacific cities.

The small epidemic of the spring of 1928 seems to have started in the Mountain cities where there is some indication of a sort of double peak. (Fig. 10.) The West South Central cities also exhibit a sort of double peak, the first peak coming in March a few weeks after the first peak of the Mountain section. In fact, there is a peak in December, 1927, about two months earlier than the peak in the Mountain cities, that might be considered a part of this epidemic, but it was so much earlier than the peaks of any other section that in the computations made for this study it was not included as a part of the spring epidemic. Of other sections that showed any excess in this outbreak in the spring of 1928 the peaks all occurred in May, but two coastal regions, the Pacific and South Atlantic cities, were apparently untouched by this epidemic, at least so far as mortality was concerned. The excess death rates in this epidemic of the spring of 1928 are so small, particularly in some of the sections, that these peaks may not indicate the correct progress of the epidemic and no great dependence can be put upon its indicated course.

The epidemic of 1926,[8] like that of 1928–29, seems to have started on the Pacific coast, but the excess in the Pacific cities was very small. The West South Central and the South Atlantic cities showed the next peaks, and in both of these sections the excess was considerable. A study of the map suggests the possibility of two more or less independent foci of infection from which the epidemics spread to other sections, one being on the Pacific coast and spreading rather slowly to the Mountain cities and possibly to the West South Central cities, the other being on the South Atlantic coast and spreading, again rather slowly, to the East North and South Central, Middle Atlantic, and New England sections. The West North Central cities, it will be noted, were apparently not affected by this epidemic. Whether the idea of the two independent foci is correct or whether it is merely true that the epidemic was very irregular and variable in its extent and severity can not be determined.

The epidemic of 1923 seems to have arisen in the East South Central section, the estimated peak day in those cities being January 22. Progress to the South Atlantic, East North Central, Middle Atlantic, and New England cities is moderately rapid, but apparently the peaks occur in those sections in the order in which they were just

[8] For other data on the 1926 epidemic, see The Influenza Epidemic of 1926. Pub. Health Rep., vol. 41, No. 34, Aug. 20, 1926. (Reprint 1104.)

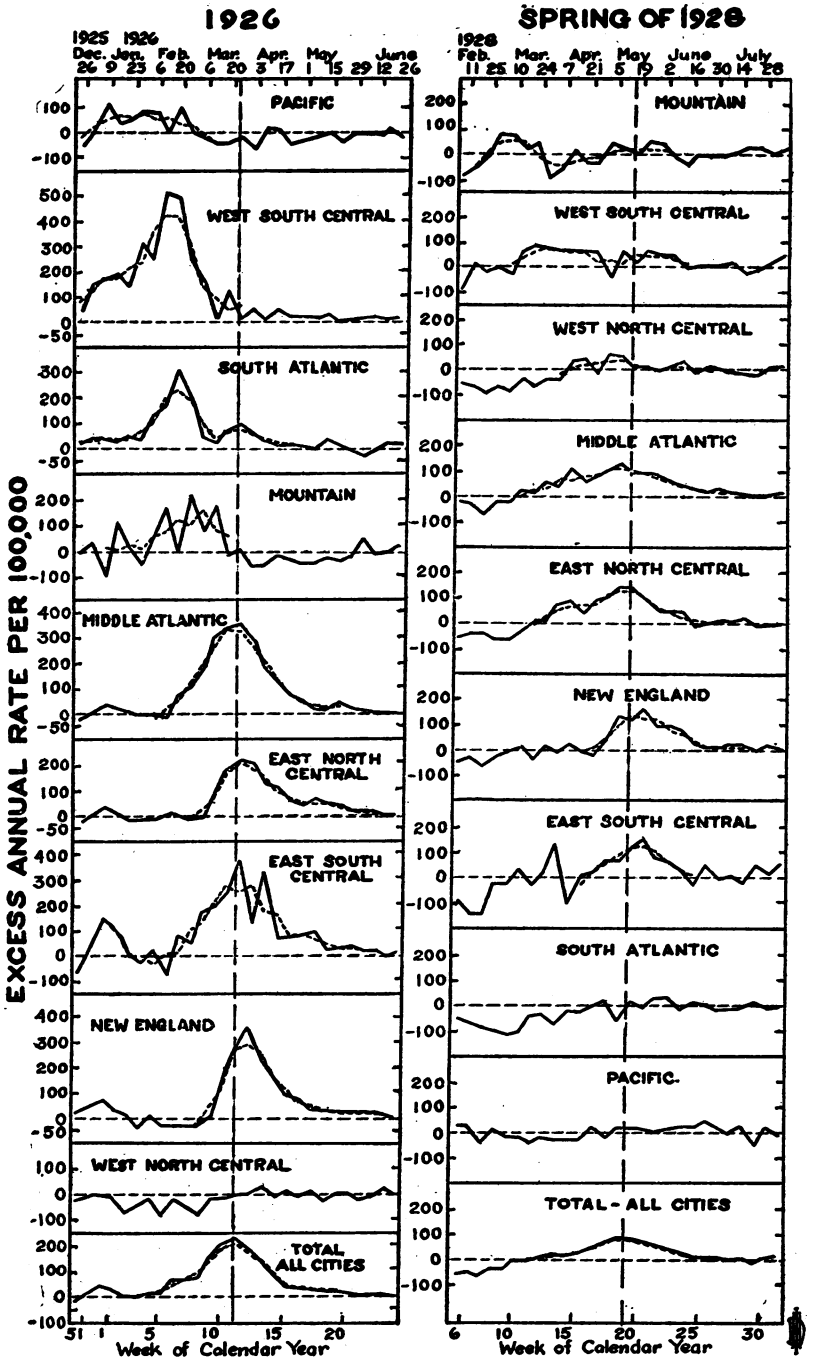

FIGURE 10.—Weekly excess influenza-pneumonia mortality rates (annual basis) in a group of cities in each geographic section of the United States during the epidemics of 1926 and the spring of 1928. Continuous line represents actual excess; broken line, 3-period moving average. Sections arranged in order of dates of peak mortality as indicated by the moving average curve and given in Table 2. (Excess over median rates in the same geographic section for corresponding weeks for the period 1921–1927. For details, see footnotes to Table 1)

named, the estimated New England peak being February 24. The peaks in the four sections lying west of the Mississippi River all come within the week ending March 3, but in the West South Central, Mountain, and Pacific cities the excesses were rather small. As in the epidemic of the spring of 1928, the Mountain cities have a suggestion of a double peak, but the second peak in this instance seemed to be the more definite one and the section has been placed on the map and in the graphs with reference to this peak. The Mountain section includes quite a large area with about nine rather widely scattered cities, and it is possible that the tendency of this section toward double peaks is the result of the rather widely scattered cities included.

It is hard to determine the starting point and the progress of the 1922 epidemic. The Middle Atlantic cities, with a considerable excess, seem to be the earliest section to be affected, with the East South Central and the New England sections as the next in order. However, the peak in the Pacific cities, which had one of the largest excesses, comes at practically the same time as the peak in New England and considerably earlier than the peaks in the other western sections and the South Atlantic cities. The data suggest that the epidemic arose somewhere in the East, probably in the Middle Atlantic section, but that is about all that can be said about it.

The 1920 epidemic, as has already been mentioned, was of a very explosive character. Its beginning seems quite clearly to have been in the East North Central cities (around Chicago), and its spread from there to the east, south, and west is quite definite, but is so rapid that nearly all of the sections had their peak within the same week. There are, however, minor differences in the estimated peak dates, the Pacific and the West South Central peaks coming a few days later than the West North Central and Mountain peaks. The East South Central peak comes last and only a little more than two weeks after the first peak. In spite of the very short duration of this epidemic, it will be remembered that the total excess death rate was about twice what it was in the 1928–29 epidemic, which showed a difference of about seven weeks in the dates of the peaks of the first and last sections affected. Possibly the fact that the epidemic started in the central part of the country and around Chicago, from which there is much traveling in all directions, may have had something to do with the quick spread over the country. It might be noted, however, that the 1923 epidemic, which began in the central part of the country, but in the South, was not nearly so rapid in its spread to other sections. The time distribution of the deaths in the different epidemics will be considered in more detail later.

The method of computing or estimating the total excess death rate for each epidemic has already been discussed. We may compute in a similar fashion the week within which occurs the date on which half

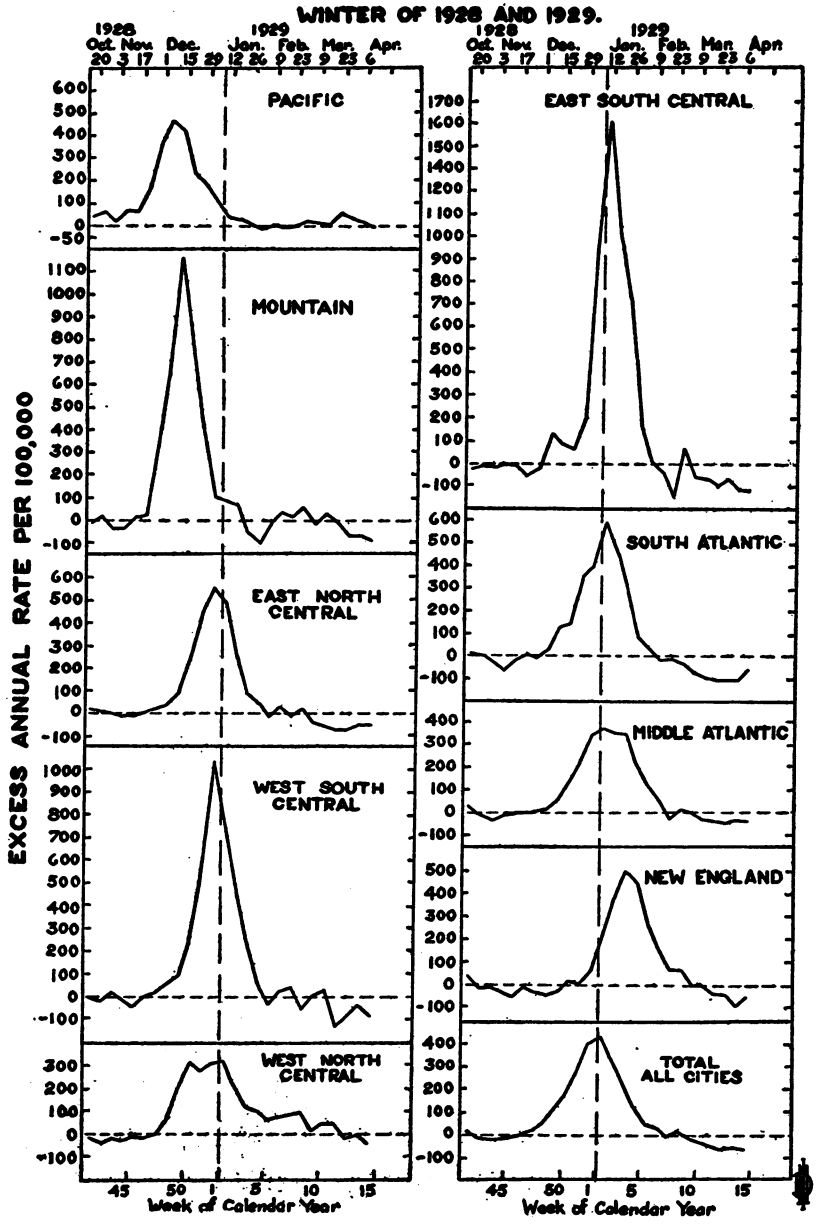

FIGURE 11.—Weekly excess influenza-pneumonia mortality rates (annual basis) in a group of cities in each geographic section of the United States during the epidemic of the winter of 1928–29. Sections arranged in order of dates of peak mortality as given in Table 2. (Excess over median rates in the same geographic section for corresponding weeks for the period 1921–1927. For details, see footnotes to Table 1)

of the total excess deaths had already occurred, and by interpolation within this week, we may estimate the day on which half of the total excess deaths had already occurred. If we think of the curves of the excess death rates, such as those shown in Figures 8, 9, 10, and 11, as representing curves of the frequency of excess deaths in a population of 100,000 in the different weeks, this point would be the median of that frequency curve, or the time prior to which one-half of the deaths had occurred and after which the other half occurred. This median date might well have been used instead of the peak or modal date to indicate the progress of the epidemic from one section to another. In Table 2 both the modal or peak days and the median days are shown, and it will be seen that with some exceptions the general picture of the starting point and progress of the different epidemics over the country would have been the same had the medians been used as that which has already been considered with the peak day as the basis.

TIME DISTRIBUTION OF THE DEATHS IN THE DIFFERENT EPIDEMICS

In a manner similar to that discussed for the median, we may also compute for the different epidemics the date on which one-fourth of the excess deaths had occurred and the date on which three-fourths of the excess deaths had occurred, these two points being comparable to the first and third quartiles, respectively, in the frequency curve of the excess deaths in a population of 100,000. These dates are also shown in Table 2. If we compute the number of days between the first and third quartiles (interquartile range) it will indicate the time within which the central half of the deaths occurred. Because of the indefiniteness of the extreme range of the epidemic, this figure is a better measure of the time-spread of the epidemic than the range would be. Attention should be called to the fact that because of the differences in the areas of the various geographic sections and, of perhaps more importance, the scatter of the cities within those areas, these interquartile ranges are not comparable from one section to another. However, since approximately the same cities are included in the data for each epidemic, it would appear that the interquartile range in one epidemic for the 95 cities as a whole should be comparable to the interquartile range in another epidemic, and that, likewise, the interquartile ranges for a given section should be comparable from one epidemic to another.

Let us consider the time-spread of the different epidemics as indicated by this interquartile range. Considering the whole 95 cities as a group, the interquartile range in 1920 was 16 days, that is, one-half of the excess deaths that occurred in 1920 occurred within a period of 16 days. The same figure for the 1928–29 epidemic is

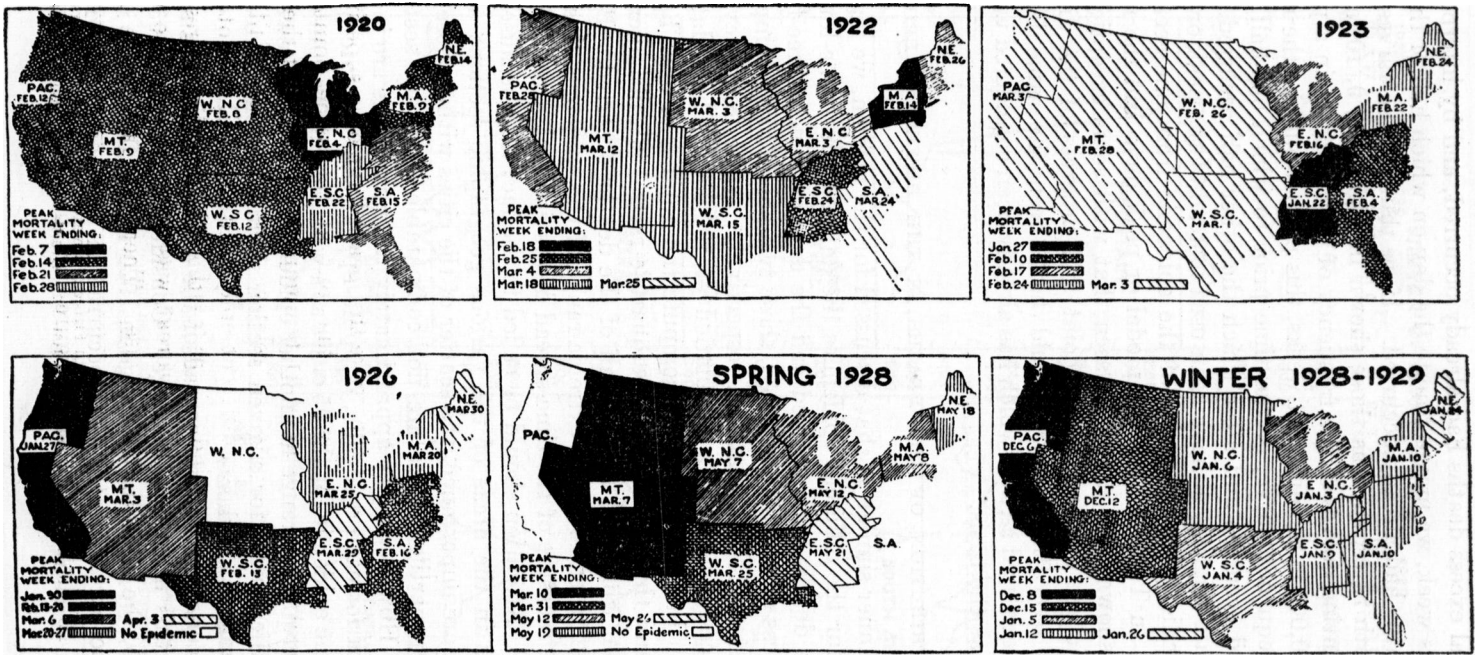

FIGURE 12.—Time of occurrence of each influenza epidemic in cities of the different geographic sections of the United States, 1920–1929. (Darkest sections were first and lightest sections were last to be affected. Dates represent estimated peak days for the sections. For details, see footnotes to Table 2)

21 days, and the figures for the smaller epidemics range from 22 to 30 days, the 1923 epidemic showing the maximum interquartile range of any of the six epidemics. It will be noted that in general the interquartile ranges for the different sections bear out the statement that the 1920 epidemic was concentrated within the shortest time and that the 1923 epidemic was spread over the longest time of any of these six epidemics that have occurred since January 1, 1920.

Table 2 also shows the number of days between the median and the first quartile and between the median and the third quartile. If the curves of the excess death rates are fairly symmetrical—that is, if the rise of the curve to its peak takes about the same number of days as the fall of the curve back to the normal rate—the number of days between the median and the first quartile would be about the same as the number of days between the median and the third quartile. It will be noted from the table that so far as the data for all cities combined are concerned, the two periods are almost identical in length except in the instance of the 1923 epidemic. The rise from the first quartile to the median in the 1923 epidemic consumed 18 days and the fall from the median to the third quartile consumed 12 days, but in no other of these epidemics was there a difference of more than a day between the two figures. It would appear, therefore, that in all of the epidemics except that of 1923 the curves tend to be rather symmetrical.

The facts noted about the time-spread of the different epidemics and the symmetry of the curves may be checked up graphically in Figure 13. In the top section of this figure the graphs for each of the epidemics for all cities combined have been plotted on semilogarithmic paper, the abscissa, or horizontal, scale being indicated in weeks prior to or following the epidemic peak. In other words, the peaks have been brought together on the same vertical line. Added to the six epidemics are the excess rates in a group of 42 cities during the 1918–19 epidemic.[9] The steepness of the curves in this figure would indicate time-concentration, the steeper the curve the more rapid the percentage increase or decrease from week to week in the excess rate. In the bottom section of the figure the peaks have been superimposed not only on the same vertical line but at the same point. This arrangement makes it even easier to compare the slopes of the curves and, therefore, to estimate the relative rate of rise and fall of the excess death rates in the different epidemics. It will be noted that in conformity with the indications of the interquartile ranges in the different epidemics, the 1923 outbreak was the slowest to rise and the 1920 epidemic had the sharpest rise. There is a fair degree of sym-

[9] Influenza-pneumonia rates for 1918–19 plotted in Figure 13 are excesses over the median rate for corresponding weeks for the period 1910–1916. (Data from Pub. Health Rep., Mar. 26, 1920 (35: 747).)

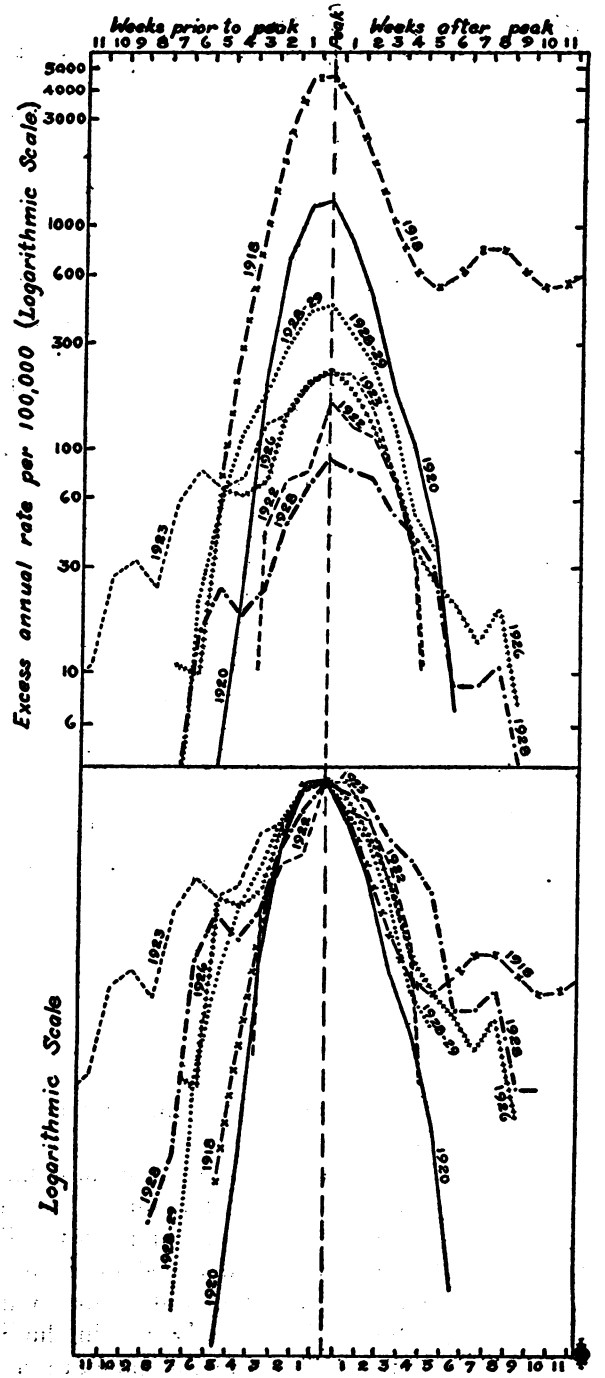

FIGURE 13.—Semilogarithmic curves of the excess influenza-pneumonia mortality rates during the various epidemics in a group of about 95 cities in the United States. (1918 data are for a group of 42 cities)

metry in the curves of the excess rates except for 1923, when the curve rose at a much slower rate than it fell after the peak had been reached. In the 1918–19 epidemic the descent of the curve is interrupted by a second wave.

SUMMARY

This study is based on weekly death rates from respiratory diseases recorded as influenza and pneumonia in about 95 cities of the United States during the period 1920–1929. Cities from every geographical section of the United States are included in the group. Their total enumerated population in 1920 was about 26,500,000 and their estimated population in 1928 was 30,700,000.

From January 1, 1920, to the middle of 1929 six epidemics of more or less national extent have occurred in the United States—1920, 1922, 1923, 1926, spring of 1928, and the winter of 1928–29. (Fig. 3.) Judging by the rates in the 95 cities, which seem to be only slightly higher than rates for the country as a whole, these six epidemics caused in excess of the normal or expected seasonal mortality from respiratory diseases recorded as influenza and pneumonia, approximately 250,000 deaths in the country as a whole—a total of nearly one-half as many deaths as occurred in the United States during the great pandemic of 1918–19. About one-fifth of these deaths, or 50,000, occurred during the recent epidemic of the winter of 1928–29, and two-fifths, or 100,000, occurred during the sharp epidemic of the early months of 1920.

Although these six epidemics were more or less nation-wide in extent, the various sections of the United States were by no means equally affected. In the instance of several of the smaller epidemics there appeared to be whole sections of the country that were not affected. On the other hand, certain sections of the country experienced fairly sharp epidemics in years when the rates for the country as a whole did not indicate any influenza-pneumonia deaths in excess of the median weekly rates. An example of this is an epidemic in the West South Central cities which occurred in the early months of 1925, a year when the remainder of the country appeared to be relatively free from influenza.

The point of origin and direction of progress of these six epidemics varies a great deal. Nearly every one of them arose in a different section of the country. The 1920 epidemic arose in the East North Central section and progressed very rapidly to all other sections of the country. The 1922 epidemic arose in the East, probably in the Middle Atlantic section, and the 1923 epidemic arose in the East South Central section. The 1926 and the 1928–29 epidemics arose on the West Coast, and the little epidemic of the spring of 1928 probably arose in the Mountain or West South Central section.

The rate of progress across the country varies a great deal in the different epidemics. Considering the 95 cities as a whole, however, there is more uniformity in the length of the epidemic. In 1920 the central half of the deaths occurred in a period of about 16 days. In the epidemics of 1928–29, 1922, and 1926 the central half of the deaths occurred in periods of 21, 22, and 23 days, respectively. In the small epidemic of the spring of 1928 the period was 27 days, and in the epidemic of 1923 the period was 30 days. The 1923 epidemic seems to show the least time-concentration of any of these recent outbreaks. In the case of all the other epidemics the excess rate rose and fell at about the same rate, but in 1923 the rise to the peak was considerably slower than the fall of the curve to the normal level again.

Appendix

[Tables 3 to 16]

TABLE 3.—*Populations of the 95 cities included in the group for which the influenza-pneumonia death rates from 1920 to 1929 are considered in this study*

Geographic section and city	Enumerated population according to the census of 1920 (Jan. 1, 1920)	Estimated population as of July 1, 1928
All sections (95 cities)	26,511,442	30,663,020
New England (12 cities)	2,025,331	2,255,363
Portland, Me	69,272	78,600
Concord, N. H	22,167	22,700
Barre, Vt.[1]	10,008	[2] 10,008
Boston, Mass	748,060	799,200
Fall River, Mass	120,485	134,300
Springfield, Mass	129,614	149,800
Worcester, Mass	179,754	197,600
Pawtucket, R. I	64,248	73,100
Providence, R. I	237,595	286,300
Bridgeport, Conn	143,555	[2] 143,555
Hartford, Conn	138,036	172,300
New Haven, Conn	162,537	187,900
Middle Atlantic (10 cities)	9,764,318	10,702,200
Buffalo, N. Y	506,775	555,800
New York, N. Y	5,620,048	6,017,500
Rochester, N. Y	295,750	328,200
Syracuse, N. Y	171,717	199,300
Camden, N. J.[3]	116,309	135,400
Newark, N. J	414,524	473,600
Trenton, N. J	119,289	139,000
Philadelphia, Pa	1,823,779	2,064,200
Pittsburgh, Pa.[3]	588,343	673,800
Reading, Pa.[1]	107,784	115,400
South Atlantic (21 cities)	2,371,322	2,946,008
Wilmington, Del.[4]	110,168	128,500
Baltimore, Md	733,826	830,400
Cumberland, Md	29,837	35,800
Frederick, Md.[1]	11,066	12,200
Washington, D. C	437,571	552,000
Lynchburg, Va	30,070	38,600
Norfolk, Va.[5]	115,777	184,200
Richmond, Va	171,667	194,400
Roanoke, Va	50,842	64,600
Charleston, W. Va	39,608	55,200
Wheeling, W. Va	56,208	[2] 56,208
Raleigh, N. C	24,418	32,200
Wilmington, N. C	33,372	39,100
Winston-Salem, N. C	48,395	80,000
Charleston, S. C	67,957	75,900
Columbia, S. C.[3]	37,524	50,600
Greenville, S. C.[6]	23,127	29,600
Atlanta, Ga	200,616	255,100
Brunswick, Ga	14,413	18,100
Savannah, Ga	83,252	99,900
Tampa, Fla.[3]	51,608	113,400

Footnotes at end of table.

TABLE 3.—*Populations of the 95 cities included in the group for which the influenza-pneumonia death rates from 1920 to 1929 are considered in this study*—Contd.

Geographic section and city	Enumerated population according to the census of 1920 (Jan. 1, 1920)	Estimated population as of July 1, 1928
East North Central (16 cities)	6,552,610	8,001,271
Cincinnati, Ohio	401,247	413,700
Cleveland, Ohio	796,841	1,010,300
Columbus, Ohio	237,031	299,000
Fort Wayne, Ind	86,549	105,300
Indianapolis, Ind	314,194	382,100
South Bend, Ind	70,983	86,100
Terre Haute, Ind	66,083	73,500
Chicago, Ill	2,701,705	3,157,400
Springfield, Ill	59,183	67,200
Detroit, Mich	993,678	1,378,900
Flint, Mich	91,599	148,800
Grand Rapids, Mich	137,634	164,200
Kenosha, Wis.[5]	40,472	56,500
Milwaukee, Wis.[7]	457,147	544,200
Racine, Wis.[5]	58,593	74,400
Superior, Wis.[6]	39,671	[2] 39,671
East South Central (6 cities)	812,288	1,010,200
Covington, Ky	57,121	59,000
Louisville, Ky	234,891	329,400
Memphis, Tenn	162,351	190,200
Nashville, Tenn	118,342	139,600
Birmingham, Ala	178,806	222,400
Mobile, Ala	60,777	69,600
West North Central (10 cities)	2,225,244	2,553,800
Duluth, Minn	98,917	116,800
Minneapolis, Minn	380,582	455,900
St. Paul, Minn	234,698	252,200
Kansas City, Mo	324,410	391,000
St. Joseph, Mo	77,939	78,500
St. Louis, Mo.[1]	772,897	848,100
Fargo, N. Dak.[1]	21,961	26,400
Omaha, Nebr	191,601	222,800
Topeka, Kans	50,022	62,800
Wichita, Kans	72,217	99,300
West South Central (7 cities)	999,121	1,256,000
Little Rock, Ark.[1]	65,142	79,200
New Orleans, La	387,219	429,400
Shreveport, La.[1]	43,874	81,300
Dallas, Tex	158,976	217,800
Galveston, Tex	44,255	50,600
Houston, Tex.[4]	138,276	179,600
San Antonio, Tex.[3]	161,379	218,100
Mountain (9 cities)	514,986	590,005
Billings, Mont	15,100	19,500
Great Falls, Mont	24,121	33,000
Helena, Mont.[3]	12,037	[2] 12,037
Missoula, Mont	12,668	[3] 12,668
Boise, Idaho [1]	21,393	23,400
Denver, Colo	256,491	294,200
Pueblo, Colo	43,050	44,200
Salt Lake City, Utah	118,110	138,000
Reno, Nev	12,016	13,000
Pacific (4 cities)	1,246,222	1,348,173
Tacoma, Wash	96,965	110,750
Los Angeles, Calif.[1]	576,673	[2] 576,673
Sacramento, Calif	65,908	75,700
San Francisco, Calif	506,676	585,300

NOTE.—For certain of the cities data were not available for the earlier years. The footnotes designate for each year the cities not used for that year. In addition there were occasional weeks when reports were not received from certain cities; in such cases the populations of the missing cities were deducted from the total before computing the rate for that week. Populations used in computing the rates were estimates as of July 1 of each year, made by the United States Bureau of the Census.

[1] No data 1920–1923.
[2] Population as of Census of 1920; no estimate made.
[3] No data for 1920–1922.
[4] No data for 1923.
[5] No data for 1920.
[6] No data for 1920–21.
[7] No data for 1921–1923.

Dates of end (Saturday) of first calendar week of the year

Year	First week ended—	Year	First week ended—	Year	First week ended—
1917	Jan. 6	1922	Jan. 7	1927	Jan. 8
1918	Jan. 5	1923	Jan. 6	1928	Jan. 7
1919	Jan. 4	1924	Jan. 5	1929	Jan. 5
1920	Jan. 10	1925	Jan. 10	1930	Jan. 4
1921	Jan. 8	1926	Jan. 9		

TABLE 4.—*Weekly death rates (annual basis) per 100,000 population, 1920–1929*

INFLUENZA IN ABOUT 95 CITIES [1] OF THE UNITED STATES

Week of year	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929
1	12	6	10	21	7	21	21	20	19	223
2	16	9	9	31	14	22	23	21	24	233
3	100	9	9	41	13	22	20	21	24	179
4	401	11	15	43	13	23	29	25	19	129
5	662	8	33	64	15	30	35	19	19	80
6	685	9	52	75	19	28	34	24	17	56
7	461	12	61	88	17	30	50	23	22	52
8	268	11	90	100	18	34	47	22	21	44
9	153	11	69	98	18	30	51	25	24	39
10	92	14	59	80	22	34	71	27	23	32
11	64	14	55	59	20	42	76	31	25	32
12	47	10	47	41	16	33	97	27	32	26
13	31	8	33	36	18	34	89	22	29	18
14	24	3	21	32	18	27	74	23	34	20
15	23	9	21	28	18	27	53	22	26	15
16	15	8	15	25	15	30	33	18	28	15
17	13	8	12	19	13	22	33	18	32	13
18	13	7	10	18	9	15	25	13	32	8
19	10	4	8	12	11	14	16	13	33	10
20	8	5	4	7	9	14	15	12	29	8
21	9	4	5	7	7	12	12	9	25	10
22	6	3	3	7	6	11	8	7	20	7
23	4	3	2	4	4	7	10	6	17	7
24	3	2	3	3	3	6	7	6	11	6
25	2	1	2	2	4	6	5	7	6	6
26	3	2	1	3	2	4	6	3	7	5
27	2	1	2	3	2	2	4	3	8	2
28	2	1	2	1	2	2	4	3	5	3
29	2	1	1	2	1	2	3	3	5	3
30	2	1	2	1	1	1	2	3	4	3
31	3	1		2	2	3	2	2	6	3
32	2	1	1	1	1	2	1	3	5	1
33	1	1	1	2	1	2	3	4	3	3
34	1	2	1	2	1	4	3	5	4	3
35	1	1	1	1	2	3	3	4	3	2
36	1	2	2	1	1	5	4	4	3	3
37	1	2	2	3	1	5	4	5	5	3
38	2	1	1	3	1	3	6	3	4	2
39	1	2	3	3	3	4	6	6	5	5
40	2	3	1	2	4	3	4	5	7	6
41	1	3	2	3	4	6	6	6	7	8
42	2	3	3	5	4	8	7	9	10	8
43	3	5	4	5	3	11	11	8	10	9
44	4	5	6	4	6	13	11	9	9	11
45	4	4	4	6	7	12	14	8	12	8
46	6	5	7	7	8	8	10	9	15	9
47	6	4	7	8	8	9	10	11	16	8
48	6	5	7	9	10	12	14	12	30	11
49	9	5	8	12	12	13	17	12	48	16
50	8	6	10	9	17	14	14	14	77	16
51	6	7	10	9	16	13	15	17	113	19
52	8	7	11	9	15	15	17	19	173	19
53					19					

[1] Number of cities: 1920, 74; 1921, 75; 1922, 80; 1923, 84; 1924, 97; 1925–26, 96; 1927–Mar. 23, 1929, 95; remainder of 1929, 91.

TABLE 5.—*Weekly death rates (annual basis) per 100,000 population, 1920–1929*

PNEUMONIA IN ABOUT 95 CITIES[1] OF THE UNITED STATES

Week of year	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929
1	186	187	154	231	158	192	220	196	170	383
2	214	174	179	255	205	215	211	179	191	412
3	328	177	193	245	195	211	199	183	179	373
4	546	163	196	257	186	206	193	159	159	335
5	812	173	240	297	208	225	206	168	150	276
6	864	186	259	308	197	222	213	148	168	232
7	628	190	200	354	208	216	259	146	174	224
8	435	194	322	365	221	201	260	164	161	198
9	301	200	306	366	216	205	269	172	188	226
10	256	188	302	319	226	222	325	188	191	205
11	221	177	263	263	220	217	372	183	221	189
12	203	163	231	232	217	206	372	166	213	172
13	191	146	187	199	223	204	335	163	222	158
14	185	144	180	198	232	201	277	163	215	150
15	182	131	165	203	226	192	241	154	207	139
16	182	134	134	181	204	203	201	159	198	127
17	162	107	130	175	178	167	177	144	198	118
18	138	111	139	167	173	151	163	131	206	124
19	134	101	125	141	145	127	150	122	210	110
20	144	102	121	130	138	128	141	109	189	106
21	127	92	110	122	119	117	120	100	176	116
22	112	78	91	116	117	128	105	93	145	105
23	99	70	84	114	109	104	95	94	126	91
24	84	59	65	84	106	81	87	87	111	86
25	61	61	55	77	97	66	74	74	85	82
26	58	48	60	85	80	58	75	73	75	64
27	49	43	50	68	66	61	67	58	70	63
28	51	45	52	56	59	57	60	57	60	55
29	47	42	46	56	57	50	54	56	56	56
30	45	39	48	60	56	61	48	49	44	50
31	53	47	48	58	54	56	54	47	52	54
32	48	46	50	60	50	63	50	55	59	53
33	46	50	49	61	50	55	54	45	55	57
34	48	43	48	55	47	64	48	46	56	54
35	41	55	49	58	58	73	51	56	55	55
36	48	57	50	65	58	64	51	62	57	58
37	60	48	52	56	57	62	53	60	63	55
38	57	55	49	69	57	57	65	59	66	54
39	61	53	55	71	69	62	69	56	66	67
40	59	56	68	79	81	66	64	65	87	77
41	69	65	78	75	92	94	77	71	79	80
42	72	79	80	93	92	96	85	77	101	97
43	81	85	95	97	89	122	96	91	86	108
44	84	94	99	107	110	141	101	90	86	106
45	91	92	128	125	118	138	106	104	91	105
46	104	114	118	124	125	151	123	112	102	99
47	119	103	133	135	120	130	126	97	122	103
48	134	108	144	132	130	149	122	114	134	107
49	130	111	149	138	153	134	129	110	157	137
50	132	123	171	144	159	153	138	118	195	151
51	141	124	191	146	172	140	137	135	241	159
52	175	146	196	147	157	184	163	157	303	144
53					203					

[1] Number of cities: 1920, 74; 1921, 75; 1922, 80; 1923, 84; 1924, 97; 1925–26, 96; 1927–Mar. 23, 1929, 95; remainder of 1929, 91.

TABLE 6.—*Weekly death rates (annual basis) per 100,000 population, 1920–1929*

INFLUENZA AND PNEUMONIA IN ABOUT 95 CITIES [1] OF THE UNITED STATES

Week of year	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929
1	198	193	164	252	165	213	241	216	189	606
2	229	183	188	286	219	237	234	200	215	645
3	428	186	202	286	208	233	219	204	203	552
4	947	175	210	300	199	229	222	184	178	464
5	1,474	181	273	360	223	255	241	187	169	356
6	1,549	195	311	382	216	250	247	172	185	288
7	1,089	202	322	441	225	246	309	169	196	276
8	702	205	412	465	239	235	307	186	182	241
9	456	212	375	465	234	235	320	197	212	266
10	348	203	361	399	248	256	396	215	214	237
11	285	192	319	322	240	259	448	214	246	220
12	250	173	278	273	233	239	469	193	245	199
13	222	155	220	235	241	238	424	185	251	176
14	209	152	201	231	250	228	351	186	249	170
15	205	141	186	231	244	219	294	176	233	154
16	197	142	150	206	219	233	239	177	226	142
17	175	115	142	195	191	189	210	162	230	131
18	151	118	149	185	182	166	188	144	238	132
19	144	106	133	154	156	141	166	135	243	120
20	152	107	125	138	147	142	156	121	218	114
21	136	96	115	128	126	129	132	109	201	126
22	119	81	94	123	123	139	113	100	165	112
23	103	72	86	118	113	111	105	100	143	98
24	87	61	68	87	109	87	94	93	122	92
25	63	62	57	79	101	72	79	81	91	88
26	61	50	61	88	82	62	81	76	82	69
27	50	45	52	71	68	63	71	61	78	65
28	52	46	54	58	61	59	64	60	65	58
29	49	43	47	58	58	52	57	59	61	59
30	47	40	50	61	57	62	50	52	48	53
31	55	48	48	59	56	59	56	49	58	57
32	50	48	51	61	51	65	51	58	64	54
33	47	51	50	62	51	57	57	49	58	60
34	50	44	49	58	48	68	51	51	60	57
35	42	56	51	59	60	76	54	60	58	57
36	49	59	52	67	59	69	55	66	60	61
37	61	50	54	59	58	67	57	65	68	58
38	58	57	50	72	58	60	71	62	70	56
39	63	55	58	74	72	66	75	62	71	72
40	61	59	69	80	85	69	68	70	94	83
41	70	68	80	79	96	100	83	77	86	88
42	74	82	83	98	96	104	92	86	111	105
43	83	90	99	101	92	133	107	99	96	117
44	88	99	106	111	116	154	112	99	95	117
45	95	96	132	131	125	150	120	112	103	113
46	110	119	125	131	133	159	133	121	117	108
47	125	107	140	143	128	139	136	108	138	111
48	141	113	151	141	140	161	136	126	164	118
49	139	116	157	150	165	147	146	122	205	153
50	140	129	181	153	176	167	152	132	272	167
51	146	131	201	155	188	153	152	152	354	178
52	183	153	207	157	172	199	180	176	476	163
53					222					

[1] Number of cities: 1920, 74; 1921, 75; 1922, 80; 1923, 84; 1924, 97; 1925–26, 96; 1927–Mar. 23, 1929, 95; remainder of 1929, 91.

TABLE 7.—*Excess*[1] *weekly death rates (annual basis) per 100,000 from influenza and pneumonia, 1920–1929*

TOTAL, ABOUT 95 CITIES[2] IN THE UNITED STATES

Week of year	Median 1921–1927 (smoothed)[1]	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929
1	194	+4	−1	−30	+58	−29	+19	+47	+22	−5	+412
2	205	+24	−22	−17	+81	+14	+32	+29	−5	+10	+440
3	218	+210	−32	−16	+68	−10	+15	+1	−14	−15	+334
4	225	+722	−50	−15	+75	−26	+4	−3	−41	−47	+239
5	230	+1,244	−49	+43	+130	−7	+25	+11	−43	−61	+126
6	237	+1,312	−42	+74	+145	−21	+13	+10	−65	−52	+51
7	242	+847	−40	+80	+199	−17	+4	+67	−73	−46	+34
8	245	+457	−40	+167	+220	−6	−10	+62	−59	−63	−4
9	247	+209	−35	+128	+218	−13	−12	+73	−50	−35	+19
10	246	+102	−43	+115	+153	+2	+10	+150	−31	−32	−9
11	245	+40	−53	+74	+77	−5	+14	+203	−31	+1	−25
12	243	+7	−70	+35	+30	−10	−4	+226	−50	+2	−44
13	236	−14	−81	−16	−1	+5	+2	+188	−51	+15	−60
14	225	−16	−73	−24	+6	+25	+3	+126	−39	+24	−55
15	215	−10	−74	−29	+16	+29	+4	+79	−39	+18	−61
16	202	−5	−60	−52	+4	+17	+31	+37	−25	+24	−60
17	184	−9	−69	−42	+11	+7	+5	+26	−22	+46	−52
18	168	−17	−50	−19	+17	+14	−2	+20	−24	+70	−36
19	152	−8	−46	−19	+2	+4	−11	+14	−17	+91	−32
20	137	+15	−30	−12	+1	+10	+5	+19	−16	+81	−23
21	125	+11	−29	−10	+3	+1	+4	+7	−16	+76	+1
22	114	+5	−33	−20	+9	+9	+25	−1	−14	+51	−2
23	102	+1	−30	−16	+16	+11	+9	+3	−2	+41	−4
24	92	−5	−31	−24	−5	+17	−5	+2	+1	+30	0
25	82	−19	−20	−25	−3	+19	−10	−3	−1	+9	+6
26	73	−12	−23	−12	+15	+9	−11	+8	+3	+9	−4
27	67	−17	−22	−15	+4	+1	−4	+4	−6	+11	−2
28	61	−9	−15	−7	−3	0	−2	+3	−1	+4	−3
29	57	−8	−14	−10	+1	+1	−5	0	+2	+4	+2
30	55	−8	−15	−5	+6	+2	+7	−5	−3	−7	−2
31	53	+2	−5	−5	+6	+3	+6	+3	−4	+5	+4
32	52	−2	−4	−1	+9	−1	+13	−1	+6	+12	+2
33	54	−7	−3	−4	+8	−3	+3	+3	−5	+4	+6
34	54	−4	−10	−5	+4	−6	+14	−3	−3	+6	+3
35	56	−14	0	−5	+3	+4	+20	−2	+4	+2	+1
36	57	−8	+2	−5	+10	+2	+12	−2	+9	+3	+4
37	60	+1	−10	−6	−1	−2	+7	−3	+5	+8	−2
38	62	−4	−5	−12	+10	−4	−2	+9	0	+8	−6
39	67	−4	−12	−9	+7	+5	−1	+8	−5	+4	+5
40	73	−12	−14	−4	+7	+12	−4	−5	−3	+21	+10
41	81	−11	−13	−1	−2	+15	+19	+2	−4	+5	+7
42	90	−16	−8	−7	+8	+6	+14	+2	−4	+21	+15
43	101	−18	−11	−2	0	−9	+32	+6	−2	−5	+16
44	112	−24	−13	−6	−1	+4	+42	0	−13	−17	+5
45	120	−25	−24	+12	+11	+5	+30	0	−8	−17	−7
46	129	−19	−10	−4	+2	+4	+30	+4	−8	−12	−21
47	136	−11	−29	+4	+7	−8	+3	0	−28	+2	−25
48	142	−1	−29	+9	−1	−2	+19	−6	−16	+22	−24
49	146	−7	−30	+11	+4	+19	+1	0	−24	+59	+7
50	154	−14	−25	+27	−1	+22	+13	−2	−22	+118	+13
51	169	−23	−38	+32	−14	+19	−16	−17	−17	+185	+9
52	183	0	−30	+24	−26	−11	+16	−3	−7	+293	−20

[1] Excess over or deviation from the median death rate for the corresponding week for the period 1921–1927. The series of 52 medians representing "normal" or "expected" rates for the different weeks of the year were smoothed by a 5-period moving average before deviations were computed. The smoothed medians are the values in the first column of the table.

[2] Number of cities: 1920, 74; 1921, 75; 1922, 80; 1923, 84; 1924, 97; 1925–26, 96; 1927–Mar. 23, 1929, 95; remainder of 1929, 91.

TABLE 8.—*Excess*[1] *weekly death rates (annual basis) per 100,000 from influenza and pneumonia, 1920–1929*

ABOUT 12 CITIES[2] IN THE NEW ENGLAND STATES

Week of year	Median 1921–1927 (smoothed)[1]	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929
1	184	−9	+53	−38	+87	−45	−45	+71	+13	−65	+65
2	190	+13	−40	−62	+103	+31	−6	+32	+14	−4	+233
3	202	+53	+45	+2	+149	−3	+24	+15	+10	−28	+389
4	201	+265	−20	−15	+117	−59	+67	−40	−34	−68	+507
5	201	+689	−61	+48	+207	−13	+57	+12	−8	−66	+453
6	203	+1,366	−40	+33	+108	−15	+63	−28	−36	−47	+274
7	210	+1,255	−7	+150	+193	−2	+48	−33	−99	−29	+152
8	216	+767	−28	+340	+179	−10	+66	−32	−21	−62	+67
9	226	+412	−28	+345	+164	−10	+17	−27	−15	−30	+68
10	235	+159	−27	+172	+185	−47	+29	+6	−35	−9	0
11	232	+25	−24	+150	+141	+4	+9	+170	−41	+13	−6
12	231	+24	−29	+66	+45	−53	+18	+268	−68	−40	−38
13	218	+11	−68	−4	−2	−67	+68	+359	−50	+18	−41
14	203	+16	−28	+11	+6	−2	+40	+239	−57	−8	−90
15	186	+17	−16	−18	−7	−3	+47	+169	−14	+21	−52
16	179	+29	−14	−41	+8	−20	+37	+95	−16	−6	−55
17	165	+43	−23	−34	−3	−1	+4	+80	+25	−13	−13
18	154	−38	−19	+27	+25	+22	+17	+30	−10	+56	−46
19	142	−6	−20	+16	−15	0	−1	+28	−16	+131	−50
20	126	+39	−42	+25	−12	+5	−2	+30	−12	+122	−36
21	109	+48	−5	−26	−12	−15	+12	+23	+44	+162	+20
22	97	+47	−18	−4	−45	−11	−23	+21	+21	+91	+16
23	86	+27	−7	+5	+1	+8	+36	+28	+2	+96	−18
24	78	+4	+3	−33	−6	+38	−14	+18	+31	+72	+15
25	71	+16	+13	−21	+4	−1	−4	−2	+20	+24	−15
26	63	−12	+1	−23	+2	−6	−16	+34	+2	+9	−2
27	55	−9	−19	−7	−15	−6	−10	+6	+6	+5	−5
28	52	+2	−16	+18	−12	−12	−2	+5	+9	+20	−21
29	48	+16	−10	−3	+17	−13	+4	−13	+8	+16	+22
30	47	−1	−9	+6	+5	−5	+8	−14	+4	−8	−13
31	46	+11	−3	+4	+11	+1	−4	+8	−13	+13	−3
32	45	+4	+6	+10	−3	−10	−15	−14	+34	+3	−7
33	45	−1	−2	+8	−8	+10	−5	−5	+6	−6	+7
34	43	−4	0	+12	−6	−13	−1	−10	+10	+3	−16
35	43	−10	0	+12	−1	+6	+12	+7	+8	−11	+7
36	46	+8	−13	+9	−21	−11	+8	−6	+24	+2	−2
37	50	+37	−7	−17	−8	−10	+20	+4	−11	+12	−14
38	54	+18	+4	+9	−27	−22	+1	+27	+16	+24	−23
39	62	−3	−1	−7	−2	−10	−30	+27	−4	+3	+12
40	70	+5	−6	0	+2	+2	−10	−37	+16	−12	−29
41	78	−1	−2	−15	−16	+21	+19	+3	+19	−4	−3
42	88	+15	−7	−3	−11	−16	+1	+2	+3	+40	+11
43	92	−17	+7	+4	−5	−23	+32	+14	−27	−13	−29
44	100	+3	−21	−7	+17	+6	+44	+11	−32	−8	−23
45	109	−11	−38	+34	−42	−15	+35	−17	−12	−24	+16
46	117	−1	+13	+4	+15	−30	+29	−11	−10	−51	−20
47	124	+28	+6	+37	−27	−25	+49	+17	−62	−9	−31
48	134	+41	−2	+62	−2	+15	+62	−9	−29	−32	−36
49	139	+49	−35	+29	+3	+5	+8	+5	−79	−46	−53
50	144	−3	−2	+75	−5	−30	+35	+12	−30	−27	−6
51	157	−26	−25	+32	−25	−8	+26	+1	−31	+16	+10
52	169	+47	−19	+32	−37	−40	+53	+25	−18	+4	−63

[1] Excess over or deviation from the median death rate for the corresponding week for the period 1921–1927. The series of 52 medians representing "normal" or "expected" rates for the different weeks of the year were smoothed by a 5-period moving average before deviations were computed. The smoothed medians are the values in the first column of the table.

[2] Number of cities: 1920–1923, 11; 1924–1929, 12.

TABLE 9.—*Excess*[1] *weekly death rates (annual basis) per 100,000 from influenza and pneumonia, 1920–1929*

ABOUT 10 CITIES[2] IN THE MIDDLE ATLANTIC STATES

Week of year	Median 1921–1927 (smoothed)[1]	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929
1	212	−26	−8	−30	+36	−39	+36	+35	+15	−13	+348
2	228	−9	−31	+15	+27	+11	+50	+24	−3	+7	+376
3	239	+163	−48	+6	+30	−9	+15	+2	−22	−27	+359
4	240	+702	−42	+20	+37	−26	+6	−5	−44	−41	+348
5	238	+1,279	−36	+134	+108	+11	+39	−5	−20	−95	+204
6	240	+1,381	−32	+196	+123	−10	+13	−13	−38	−25	+116
7	244	+852	−31	+192	+239	−23	−7	+72	−70	−31	+54
8	251	+365	−6	+207	+241	0	−46	+104	−52	−72	−24
9	257	+156	−6	+95	+252	−3	−32	+168	−40	−24	+13
10	262	+68	−40	+52	+146	+22	−24	+303	−14	−22	−4
11	259	−2	−36	+24	+60	−4	−13	+339	−1	+25	−31
12	253	−9	−50	+13	+23	+11	−32	+351	−28	+14	−40
13	241	−5	−52	−2	−13	+48	−5	+291	−34	+52	−49
14	233	−19	−76	−12	−10	+42	−27	+181	−8	+42	−39
15	218	+22	−51	−6	+6	+50	+10	+129	−21	+109	−43
16	208	+1	−54	−33	−19	+48	+32	+66	+11	+60	−63
17	196	−1	−65	−47	−13	+37	+24	+50	−6	+84	−54
18	182	−18	−62	−9	−13	+27	+13	+14	0	+110	−40
19	166	−7	−65	+8	−26	+18	−11	+16	−1	+132	−35
20	153	−6	−33	+5	−19	+34	+2	+36	−24	+93	−31
21	140	0	−43	−3	−15	+9	+15	+16	−16	+92	−3
22	126	−1	−34	−19	−1	+14	+53	+10	−9	+80	−9
23	112	−18	−34	−10	+16	+31	+24	+6	+5	+54	−2
24	99	+5	−38	−21	−13	+31	−2	+5	+1	+44	+3
25	87	−27	−19	−26	−5	+25	−6	+2	+4	+32	+5
26	76	−8	−18	−21	+12	+27	−12	+21	−3	+19	−7
27	68	−20	−15	−16	−6	+18	−2	+6	0	+31	+2
28	63	0	−13	−12	−8	+11	+2	+15	0	+12	+1
29	60	−6	−26	−8	−9	+5	−5	+6	+3	+4	+7
30	59	−13	−19	−11	+1	+5	+7	−17	+1	−4	0
31	58	+2	−4	−13	0	+11	+9	0	−11	+8	+5
32	59	−3	+1	−7	+1	+4	+16	+4	0	+18	+2
33	61	−4	−13	−9	+5	−1	+6	−2	−12	+5	+12
34	63	−4	−19	−5	+3	−10	+5	−4	−6	+8	0
35	63	−21	+5	−7	−3	+8	+24	−2	+12	0	0
36	65	−15	−3	−18	+6	+14	+6	+4	+5	−7	+12
37	68	−8	−24	−16	−7	−6	0	−14	−4	+5	0
38	70	−5	−18	−20	+3	−6	−1	+3	+2	+9	−11
39	73	−2	−13	−12	−2	+7	−2	0	−7	+4	+4
40	82	−23	−24	−7	+2	+13	−15	−3	−5	+31	+18
41	90	−16	−29	−11	−5	+27	+9	+2	−10	+8	+5
42	98	−9	−22	−17	+10	+20	+14	+14	−16	+33	+26
43	111	−18	−16	−26	−4	+9	+36	−2	−15	−11	+45
44	121	−34	−22	−18	−10	+27	+46	+1	−26	−33	+1
45	129	−34	−40	+21	+13	+37	+29	−5	−7	−12	−6
46	136	−26	−17	−2	+2	+22	+30	+9	−10	−3	−29
47	144	−28	−39	+16	−13	+17	+9	+1	−36	−1	−27
48	147	+4	−38	−1	−10	+13	+24	+16	−13	+4	−41
49	151	−26	−43	+7	0	+48	−7	0	−25	+15	+2
50	160	−11	−40	+24	−3	+63	−4	0	−34	+57	+5
51	176	−32	−31	+21	−24	+32	−21	+4	−38	+136	+7
52	195	−7	−41	+6	−20	−3	+1	+5	−23	+227	−27

[1] Excess over or deviation from the median death rate for the corresponding week for the period 1921–1927. The series of 52 medians representing "normal" or "expected" rates for the different weeks of the year were smoothed by a 5-period moving average before deviations were computed. The smoothed medians are the values in the first column of the table.

[2] Number of cities: 1920–1922, 7; 1923, 9; 1924–1929, 10.

TABLE 10.—*Excess* [1] *weekly death rates (annual basis) per 100,000 from influenza and pneumonia, 1920–1929*

ABOUT 21 CITIES [2] IN THE SOUTH ATLANTIC STATES

Week of year	Median 1921–1927 (smoothed)[1]	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929
1	262	−36	−3	−17	+127	−53	+19	+42	−11	−10	+403
2	270	+12	−75	−53	+213	+30	+71	+29	−53	+19	+584
3	279	+100	−84	−55	+114	−9	+19	+47	+24	−22	+459
4	287	+503	−52	−57	+216	−13	+4	+33	−44	−66	+283
5	289	+750	−110	−24	+249	−29	+75	+123	−35	−68	+76
6	300	+1,256	0	−59	+262	0	+25	+170	−105	−46	+25
7	313	+1,270	−52	−53	+221	+19	−6	+310	−43	−62	−24
8	336	+691	−84	+6	+158	+31	+18	+215	−37	−80	−18
9	344	+275	−78	−4	+157	+19	−23	+43	−62	−95	−33
10	350	+58	−54	+50	+157	+40	−71	+28	0	−111	−70
11	332	−26	−55	−16	+63	+9	+11	+68	+1	−99	−94
12	316	−22	−103	+41	+43	+23	−52	+96	−38	−37	−107
13	290	−76	−146	+67	−5	−45	−28	+57	−29	−39	−109
14	268	−45	−105	−18	0	−8	−4	+25	−68	−70	−107
15	242	−53	−82	+5	+56	−7	+2	+8	−15	−24	−60
16	225	−36	−90	−122	+49	+27	+9	+10	−23	−28	−58
17	203	−52	−91	−91	+37	+49	+18	+2	−18	−1	−63
18	185	−32	−38	−49	+22	+22	−5	+3	−54	+20	−65
19	163	−39	−42	−58	+34	+40	−17	+36	−14	−65	−37
20	147	−35	−32	−37	+54	+38	−7	+12	+9	+15	−20
21	135	+33	−11	−30	+3	+7	+34	−13	−36	−5	−35
22	122	+4	−23	−55	+27	+10	+30	−34	+5	+25	−4
23	110	+19	+7	−17	+43	+30	+16	−8	−36	+29	−36
24	102	−17	−17	−48	+2	+4	−19	+13	−32	−15	−12
25	90	−12	−26	−41	+9	+22	+8	+10	−42	+10	0
26	79	+1	−19	−17	+26	+31	+2	+17	−16	−2	−13
27	74	−1	−37	−16	+30	+11	−7	−3	−13	−13	−3
28	68	+2	−18	−6	−1	+15	−13	−8	+1	−12	−6
29	64	−6	0	−8	+7	+13	−5	−2	+13	−6	−4
30	63	+7	−10	+14	+21	+10	+2	−10	−17	+9	+1
31	64	+6	−4	−2	−1	+11	+15	+8	−5	−1	−15
32	64	−13	−4	−2	+20	−1	+14	−8	+12	+1	−21
33	63	−29	+15	0	+15	+2	+1	+25	−4	−8	−1
34	63	−29	−1	−20	+23	+20	+24	−3	−15	+6	+12
35	68	−36	−8	−27	+3	+5	−9	−4	−19	+8	−10
36	70	+13	+12	−2	+51	−3	−6	−29	−14	+9	−2
37	73	−7	+11	+2	+20	+4	+15	−13	+13	−1	−19
38	75	+3	−18	−32	+24	+2	+19	+13	+2	+15	−7
39	81	+6	−46	−13	+8	+10	+10	−6	−11	+3	−15
40	85	+24	−16	−15	+17	+23	−7	−19	−24	+15	−17
41	94	+6	+3	−4	−12	+10	+37	+2	+21	+1	+20
42	106	−36	−4	−9	+9	−2	+20	+15	−23	+9	−16
43	121	−31	−13	+1	0	+15	+19	+7	−20	0	−5
44	137	−33	−15	−24	+12	+46	+88	−2	−12	−33	−2
45	147	−16	−1	−20	−2	+11	+17	+9	−10	−66	−6
46	159	−25	−13	+22	+29	+18	+11	−8	+21	−21	−41
47	171	−18	−32	−15	+36	−43	−17	+9	−11	+2	−78
48	178	−44	−19	+41	+23	+5	+10	−52	−16	−12	−32
49	190	+16	−42	+18	+17	+12	+3	−2	−35	+28	−33
50	202	−68	−21	+40	−21	−5	+21	−50	−26	+130	+8
51	217	−11	−78	+77	+18	+53	+20	−31	−15	+142	−20
52	239	−33	−2	+68	−62	−20	+41	−36	−29	+356	−61

[1] Excess over or deviation from the median death rate for the corresponding week for the period 1921–1927. The series of 52 medians representing "normal" or "expected" rates for the different weeks of the year were smoothed by a 5-period moving average before deviations were computed. The smoothed medians are the values in the first column of the table.

[2] Number of cities: 1920–21, 16; 1922–23, 19; 1924–25, 22; 1926, 21; 1927, 20; 1928–Mar. 23, 1929, 21; remainder of 1929, 19.

TABLE 11.—*Excess*[1] *weekly death rates (annual basis) per 100,000 from influenza and pneumonia, 1920–1929*

ABOUT 16 CITIES[2] IN THE EAST NORTH CENTRAL STATES

Week of year	Median 1921–1927 (smoothed)[1]	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929
1	151	+47	−8	−55	+94	−11	+17	+37	+36	−1	+553
2	158	+69	−4	−50	+116	+6	+9	+6	+10	+13	+488
3	164	+388	−2	−32	+88	−6	−4	−17	−1	−10	+264
4	166	+1,166	+15	−21	+97	−18	−9	−18	−13	−33	+88
5	171	+1,697	+13	−1	+161	+7	+6	−14	−40	−29	+47
6	178	+1,255	−15	+21	+222	−4	+7	−6	−28	−54	−18
7	191	+589	−40	+1	+221	+8	+11	0	−52	−42	+31
8	211	+307	−61	+68	+250	−30	−16	−18	−48	−41	−8
9	230	+97	−68	+46	+194	−46	−8	−10	−73	−65	+19
10	236	+54	−93	+84	+108	−58	+38	+85	−61	−64	−46
11	237	+35	−112	+39	+37	−42	+34	+183	−77	−31	−59
12	237	−6	−101	−9	−13	−59	+17	+218	−80	+9	−76
13	224	−32	−109	−78	−15	−27	−4	+207	−62	+7	−76
14	206	+7	−92	−32	+21	+21	+11	+129	−65	+75	−54
15	194	−13	−103	−50	+44	+16	+20	+105	−41	+95	−53
16	182	+24	−60	−40	+31	0	+62	+51	−36	+38	−49
17	162	−3	−76	0	+38	−27	+9	+36	−24	+88	−57
18	144	+11	−47	−36	+62	+9	−4	+63	−15	+103	−14
19	129	+13	−35	−38	+36	−11	+7	+36	−21	+146	−21
20	117	+64	−21	−26	+30	−10	+20	+34	−1	+141	+5
21	109	+22	−26	−9	+42	0	+24	+8	−20	+99	+17
22	101	+8	−41	−24	+33	+3	+23	+5	−18	+50	+9
23	91	+13	−46	−34	+30	−2	+5	+6	+6	+41	+11
24	83	−12	−31	−23	+14	−2	+5	−6	+8	+42	+7
25	72	−20	−27	−30	−7	+25	−24	−8	+4	−6	+12
26	62	−12	−30	+8	+28	+7	−12	+4	+21	+6	+11
27	55	−9	−20	−12	+23	−8	+6	+17	−3	+15	+2
28	51	−16	−11	−11	+2	−9	−1	−1	−5	+7	+2
29	45	−3	0	−12	+11	−5	−4	+5	+12	+17	−2
30	43	−4	−10	−7	+9	0	+9	+6	0	−8	−1
31	41	+4	−6	−5	+15	−4	0	+2	+3	−7	+10
32	40	−8	−12	−3	+12	−1	+14	−5	+3	−6	+4
33	40	−10	−5	−1	+23	−3	+4	−3	−3	+6	−3
34	42	+5	−4	−15	−4	−5	+16	−1	−5	+2	+9
35	43	−5	−15	−4	+12	0	+24	−5	+13	+10	+10
36	45	−10	+8	−7	+14	−6	+11	−4	+18	+17	+5
37	49	−1	−13	+1	−4	−8	+2	−6	+6	+20	0
38	52	−8	−4	−5	+18	−2	−5	−4	−7	+11	−3
39	54	−3	−3	−6	+19	+9	0	+10	−8	0	+4
40	59	−13	−8	−1	+13	+14	+9	−3	0	+22	+7
41	67	−14	−8	+7	+7	−2	+35	−2	−15	+7	+6
42	74	−33	−9	−2	+2	−5	+18	−9	−3	+20	+16
43	82	−11	−9	+14	−8	−21	+44	+18	+5	+2	+19
44	88	−24	−4	+3	+1	−15	+49	+2	+14	+1	+22
45	95	−10	−15	+4	+12	−11	+52	0	−1	−9	−9
46	100	−6	−17	−5	−2	−11	+52	+16	−2	−8	−20
47	104	+12	−22	+5	+18	−9	+1	+4	−10	+5	−2
48	112	−4	−28	+10	+3	−8	+44	−16	0	+22	−19
49	116	+3	−12	−4	−6	+8	+17	+1	−10	+37	+19
50	124	−5	−12	+19	−13	+14	+33	+7	−16	+91	+6
51	135	−16	−61	+35	−21	+20	−21	−14	−17	+244	−4
52	145	−21	−31	+35	−27	−3	+5	+4	0	+446	−16

[1] Excess over or deviation from the median death rate for the corresponding week for the period 1921–1927. The series of 52 medians representing "normal" or "expected" rates for the different weeks of the year were smoothed by a 5-period moving average before deviations were computed. The smoothed medians are the values in the first column of the table.

[2] Number of cities: 1920, 13; 1921, 14; 1922-23, 15; 1924, 17; 1925–1929, 16.

TABLE 12.—*Excess* [1] *weekly death rates (annual basis) per 100,000 from influenza and pneumonia, 1920–1929*

ABOUT 6 CITIES [2] IN THE EAST SOUTH CENTRAL STATES

Week of year	Median 1921–1927 (smoothed) [1]	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929
1	259	+52	−104	−98	+61	−42	+79	+156	−9	+65	+957
2	267	+12	−43	+54	+240	+13	−32	+106	−32	+36	+1,504
3	290	+15	−147	+19	+269	−95	+93	−5	−30	+66	+1,007
4	308	+111	−184	−118	+286	−5	+69	−27	−73	−36	+701
5	330	+318	−121	−68	+287	+65	+65	+23	−75	−131	+164
6	361	+788	−152	−22	+58	+73	+22	−76	−213	−84	+2
7	379	+1,221	−123	−40	+256	+27	+15	+78	−170	−138	−36
8	391	+1,279	−143	+67	+116	+50	+27	+45	−233	−140	−139
9	397	+784	−141	+55	+75	−26	−25	+173	−117	−23	+62
10	389	+424	−157	−62	+25	+46	+68	+197	−135	−22	−61
11	365	+149	−171	−8	+2	+40	+41	+258	−95	+39	−72
12	360	+65	−190	−51	+71	+86	−5	+371	−80	−31	−103
13	334	−10	−179	−114	+120	−19	+4	+123	−105	+32	−75
14	334	−29	−187	−126	+15	+89	+83	+336	−54	+136	−119
15	312	−58	−173	−110	+102	+25	−26	+67	−93	−102	−119
16	291	−81	−175	−142	+105	+98	+81	+72	−82	+12	−121
17	259	−81	−112	−140	+90	+27	−14	+73	−96	+22	−133
18	231	−123	−99	−88	+54	+38	−20	+91	−47	+67	−31
19	198	+24	−51	−31	+47	−9	+48	+15	−45	+68	−13
20	181	−54	−49	−38	+17	−32	+42	+26	−33	+122	−62
21	163	−61	−55	−56	−23	+37	+49	+34	−77	+156	−15
22	148	−40	−78	−53	+85	+87	+32	+13	−92	+82	−37
23	142	−21	−41	−23	+9	−28	−62	+19	−20	+67	−61
24	122	−33	−6	+9	−17	+9	+15	−7	−46	+26	−11
25	110	−59	+2	+9	+12	−24	+27	+20	−29	−27	+23
26	101	−18	−57	−30	+27	−4	+7	+20	−4	+46	−12
27	91	−21	−47	−26	+31	−5	+17	+44	+6	−2	−2
28	80	−48	−55	−3	+19	−12	−6	+50	−9	+3	−43
29	76	−32	−14	+37	−18	−7	−7	+28	−15	−24	−24
30	69	−18	−19	−21	−5	+17	+5	−2	−13	+52	−17
31	69	+1	+6	+2	+7	+6	+6	−17	−13	+12	+42
32	68	+40	−49	−8	+37	−11	+1	−6	+3	+52	−9
33	69	+7	+12	−45	+7	−12	+22	−33	+7	+46	+42
34	73	−16	−11	−49	−3	−44	+2	−26	+8	+11	−36
35	77	−37	−27	−23	+28	−2	+66	−9	−26	+33	−25
36	77	−45	−21	+6	+22	+20	+83	−35	+45	+17	+4
37	85	+10	−10	−20	−3	+1	+7	−28	+17	−32	+11
38	89	−33	−27	−12	+74	−38	−43	+9	+3	−32	−15
39	87	−8	−19	+8	+12	+10	+39	+32	+25	+38	+31
40	98	−42	−30	−27	+7	+34	+22	−10	−6	+12	−68
41	112	−25	−50	−17	−19	−26	+8	−44	−56	+3	−31
42	125	+42	+30	−18	+50	−10	+13	−16	+27	−22	−7
43	145	−69	+4	−8	+65	−71	−2	0	+8	−9	+10
44	165	−32	+15	+55	−2	−39	+41	−45	−38	−13	+20
45	172	−32	−17	+48	+55	−29	+34	+20	−19	0	−46
46	186	+5	−12	−13	0	+100	+100	+16	−18	−8	+66
47	196	−25	−47	−47	+43	+21	+27	−50	−23	−44	+86
48	199	−53	−112	+21	+17	+76	−10	−22	+46	−16	+38
49	210	−32	−30	−49	+29	+29	+41	+5	−6	+130	+86
50	223	+18	−86	−56	+51	+17	+68	−88	−19	+81	+51
51	230	−46	−6	+14	+32	+90	−42	−85	+20	+58	+37
52	243	−72	−63	−5	−74	+14	+47	−25	−4	+196	−20

[1] Excess over or deviation from the median death rate for the corresponding week for the period 1921–1927. The series of 52 medians representing "normal" or "expected" rates for the different weeks of the year were smoothed by a 5-period moving average before deviations were computed. The smoothed medians are the values in the first column of the table.

[2] Number of cities: 1920–1923, 6; 1924–1927, 7; 1928–Mar. 23, 1929, 6; remainder of 1929, 5.

TABLE 13.—*Excess*[1] *weekly death rates (annual basis) per 100,000 from influenza and pneumonia, 1920–1929*

ABOUT 10 CITIES[2] IN THE WEST NORTH CENTRAL STATES

Week of year	Median 1921–1927 (smoothed)[1]	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929
1	144	+8	+72	+44	+64	−15	−41	+4	−13	−16	+308
2	155	+62	+47	+30	+105	+1	−46	−11	−20	−29	+321
3	160	+414	+24	+73	+76	+22	−20	−69	−40	−5	+209
4	159	+968	+33	+95	+74	+7	−26	−38	−28	−51	+119
5	158	+1,680	−27	+159	+123	−7	−4	−12	−11	−99	+100
6	162	+1,723	+1	+148	+187	−48	−20	−81	−51	−52	+62
7	161	+800	+80	+142	+253	−34	−8	−17	−47	−61	+73
8	170	+415	+39	+279	+388	−52	+33	−41	−69	−97	+80
9	184	+109	−28	+279	+415	−73	−9	−83	−63	−68	+92
10	193	+56	+2	+228	+307	−55	+15	−12	−97	−84	+11
11	187	+113	+29	+262	+217	−51	+28	−12	−52	−32	+47
12	197	+9	−45	+75	+56	−72	+15	0	−80	−63	+47
13	191	+4	−21	−20	+59	−24	+41	+6	−94	−40	−23
14	179	−16	+9	+30	+30	−20	+86	+36	−25	−41	−5
15	164	+13	−4	0	+35	+16	+57	−10	−23	+35	−44
16	154	+37	−2	−1	+65	−5	+30	+13	−8	+42	−28
17	132	+27	−8	+49	+101	−16	−29	−9	−64	−11	−9
18	120	+68	−3	+82	+55	+3	−32	+14	−43	+61	+24
19	109	+43	−3	+13	+21	−10	−40	−22	−34	+54	−1
20	97	+84	+6	+35	+19	+2	0	+5	−31	+9	−22
21	86	+62	−15	+32	+34	+4	−9	+10	+13	+10	+52
22	76	+32	−12	+42	+37	+14	−15	−18	−12	−3	+47
23	67	+56	+4	+27	+1	−15	+1	−5	−13	+11	+17
24	57	+48	−25	−15	−6	+35	−17	+22	−7	+33	+6
25	55	+17	+16	+4	0	+21	−1	−5	+7	−12	−1
26	51	−29	−5	+5	+17	−27	+9	−5	+28	+4	−3
27	49	+2	−17	+21	+6	−16	−10	+4	+5	−4	+14
28	44	−11	−5	+26	+4	+4	+11	−8	−11	−14	+7
29	44	−15	−5	−16	+7	−5	+2	−2	−21	−16	−5
30	42	−2	−10	−4	−15	−12	0	+15	−25	−20	+12
31	41	+10	−16	+39	+3	−6	+12	+10	+5	+4	−15
32	43	+18	+14	+2	+25	−23	+1	−16	+7	+14	+8
33	45	+16	+5	−3	+20	−8	−14	+6	−20	−14	−9
34	44	+3	−9	+12	+14	−16	+11	+6	−11	−9	+4
35	46	+30	+21	+6	+12	−7	−11	−6	−19	−13	−13
36	50	−3	+28	+16	−6	−30	−13	−20	−6	−26	+7
37	50	+15	+39	+16	+12	0	+3	+5	0	+3	+1
38	52	−27	+40	+7	+10	−2	−20	+11	−25	−9	−7
39	57	−10	−4	+2	+11	−16	−13	+13	−16	−14	+27
40	61	−25	−18	+26	+1	−24	−11	+8	−15	+30	+53
41	69	−26	+37	+35	+13	−14	−1	−5	−7	−24	−12
42	77	−5	+12	+7	+26	−23	−7	−26	−1	−18	+1
43	86	−7	+10	+22	+10	−42	+24	−21	−11	−37	−11
44	94	+14	+66	+24	+12	−33	+1	−4	−22	−19	+47
45	97	+4	+27	+4	+78	−34	−1	−8	−20	−30	+14
46	94	−15	+51	+10	+57	−24	+11	+32	−3	−15	+29
47	96	+30	+7	+12	+68	−17	−11	−20	−3	−21	+12
48	105	+83	+26	+55	+70	−24	−43	−27	−30	−7	+42
49	106	+13	−14	+58	+58	−39	−14	+27	0	+63	+46
50	112	+29	+40	+69	+73	−20	+28	+23	−15	+216	+79
51	126	−18	+2	+121	+25	−49	−18	−24	−18	+316	+69
52	136	+113	−12	+150	+42	−37	−4	−10	−20	+275	+53

[1] Excess over or deviation from the median death rate for the corresponding week for the period 1921–1927. The series of 52 medians representing "normal" or "expected" rates for the different weeks of the year were smoothed by a 5-period moving average before deviations were computed. The smoothed medians are the values in the first column of the table.

[2] Number of cities: 1920–1923, 8; 1924–1926, 11; 1927–Mar. 23, 1929, 10; remainder of 1929, 9.

TABLE 14.—*Excess*[1] *weekly death rates (annual basis) per 100,000 from influenza and pneumonia, 1920–1929*

ABOUT 7 CITIES[2] IN THE WEST SOUTH CENTRAL STATES

Week of year	Median 1921–1927 (smoothed)[1]	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929
1	210	+70	+5	−20	−76	−52	+91	+172	+74	+110	+1,038
2	237	+52	−31	−60	−39	+12	+299	+197	−13	+116	+758
3	265	+103	−50	−68	+3	−15	+189	+141	−20	+109	+466
4	283	+365	−223	−100	+17	+54	+28	+312	−8	+62	+232
5	310	+750	−164	−174	+27	+67	+139	+257	−94	−56	+63
6	340	+1,017	−134	−68	+8	−34	+246	+515	−155	−82	−35
7	352	+848	−120	−141	−41	+5	+209	+499	−106	−17	+25
8	357	+440	−168	−133	+45	+46	+51	+248	−167	−12	+41
9	362	+347	−190	−2	+125	−6	+10	+157	−138	+4	−58
10	350	+368	−84	+166	+52	+27	−65	+9	−144	−22	+7
11	314	+299	−202	+53	+18	+38	−60	+121	−102	+64	+31
12	285	+65	−216	+156	+52	+41	−81	+13	−143	+88	−127
13	255	+104	−152	−11	−35	+107	−51	+52	−66	+73	−88
14	225	−129	−70	−82	+70	+147	−11	+16	−31	+67	−34
15	200	−16	−97	−51	+9	+34	+9	+51	−79	+65	−75
16	184	−44	−89	−62	+20	+55	−1	+19	−75	+58	−50
17	168	−37	−73	−100	+9	+25	−10	+21	+4	+58	−30
18	149	−140	+32	−27	−42	−7	+4	+16	−24	−34	−48
19	133	−54	+30	−65	−42	−6	−1	+32	+14	+68	+2
20	120	−15	+9	−52	−40	+33	−12	−6	+9	+19	−2
21	112	−42	−17	−17	−53	+31	−5	+6	+4	+65	−15
22	105	−61	+15	+17	+2	−29	−34	+8	−6	+47	−24
23	99	−90	−99	−51	−24	−3	+8	+14	+30	+41	+10
24	92	−57	−58	+3	−49	+46	+10	+3	+20	−2	−15
25	87	+18	−61	−19	+1	+50	−1	+13	−40	+3	+14
26	82	+23	−22	−28	−12	−21	−11	−11	−5	0	−9
27	76	−23	+19	−35	+10	+6	−5	−14	+10	+6	+42
28	79	−9	−36	−18	−9	+3	+7	+15	−1	+16	+10
29	80	−54	−11	−46	−16	+32	−14	−14	−15	−23	+9
30	77	−24	−43	−9	+30	+25	+34	+23	+18	−8	+16
31	80	−36	−28	−19	+27	−24	−4	+29	−7	+18	+9
32	84	−23	−24	−57	−30	−8	+3	+43	−15	+52	+50
33	78	−52	+8	+17	−14	−17	+14	+21	+21	+8	+15
34	79	−18	−19	+84	+7	−23	+48	+2	+8	+23	−2
35	80	−36	+15	−12	−48	−14	+1	−19	+15	−10	+25
36	77	−33	−34	+11	−13	−36	+15	+46	+1	−12	−45
37	76	+12	+1	−22	−12	−25	+16	+71	+1	+2	−7
38	78	−52	+25	−30	−3	+3	−27	+45	0	−62	−13
39	86	−77	−43	−32	−6	−15	0	+23	+31	+41	+23
40	88	−53	−45	+14	−24	−27	−7	+20	−10	+18	+46
41	94	+29	+26	+28	−8	+69	−28	+24	−12	+13	+40
42	102	−14	+18	−34	−32	−15	+35	−31	−3	−7	+7
43	116	−11	−39	+20	−9	−29	+63	−12	+91	−22	+7
44	127	+22	−23	−12	+7	−5	+51	+34	−11	+17	+11
45	139	−43	−21	−24	+38	−22	+14	+45	+7	−12	+3
46	148	+1	−2	−87	−36	+61	+25	+41	+28	−45	+10
47	162	−31	−86	−67	+25	−45	+32	+84	−16	−2	−12
48	176	−10	−51	−40	+1	−44	+28	+28	−25	+17	+43
49	174	+1	−77	+111	+8	+20	+91	+20	−24	+55	+123
50	184	+35	−59	−1	−2	+30	+48	+43	+66	+91	+136
51	197	+13	−37	−41	−31	+7	+37	−88	+109	+262	+115
52	203	+51	−50	−6	−53	+41	+152	−38	+189	+572	+137

[1] Excess over or deviation from the median death rate for the corresponding week for the period 1921–1927. The series of 52 medians representing "normal" or "expected" rates for the different weeks of the year were smoothed by a 5-period moving average before deviations were computed. The smoothed medians are the values in the first column of the table.

[2] Number of cities: 1920, 3; 1921–22, 4; 1923, 5; 1924–1926, 6; 1927–1929, 7.

TABLE 15.—*Excess*[1] *weekly death rates (annual basis) per 100,000 from influenza and pneumonia, 1920–1929*

ABOUT 9 CITIES[2] IN THE MOUNTAIN STATES

Week of year	Median, 1921–1927 (smoothed)[1]	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929
1	281	+52	+88	+92	+28	+5	−33	−108	+151	−33	+111
2	276	+110	+114	−58	+33	+39	+1	+116	+21	−46	+89
3	281	+159	+151	−84	+48	+5	+53	+10	−11	−24	+76
4	286	+455	−128	−27	+13	−85	+67	−49	−43	−29	−59
5	281	+2,381	−28	+40	+18	−81	−33	+56	−92	−25	−98
6	280	+2,650	+5	+72	+118	−32	+54	+175	−64	−77	−20
7	288	+1,247	+7	−8	+70	−2	−12	−6	−72	−49	+34
8	289	+677	−78	+105	+159	−12	−3	+221	−100	−6	+15
9	271	+212	+14	+185	+78	−71	−90	+75	−91	+82	+60
10	263	+91	−42	+473	+155	−91	−5	+183	−38	+77	−19
11	261	+104	−18	+371	+68	+45	−41	−15	−81	+22	+27
12	252	+81	−73	+194	+97	−42	−14	+3	−54	+49	−9
13	250	+61	−29	+185	+29	+122	+93	−68	−61	−91	−67
14	233	+35	−12	−46	+6	+149	+120	−50	+46	−56	−67
15	220	−16	−72	+70	+59	+104	+28	−19	−49	+19	−90
16	192	+44	−23	−47	−53	+85	+103	−37	−30	−33	−61
17	178	+101	−62	−54	+41	+89	−6	−51	+20	−28	−39
18	151	+117	−14	−47	+28	+107	−8	−51	−43	+43	+31
19	139	+22	+30	+27	+90	+100	+80	−30	−76	+21	−26
20	129	+64	−13	−25	−10	+5	+62	−47	−57	−5	+1
21	125	+57	+33	+41	−25	−10	−49	−25	−80	+52	+23
22	115	+57	−20	+30	−25	+57	+9	+49	−43	+35	+15
23	108	+42	+29	+58	+2	+26	+7	−17	−9	−20	−12
24	106	+44	−32	−2	+13	+37	+37	−6	+56	−44	+7
25	94	−40	−10	−1	−24	−8	−27	+15	−13	+3	−16
26	88	−24	−56	+26	+2	+27	−21	−33	+11	−7	+60
27	78	+29	−36	−16	−38	−2	−2	−42	+21	−7	−17
28	74	+23	+10	+9	+16	+21	+12	−29	+141	+6	−4
29	65	−1	−33	+8	+5	−27	+2	+8	−11	+24	+31
30	66	+31	−24	+7	+24	+1	+10	−11	−30	+23	+4
31	62	+2	−20	−21	−22	−24	−33	+11	+1	0	+8
32	58	+39	+5	−17	+22	+18	+9	+24	+5	+23	+3
33	60	+4	+24	−19	0	+7	+17	+22	−24	+2	−8
34	65	+10	−44	−24	−15	+30	+21	+26	−20	−21	−4
35	71	+4	+3	+12	−31	+53	+34	+2	+1	0	−18
36	71	+4	−8	−40	−21	+34	−4	+29	+28	−27	−19
37	83	+3	−20	−31	−53	+12	+54	+35	+25	−39	−4
38	89	+18	+6	−37	−19	−13	−1	−25	−35	−18	+24
39	100	+40	−5	−38	−10	+15	+43	+73	+8	−65	−13
40	112	−5	+4	−60	−52	+3	−7	−39	+5	−32	+10
41	129	−32	−34	−15	−59	+24	−5	+16	−3	−5	+19
42	134	−27	+3	+1	−74	+76	+19	+20	+28	−10	+5
43	145	−16	−40	0	+54	+8	−57	+46	+26	+23	−6
44	150	+11	−55	+16	−1	−93	−35	+32	−15	−35	+7
45	156	−102	+2	+51	−46	−80	+25	+26	+6	−32	−25
46	157	+25	+43	+113	−8	−52	+91	−39	−22	+11	+26
47	175	+72	−27	+84	+104	+6	−3	+7	−58	+21	−59
48	171	+11	−13	+36	−52	−28	+10	+84	−90	+341	+3
49	195	+127	+58	+147	−36	+44	+5	−50	+30	+654	−25
50	205	+10	−78	+158	−76	+24	−81	+77	−61	+1,157	−9
51	235	+173	+18	+117	+34	+89	+4	−44	+35	+756	+26
52	252	+295	−83	−76	−73	−23	+39	−6	+18	+376	−17

[1] Excess over or deviation from the median death rate for the corresponding week for the period 1921–1927. The series of 52 medians representing "normal" or "expected" rates for the different weeks of the year were smoothed by a 5-period moving average before deviations were computed. The smoothed medians are the values in the first column of the table.

[2] Number of cities: 1920–1922, 7; 1923, 8; 1924–1929, 9.

TABLE 16.—*Excess* [1] *weekly death rates (annual basis) per 100,000 from influenza and pneumonia, 1920–1929*

ABOUT 4 CITIES [2] IN THE PACIFIC STATES

Week of year	Median 1921–1927 (smoothed) [1]	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929
1	169	−21	−91	−38	−63	+40	+35	+108	+51	+31	+113
2	173	−20	−60	−21	−34	+31	+2	+40	+11	+6	+40
3	169	+100	−91	−72	−22	+19	+51	+55	−4	−10	+35
4	163	+191	−54	−15	−40	+13	+74	+89	−42	+2	+11
5	170	+449	−66	−9	−15	−36	+67	+82	−42	−8	−9
6	172	+810	−59	+27	+81	−21	+24	+1	−37	+30	+5
7	173	+626	−38	+131	+35	−26	+52	+97	+20	+26	−2
8	173	+442	−69	+529	+89	−18	+19	+4	−25	−38	0
9	164	+253	−38	+453	+110	−13	+4	−15	−26	+15	+23
10	151	+78	−12	+318	+98	−4	+20	−38	+4	−9	+16
11	149	+44	−49	+219	+80	−22	−6	−32	−42	−14	+8
12	146	+11	−59	+108	+38	+1	+66	−15	−8	−38	+57
13	140	+4	−36	+25	+40	+27	+48	−62	+12	−16	+33
14	139	−4	+13	−25	+16	−21	−8	+24	−5	−27	+12
15	128	−20	−54	−1	−18	+56	−1	+10	+3	−26	−7
16	121	−58	+14	+2	−35	+1	+38	−46	−14	−26	+49
17	113	−28	−48	−20	−39	+10	+26	−27	+25	+29	+25
18	102	−17	−45	+25	+66	+46	+37	−20	−2	−21	−11
19	96	−42	−44	−20	+43	+39	−6	0	+25	+19	+15
20	93	−17	−32	−30	−19	−7	+67	−36	+28	+22	−21
21	81	−18	−11	+16	+58	−8	+9	−6	+22	+17	+11
22	75	+33	−10	+1	−1	+35	+68	−4	+25	+3	+7
23	73	+12	−21	−14	+1	+25	−20	−6	+17	+15	+15
24	69	−33	−34	−10	+13	−4	0	+10	+31	+26	0
25	67	−13	−50	−4	+31	+15	−10	−24	+74	+20	+48
26	64	−6	−34	+4	+34	+14	+22	−17	+8	+44	−22
27	64	−42	−20	−1	+26	+10	+10	−7	−6	+14	−31
28	65	−25	−8	−10	+13	−24	−16	−15	+39	−1	−9
29	63	−23	−11	−8	+23	+27	+2	−24	+12	+21	+6
30	62	−17	−14	+6	+20	−5	+7	+13	+20	−52	−36
31	65	−16	−4	−27	−4	+8	+13	+3	0	+23	−13
32	62	−31	−49	+39	+3	−9	+28	−23	−4	−5	−19
33	63	−14	+2	+5	−30	+10	−2	+22	+9	+8	+15
34	62	−35	−18	−11	−17	−9	+7	−41	+7	−8	−10
35	64	−19	+10	−9	+18	+5	+42	+14	−9	−20	−34
36	63	−9	−19	+9	−10	+6	+43	−6	−4	+22	−27
37	63	−18	−37	+9	+2	+27	+6	−3	+33	+1	−20
38	61	+2	−13	−27	−12	0	0	+24	+8	+30	+8
39	64	−33	−20	−22	+14	+22	+34	−29	−12	+24	−22
40	70	+11	−5	−28	+28	+36	−13	−17	+2	−16	−11
41	73	−24	−60	−18	−12	+1	+21	+20	+13	−2	−7
42	79	−57	−22	−18	+35	+35	+4	+20	+35	+46	+13
43	89	−22	−50	+8	−20	−16	−32	+7	+18	+63	−40
44	91	−37	−61	−6	−13	+7	+19	−34	+16	+24	−55
45	92	−38	−35	+22	+6	+35	+26	+21	+8	+74	−1
46	99	−18	−16	−14	−9	+27	+11	−20	−20	+63	0
47	107	−53	+6	−1	+7	−21	−1	+17	−17	+157	−41
48	111	−3	+11	−43	−21	−9	−5	+53	+6	+369	+10
49	120	−75	+11	−6	+23	+56	−37	+5	−7	+468	+37
50	133	−75	−11	−23	+39	+6	−12	−2	+15	+423	−2
51	153	−41	−22	−35	−2	−50	−47	0	+36	+229	+21
52	163	−51	+11	−45	+9	−4	+11	+36	+3	+188	−35

[1] Excess over or deviation from the median death rate for the corresponding week for the period 1921–1927. The series of 52 medians representing "normal" or "expected" rates for the different weeks of the year were smoothed by a 5-period moving average before deviations were computed. The smoothed medians are the values in the first column of the table.

[2] Number of cities: 1920–1925, 3; 1926–1929, 4.

COURT DECISION RELATING TO PUBLIC HEALTH

Liability of city for act of health officer.—(Ohio Supreme Court; City of Salem *v.* Harding, 169 N. E. 457; decided October 23, 1929.) The city of Salem owned its public water system, the water being pumped from deep wells and conducted to a central reservoir. The water from one group of wells was conducted to the reservoir by means of a gravity line constructed of vitrified pipe with cemented joints. Not many feet from this gravity line and running parallel thereto was a sewer constructed of clay pipe without cemented joints. Property owners had been ordered to disconnect from this sewer, but such orders were apparently not complied with by everyone. Thereupon the city health officer, in conjunction with an employee of the service department of the city, plugged the outlet of the sewer. It was claimed that this caused the sewage to back up until the pressure was such that the sewage filtered through the intervening soil into the gravity water supply line.

The plaintiff in the trial court brought action against the city to recover damages because of typhoid fever contracted by his daughter as a result of the impure water supply, his action being grounded upon a claim that the city had been negligent. A verdict in favor of the city was rendered in the trial court, but on appeal to the court of appeals the judgment was reversed on the sole ground that the trial court had erroneously charged the jury as follows: That, even though the jury should find that the gravity line was contaminated by the plugging of the sewer, thereby forcing pollution into said gravity line, the verdict must nevertheless be for the defendant if the plugging was done by and under the instructions of the board of health or health officers of the city, and also that no action could be maintained or recovery had against the city based upon any acts of negligence either of commission or omission of its board of health or health officers.

The city appealed and the supreme court affirmed the judgment of the court of appeals. After citing another case to the effect that, while the construction and institution of a sewer system was a governmental matter, the operation and upkeep of sewers was a proprietary function, the supreme court said: "Still adhering to the proposition that the construction and institution of a sewer system is a governmental function, we are nevertheless of the opinion that the city is liable for any obstruction thereto, which is known to the city, if the city through its proper officers knew or in the exercise of ordinary care should have known that the obstruction would have an injurious effect upon life or property. The city being responsible for its negligence upon the foregoing principles and authorities, it may not escape that responsibility on the sole ground that it was acting in the exercise of its police power."

Another point determined was that the city was not a guarantor of the purity and wholesomeness of its water supply.

DEATHS DURING WEEK ENDED FEBRUARY 8, 1930

Summary of information received by telegraph from industrial insurance companies for the week ended February 8, 1930, and corresponding week of 1929. (From the Weekly Health Index, February 13, 1930, issued by the Bureau of the Census, Department of Commerce)

	Week ended Feb. 8, 1930	Corresponding week, 1929
Policies in force	73, 879, 260	73, 169, 143
Number of death claims	14, 874	19, 514
Death claims per 1,000 policies in force, annual rate	10. 5	13. 9

Deaths from all causes in certain large cities of the United States during the week ended February 8, 1930, infant mortality, annual death rate, and comparison with corresponding week of 1929. (From the Weekly Health Index, February 13, 1930, issued by the Bureau of the Census, Department of Commerce)

City	Week ended Feb. 8, 1930		Annual death rate per 1,000, corresponding week, 1929	Deaths under 1 year		Infant mortality rate, week ended Feb. 8, 1930 [2]
	Total deaths	Death rate [1]		Week ended Feb. 8, 1930	Corresponding week, 1929	
Total (63 cities)	8, 075	14. 3	15. 8	740	899	[3] 67
Akron	49			12	6	110
Albany [4]	48	20. 8	26. 0	4	6	87
Atlanta	94	19. 2	23. 7	9	10	95
White	59			5	5	159
Colored	35	(5)	(5)	4	5	63
Baltimore [4]	259	16. 3	19. 2	16	28	54
White	199			11	14	47
Colored	60	(5)	(5)	5	14	81
Birmingham	85	19. 9	15. 5	10	10	93
White	46			5	6	77
Colored	39	(5)	(5)	5	4	118
Boston	232	15. 1	22. 2	24	28	68
Bridgeport	53			4	7	68
Buffalo	161	15. 1	18. 1	12	17	53
Cambridge	25	10. 4	15. 3	3	1	56
Camden	39	15. 0	11. 6	2	3	36
Canton	18	8. 0	8. 9	1	4	25
Chicago [4]	788	13. 0	12. 6	69	65	61
Cincinnati	177			16	15	95
Cleveland	227	11. 7	11. 6	23	30	69
Columbus	84	14. 6	14. 8	10	14	98
Dallas	74	17. 7	13. 6	8	8	
White	55			7	5	
Colored	19	(5)	(5)	1	3	
Dayton	45	12. 7	13. 6	3	3	44
Denver	112	19. 9	20. 0	11	9	115
Des Moines	48	16. 5	10. 3	1	1	17
Detroit	351	13. 3	11. 0	52	38	80
Duluth	23	10. 3	12. 9	2	1	54
El Paso	27	12. 0	23. 0	3	14	
Erie	23			0	1	0
Fall River [4]	32	12. 4	24. 8	2	8	46
Flint	31	10. 9	9. 1	6	5	70
Fort Worth	44	13. 4	10. 4	7	3	
White	33			4	2	
Colored	11	(5)	(5)	3	1	
Grand Rapids	27	8. 6	11. 1	2	4	30
Houston	73			11	4	
White	60			9	3	
Colored	13	(5)	(5)	2	1	
Indianapolis	119	16. 2	12. 7	9	11	67
White	103			8	11	69
Colored	16	(5)	(5)	1	0	54
Jersey City	73	11. 7	16. 4	17	9	148
Kansas City, Kans	32	14. 1	19. 0	4	2	95
White	25			4	1	106
Colored	7	(5)	(5)	0	1	0

Footnotes at end of table.

Deaths from all causes in certain large cities of the United States during the week ended February 8, 1930, infant mortality, annual death rate, and comparison with corresponding week of 1929. (From the Weekly Health Index, February 13, 1930, issued by the Bureau of the Census, Department of Commerce)—Continued

City	Week ended Feb. 1930		Annual death rate per 1,000, corresponding week, 1929	Deaths under 1 year		Infant mortality rate, week ended Feb. 8, 1930 [2]
	Total deaths	Death rate [1]		Week ended Feb. 8, 1930	Corresponding week, 1929	
Kansas City, Mo.	120	16.0	18.1	11	16	86
Knoxville	33	16.3	14.3	1	3	23
White	30			1	3	26
Colored	3	(3)	(3)	0	0	0
Los Angeles	307			24	19	73
Louisville	84	13.3	17.1	8	5	70
White	64			6	3	59
Colored	20	(3)	(3)	2	2	145
Lowell	33			3	5	71
Lynn	32	15.8	15.8	3	3	76
Memphis	93	25.5	21.9	9	6	107
White	42			5	2	92
Colored	51	(3)	(3)	4	4	135
Milwaukee	127	12.2	13.8	19	27	96
Minneapolis	102	11.7	10.6	6	11	39
Nashville	46	17.2	23.2	10	7	155
White	27			8	5	164
Colored	19	(3)	(3)	2	2	127
New Bedford	27			4	4	103
New Haven	62	17.2	19.7	2	7	39
New Orleans	171	20.8	18.0	20	8	116
White	105			13	3	115
Colored	66	(3)	(3)	7	5	118
New York	1,655	14.3	17.7	151	213	63
Bronx, borough	219	11.9	13.7	24	19	56
Brooklyn, borough	562	12.7	16.0	49	89	52
Manhattan, borough	655	19.5	23.7	60	86	98
Queens, borough	163	9.9	12.9	16	15	46
Richmond, borough	56	19.4	25.3	2	4	37
Newark, N. J.	130	14.3	13.3	9	17	47
Oakland	66	12.6	10.8	4	4	48
Oklahoma City	33			6	2	118
Omaha	48	11.2	15.4	3	6	34
Paterson	35	12.6	16.2	9	1	156
Philadelphia	508	12.8	15.4	42	61	62
Pittsburgh	215	16.6	19.7	22	33	81
Portland, Oreg.	94			5	3	61
Providence	75	13.7	22.0	4	8	37
Richmond	60	16.1	16.1	7	5	104
White	32			3	3	67
Colored	28	(3)	(3)	4	2	175
Rochester	77	12.2	17.5	5	8	44
St. Louis	247	15.2	17.4	12	20	39
St. Paul	62			4	6	41
Salt Lake City [4]	34	12.8	14.0	4	3	63
San Antonio	75	17.9	18.9	8	20	
San Diego	45			4	4	84
San Francisco	209	18.6	16.9	7	15	48
Schenectady	13	7.3	12.3	1	2	31
Seattle	107	14.6	11.2	7	5	70
Somerville	25	12.7	16.2	2	3	65
Spokane	30	14.3	15.3	4	4	104
Springfield, Mass.	52	18.1	13.9	4	6	63
Syracuse	55	14.4	14.1	2	2	25
Tacoma	31	14.6	7.6	2	0	51
Toledo	74	12.3	12.3	5	8	46
Trenton	38	14.3	16.1	3	8	56
Washington, D. C.	145	13.7	17.9	7	10	41
White	99			4	6	35
Colored	46	(3)	(3)	3	4	53
Waterbury	19			2	5	51
Wilmington, Del.	28	11.4	13.0	2	4	45
Worcester	47	12.4	13.5	9	2	117
Yonkers	28	12.0	13.3	6	6	143

[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] Data for 71 cities.
[4] Deaths for week ended Friday.
[5] 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 February 8, 1930, and February 9, 1929

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended February 8, 1930, and February 9, 1929

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Feb. 8, 1930	Week ended Feb. 9, 1929	Week ended Feb. 8, 1930	Week ended Feb. 9, 1929	Week ended Feb. 8, 1930	Week ended Feb. 9, 1929	Week ended Feb. 8, 1930	Week ended Feb. 9, 1929
New England States:								
Maine	5	1	5	621	12	282	1	0
New Hampshire	3	1	1	123	58	95	0	0
Vermont				111	2	11	0	0
Massachusetts	118	91	2	593	323	442	2	5
Rhode Island	8	10		84	2	54	0	0
Connecticut	24	27	9	656	24	374	2	2
Middle Atlantic States:								
New York	139	257	[1] 53	[1] 413	534	984	17	32
New Jersey	120	125	16	148	323	254	4	14
Pennsylvania	136	156			730	1,378	3	9
East North Central States:								
Ohio	42	40	16	150	570	346	6	2
Indiana	43	39		149	55	266	31	0
Illinois	161	130	46	215	433	597	19	17
Michigan	64	76	7	146	374	189	22	18
Wisconsin	19	22	22	270	1,058	461	3	6
West North Central States:								
Minnesota	15	24	1	9	247	386	2	3
Iowa	4	15			461		9	1
Missouri [2]	9	53	33	199	48	411	8	18
North Dakota	3	3		13	54	39	0	6
South Dakota	1			4	77	29	0	0
Nebraska	14	23		10	599	24	6	4
Kansas	15	9	7	48	352	58	7	0
South Atlantic States:								
Delaware	2		2	5	3	11	0	0
Maryland [3]	35	32	51	1,136	8	96	2	1
District of Columbia	13	8	1	36	6	3	0	0
Virginia							6	1
West Virginia	12	18	70	1,321	85	65	2	2
North Carolina	32	36	44		5	27	2	1
South Carolina	26	27	1,214	2,107			5	0
Georgia	4	4	121	723		56	12	1
Florida	13	23	7	105	39	5	0	0
East South Central States:								
Kentucky		15		229	96		0	0
Tennessee	10	10	201	845	147	15	1	2
Alabama	27	27	209	1,108	63	43	5	4
Mississippi	23	11					7	1

[1] New York City only. [2] Figures for 1930 are exclusive of St. Louis. [3] Week ended Friday.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended February 8, 1930, and February 9, 1929—Continued

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Feb. 8, 1930	Week ended Feb. 9, 1929	Week ended Feb. 8, 1930	Week ended Feb. 9, 1929	Week ended Feb. 8, 1930	Week ended Feb. 9, 1929	Week ended Feb. 8, 1930	Week ended Feb. 9, 1929
West South Central States:								
Arkansas	3	11	212	771	6	7	3	1
Louisiana	25	24	71	739	73	30	6	2
Oklahoma [4]	24	17	167	896	207	7	7	15
Texas	77	77	267	5,319	105	47	7	4
Mountain States:								
Montana	1	2	-------	55	18	214	1	6
Idaho	1	-------	-------	-------	99	5	5	2
Wyoming	-------	-------	4	26	37	3	1	1
Colorado	10	15	1	28	101	4	2	5
New Mexico	5	10	-------	10	116	12	5	1
Arizona	8	11	17	24	6	-------	4	12
Utah [3]	1	2	-------	4	88	2	5	8
Pacific States:								
Washington	15	9	-------	110	312	69	9	4
Oregon	7	18	84	56	29	127	2	2
California	62	63	63	112	943	49	12	15

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Feb. 8, 1930	Week ended Feb. 9, 1929	Week ended Feb. 8, 1930	Week ended Feb. 9, 1929	Week ended Feb. 8, 1930	Week ended Feb. 9, 1929	Week ended Feb. 8, 1930	Week ended Feb. 9, 1929
New England States:								
Maine	1	0	71	10	0	9	5	1
New Hampshire	0	0	18	35	0	0	0	0
Vermont	0	0	6	0	3	4	1	1
Massachusetts	1	1	310	278	0	0	5	1
Rhode Island	0	0	38	21	0	0	0	0
Connecticut	0	1	135	43	0	0	0	0
Middle Atlantic States:								
New York	4	4	529	440	6	0	15	9
New Jersey	1	1	241	166	0	0	5	1
Pennsylvania	0	0	475	444	8	0	13	12
East North Central States:								
Ohio	3	0	278	210	242	37	16	15
Indiana	0	0	294	248	247	109	7	1
Illinois	2	0	661	417	128	103	6	2
Michigan	0	1	317	349	100	35	5	1
Wisconsin	1	0	144	141	42	17	5	1
West North Central States:								
Minnesota	0	0	161	185	8	2	3	5
Iowa	1	0	103	118	107	85	1	1
Missouri [3]	0	0	110	92	67	25	0	0
North Dakota	0	1	38	42	40	0	0	0
South Dakota	1	0	30	38	49	12	2	0
Nebraska	0	1	101	101	40	69	0	1
Kansas	0	0	177	127	97	33	1	1
South Atlantic States:								
Delaware	0	0	16	2	0	0	0	0
Maryland [3]	0	1	94	77	0	0	4	1
District of Columbia	0	0	12	22	0	0	4	0
Virginia	-------	-------	-------	-------	-------	-------	-------	-------
West Virginia	0	0	48	34	20	6	5	5
North Carolina	0	0	72	47	17	17	1	0
South Carolina	0	0	24	20	1	0	1	1
Georgia	0	0	24	15	0	0	1	2
Florida	0	0	19	10	1	0	3	13
East South Central States:								
Kentucky	0	0	65	75	17	14	6	3
Tennessee	0	0	49	41	15	1	2	3
Alabama	0	0	34	31	2	4	2	1
Mississippi	0	0	22	15	6	2	5	4

[2] Figures for 1930 are exclusive of St. Louis.
[3] Week ended Friday.
[4] Figures for 1930 are exclusive of Oklahoma City and Tulsa.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended February 8, 1930, and February 9, 1929—Continued

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Feb. 8, 1930	Week ended Feb. 9, 1929	Week ended Feb. 8, 1930	Week ended Feb. 9, 1929	Week ended Feb. 8, 1930	Week ended Feb. 9, 1929	Week ended Feb. 8, 1930	Week ended Feb. 9, 1929
West South Central States:								
Arkansas	0	0	20	36	12	5	5	3
Louisiana	0	0	22	36	3	7	6	8
Oklahoma [4]	0	0	42	36	79	32	2	5
Texas	2	0	94	76	227	82	1	3
Mountain States:								
Montana	0	0	60	16	13	12	0	0
Idaho	0	0	5	15	12	29	1	0
Wyoming	0	0	5	19	1	0	0	0
Colorado	0	0	24	21	57	14	1	2
New Mexico	0	1	9	10	1	0	3	1
Arizona	0	0	8	3	19	3	0	1
Utah [3]	0	0	9	10	0	3	0	0
Pacific States:								
Washington	0	0	86	41	92	45	7	2
Oregon	1	0	67	35	17	42	5	0
California	0	2	340	303	109	88	6	6

[3] Week ended Friday. [4] Figures for 1930 are exclusive of Oklahoma City and 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
December, 1929										
California	57	363	248	4	990	4	6	1,268	253	28
Georgia	8	89	424	144	90	38	3	119	2	10
Kansas	6	118	15	----	457	----	0	528	172	14
January, 1930										
Arkansas	16	32	594	63	21	24	0	95	79	14
Connecticut	3	108	48	----	199	----	0	502	0	1
Georgia	5	71	634	82	278	16	0	98	6	20
Nebraska	26	67	108	----	1,716	----	4	382	324	3
North Dakota	10	38	14	----	116	----	3	257	130	1
Porto Rico	----	38	31	1,019	165	----	0	----	0	33

December, 1929	Cases
Botulism:	
California	1
Chicken pox:	
California	1,362
Georgia	132
Kansas	746
Conjunctivitis:	
Georgia	3
Dysentery:	
California (amebic)	3
California (bacillary)	9
Georgia	10
Food poisoning:	
California	29
German measles:	
California	37
Kansas	6
Granuloma, coccidioidal:	
California	4
Hookworm disease:	
California	1
Georgia	14
Leprosy:	
California	2
Lethargic encephalitis:	
California	2
Kansas	1
Mumps:	
California	1,363
Georgia	54
Kansas	244
Ophthalmia neonatorum:	
California	1
Paratyphoid fever:	
California	3

Rabies in animals:	Cases
California	56
Scabies:	
Kansas	5
Septic sore throat:	
Georgia	27
Tetanus:	
California	3
Trachoma:	
California	8
Trichinosis:	
California	23
Tularaemia:	
California	1
Kansas	4
Typhus fever:	
Georgia	6
Undulant fever:	
California	4
Kansas	8
Vincent's angina:	
Kansas	1
Whooping cough:	
California	342
Georgia	56
Kansas	190

January, 1930

Anthrax:	
Nebraska	1
Chicken pox:	
Arkansas	248
Connecticut	756
Georgia	172
Nebraska	271
North Dakota	136
Colibacillosis:	
Porto Rico	3
Conjunctivitis:	
Connecticut	2
Dengue:	
Arkansas	3
Dysentery:	
Georgia	11
Porto Rico	30
Filariasis:	
Porto Rico	1
German measles:	
Connecticut	141
Hookworm disease:	
Arkansas	23
Georgia	23
Lethargic encephalitis:	
Connecticut	1
North Dakota	4
Mumps:	
Arkansas	80
Connecticut	197
Georgia	85
Nebraska	125
North Dakota	329
Porto Rico	13
Ophthalmia neonatorum:	
Arkansas	3
Connecticut	1
Porto Rico	3
Puerperal fever:	
Porto Rico	10
Rabies in animals:	
Connecticut	4
Scabies:	
North Dakota	3
Septic sore throat:	
Connecticut	7
Georgia	21
Nebraska	63
Tetanus:	
Georgia	2
Porto Rico	7
Tetanus, infantile:	
Porto Rico	33
Trachoma:	
Arkansas	7
Georgia	1
Porto Rico	4
Tularaemia:	
Georgia	6
Typhus fever:	
Georgia	9
Undulant fever:	
Connecticut	4
Nebraska	1
North Dakota	2
Vincent's angina:	
North Dakota	10
Whooping cough:	
Arkansas	35
Connecticut	292
Georgia	90
Nebraska	109
North Dakota	54
Porto Rico	81

GENERAL CURRENT SUMMARY AND WEEKLY REPORTS FROM CITIES

The 93 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 29,800,000. The estimated population of the 87 cities reporting deaths is more than 29,075,000. The estimated expectancy is based on the experience of the last nine years, excluding epidemics.

Weeks ended February 1, 1930, and February 2, 1929

	1930	1929	Estimated expectancy
Cases reported			
Diphtheria:			
46 States	1,619	1,596	
93 cities	658	604	1,333
Measles:			
43 States	7,670	6,917	
93 cities	1,261	1,645	
Meningococcus meningitis:			
46 States	227	266	
93 cities	86	100	
Poliomyelitis:			
46 States	19	18	
Scarlet fever:			
46 States	5,422	4,693	
93 cities	1,741	1,303	1,486
Smallpox:			
46 States	1,628	1,061	
93 cities	188	45	59
Typhoid fever:			
46 States	129	125	
93 cities	30	23	37
Deaths reported			
Influenza and pneumonia:			
87 cities	1,049	1,980	
Smallpox:			
87 cities	0	1	
Raleigh, N. C	0	1	

City reports for week ended February 1, 1930

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 nonepidemic 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 1921 is included. In obtaining the estimated expectancy, the figures are smoothed when necessary to avoid abrupt deviation 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	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		1						
New Hampshire:								
Concord	0	0	0		0	1	0	1
Manchester	0	1	0		0	0	0	3
Nashua	0	0	0		0	0	0	0
Vermont:								
Barre	0	0	0		0	0	0	0
Burlington	4	0	1		0	0	0	1
Massachusetts:								
Boston	69	42	26	5	0	78	72	31
Fall River	5	4	6		0	0	4	5
Springfield	5	4	5		0	0	2	3
Worcester	15	5	4		0	60	0	4
Rhode Island:								
Pawtucket	10	2	1		0	0	0	2
Providence	4	10	9		0	0	0	13
Connecticut:								
Bridgeport	4	6	2	2	1	1	1	8
Hartford	56	8	2		0	0	2	7
New Haven	7	1	1	1	0	1	9	5

City reports for week ended February 1, 1930—Continued

Division, State, and city	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
		Cases estimated expectancy	Cases reported	Cases reported	Deaths reported			
MIDDLE ATLANTIC								
New York:								
Buffalo		15						
New York	219	230	111	60	20	83	113	196
Rochester	5	11	1		0	6	0	8
Syracuse	39	4	0		0	0	102	6
New Jersey:								
Camden	3	7	7	1	1	0	0	3
Newark	58	19	28	6	0	80	13	12
Trenton	8	3	2		0	28	0	7
Pennsylvania:								
Philadelphia	84	75	29	5	4	37	39	57
Pittsburgh	33	25	24	3	6	83	3	35
Reading	8	2	2		0	1	0	3
Scranton	3	5	1		0	3	0	
EAST NORTH CENTRAL								
Ohio:								
Cincinnati	16	10	3		3	0	0	17
Cleveland	121	38	17	8	2	4	10	23
Columbus	13	5	0	6	1	8	0	10
Toledo	40	7	3	1	1	200	6	4
Indiana:								
Fort Wayne	0	4	5		2	1	0	2
Indianapolis	10	9	3		0	26	1	19
South Bend	4	2	1		0	1	0	2
Terre Haute	1	1	1		0	1	0	3
Illinois:								
Chicago	131	109	149	7	2	14	33	76
Springfield	4	1	0	3	0	0	0	0
Michigan:								
Detroit	56	53	37	7	6	145	50	39
Flint	14	4	0		0	5	0	6
Grand Rapids	5	2	0		4	1	0	0
Wisconsin:								
Kenosha	2	1	0		0	0	1	0
Madison	7	0	0		0	96	0	0
Milwaukee	153	22	8	1	1	1	38	9
Racine	8	2	0		0	0	4	0
Superior	0	0	0		0	62	0	0
WEST NORTH CENTRAL								
Minnesota:								
Duluth	7	1	0		0	22	2	3
Minneapolis	52	21	6		0	25	50	6
St. Paul	21	10	0		4	6	13	8
Iowa:								
Davenport	2	1	0			0	0	
Des Moines	1	2	0			28	0	
Sioux City	12	2	1			1	0	
Waterloo	6	0	0			115	2	
Missouri:								
Kansas City	31	6	3		1	3	0	14
St. Joseph	1	1	0		0	0	0	2
St. Louis		46						
North Dakota:								
Fargo	1	0	0		0	0	12	0
Grand Forks	2	0	0			0	0	
South Dakota:								
Aberdeen	7	0	0			0	1	
Sioux Falls	0	0	0			10	0	
Nebraska:								
Omaha	8	5	4		0	12	4	14
Kansas:								
Topeka	24	2	1	2	1	29	16	2
Wichita	15	4	2		0	5	2	5
SOUTH ATLANTIC								
Delaware:								
Wilmington	0	2	1		0	2	0	7
Maryland:								
Baltimore	74	30	15	30	3	1	3	38
Cumberland	0	1	0	1	1	0	1	0
Frederick	0	1	0		0	0	0	0
District of Columbia:								
Washington	25	21	24	1	0	4	0	22
Virginia:								
Lynchburg	5	2	0		0	129	12	2
Norfolk	9	1	3		0	0	13	3
Richmond	0	6	3		1	0	3	5
Roanoke	0	2	0		0	5	0	8

City reports for week ended February 1, 1930—Continued

Division, State, and city	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
		Cases estimated expectancy	Cases reported	Cases reported	Deaths reported			
SOUTH ATLANTIC—Continued								
West Virginia:								
Charleston	5	0	0	3	0	2	0	2
Wheeling	2	1	2		0	5	0	3
North Carolina:								
Raleigh	6	0	0		0	0	0	3
Wilmington	0	1	0		0	0	0	1
Winston-Salem	0	1	2	1	0	0	6	7
South Carolina:								
Charleston	0	1	0	29	0	0	3	6
Columbia	7	0	1		0	0	3	2
Georgia:								
Atlanta	7	4	3	34	0	0	9	9
Brunswick	0	0	0		0	0	4	1
Savannah	6	1	0	1	0	0	0	2
Florida:								
Miami	1	2	7		0	0	5	2
Tampa	3	1	2		1	9	7	1
EAST SOUTH CENTRAL								
Kentucky:								
Covington	0	0	2		0	0	0	4
Tennessee:								
Memphis	9	4	3		0	3	6	10
Nashville	0	0	0	1	2	0	0	12
Alabama:								
Birmingham	7	3	4	27	4	3	2	9
Mobile	2	0	3	8	2	1	0	2
Montgomery	0	2	2	3		2	0	
WEST SOUTH CENTRAL								
Arkansas:								
Fort Smith	3	0	0			0	0	
Little Rock	3	1	1		0	0	1	5
Louisiana:								
New Orleans	0	13	29	10	9	23	0	22
Shreveport	5	2	2		0	0	1	6
Oklahoma:								
Oklahoma City	2	1	1	2	0	3	0	7
Tulsa	27	2	0			88	0	
Texas:								
Dallas	13	7	12	7	4	61	6	11
Fort Worth	13	3	0		3	0	0	7
Galveston	0	2	2		0	0	0	1
Houston	4	6	12		0	0	1	17
San Antonio	3	3	4		10	0	0	20
MOUNTAIN								
Montana:								
Billings	0	0	1		0	0	14	1
Great Falls	0	0	0		0	1	43	0
Helena	0	1	0		0	0	22	1
Missoula	0	0	0		0	0	0	0
Idaho:								
Boise	1	1	0		0	0	0	0
Colorado:								
Denver		12						
Pueblo	11	2	0		0	0	29	3
New Mexico:								
Albuquerque	3	0	2		0	0	18	0
Arizona:								
Phoenix	4	1	0		1	1	3	6
Utah:								
Salt Lake City	24	3	1		1	26	8	6
Nevada:								
Reno	0	0	0		0	0	0	1
PACIFIC								
Washington:								
Seattle	39	5	2			0	49	
Spokane	18	3	1			1	0	
Tacoma	11	2	0		0	0	2	6
Oregon:								
Portland	13	10	6	11	3	0	12	8
Salem	12	0	0	2	0	0	6	0
California:								
Los Angeles	76	44	17	22	1	35	44	27
Sacramento	6	3	1		0	2	17	2
San Francisco		17						

City reports for week ended February 1, 1930—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		
NEW ENGLAND											
Maine:											
Portland	3		0				1				
New Hampshire:											
Concord	0	0	0	0	0	0	0	0	0	0	13
Manchester	3	1	0	0	0	3	0	0	0	0	17
Nashua	0	0	0	0	0	0	0	0	0	0	
Vermont:											
Barre	1	0	0	0	0	0	0	0	0	0	3
Burlington	1	0	1	0	0	1	0	0	0	0	6
Massachusetts:											
Boston	84	70	0	0	0	11	1	0	0	76	222
Fall River	4	6	0	0	0	4	1	0	0	1	33
Springfield	10	9	0	0	0	1	0	0	0	19	58
Worcester	11	11	0	0	0	1	1	0	0	12	51
Rhode Island:											
Pawtucket	2	3	0	0	0	1	0	0	0	4	17
Providence	13	15	0	0	0	4	1	0	0	23	84
Connecticut:											
Bridgeport	13	9	0	0	0	1	0	0	0	2	35
Hartford	6	9	0	0	0	2	0	0	0	4	41
New Haven	9	8	0	0	0	0	0	0	0	10	51
MIDDLE ATLANTIC											
New York:											
Buffalo	31		0				1				
New York	314	217	0	0	0	97	8	5	2	56	1,640
Rochester	11	11	0	0	0	2	1	0	0	2	76
Syracuse	15	34	0	0	0	3	0	1	0	29	51
New Jersey:											
Camden	8	7	0	0	0	1	0	0	1	1	42
Newark	35	51	0	0	0	14	1	0	0	27	135
Trenton	6	16	0	0	0	2	0	0	0	12	46
Pennsylvania:											
Philadelphia	107	125	0	0	0	35	2	2	1	39	497
Pittsburgh	44	28	0	0	0	13	0	2	0	33	220
Reading	6	11	0	0	0	1	0	0	0	16	20
Scranton	5	1	0	0	0	0	0	1	0	0	
EAST NORTH CENTRAL											
Ohio:											
Cincinnati	21	33	1	2	0	15	0	0	0	5	165
Cleveland	48	43	0	1	0	20	1	0	1	115	218
Columbus	12	15	0	6	0	4	0	0	0	4	95
Toledo	14	2	1	8	0	4	0	2	0	6	84
Indiana:											
Fort Wayne	6	9	1	15	0	0	0	1	0	6	26
Indianapolis	13	7	6	2	0	3	0	1	1	9	140
South Bend	3	13	1	0	0	0	0	0	0	0	21
Terre Haute	4	1	0	1	3	0	0	0	0	0	16
Illinois:											
Chicago	140	341	3	8	0	52	3	2	0	114	755
Springfield	4	3	0	2	0	1	0	0	0	10	21
Michigan:											
Detroit	111	122	2	16	0	24	1	1	0	54	329
Flint	13	22	1	6	0	1	0	0	0	13	44
Grand Rapids	14	18	0	0	0	0	0	0	0	4	38
Wisconsin:											
Kenosha	2	4	1	0	0	0	0	0	0	10	7
Madison	4	4	1	1	0	0	0	0	0	22	
Milwaukee	39	25	0	4	0	5	0	0	0	75	125
Racine	6	10	0	0	0	1	0	0	0	4	15
Superior	3	4	0	0	0	0	0	0	0	0	11
WEST NORTH CENTRAL											
Minnesota:											
Duluth	12	2	0	0	0	2	0	0	0	16	30
Minneapolis	62	15	4	0	0	2	0	0	0	8	95
St. Paul	36	15	1	0	0	3	0	1	0	17	67

City reports for week ended February 1, 1930—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		
WEST NORTH CENTRAL—contd.											
Iowa:											
Davenport	2	0	1	14			0	0		0	
Des Moines	10	17	2	18			0	0		0	25
Sioux City	2	1	1	0			0	0		0	
Waterloo	3	4	0	14			0	0		3	6
Missouri:											
Kansas City	16	41	2	0	0	10	0	0	0	9	119
St. Joseph	3	0	0	0	0	2	0	0	0	0	52
St. Louis	50		2				0				
North Dakota:											
Fargo	2	2	0	1	0	0	0	0	0	11	5
Grand Forks	1	0	1	3			0	0		0	
South Dakota:											
Aberdeen	0	0	0	0			0	0		3	
Sioux Falls	3	1	0	8			0	0		0	6
Nebraska:											
Omaha	6	12	1	2	0	6	1	1	0	1	87
Kansas:											
Topeka	2	5	0	0	0	0	0	0	0	4	19
Wichita	6	28	0	2	0	0	0	0	0	1	47
SOUTH ATLANTIC											
Delaware:											
Wilmington	6	5	0	0	0	2	0	0	0	1	43
Maryland:											
Baltimore	36	45	0	0	0	23	2	2	0	13	222
Cumberland	1	0	0	0	0	0	0	1	0	0	11
Frederick	1	5	0	0	0	0	0	0	0	0	2
District of Columbia:											
Washington	27	16	1	0	0	10	1	0	0	7	160
Virginia:											
Lynchburg	1	1	0	0	0	0	0	0	0	3	7
Norfolk	3	5	1	0	0	3	0	0	1	1	
Richmond	4	5	0	0	0	4	1	0	0	0	56
Roanoke	2	0	0	0	0	2	0	0	0	0	31
West Virginia:											
Charleston	1	1	0	0	0	2	1	0	0	14	18
Wheeling	2	3	0	0	0	0	0	0	0	3	20
North Carolina:											
Raleigh	1	0	0	0	0	2	0	0	0	3	17
Wilmington	0	2	0	0	0	1	0	0	0	3	10
Winston-Salem	1	3	1	3	0	1	0	0	0	1	17
South Carolina:											
Charleston	0	5	1	0	0	3	1	1	0	0	26
Columbia	0	0	0	0	0	1	0	0	0	8	17
Georgia:											
Atlanta	5	13	3	0	0	5	0	0	0	0	87
Brunswick	0	0	0	0	0	1	0	0	0	0	4
Savannah	0	3	1	0	0	3	0	0	0	0	34
Florida:											
Miami	1	5	1	0	0	1	0	1	0	0	33
Tampa	1	5	0	0	0	1	1	0	0	0	27
EAST SOUTH CENTRAL											
Kentucky:											
Covington	2	3	1	1	0	0	0	0	0	0	20
Tennessee:											
Memphis	8	12	0	1	0	7	0	0	0	17	77
Nashville	2	1	0	0	0	7	0	1	0	0	70
Alabama:											
Birmingham	3	3	3	0	0	5	1	0	0	2	87
Mobile	0	3	0	0	0	0	0	0	0	0	18
Montgomery	1	2	0	0			0	0		0	
WEST SOUTH CENTRAL											
Arkansas:											
Fort Smith	0	2	0	0			0	0		2	
Little Rock	1	1	0	2	0	4	1	0	0	1	

City reports for week ended February 1, 1930—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		
WEST SOUTH CENTRAL—continued											
Louisiana:											
New Orleans	7	3	1	0	0	19	3	1	0	0	194
Shreveport	0	2	0	0	0	0	0	0	0	0	23
Oklahoma:											
Oklahoma City	2	0	2	0	0	1	0	1	0	0	35
Tulsa	2	2	1	4			0	0		7	
Texas:											
Dallas	5	6	2	7	0	6	0	0	0	0	78
Fort Worth	2	3	1	0	0	1	0	0	0	0	49
Galveston	1	0	0	0	0	0	0	0	0	0	10
Houston	3	6	2	10	0	4	0	0	0	0	96
San Antonio	2	1	0	2	0	11	0	0	0	0	104
MOUNTAIN											
Montana:											
Billings	0	1	0	0	0	0	0	0	0	0	9
Great Falls	2	21	1	0	0	0	0	0	0	0	9
Helena	0	1	0	0	0	1	0	0	0	0	6
Missoula	1	2	1	2	0	0	0	0	0	0	7
Idaho:											
Boise	1	0	0	0	0	0	0	0	0	0	4
Colorado:											
Denver	12		0				0				
Pueblo	2	0	0	0	0	1	0	1	0	0	11
New Mexico:											
Albuquerque	1	0	0	0	0	4	0	0	0	0	7
Arizona:											
Phoenix	1	1	0	19	0	6	0	0	1	0	32
Utah:											
Salt Lake City	4	8	2	1	0	1	0	0	0	31	53
Nevada:											
Reno	0	3	0	2	0	0	0	0	0	0	2
PACIFIC											
Washington:											
Seattle	11	26	3	3			1	2		7	
Spokane	5	1	7	56			0	1		8	
Tacoma	3	4	3	4	0	0	0	0	0	19	21
Oregon:											
Portland	6	1	14	8	0	1	0	1	0	15	85
Salem	0	1	1	0	0	0	0	0	0	17	
California:											
Los Angeles	40	66	3	4	0	22	1	3	0	23	292
Sacramento	2	16	1	8	0	3	0	0	0	0	27
San Francisco	20		2				1				

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	3	1	0	0	0	0	1	0	0
Worcester	0	0	1	0	0	0	0	0	0
Rhode Island:									
Providence	0	0	0	1	0	0	0	0	0
Connecticut:									
Hartford	0	2	0	0	0	0	0	0	0
MIDDLE ATLANTIC									
New York:									
New York	7	8	2	0	0	0	1	0	0
New Jersey:									
Camden	1	1	0	0	0	0	0	0	0
Newark	2	2	1	0	0	0	0	0	0
Pennsylvania:									
Philadelphia	5	4	1	1	0	0	0	0	0
Pittsburgh	1	0	0	0	0	0	0	0	0

City reports for week ended February 1, 1930—Continued

Division, State, and city	Meningococcus meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
EAST NORTH CENTRAL									
Ohio:									
Cincinnati	1	0	0	0	0	0	0	0	0
Cleveland	5	1	0	0	0	0	1	0	0
Columbus	1	1	1	1	0	0	0	0	0
Toledo	0	0	1	1	0	0	0	0	0
Indiana:									
Indianapolis	2	3	0	0	0	0	0	0	0
South Bend	0	0	0	1	0	0	0	0	0
Illinois:									
Chicago	6	3	1	0	0	0	0	0	0
Michigan:									
Detroit	15	4	1	0	0	0	0	0	0
Wisconsin:									
Milwaukee	1	1	0	0	0	0	0	0	0
Racine	0	1	0	0	0	0	0	0	0
WEST NORTH CENTRAL									
Minnesota:									
Minneapolis	1	0	0	0	0	0	0	0	0
Iowa:									
Waterloo	5	2	0	0	0	0	0	0	0
Nebraska:									
Omaha	1	0		0	0	0	0	0	0
SOUTH ATLANTIC									
Maryland:									
Baltimore	4	1	0	0	0	0	0	0	0
District of Columbia:									
Washington	1	0	0	0	0	0	0	0	0
South Carolina:									
Charleston	0	0	0	0	2	1	0	0	0
Columbia	0	1	0	0	0	0	0	0	0
Georgia:									
Atlanta	12	1	0	0	0	2	0	0	0
Savannah [1]	0	0	0	0	2	2	0	0	0
Florida:									
Tampa	0	0	0	0	0	1	0	0	0
EAST SOUTH CENTRAL									
Tennessee:									
Memphis	3	1	0	0	0	0	0	0	0
Nashville	1	0	0	0	0	0	0	0	0
Alabama:									
Birmingham	0	0	1	1	0	0	0	0	0
Mobile	1	1	0	0	0	0	0	0	0
WEST SOUTH CENTRAL									
Louisiana:									
New Orleans	0	2	0	0	1	1	0	0	0
Oklahoma:									
Oklahoma City	0	1	0	0	0	0	0	0	0
Texas:									
Dallas	2	1	0	0	1	1	0	1	0
Fort Worth	1	0	0	0	0	1	0	0	0
Houston	0	0	0	0	0	2	0	0	0
MOUNTAIN									
New Mexico:									
Albuquerque	0	0	1	0	0	0	0	0	0
Arizona:									
Phoenix	0	1	0	0	0	0	0	0	0
Utah:									
Salt Lake	2	3	0	0	0	0	0	0	0
PACIFIC									
Washington:									
Seattle	2	0	0	0	0	0	0	0	0
Oregon:									
Portland	0	0	1	0	0	0	0	0	0
California:									
Los Angeles	1	0	0	0	1	0	0	1	0
Sacramento	0	0	0	0	0	0	0	0	1

[1] Typhus fever: 3 cases at Savannah, Ga.

The following table gives the rates per 100,000 population for 98 cities for the 5-week period ended February 1, 1930, compared with those for a like period ended February 2, 1929. The population figures used in computing the rates are approximate estimates, authoritative figures for many of the cities not being available. The 98 cities reporting cases have an estimated aggregate population of more than 32,000,000. The 91 cities reporting deaths have more than 30,500,000 estimated population.

Summary of weekly reports from cities, December 29, 1929, to February 1, 1930—Annual rates per 100,000 population, compared with rates for the corresponding period of 1928–29 [1]

DIPHTHERIA CASE RATES

	Week ended—									
	Jan. 4, 1930	Jan. 5, 1929	Jan. 11, 1930	Jan. 12, 1929	Jan. 18, 1930	Jan. 19, 1929	Jan. 25, 1930	Jan. 26, 1929	Feb. 1, 1930	Feb. 2, 1929
98 cities	117	148	118	139	110	[2] 132	[3] 114	125	[4] 115	109
New England	136	163	156	183	122	177	146	200	[5] 125	108
Middle Atlantic	86	178	113	157	94	158	96	136	[6] 108	133
East North Central	155	153	130	124	127	[2] 107	145	122	140	106
West North Central	114	161	123	158	108	146	82	115	[7] 47	90
South Atlantic	86	111	83	118	103	99	106	79	106	107
East South Central	112	88	79	190	67	171	74	137	94	68
West South Central	201	111	170	119	205	76	157	114	232	95
Mountain	52	70	69	87	51	61	[3] 51	52	[3] 34	70
Pacific	120	60	85	67	94	104	92	92	[8] 68	65

MEASLES CASE RATES

98 cities	130	196	176	235	208	[2] 218	[3] 227	261	[4] 221	274
New England	125	964	112	873	157	700	210	667	[5] 315	514
Middle Atlantic	76	80	116	94	124	70	117	86	[6] 160	93
East North Central	118	230	153	315	152	[2] 303	137	381	168	418
West North Central	277	198	303	394	364	423	457	627	[7] 604	770
South Atlantic	132	114	118	66	167	84	157	84	287	103
East South Central	7	14	13	7	40	34	27	27	61	7
West South Central	101	24	325	43	400	11	624	34	314	34
Mountain	197	383	146	427	240	853	[3] 377	871	[3] 462	697
Pacific	315	40	517	115	676	56	730	75	[3] 124	99

SCARLET FEVER CASE RATES

98 cities	249	195	271	221	278	[2] 225	[3] 295	230	[4] 305	232
New England	377	296	397	317	362	294	419	317	[5] 313	303
Middle Atlantic	186	148	232	190	223	183	239	217	[6] 252	190
East North Central	344	239	352	251	398	[2] 258	379	262	420	280
West North Central	248	258	216	263	260	248	307	296	[7] 346	306
South Atlantic	186	154	201	124	198	122	176	114	205	131
East South Central	125	197	106	156	101	232	169	232	162	157
West South Central	89	142	120	182	134	183	105	99	78	145
Mountain	378	113	481	157	335	183	[3] 479	104	[3] 616	61
Pacific	271	185	281	282	276	377	402	258	[3] 367	350

[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, 1930, and 1929, respectively.
[2] South Bend, Ind., not included.
[3] Denver, Colo., not included.
[4] Portland, Me., Buffalo, N. Y., St. Louis, Mo., Denver, Colo., and San Francisco, Calif., not included.
[5] Portland, Me., not included.
[6] Buffalo, N. Y., not included.
[7] St. Louis, Mo., not included.
[8] San Francisco, Calif., not included.

Summary of weekly reports from cities, December 29, 1929, to February 1, 1930—Annual rates per 100,000 population, compared with rates for the corresponding period of 1928–29—Continued

SMALLPOX CASE RATES

	Week ended—									
	Jan. 4, 1930	Jan. 5, 1929	Jan. 11, 1930	Jan. 12, 1929	Jan. 18, 1930	Jan. 19, 1929	Jan. 25, 1930	Jan. 26, 1929	Feb. 1, 1930	Feb. 2, 1929
98 cities	20	3	29	5	33	[2] 7	[3] 26	8	[4] 33	7
New England	0	0	0	2	0	0	4	0	[5] 0	0
Middle Atlantic	0	1	0	0	0	0	1	0	[6] 0	0
East North Central	16	6	27	3	36	[2] 6	19	8	39	10
West North Central	80	2	89	6	121	13	70	2	[7] 53	8
South Atlantic	2	0	0	2	5	6	2	7	5	11
East South Central	0	7	7	41	0	7	0	14	13	7
West South Central	15	4	43	16	41	46	37	46	78	27
Mountain	52	35	43	78	51	17	[3] 34	61	[3] 86	78
Pacific	107	5	170	7	144	17	177	19	[8] 244	7

TYPHOID FEVER CASE RATES

98 cities	3	4	3	4	6	[2] 4	[3] 4	4	[4] 5	4
New England	2	5	0	2	4	4	0	2	[5] 0	2
Middle Atlantic	1	2	3	4	3	4	5	2	[6] 5	4
East North Central	3	3	2	1	3	[2] 3	3	4	3	1
West North Central	0	0	2	0	11	2	2	4	[7] 6	6
South Atlantic	6	9	9	4	5	6	7	2	7	7
East South Central	7	0	7	7	13	21	20	7	7	0
West South Central	0	4	4	28	7	8	4	23	4	8
Mountain	9	9	0	0	60	0	[3] 17	0	[3] 17	0
Pacific	10	7	5	0	5	2	2	10	[8] 20	7

INFLUENZA DEATH RATES

91 cities	17	234	19	241	19	[2] 183	[3] 22	131	[9] 18	84
New England	7	48	0	100	9	141	9	204	[5] 2	141
Middle Atlantic	10	165	14	161	15	152	14	134	[6] 16	83
East North Central	15	238	12	236	17	[2] 148	17	70	13	48
West North Central	27	240	30	165	27	123	18	69	18	45
South Atlantic	18	343	31	395	22	288	31	182	11	114
East South Central	29	970	65	1,592	44	948	59	619	59	298
West South Central	79	596	64	467	65	320	111	199	88	168
Mountain	17	218	43	165	26	157	[3] 0	70	[3] 17	35
Pacific	13	134	15	79	15	75	18	44	[8] 5	41

PNEUMONIA DEATH RATES

91 cities	170	383	167	408	155	[2] 366	[3] 142	327	[9] 171	273
New England	163	201	170	323	115	442	126	465	[5] 177	507
Middle Atlantic	181	395	192	443	167	446	135	454	[6] 165	360
East North Central	115	466	122	414	109	[2] 280	111	184	129	170
West North Central	195	216	192	285	207	241	148	189	160	189
South Atlantic	221	360	177	485	170	474	196	388	218	268
East South Central	251	533	136	659	162	455	221	358	272	209
West South Central	329	670	210	528	237	383	310	297	314	191
Mountain	180	174	223	200	249	200	[3] 171	157	[3] 205	148
Pacific	118	148	147	134	169	119	95	123	[8] 167	113

[2] South Bend, Ind., not included.
[3] Denver, Colo., not included.
[4] Portland, Me., Buffalo, N. Y., St. Louis, Mo., Denver, Colo., and San Francisco, Calif., not included.
[5] Portland, Me., not included.
[6] Buffalo, N. Y., not included.
[7] St. Louis, Mo., not included.
[8] San Francisco, Calif., not included.
[9] Concord, N. H., Buffalo, N. Y., Denver, Colo., and San Francisco, Calif., not included.

FOREIGN AND INSULAR

CANADA

Provinces—Communicable diseases—Weeks ended January 25 and February 1, 1930.—The Department of Pensions and National Health reports cases of certain communicable diseases in Canada for the weeks ended January 25 and February 1, 1930, as follows:

Week ended January 25, 1930

Province	Cerebro-spinal fever	Influenza	Dysentery	Smallpox	Typhoid fever
Prince Edward Island [1]					
Nova Scotia		3			
New Brunswick [1]					
Quebec	1				5
Ontario	1	7		13	5
Manitoba				1	
Saskatchewan				33	1
Alberta	1			2	
British Columbia	1		2	6	
Total	4	10	2	55	11

Week ended February 1, 1930

Province	Cerebro-spinal fever	Influenza	Poliomyelitis	Smallpox	Typhoid fever
Prince Edward Island [1]					
Nova Scotia		4			
New Brunswick [1]					
Quebec				6	7
Ontario	2	24		19	21
Manitoba				1	
Saskatchewan			1	19	
Alberta			2	8	
British Columbia				4	1
Total	2	28	3	57	29

[1] No case of any disease included in the table was reported during the week.

Quebec Province—Communicable diseases—Week ended February 1, 1930.—The Bureau of Health of the Province of Quebec, Canada, reports cases of certain communicable diseases for the week ended February 1, 1930, as follows:

Disease	Cases	Disease	Cases
Chicken pox	114	Ophthalmia neonatorum	1
Diphtheria	44	Scarlet fever	119
German measles	10	Smallpox	6
Influenza	37	Tuberculosis	72
Measles	126	Typhoid fever	7
Mumps	127	Whooping cough	120

Quebec Province—Vital statistics—November, 1929.—Births, deaths, and marriages for the month of November, 1929, in the Province of Quebec, Canada, with deaths from certain principal causes, are shown in the following table:

Estimated population	2,691,000	Deaths from—Continued.	
Births	6,002	Heart disease	352
Birth rate per 1,000 population	27.1	Influenza	46
Deaths	2,514	Measles	23
Death rate per 1,000 population	11.4	Pneumonia	214
Marriages	1,141	Poliomyelitis	2
Deaths under 1 year	590	Scarlet fever	17
Deaths under 1 year per 1,000 births	98.3	Syphilis	6
Deaths from—		Tuberculosis (pulmonary only)	171
Cancer	128	Tuberculosis (other forms)	44
Cerebrospinal meningitis	5	Typhoid fever	15
Diabetes	26	Violence	100
Diarrhea	100	Whooping cough	28
Diphtheria	54		

CHINA

Meningitis.—During the two weeks ended January 25, 1930, 7 cases of meningitis, with 7 deaths were reported in Canton, China. One imported case of meningitis, with 1 death, was reported at Hong Kong during the week ended January 25.

CUBA

Provinces—Communicable diseases—Four weeks ended January 18, 1930.—During the four weeks ended January 18, 1930, cases of certain communicable diseases were reported in the provinces of Cuba as follows:

Disease	Pinar del Rio	Habana	Matanzas	Santa Clara	Camaguey	Oriente	Total
Cancer		4	1	2			7
Cerebrospinal meningitis			1				1
Chicken pox		13		2		3	17
Diphtheria	3	5	1	7	1		17
Malaria		23			13	56	92
Measles		7		10			17
Paratyphoid fever	2			2	8	1	13
Poliomyelitis				1			1
Scarlet fever		6		1		4	11
Typhoid fever	8	36		52	7	13	116

EGYPT

Plague—Years 1929–1928 (comparative).—The following tables, taken from the reports of the Egyptian Public Health Service, give data regarding the incidence of plague in Egypt during the years 1929 and 1928. During 1929, out of 182 cases 13 cases occurred in foreigners, and in 1928, of the 517 cases all but one case occurred in natives.

Occurrence of plague in Egypt, by provinces

Province	Number of cases, 1929	Number of cases, 1928	Province	Number of cases, 1929	Number of cases 1928
Alexandria	61	5	Girga Province	3	8
Beni Suef Province	34	163	Beheira Province	3	7
Gharbia Province	23	6	Menufia Province	3	18
Port Said	17	1	Suez	1	40
Dakahliah Province	16	0	Qalioubieh	1	0
Assiout Province	7	9	Fayoum Province	1	1
Minia Province	5	217	Qena Province	1	4
Assouan Province	6	0	Western Desert Province	0	38

Occurrence of plague in Egypt, by type of disease

	Bubonic	Septicemic	Pneumonic	Total
1928				
Cases	485	31	1	517
Deaths	147	31	1	179
1929				
Cases	167	15	0	182
Deaths	54	15	0	69

TRINIDAD (BRITISH WEST INDIES)

Port of Spain—Vital statistics (comparative)—December, 1929.—The following statistics for the month of December for the years 1925 to 1929 are taken from a report issued by the Public Health Department of Port of Spain, Trinidad:

December

	1925	1926	1927	1928	1929
Number of births	178	143	174	174	168
Birth rate per 1,000 population	32.8	26.1	31.5	31.3	29.8
Number of deaths	114	142	146	118	145
Death rate per 1,000 population	21.0	25.9	26.4	21.2	25.7
Deaths under 1 year	17	29	25	16	22
Infant mortality rate per 1,000 births	95.5	202.8	143.8	91.9	130.9

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

From medical officers of the Public Health Service, American consuls, International Office of Public Hygiene, Pan American Sanitary Bureau, 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		July 28–Aug. 24, 1929	Aug. 25–Sept. 21, 1929	Sept. 22–Oct. 19, 1929	Oct. 20–Nov. 16, 1929	Week ended— November, 1929		December, 1929				January, 1930			
						23	30	7	14	21	28	4	11	18	25
China:															
Amoy	C	1													
Canton	C	5	1			1	1								
	D	3	1												
Hankow	C			4	2										
Manchuria—															
Kwantung—Dairen	C	1													
Newchwang	C		1												
Nanking	C		P		P										
Shanghai	C	1,306	984	35											
	D	98	69	11											
Swatow	D	12	37	22	12	1	1								
Tientsin	C			P											
Chosen: Chemulpo	C		P												
India	C	41,060	26,806	16,354	17,340	4,326	5,267	4,937							
	D	24,005	16,667	10,051	10,680	2,458	3,158	2,941							
Bassein	C	6													
Bombay	C	2		1											
	D	1													
Calcutta	C	170	135	160	252	85	55	60	65	40	38	15	45	44	41
	D	106	59	70	120	45	29	40		28	27	9	26	28	21
Karachi	C	10	11												
Madras	C				3		1	1							
	D				2		1	1							
Negapatam	C				2							1			
Rangoon	C	1		1	2	1					3	3		2	
	D	1		1	2	1					3	2		2	
Tuticorin	C			18	5	7	9	7		32	2		1	3	
	D			11	3	4	1	1		6	2		1	1	

Place															
India (French):															
Chandernagor	C	1		1	5	2	10	1	1		1				
	D				5	4	4	3	1		1				
Karikal	C	1									1				
Pondicherry Province	C			3		2	2								
	D			3		1	2								
India (Portuguese)	C	1	2	1											
	D	1	1												
Indo-China (see also table below):															
Pnompenh	C	3	3	61	43	1	2	1		2		1		2	3
	D	3	2	53	37		2	1		2		1		2	2
Saigon and Cholon	C	2			1		1	1						2	
	D	2												1	
Japan	C			34											
Kobe	C	2	9	3											
Osaka	C	5	41	14											
Shimonoseki	C	P	2												
Siam	C	180	26	9		2	1	4		3					
	D	112	19	4		1	1	1		1					
Anthoang	C	10													
	D	3													
Ayudhaya	C	2		2											
Bangkok	C	9	10	4		2		3		1	2	3		2	
	D	3	5	2				1			1				
Dhannapuri	C			2											
	D			2											
Lobpuri	C	2	3												
	D	2	3												
Nagara Rajsima	C	5		2											
	D	5		2											
Sridharmaraj Province	C	15													
	D	13													
On vessel:															
S. S. Shinsei, at Shanghai	D		3												
S. S. Texas Maru, at Nagasaki, from Shanghai	C	1													

Place		July, 1929	August, 1929	September, 1929	October, 1929	November, 1929			December, 1929			Jan. 1-10, 1930
						1-10	11-20	21-30	1-10	11-20	21-31	
Indo-China (French) (see also table above):												
Annam	C	9	17	1			2					1
Cambodia	C	186	35	38	221		43			41		71
Cochin-China	C	315	60	45	3		15			46		67
Laos	C	13	3	12								

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

PLAGUE

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

Place		July 28–Aug. 24, 1929	Aug. 25–Sept. 21, 1929	Sept. 22–Oct. 19, 1929	Oct. 20–Nov. 16, 1929	Week ended— November, 1929		December, 1929				January, 1930				February, 1930	
						23	30	7	14	21	28	4	11	18	25	1	8
Algeria:																	
Algiers	C		2														
Philippeville	C	3															
Argentina:																	
Rosario	C				2												P
Plague-infected rats					3												
Santa Fe	C				1										18	6	
Tucuman	C				1												
Azores: Ponta Delgada	C										P						
Belgian Congo: Djugu	C	1	2														
	D	1	2				2										
Brasil: Sao Paulo.[1]																	
British East Africa (see also table below): Uganda	C	840	528	405	336	72	68	91	50	42							
	D	730	556	343	310	66	63	86	47	40							
Ceylon:																	
Colombo	C		1	3		1		2	2		1	1		3			
	D		1	1		1		1	2			1		3			
Plague-infected rats		1	7					1									
Galle	C		8	1													
	D		6														
Kandy	C	1	1														
	D	1	1														
Chile: Antofagasta	C													1			
China:																	
Amoy	C	P															
Foochow	C	P	P	P													
Hong Kong	C	1	1														
	D	1	1														
Plague-infected rats		3	2														
Manchuria—Tungliao District	C	16															

Dutch East Indies: Java—																		
Batavia and West Java	C	122	180	131	266	89	96	80	75	65								
	D	121	178	128	262	86	97	80	72	61								
Plague-infected rats					1	3	2	3						2				
Celebes—Makassar	C							1							1			
Plague-infected rodents												2	2					
East Java and Madura	C	3	7	60	41	29												
	D	3	7	60	43	29												
Surabaya	C	3	7	4		1		3										
	D	3	7	2		1		3										
Ecuador (see table below).																		
Egypt:																		
Alexandria	C	5	11	13	11	1	1	2	2		2					1	3	
	D	1	5	3	4	1		1	1	2	1						1	
Assiout	C	1		1					1	4								
	D								1	2								
Assuan	C		1									2						
Beheira	C								1						2			
Beni Suef	C	1	1		2													
Dakahlieh	C		2						1			1						
	D	1	2									1						
Gharbieh	C	1		5	6				3			2		1				
	D	1		4					2			1						
Minieh	C	1																
Port Said	C	6	2	2														
	D	6	3	1														
France: Paris	C			1														
Greece (see also table below):																		
Messenia	C				2													
Patras	C		3	3	2													
Piraeus	C		3					1										
Pyrgos	C				6	2												
Hawaii: Hamakua—Kukuihaele—Plague-infected rats				3														
India	C	4,221	6,326	8,334	8,265	1,912	1,389	1,361										
	D	2,266	3,354	4,395	4,374	1,042	773	848										
Bassein	C	13	4															
	D	14	4															
Bombay	C	1	2	1														P
	D	1	2	1														
Plague-infected rats		10	28	32	31	11	9	9	7	3	8	9	9	7	10			
Madras Presidency	C	215	186	139	152	91	85	18	42	132	50	14	19		8			
	D	112	107	64	130	36	45	10	17	55	21	6	12		4			
Rangoon	C	15	11	5	2	1					1		2	1				
	D	12	9	6	2	1					1	1	2					
Plague-infected rats		10	15	6	6	1	1											
Indo-China (see also table below):																		
Pnompenh	C	8	4	1	2	2	2		1						1			
	D	8	4	1	2	2	2		1						1			
Saigon and Cholon	C	4	1	2										1				
	D	4		2														

[1] 21 cases of plague with 8 deaths were reported Jan. 29, 1930, in the State of Sao Paulo, Brazil. 15 of these cases were in the city of Sao Paulo.

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

PLAGUE—Continued

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

Place		July 28–Aug. 24, 1929	Aug. 25–Sept. 21, 1929	Sept. 22–Oct. 19, 1929	Oct. 20–Nov. 16, 1929	Week ended— November, 1929		December, 1929				January, 1930				February, 1930	
						23	30	7	14	21	28	4	11	18	25	1	8
Iraq:																	
Baghdad	C	2	------	3	4	1	1	------	1	1	------	------	1	------	2	2	1
	D	------	------	1	2	------	------	------	1	------	------	------	1	------	------	------	------
Basra	C	------	------	------	------	------	------	------	------	------	------	1	------	------	------	------	------
Naudham	C	------	------	------	1	------	------	------	------	1	------	------	------	------	------	------	------
Italy: Naples Province	C	------	------	2	------	------	------	------	------	------	------	------	------	------	------	------	------
	D	------	------	1	------	------	------	------	------	------	------	------	------	------	------	------	------
Plague-infected rats		------	------	3	------	------	------	------	------	------	------	------	------	------	------	------	------
Madagascar (see also table below):																	
Tamatave	C	1	2	5	3	------	------	------	------	------	1	3	------	------	------	------	------
	D	------	13	10	3	------	------	------	------	------	------	3	------	------	------	------	------
Morocco	C	4	1	------	3	4	2	------	3	5	4	1	2	2	------	------	------
Nigeria: Lagos	C	9	17	37	58	5	2	3	------	3	------	4	3	------	------	------	------
	D	8	17	35	49	5	2	3	------	2	------	4	4	------	------	------	------
Plague-infected rats		16	51	89	33	7	------	4	10	6	3	2	7	------	------	------	------
Peru (see table below).																	
Senegal (see table below).																	
Siam	C	3	7	3	1	------	1	1	1	------	------	------	------	------	------	------	------
	D	3	5	3	1	------	1	1	1	------	------	------	------	------	------	------	------
Bangkok	C	3	1	------	------	------	------	------	------	------	1	------	------	------	------	------	------
	D	3	1	------	------	------	------	------	------	------	1	------	------	------	------	------	------
Nagara Pathom	C	------	------	------	------	------	------	------	------	------	------	1	5	1	1	------	------
	D	------	------	------	------	------	------	------	------	------	------	1	4	2	2	------	------
Straits Settlements: Singapore	C	------	1	------	------	------	------	------	------	------	------	------	------	------	------	------	------
	D	------	1	------	------	------	------	------	------	------	------	------	------	------	------	------	------
Syria: Beirut	C	------	------	------	------	1	------	------	------	------	------	------	------	------	------	------	------
Tunisia:																	
Sfax district	C	------	------	13	34	------	11	5	4	9	1	2	------	3	------	------	------
Tunis	C	------	10	25	41	------	------	------	------	9	21	8	4	1	------	------	------
	D	------	1	------	------	------	------	------	------	------	21	------	------	------	------	------	------
Plague-infected rats		------	4	------	------	------	------	------	------	------	------	------	------	------	------	------	------
Turkey: Adalia	C	1	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------

Union of Socialist Soviet Republics:																			
Caucasia	C	2																	
	D	1																	
Kazaks	C													P					
Ural—Kirghis	C			1															
Union of South Africa:																			
Cape Province	C			17	13	4													
	D			13	5														
Orange Free State	C		1		7		1	5											
	D				4			3											
On vessel:																			
S. S. Chaban, at Port Said, from Jaffa	C	1																	
	D	1																	
Steamship at Porto Novo, from Lagos	C			1															
At Rio de Janeiro, Brazil, from Argentina	C																	1	

Place		August, 1929	September, 1929	October, 1929	November, 1929	December, 1929	January, 1930
British East Africa (see also table above):							
Kenya	C	19	28	146	157	15	
Uganda	C	866			179	105	
	D	749			164	94	
Ecuador: Guayaquil	C	6	7	12	14	17	
	D	1	3	4	3	6	
Plague-infected rats		4	8		9	13	
Greece (see also table above)	C	2	5	5	2	1	
	D	1	2	2	1		
Indo-China (see also table above)	C	9				10	4
Madagascar (see also table above)	C	48	195	203			
	D	46	182	193			
Ambositra Province	C	9	9	2	42		
	D	9	9	2	33		
Antisirabe Province	C	1	13	17			
	D	1	13	17			
Itasy Province	C		5		10		
	D		5		10		
Majunga Province	C	2					
	D	2					
Miarinarivo	C		11	12	5		
	D		11	11	5		

Place		August, 1929	September, 1929	October, 1929	November, 1929	December, 1929	January, 1930
Madagascar (see also table above)—Continued.							
Moramanga Province	C	2	5	27	4		
	D	2	4	27	3		
Tamatave Province	C		7	5			
	D		1	4			
Tananarive Province	C	36	141	141	103		
	D	34	135	132	93		
Peru	C	5		1			
	D	2					
Senegal:							
Baol [1]	C	32	42	45	23	5	
	D	13	24	13	16	2	
Dakar [1]	C	76	26	3	17	8	
	D	65	17	2	5	1	
Louga [1]	C	121	108	41			
	D	70	64	24	1		
Rufisque [1]	C		1				
	D		1				
Thies [1]	C	53	34	3			
	D	33	28	3			
Tivaouane [1]	C	188	119	41	8		
	D	119	55	21	4		

[1] Incomplete reports.

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

SMALLPOX

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

Place		July 28–Aug. 24, 1929	Aug. 25–Sept. 21, 1929	Sept. 22–Oct. 19, 1929	Oct. 20–Nov. 16, 1929	Week ended— November, 1929		December, 1929				January, 1930				February, 1930	
						23	30	7	14	21	28	4	11	18	25	1	8
Algeria:																	
Algiers	C	1		1	2		1	1	1						4		
Oran	C		5			3									4		
Arabia: Aden	C	38	4	3	2	1	1	2			1						
	D	37	1				1										
Bolivia: La Paz (see table below).																	
Brazil: Porto Alegre	C	3	2	2	5												
British East Africa (see also table below):																	
Tanganyika	C	5	9	3	41	6	7	16	21		20						
	D		1		4	3	1	3	3		4						
British South Africa:																	
Northern Rhodesia	C				907	27	27										
Southern Rhodesia	C		3	5	6	3	21		34								
	D								4								
Canada:																	
Alberta	C	4	4	1	12		4	11	7	5	2	7	2	4	2	8	
Calgary	C	2		1													
Edmonton	C	1		3	12		4		7	4	2	7	2	3	3		
British Columbia—Vancouver	C	8	5	15	9	1	6	6	1	6	2	7	2	3	6	4	
Manitoba	C				2				6	2	3		3	1	1	1	
New Brunswick	C	2		1													
Ontario	C	7	19	7	17	35	5	10	13	4	28	15	4	19	13	19	
London	C				4												
Niagara Falls	C				1												
North Bay	C		3	7	5	1		1							1	1	
Ottawa	C	1			1	2		1	1		4	3		5	1	3	1
Sarnia	C				1												
Toronto	C		3	1	2									2			
Windsor	C				2												
Prince Edward Island	C	2															
Quebec	C	3	1	7	22	6	2		8		1	2		4	1	6	
Montreal	C														1		
Quebec	C	1															
Saskatchewan	C	1	4		11	9	9	7	15	18	10	12	21	12	33	19	
Saskatoon	C		1	13	13												

China:																	
Canton	C	2					1		3	1			4	4			
Chungking	C			P	P	P	P	P	P	P	P	P					
Foochow	C	P	P	P	P		P			P		P					
Hong Kong	C	5	2	3	15	10	7	9	36	19	36	27	20	25	19		
	D	4	2	3	13	8	6	8	33	12	16	29	16	28	7		
Manchuria—																	
Harbin	C	1		1	1			2									
Kwantung-Dairen	C		2		1						1			1			
	D	1															
Nanking	C	P	P		P					P	P		P	P			
Shanghai—																	
Foreigners only	C			2	4	2	2	1		2	2	1					
Including natives	D				1	2				2	2		2	5			
Swatow	D	2										1	1				
Tientsin	C		2	3	1	3	1			2							
Chosen (see table below).																	
Colombia:																	
Barranquilla	C		4									1					
Buenaventura	C			15	50	14	16	12	14	9		2	2				
	D								1								
Dutch East Indies:																	
Belawan Deli	C	1	1		4			1		1							
Borneo—Samarinda	C	7		11	8												
	D			3													
Celebes—Makassar	C	4	12	156													
	D	3	5	1													
Java—																	
Batavia and West Java	C	10	35	31	11	11	7	17	2	5	2				2		
	D	5	7	6	7	3	1	2	2	3	2				2		
East Java and Madura	C	3			13		4	9									
	D	1			10												
Sanggi Islands	C					41	30	17	17	17							
	D					3	1		2	3							
Sumatra—Medan	C	3	3		4			1		1							
Egypt:																	
Alexandria	C			1		4			1								
Suez	C		5														
Great Britain:																	
England and Wales	C	502	496	490	643	279	198	252	265	195	232	248	335	414			
Ashton under Lyne	C	3		2	1	1	1		4	3				2			
Bradford	C		8	6	13	7		9	4	4	2	1	1				
Cardiff	C	1		1	1				1								
Leeds	C	1	2											3	1		
London	C	78	144	156	174	84	60	72	105	99	83	129	169	158			
London and Great Towns	C	297	304	332	442	214	148	208	213	159	180	186	274	298			
	D						1							1			
Newcastle-on-Tyne	C	4	2	1					1								
Stoke-on-Trent	C	18	18	7	9	1					2	10		3			
Greece: Patras	C									1							
Hedjaz	C	11	22	5	7	2	2	2			4		7	11			
	D	19	7	1	6	1							7	1			

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

SMALLPOX—Continued

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

Place		July 28–Aug. 24, 1929	Aug. 25–Sept. 21, 1929	Sept. 22–Oct. 19, 1929	Oct. 20–Nov. 16, 1929	Week ended— November, 1929		December, 1929				January, 1930				February, 1930	
						23	30	7	14	21	28	4	11	18	25	1	8
Honduras: Choluteca	C			2													
India	C	5,481	4,199	3,111	3,337	1,565	1,744	1,917	2,418	2,723							
	D	1,418	954	661	730	332	408	555	668	775							
Bombay	C	63	37	16	12	9	8	12	13	19	29	25	46	85	74		
	D	31	24	11	8	1	5	4	4	11	12	15	19	33	25		
Calcutta	C	31	21	12	6	7	6	7	34	7	18	29	34	41	35		
	D	20	16	11	4	6	5	6	22	5	13	24	20	28	28		
Cochin	C	4	13	13	96	29	47	245	66	67	71	51	47	58	61		
	D		1		11	10	5	51	6	6	4	3	7	6	5		
Karachi	C	15	27	10	2	3	2	1	1	2	3	8	4	7	6		
	D	7	16	3	1		2			4	2	3	2	2	2		
Madras	C	89	82	79	58	22	18	14	10	27	25	10	23	10	22		
	D	22	21	8	11	2	2	5	2	7	5	2	2	3	3		
Moulmein	C	11	5	3	3	1	1	1	3	3	1	8	5	3	15		
	D	5	2		2			1	2	3	1	4	1	2	8		
Negapatam	C	1	3	1	1		1										
	D		1														
Rangoon	C	1		1		1				1			1		2		
Vizagapatam	C		1								1	1		2			
	D	1	1														
India (French):																	
Karikal	C	12	14	2	4				1								
	D	2	13		2				1								
Pondicherry Province	C	12	8	5	19			1	6	2	7	6	5				
	D	7	8	3	16	1	1	1	4	1	7	6	5				
India (Portuguese)	C		1	1					1	2	3	1					
Indo-China (see also table below):																	
Pnompenh	C	3	1	1	2									1			
	D	3	1														
Saigon and Cholon	C											2	2	1	1		
	D											2		1	1		
Iraq:																	
Baghdad	C				9	3	2	5	10	4	6	5		3	1	3	
	D				3	2		2	6	1	1	3			1	1	
Basra	C						1	4									
Diyalah Liwa	C	13	4		63		33	13									
	D	12			18		3	4									
Kirkuk Liwa	C		21	16	90		19	51									
	D		1		26		6	13									

Mossoul	C	81	68	24	152	20	8	19	1	53	27			26			
	D	13	17	6	99	6	1	10		3				7			
Ivory Coast (see table below).																	
Mexico (see also table below).																	
Acapulco	C	4	1														
	D	4	1														
Aguascalientes	D	7	6	8	1												
Coahuila	D				1												
Jalisco (State): Guadalajara	D	5	8	4	1		1	4	1	1	5	1	2	2	3	4	
Juarez	C	3	P	10	6			11				3					
Mexico City and surrounding territory	C	21	7	8	9	6	2	5	6	2	15						
	D	6	1	8	4		1	6	2								
Morelos State.[1]																	
Morocco (see table below).																	
Netherlands: Rotterdam	C	141	110	39	18			5				1					
	D	1	7	5	1	1											
Nigeria: Lagos	C			1								1	1				
Panama	C	5	95	154	11												
Persia (see table below).																	
Philippine Islands: Sarangani and Balut Islands [2]	D											40		18			
Poland	C	2		1	2	1	3						2				
Portugal:																	
Lisbon	C	1	17		2		1	1	1	3			2				
Oporto	C					1											
Rumania	C		1	2													
	D		1														
Siam	C	32	23	33	7	1		1	1	6		27	9				
	D	7	5	2	2				1			2	7				
Somaliland, British: Boales	C		4	3	25	5	8	6	5	1	2		2	2			
	D		2	4	16	2	3	1	3	4	3	1	1	1			
Somaliland, French: Jibuti	C	31	10														
	D	21	11														
Straits Settlements	C													1		1	
	D													1			
Sudan (Anglo-Egyptian)	C	87	598	250	91	74	7	35	138	52	30	3	205	14	21	171	5
	D	73	95	16	12	32	2	10	1	14	9		42	1	8	20	5
Sudan (French) (see table below).																	
Syria (see table below).																	
Tunisia: Tunis	C			6	23	12	12	7	16		14	3	3	1			
Turkey (see table below).																	
Union of South Africa:																	
Cape Province	C			P	P	P	P	P		P	P						
Natal	C	P	P			P											
Transvaal	C		P	P	P	P	P	P		P	P						
Upper Volta	C			1													
On vessel:																	
S. S. Karoa, at Zanzibar	C		1		1												
S. S. Taipikn, at Manila, from Australia	C				1												
S. S. Umvuma, at Cape Town, from London	C			5													

[1] Newspaper reports of Feb. 4, 1930, show an epidemic of smallpox in Ionacatepec, Morelos State, and vicinity, giving 600 deaths in last two weeks.
[2] On Feb. 1, 1930, 317 cases of smallpox with 102 deaths were reported to date in the Sarangani and Balut Islands.

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

SMALLPOX—Continued

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

Place		July, 1929	August, 1929	September, 1929	October, 1929	November, 1929			December, 1929			Jan. 1-10, 1930
						1-10	11-20	21-30	1-10	11-20	21-31	
Belgian Congo	C			725			42					
	D			19			2					
Dahomey	C				4			19	19			
Indo-China (see also table above)	C	159	263	64	128		245			142		136
Ivory Coast	C	22	2									
Sudan (French)	C	15		2				P		17		
Syria: Beirut	C	27	29	37	28	22	22	16	10	9	6	19
	D				1		6					

Place		August, 1929	September, 1929	October, 1929	November, 1929	December, 1929	January, 1930
Bolivia: La Paz	C			120	22		
British East Africa (see also table above):							
Kenya	C	60	66		278		
Chosen	C	1			2		
	D	1					
Mexico: Durango (see also table above)	D		2	2	2	4	12

Place		August, 1929	September, 1929	October, 1929	November, 1929	December, 1929	January, 1930
Morocco	C	10	3	12	41	84	
Persia	C		62	57		P	
	D			158	37		
Turkey	C	1	41	100	136		
	D		9	29	12		

TYPHUS FEVER

Place		July 28–Aug. 24, 1929	Aug. 25–Sept. 21, 1929	Sept. 22–Oct. 19, 1929	Oct. 20–Nov. 16, 1929	Week ended— November, 1929		December, 1929				January, 1930			
						23	30	7	14	21	28	4	11	18	25
Algeria:															
Algiers	C	4	4	10	2		1				1		13		
Constantine Department	C	2			1			1	2			1	1	1	2
Oran	C	2	3						1					1	1
Bolivia:															
La Paz	C				13	14									
Pacajes Province—Calacoto Canton	C	19													
	D	5													
Brazil: Sao Paulo.[1]															
Bulgaria	C		14					9							
	D							1							
Sofia	C				1										
	D				1										
Chile: Valparaiso	C	1													
China: Tientsin	C	1								1					
Chosen (see table below).															
Czechoslovakia (see table below).															
Egypt:															
Alexandria	C		1	2											
Assuan	C											9			
	D											1			
Beheira Province	C	31	6	16	2							7		6	8
	D		2	4	1										
Cairo	C	4	3			1									
	D		1			1									
Dakahleih	C											4	7		
	D												2		
Port Said	C	3													1
Suez	C	2		1	1										
Greece (see table below).															
Iraq: Baghdad Liwa	C											1			
	D											1			
Ireland (Irish Free State): Donegal County—Dunfanaghy	C											1			
Latvia (see table below).															
Lithuania (see table below).															
Mexico:															
Aguascalientes	D	1													
Mexico City, including municipalities in Federal District	C	11	14	9	3	1	1	1	2	4	2				
	D	1	6		1					1	1				

[1] Press reports show that 10 deaths from typhus fever have occurred in Sao Paulo, Brazil, from Nov. 3 to 30, 1929.

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

TYPHUS FEVER—Continued

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

Place		July 28–Aug. 24, 1929	Aug. 25–Sept. 21, 1929	Sept. 22–Oct. 19, 1929	Oct. 20–Nov. 16, 1929	Week ended— November, 1929		December, 1929				January, 1930			
						23	30	7	14	21	28	4	11	18	25
Morocco	C	6		5	4		1		1	1	1	3	1	7	2
Palestine	C	1	5	3	2	1							1		
Persia	C	23													
	D	8													
Peru: Arequipa (see table below).															
Poland	C	48	26	31	62	17	16	19	22		18	15	28	67	
	D	7	4	3			3	3	4		2	1	1	5	
Portugal: Oporto	C	1		1	3	2	1								
Rumania	C	9	39	25	19	8	11	32	52	14					
	D	1	4	5	2			1	9	1					
Tunisia	C	4		1	1	1	1		1				2		
Turkey (see table below).															
Union of South Africa:															
Cape Province	C	1	P	P	P		P	P		P	P				
Natal	C	P	P	2	P		P								
Orange Free State	C	P	P	P	P		P	P		P	P				
Transvaal	C	P	P	P	P										
Yugoslavia (see table below).															

Place		July, 1929	August, 1929	September, 1929	October, 1929	November, 1929	December, 1929
Chosen: Seoul	C			1			
Czechoslovakia	C			1		3	
France	C			1			1
Greece: Athens	C		6	3	7		
Latvia	C		1				
Lithuania	C	10	7	3	6	4	
	D	1	1		1	1	

Place		July, 1929	August, 1929	September, 1929	October, 1929	November, 1929	December, 1929
Peru: Arequipa	D	1		1	1		
Turkey	C		3	4	10	2	4
	D			1			
Yugoslavia	C	3	7		1		6
	D	1	2				1

YELLOW FEVER

Since Aug. 1, 1929, the following cases of yellow fever have been reported: Nictheroy, Brazil, 1 case; Rio de Janeiro, Brazil, 2 cases; Monrovia, Liberia, 1 case. All occurred during the month of September, 1929.