PUBLIC HEALTH REPORTS

VOL. 46 JANUARY 9, 1931 NO. 2

THE OCCURRENCE OF TULARÆMIA IN BRITISH COLUMBIA

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The first diagnosed case of tularæmia in Canada was reported by McNabb, in February, 1930,[1] in a miner aged 34, living near Timmons, Ontario. Incidentally, it was also the first evidence that tularæmia was resident in the native fauna of Canada. In the present paper there is reported the recovery of *Bacterium tularense* McCoy and Chapin from a snowshoe rabbit (*Lepus americanus columbiensis* Rhoades), near Vavenby, British Columbia, in May, 1930. These two occurrences of tularæmia, the former in Ontario 400 miles north of the United States border, the latter in British Columbia over 200 miles north of the border, and the two localities over 1,500 miles apart from east to west, suggest the likelihood that tularæmia in the Canadian fauna is a widespread infection of many years' standing.

In the spring of 1930 one of us (Parker), upon request of the Dominion entomologist, Mr. Arthur Gibson, was detailed by the Surgeon General of the United States Public Health Service to visit British Columbia for the purpose of conferring with Hearle and Bruce concerning the occurrence of ticks and tick-borne infections in that Province. Incident to a trip into south central British Columbia during late April and early May, a snowshoe rabbit was autopsied which had an enlarged spleen and of which the liver showed lesions suggestive of tularæmia. This rabbit had been found near Vavenby, too weak to resist capture, by a local rancher and amateur naturalist, Mr. T. A. Moiliett, who, because of the animal's heavy infestation with ticks (*Haemaphysalis leporis-palustris* Packard), forwarded it to Hearle's laboratory at Kamloops.

Later, at the Public Health Service laboratory at Hamilton, Mont., some of the ticks and portions of the rabbit's spleen and liver (preserved in glycerin) were tested for the presence of *Bacterium tularense.*

[1] McNabb, A. L.: Tularæmia; The First Case Reported in Canada. Canadian Public Health Journal, vol. 21, February, 1930, pp. 91-92.

Three tick-injected guinea pigs and two of three injected with liver emulsion died in two to four days, and on necropsy all showed lesions typical of tularæmia. One liver- and three spleen-injected guinea pigs remained apparently well and when killed and autopsied were either negative or showed poorly defined lesions. Cultures recovered from one of the tick- and one of the liver-injected guinea pigs, when used as antigen, were agglutinated in high titer by known tularæmia immune sera, which similarly agglutinated a known *tularense* antigen.

In addition to these definite data, information suggestive of the occurrence of tularæmia in other parts of Canada was secured from Mr. Alex Dennis, of the Canadian Entomological Service, at Vernon, and from Maj. Allan Brooks, of Okanagan Landing. The former stated that in 1921, when living at Salmon Arm, British Columbia, he had killed snowshoe rabbits whose livers were "spotted"; and the latter said that when residing in Alberta "rabbit cycles" had been a familiar phenomenon, and that during epidemic years there was always an unusual amount of sickness among the resident settlers by whom jack rabbits were commonly used as food.

EFFECT ON LIFE INSURANCE MORTALITY RATES OF REJECTION OF APPLICANTS ON THE BASIS OF MEDICAL EXAMINATION

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The subject of the duration of medical selection due to rejections by life insurance companies on account of poor physical condition or disease has been discussed on many occasions in actuarial literature, but has not been taken up very often in publications relating to public health and vital statistics, although it is an important factor in the interpretation of life insurance mortality. Let that be the excuse for recurring at this time to a subject which was termed "threadbare" by George King in 1878.[1] It is always well, furthermore, to check up on previous conclusions whenever new data become available, especially since the relation between actuarial mortality and that of the general population appears to have changed greatly in the last half century.

The factor of selection which originally received particular attention was "the selection which the assured exercise against the companies by dropping policies on healthy lives and retaining those on lives which have become bad or doubtful."[2] However, by 1870, the

[1] In the discussion of a paper by T. B. Sprague read before the British Institute of Actuaries. Journal of the Institute and Assurance Magazine, January, 1879, Vol. XXI, p. 253.

[2] On the Value of Selection as Exercised by the Policyholder Against the Company. John Adams Higham. Read before the British Institute of Actuaries, Mar. 31, 1851. The Assurance Magazine, vol. 1, No. III, April, 1851, p. 190.

importance of selection due to the medical examination was already recognized. For instance, at that time Sprague[3] stated: "It is universally acknowledged that the rate of mortality among assured lives is very light during the first few years that follow the grant of the assurance; being extremely small in the first year and gradually increasing until, after the lapse of a greater or less number of years, the mortality becomes, according to some authorities, equal to that indicated by tables deduced from the population at large and according to others still heavier. This is, of course, satisfactorily explained by the medical examination of the lives proposed for assurance, which has the effect of eliminating those persons who are suffering from such acute or chronic diseases, dangerous to life, as can be detected by the medical officers of the assurance companies." The subject of withdrawals, however, continued to be the major topic of discussion with reference to selection until rather recently. At the present time discussions of selection relate rather to that due to the medical examination, including reports on the family history, personal history, and habits of persons applying for insurance (recently termed "temporary selection" by Elderton[4]), and a permanent force due to the class of lives involved ("permanent selection"). Without expressing an opinion as to whether the withdrawals ever did have an appreciable effect on the assured mortality rates, I believe we can follow Elderton's lead and disregard this phase of the subject. In passing, it may be said, however, that previously more reasonableness attached to the view that withdrawals did constitute a factor of selection against the company, because the mortality rate among insured lives was believed to be as high as or higher than that in the general population. As is well known, the contrary is true to-day for "ordinary" policyholders, a point which will be referred to later.

Henry Moir, in 1919,[5] stated that: "More recently it has been urged that withdrawals do not have the effect of reducing the proportion of healthy lives; indeed, the direct contrary is sometimes accepted on the ground that withdrawal from a company in good standing is more frequently a result of financial embarrassment or irregular habits."

The duration and total effect of "temporary selection" on the mortality of assured persons have become important points in the

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[3] On the Rate of Mortality Prevailing Among Assured Lives, as Influenced by the Length of Time for Which They Have Been Assured. Thomas B. Sprague. Journal of the Institute of Actuaries and Assurance Magazine, Vol. XV, Part V, April, 1870, p. 328.

[4] (*a*) Report on the Results of an Investigation of the Mortality Experience of Life Annuitants During the Period 1900–1920. W. Palin Elderton and H. J. P. Oakley. Journal of the Institute of Actuaries, Vol. LIV, Part I, p. 43, March, 1923.

(*b*) Notes on the Interpretation of "Select" Rates of Mortality. W. Palin Elderton and H. J. P. Oakley. Journal of the Institute of Actuaries, Vol. LV, Part I, p. 1, March, 1924.

[5] Sources and Characteristics of the Principal Mortality Tables. Henry Moir. Actuarial Studies No. 1. [6] Published by the Actuarial Society of America, 1919, p. 44.

minds of actuaries in this country, following the adoption a few years ago by certain Canadian companies of the principle of insuring persons without medical examination.[6] It is the general feeling that most of the selection wears off in the course of two years, but that a residue remains for some years. There is a great difference of opinion in regard to the matter. Henry Moir states that "it is the general opinion that the effects of the first selection never entirely disappear."[7] On the other hand, Elderton believes that the period of "temporary selection" has frequently been overestimated because of the gradual decrease with time in the mortality rates analyzed.[8] Thus there would seem to be a place for a further analysis of assured mortality data from this point of view. A measure of the degree of the selection in terms of mortality has not been completely worked out and is, no doubt, a changing element. For instance, Moir states that "the influence of medical selection is more persistent, and especially conspicuous amongst younger men." It might be expected that advance in medical science, with the development of urinalysis and other laboratory technique, would tend to make the selection more far-reaching in its effect.

One will realize that there is a corresponding selection in the case of annuitants, but due to a quite different cause. Persons who do not believe themselves to be in good health are not likely to take out annuity policies. Here again the maximum effect of this selection will be found in the early years of the policies. As the present study was not concerned with annuitants, no data on this phase of selection is included.[9]

The material for the present study is based on a joint investigation on occupational mortality by the Actuarial Society of America and the Association of Life Insurance Medical Directors.[10] As a basis for the occupational comparisons, data were secured for ordinary business[10a] during the years 1915–1926, involving $546,357,000 in death claims. It should be noted that these data were based on the amounts insured, rather than on policies (the unit being taken as $1,000, about the amount of the average policy), but it was not be-

[6] (a) Life Insurance Without Medical Examination. D. E. Kilgour. Transactions of the Actuarial Society of America, May 19 and 20, 1921. Vol. XXII, Part 1, p. 120.

(b) Actuarial Note. Insurance Without Medical Examination. Savings in Expense Compared With Expected Extra Mortality. Arthur Hunter. Transactions of the Actuarial Society of America, May 19 and 20, 1921. Vol. XXII, Part 1, p. 140.

[7] Op. cit., p. 44.

[8] Elderton and Oakley. Op. cit., 1924.

[9] See Elderton and Oakley, 1923, Op. cit., for a recent study of selection in the case of annuitants.

[10] Joint Occupation Study: 1928. Compiled and published by the Actuarial Society of America and the Association of Life Insurance Medical Directors. New York: 1929. The chairman of the joint committee is Arthur Hunter, to whom grateful acknowledgment is made for review of the present paper.

[10a] Exclusive of industrial insurance where premiums are paid weekly or monthly.

lieved that this would result in any marked differences.[11] The data were graded to form tables of mortality rates from which to calculate the expected number of deaths in any occupation; but for the present purpose it seems preferable to employ the ungraded data (number exposed to risk and number of deaths by age of the policy and age at entry) to avoid possibility of errors entering into the calculations because of the method of grading. The number exposed to risk and the number of deaths are given in two appendix tables. The data were secured from 10 large insurance companies.

The basic data are given in the joint report in two ways: First, for the whole period 1915–1926 (being carried to the anniversaries of the policies in 1927), and second, for a part of this period for which some additional data were available, 1920–1926. It is a significant point that only policies *taken out* during the two periods are included, so that the maximum length of policy for the total period is 12 years and for the period 1920–1926 is seven years.

In determining the most logical way of handling the material, it was felt that the first consideration was the elimination of the effect of the influenza epidemic of 1918–19, since this not only greatly increased the rates, but exerted its influence mostly among young adults. The second period (1920–1926) was almost free from this effect, but had the unfortunate difficulty of being only seven years in duration. Furthermore, it was evident that in this case all of the deaths occurring during the seventh year of the policies would be in 1926, and all of the deaths during the sixth year of the policies would be in 1925 or 1926—i. e., at the very end of the period and based on relatively small numbers.[12] It seemed best, therefore, to use the 1920–1926 data for the first four years of the life of the policies, and the 1915–1926 data for the succeeding eight years. The effect of the epidemic was eliminated in this way; since even when the full period was used all deaths must have occurred after 1919, data for less than 4-year policies being used only for the period 1920–1926.

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[11] The point should be made, however, that the deaths are based upon death claims actually paid. Rejection of claims in the first year would therefore be one of the factors included in "temporary selection" as understood in this paper.

Quotation is made from the Joint Report in regard to the use of amounts, as follows:

"Material for the mortality rates was furnished by each company in the same form as was used in the occupational classes. The latter were derived by policies, as the committee were satisfied that the mortality by policies would not differ essentially from that by amounts, especially in view of the small average policy in this investigation. In the case of the basic tables, however, the material had already been prepared in some of the companies by amounts for dividend purposes and in several of these institutions it would have been very laborious to obtain the exposures and deaths by policies. The data for amounts insured were therefore used for the basic tables." These are the data employed in the present analysis.

[12] Similarly, of course, for the 1915–1926 data, the deaths during the twelfth year would also be in 1926, etc., but after the policies had been in force for so long a period as this, the lack of precise data did not seem of importance (even if they could have been secured).

Recent investigations have brought out certain difficulties in determining the duration of selection due to the inclusion of data covering a long period of time during which the mortality rate and other relations may be changing. It is of interest to quote the following from Elderton:[13]

> The simplest safeguard against misstating the period of selection probably lies in frequent investigations and the examination of the statistics obtained. We are inclined to take the view that by making past investigations over a long period of years in order to get a mass of data and thus reduce "errors of observation," we have introduced persistent errors which are of greater importance and have created for ourselves the inconvenience of showing temporary selection for a longer period than is justified by the statistics or necessary for calculations depending on an assumed future mortality. We feel that the true period of temporary selection can only be ascertained with certainty by the examination of homogeneous facts, and while we recognize that actuaries have always attached importance to homogeneity, we believe that there are more factors involved than has sometimes been assumed and that one of the most important of them is time.

It can be shown that the present material is reasonably free from such difficulties, especially since the total period (1915–1926) has only been used for policies of five years or more duration and therefore only deaths occurring during 1920–1926 have been used in the calculations. The mortality rate in this country has shown steady improvement in the past, but during the years 1920 to 1926 remained at a constant level. The crude mortality rates for these years in the total registration area were: 1920, 13.0 per 1,000; 1921, 11.6; 1922, 11.8; 1923, 12.3; 1924, 11.8; 1925, 11.9; 1926, 12.3.[14]

A fundamental difficulty in the present analysis will lie in the fact that the material is given according to the age at issuance, not the true age. For instance, Table 1 presents the annual death rates according to the age of the policy and age at issuance, and the reader will see at once that a directly vertical comparison is not possible, since persons classed in the age group 15 to 19, but with sixth year policies, were really in the age group 20 to 24. In other words, one year is added to the age for each step down the table. This fact is indicated by the figures in boldface, three age groups having been selected to emphasize the point. As the data were collected from the insurance companies in 5-year age groups, no direct correction is possible.

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[13] Elderton and Oakley, Op. cit., 1929.

[14] In the spring of 1920 there was a recurrence of the influenza epidemic; but this could have affected only a relatively few assured persons—i. e., those taking out policies between Jan. 1, 1920, and the date of the wave of influenza and those taking out policies in the corresponding period of 1915.

TABLE 1.—*Annual mortality rates per 1,000 by policy year and age at issuance*

Policy year	Age at issuance of policy										
	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 to 44	45 to 49	50 to 54	55 to 59	60 to 64	65 and over
1920–1926											
First	1.96	1.76	**1.56**	1.76	2.34	2.94	**4.43**	6.06	10.49	14.66	**19.28**
Second	2.21	2.06	1.89	2.26	3.67	4.07	5.65	9.17	13.88	18.84	27.09
Third	2.14	2.28	2.19	2.56	3.81	5.08	7.39	11.47	17.74	17.52	46.28
Fourth	2.31	2.26	2.35	2.88	3.71	6.43	7.79	10.55	16.93	21.65	30.96
1915–1926											
Fifth	2.54	2.43	2.79	3.33	4.16	5.78	9.10	13.30	16.49	27.33	35.49
Sixth	2.68	**2.37**	2.75	3.42	4.72	**7.38**	11.15	14.89	23.31	**31.49**	55.85
Seventh	2.64	2.30	2.61	3.49	4.88	7.25	10.55	17.92	26.10	35.33	65.14
Eighth	2.54	2.22	2.85	3.82	5.87	8.35	11.11	19.01	29.46	45.51	48.71
Ninth	2.66	2.66	3.10	4.15	6.14	10.46	13.07	21.74	25.75	56.79	52.52
Tenth	2.52	2.62	3.42	4.01	6.14	9.51	13.32	21.02	31.19	45.36	54.56
Eleventh	**2.29**	2.92	3.10	4.59	**7.96**	9.21	18.90	21.13	**41.14**	36.86	103.91
Twelfth	2.70	2.33	3.57	4.69	8.01	11.19	16.47	30.62	38.74	93.25	219.21

If one follows down the rates given in boldface, or the intervening values, it will at once be evident that there is a factor of selection that is gradually dissipated—that as the policies become older, the mortality rates rise. Selective factors having to do with the type of person taking out insurance would exert a constant effect regardless of the number of years the policies have been in force. It appears a natural assumption that the selective factor which gradually fades out is that due to the medical examination (neglecting the small effect of withdrawals of healthy lives, already discussed). Furthermore, we can feel that this factor has ceased to be effective when the mortality rates for the same true age no longer rise as the policy years increase.

In the next table a comparison is made for the first, sixth, and eleventh year policies, because in that case it is possible to move the rates over one age group (in the case of the sixth year policies), and two age groups (in the case of the eleventh year policies). The table also gives the ratios to the first year policies. The indefinite age group, 65 years and over, is omitted.

TABLE 2.—*Annual mortality rates per 1,000 for first, sixth, and eleventh policy years by true age, with ratios to first year*

Policy year	Attained age at specified policy year									
	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 to 44	45 to 49	50 to 54	55 to 59	60 to 64
RATE										
First	1.96	1.76	1.56	1.76	2.34	2.94	4.43	6.06	10.49	14.66
Sixth	-------	2.68	2.37	2.75	3.42	4.72	7.38	11.15	14.89	23.31
Eleventh	-------	-------	2.29	2.92	3.10	4.59	7.96	9.21	18.90	21.13
RATIO TO MORTALITY RATE IN FIRST POLICY YEAR										
First	100	100	100	100	100	100	100	100	100	100
Sixth	-------	152	152	156	146	161	167	184	142	159
Eleventh	-------	-------	147	166	132	156	180	152	180	144

Even from this crude summary of the data two facts emerge: that there is an increase of more than 50 per cent in the mortality from the first to the sixth years, and that after this time there is no appre-

ciable increase. This is shown very clearly from Figure 1 where these three curves have been plotted, allowing for the increase in age as the number of policy years increased.

It is suggested that somewhere between the first and the sixth year the effect of selection ceases to be operative so far as all causes of mortality are concerned. One may imagine that in the case of a specific disease, such as tuberculosis, this effect might persist for a much longer time, but information on that point is not at present

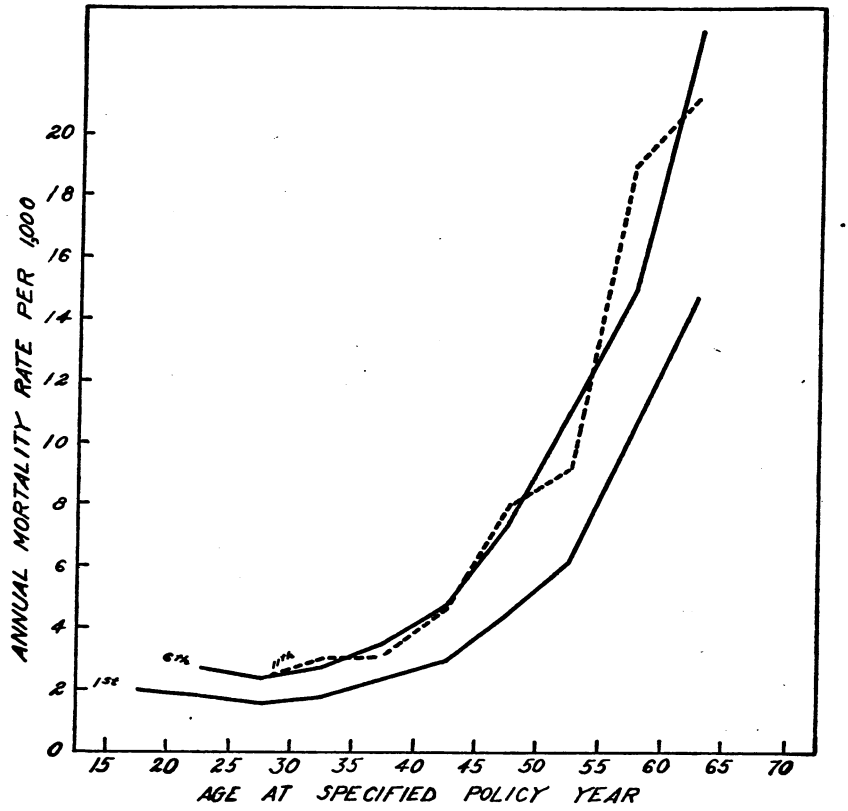

FIGURE 1.—Mortality rates for the first, sixth, and eleventh policy years, by true age

available. Furthermore, no question is raised now as to the factors of selection that differentiate the insured persons from the total population. We are concerned only with the effect of selection resulting from the medical examination itself. Later comparison will be made with the general population.[15]

[15] For the reader who is doubtful about the results owing to the effect of time, it may be pointed out that the comparison between the first and sixth years is entirely free from such a factor. In both cases all deaths occurred during the period 1920–1926, since the first-year policies were based on that period and deaths for sixth-year policies would not have occurred before 1920. The same would be true in comparing the second and seventh year policies (based on 1921–1926) and the third and eighth year policies (based on 1922–1926), etc

In the next graph an attempt has been made to deal with the intermediate curves. It is evident that the age of persons in the second policy year will, on the average, be one year greater than of those in the first policy year. Therefore a lag of one year is allowed in plotting the second policy year curve, etc. In this case semi-logarithmic paper has been employed to bring out the relative differences between the curves and especially to emphasize the differences in the earlier part of life, which would be more or less lost in a comparison on arithmetic paper.

One finds a definite excess in mortality for persons in the second year of their policies compared with those in the first year. The third

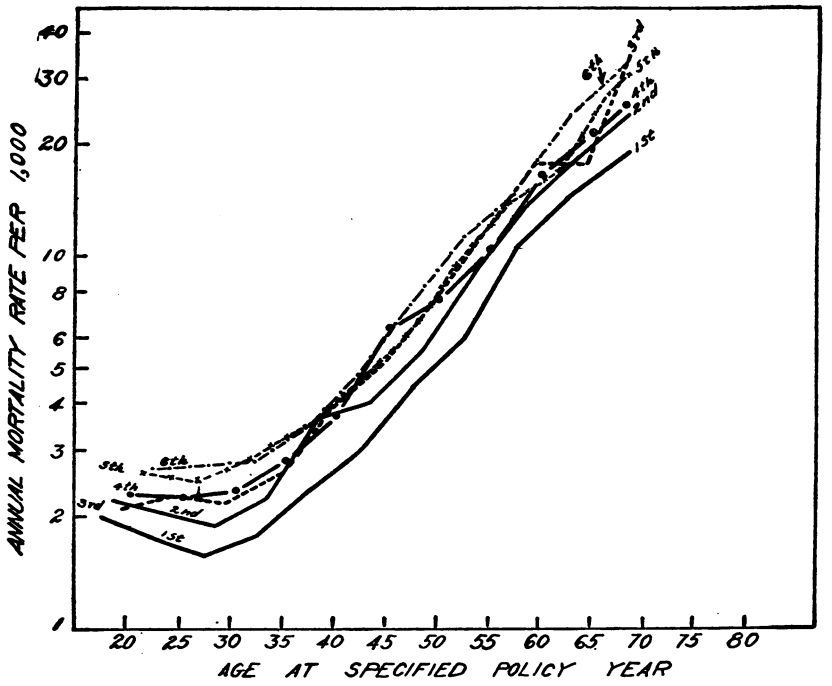

FIGURE 2.—Mortality rates for the first policy years, by true age

year also shows an additional increase in mortality, but of no great amount. The curve for the fourth year is, if anything, slightly under that for the third, but the fifth again shows a small increase. The mortality rate seems quite stabilized by the sixth year.

It was realized that a more intelligible expression of this relation would be secured if the number of years the policies had been in force could be used as the base line rather than the age. Although it would not be possible to disregard age, it did seem practicable to deal with three or four broad age groups showing curves for each. The difficulty, of course, lies in allowing for the fact that the data were

according to age at issuance of the policies. An approximate but simple method was devised to allow for this factor. Suppose we take the age group 25 to 34. For the first policy year, the rate could be easily calculated from the number of persons exposed to risk and the number of deaths in the two 5-year age groups. For the second policy year, it seemed accurate enough to add to these figures one-fifth of the persons and deaths in the age group 20 to 24, and to deduct from them one-fifth of the persons and deaths in the age group 30 to 34. For the third policy year, in the same way, two-fifths would be added from the 20 to 24 age group and two-fifths deducted from the 30 to 34 age group; and so on. This method was applied consistently for the succeeding broad age groups. Table 3 gives the results.

TABLE 3.—*Annual mortality rates by year of policy for three age groups, with ratio to first year* [1]

Policy year	Attained age group		
	25 to 34	35 to 44	45 to 54
RATIO TO FIRST YEAR			
First	100	100	100
Second	124	140	126
Third to fourth	143	148	149
Fifth to sixth	160	153	162
Seventh to ninth	153	157	165
Tenth to twelfth	162	151	167
DEATH RATE PER 1,000			
First	1.67	2.61	5.02
Second	2.07	3.65	6.31
Third to fourth	2.39	3.87	7.47
Fifth to sixth	2.68	3.99	8.14
Seventh to ninth	2.55	4.10	8.28
Tenth to twelfth	2.71	3.93	8.36
EXPOSED TO RISK [2]			
First	7,836,580	7,480,665	3,501,176
Second	5,275,376	5,540,249	2,890,597
Third to fourth	6,258,637	7,136,339	4,082,861
Fifth to sixth	5,412,464	6,829,047	4,149,447
Seventh to ninth	3,384,605	5,056,611	3,565,928
Tenth to twelfth	690,287	1,294,748	1,037,609
NUMBER OF DEATHS [2]			
First	13,101	19,496	17,579
Second	10,932	20,247	18,236
Third to fourth	14,937	27,630	30,496
Fifth to sixth	14,512	27,247	33,792
Seventh to ninth	8,614	20,752	29,543
Tenth to twelfth	1,874	5,090	8,671

[1] First 4 insurance years, based on 1920–1926 data, the remaining years based on 1915–1926 data.
[2] Based on amounts insured and death claims paid, converted into persons on a unit of $1,000.

In addition to the number exposed to risk and the number of deaths, the table gives the corresponding annual death rates, and also the ratio to the rate for the first year. A rather broad grouping of policy years has been followed in order to give regularity to the results.

The death rates from this table are reproduced in Figure 3. The higher age groups naturally have the higher mortality rates, but the point of particular interest is the rise in the curves during the earlier years of the policies. The significance of these curves is much better brought out by the ratios given in the preceding table, since these

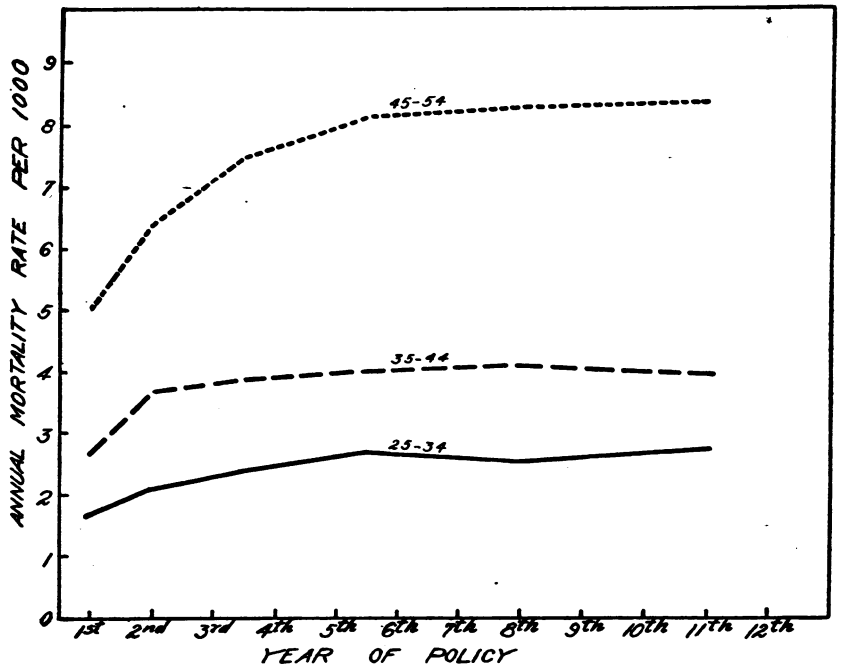

FIGURE 3.—Mortality by years of policy for three age groups

ratios bring the three age groups together at the beginning of policy life. The ratios are plotted in Figure 4. The results are quite consistent for the three age groups, and point unmistakably to the fact that the duration of selection due to the medical life insurance examination, taking all causes together, is hardly more than three or four years.

An estimate of the lessened mortality rates in insurance data as a result of the medical examination can be obtained from this graph. The ratio reaches a level of about 158. In other words, in the first year the mortality is 37 per cent less than it would be if we could imagine the insuring of people without examination, other factors

remaining the same.[16] In the second year the percentage is about 18; in the third, about 10; in the fourth, about 5. After that the difference is nominal.

In this comparison no reference has been made to the highest ages. It was felt that persons applying for life insurance much above the age of 50 formed a special group and were given a more thorough examination. The numbers were also small for these advanced ages and inconsistent results were noted on analysis. For these reasons, no consideration has been given to the higher ages other than that already given in the curves according to age. (Figs. 1 and 2.)

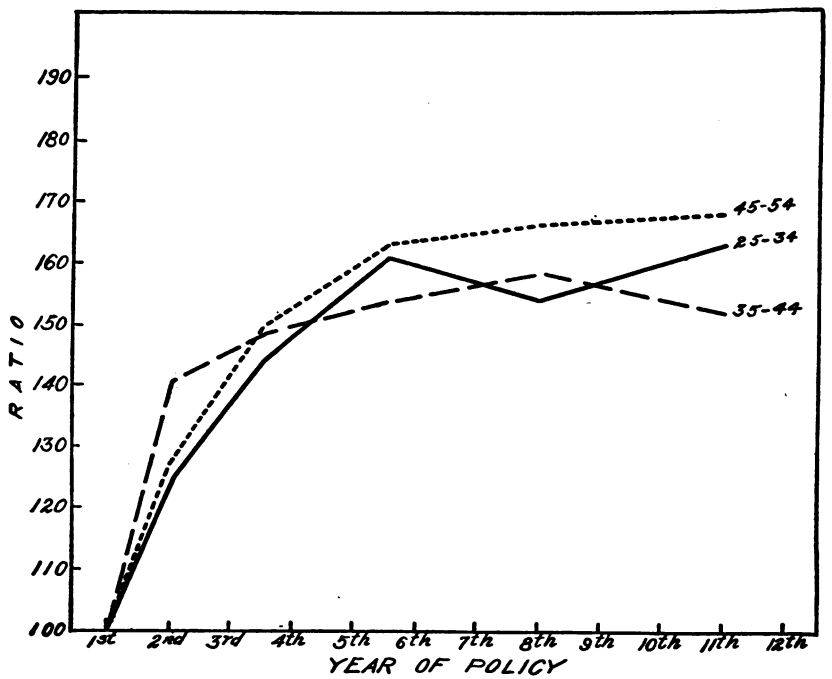

FIGURE 4.—Ratios of mortality in succeeding years of policy life to that in first year, for three age groups

No doubt the reader will wish to know how these mortality rates compare with those in the general population. In the next table a brief comparison of this sort is made. The rates for the sixth policy year [17] are used, since it has been shown that by this time the effect of selection due to the medical examination has been eliminated and because these rates could be used in a comparison according to age by adding five years to the age group as originally classified. This has been done. The general mortality is based on white males and

[16] (158—100) divided by 158.
[17] The fifth, sixth, and seventh year policies were taken together to form these actuarial mortality rates in order to give smoothness to the ratios.

females in the registration States for the years 1920–1926. The rates for sixth year policies for the period 1915–1926 are based on deaths occurring since 1920, and therefore comparable chronologically. The table also gives the ratio of the rates in the Registration States to those for the actuarial data.

TABLE 4.—*Annual mortality rate by true age, for actuarial data (average for fifth, sixth, and seventh policy years) and registration States, 1920–1926*

	20 to 24	25 to 29	30 to 34	35 to 39	40 to 44	45 to 49	50 to 54	55 to 59	60 to 64
	RATE								
Actuarial	2.61	2.38	2.73	3.40	4.53	6.67	10.12	14.95	21.04
Registration States	3.79	4.18	4.99	5.99	7.64	9.66	13.72	20.12	29.36
RATIO OF RATE FOR REGISTRATION STATES TO THAT FOR ACTUARIAL DATA									
	145	176	183	176	169	145	136	135	140

It appears that, even after the effect of selection due to the medical examination has been dissipated, the mortality rates for people insured at ordinary rates are much lower than those for the general population, the excess for the latter being in the vicinity of 50 per cent. This is to be accounted for by a difference in social or economic level, and in general indicates the effect of "permanent selection" due to the class of lives involved, referred to by Elderton. (See p. 47.) It is notable that the mortality for insured wage earners (industrial policies) is higher than that in the general population,[18] the most marked difference occurring as here, in the younger adult ages, which are also the ages showing the greatest difference in mortality rates by economic status (England and Wales).[19]

It is possible, however, that part of the difference in the actuarial data is due to some inherent peculiarity in this material. For instance, it is noted in the Joint Report that the ratios of the basic data to the American Select Men table were higher in the older ages. In other words, there was an indication that the mortality rates based on the recent data were apparently too low in the early part of life. If this is true, then the ratios of the rates for the registration States to the basic data are too high at these ages.

A further point should be kept in mind, if any precise comparison of assurance and general mortality is desired. The data considered in this paper were based on amount of policy and death claims. Thus,

[18] Mortality Statistics of Insured Wage-earners and Their Families. Experience of the Metropolitan Life Insurance Company industrial department, 1911 to 1916, in the United States and Canada. By Louis I. Dublin, with the collaboration of Edwin W. Kopf and George H. Van Buren. New York: Metropolitan Life Insurance Co., 1919.

[19] Registrar General's Decennial Supplement, England and Wales, 1921, Part II, Occupational Mortality, Fertility, and Infant Mortality, London: 1927.

twice as much weight is given to deaths among persons carrying $2,000 of insurance as to those among persons carrying the unit of $1,000. To what extent the additional weight given to larger policies—i. e., those of persons in the higher economic or social levels or in the more responsible situations—affects the mortality rates in this group, is difficult to say.

Reference has already been made to the impossibility of making any satisfactory comparisons with respect to individual causes of mortality. The actuarial data as to cause of death were not obtained according to year of the policy and age at issuance. They were secured in two broad age groups. It is of interest, however, to make a brief comparison in these two broad groups. For the actuarial material, the groups are 15 to 39 and 40 and over (ages at issuance). The first group can be compared with some logic with the corresponding group of the general population, but the latter group can not, since there are relatively few persons exposed to risk in the higher ages, due primarily to the brief period covered by the actuarial data. It was felt that the most logical comparison would be with the age group 40 to 59 for the registration States. The period of 1920–1926 is used for both sets of data to avoid the effect of the influenza epidemic. The rates and percentages according to cause are given in Table 5.

TABLE 5.—*Death rates per 100,000 and percentage by cause in two age groups; registration States and actuarial data, 1920–1926*

Cause	15 to 39 years				40 to 59 years				15 to 59 years			
	Rate		Percentage of deaths due to each cause		Rate		Percentage of deaths due to each cause		Rate		Percentage of deaths due to each cause	
	Registration States	Actuarial	Registration States	Actuarial	Registration States	Actuarial [1]	Registration States	Actuarial [1]	Registration States	Actuarial	Registration States	Actuarial
All causes	429.4	248.0	100.0	100.0	1,184.1	699.2	100.0	100.0	673.1	354.3	100.0	100.0
Tuberculosis of the lungs	92.3	32.2	21.5	13.0	101.8	23.8	8.6	3.4	95.3	30.2	14.2	8.5
All diseases of the heart	31.4	[2] 10.2	7.3	[2] 4.1	189.2	[2] 72.7	16.0	[2] 10.4	82.4	[2] 24.8	12.2	[2] 7.0
External causes other than suicide	63.5	[3] 50.6	14.8	[3] 20.4	88.1	[3] 71.3	7.4	[3] 10.2	71.4	[3] 55.7	10.6	[3] 15.7
Cancer and other malignant tumors	14.5	11.9	3.4	4.8	167.2	88.1	14.1	12.6	63.8	30.2	9.5	8.5
Pneumonia—all forms	32.9	17.9	7.7	7.2	82.8	48.2	7.0	6.9	49.0	25.2	7.3	7.1
Nephritis and Bright's disease	15.9	6.9	3.7	2.8	104.4	35.0	8.8	5.0	44.5	13.5	6.6	3.8
Cerebral hemorrhage and apoplexy	4.6	2.7	1.1	1.1	85.3	40.6	7.2	5.8	30.7	11.7	4.6	3.3
Influenza	18.5	7.2	4.3	2.9	28.4	19.6	2.4	2.8	21.7	9.9	3.2	2.8
Suicide	11.0	10.9	2.6	4.4	26.4	28.0	2.2	4.0	16.0	14.9	2.4	4.2
Appendicitis and typhlitis	14.5	17.1	3.4	6.9	18.6	23.8	1.6	3.4	15.8	18.8	2.4	5.3
Diabetes	4.7	1.7	1.1	.7	26.7	4.9	2.3	.7	11.8	2.5	1.8	.7
Other tuberculosis	8.7	5.0	2.1	2.0	9.5	4.2	.8	.6	9.0	4.6	1.3	1.3
Typhoid and paratyphoid	7.9	[4] 5.0	1.8	[4] 2.0	5.5	[4] 4.9	.5	[4] .7	7.1	[4] 5.0	1.1	[4] 1.4
Cirrhosis of liver	1.3	.7	.3	.3	13.7	7.0	1.2	1.0	5.3	2.2	.8	.6
All other causes	107.6	68.0	25.1	27.4	236.5	227.1	20.0	32.5	149.2	105.1	22.2	29.8

[1] 40 and more.
[2] Organic disease of heart.
[3] "Accident due to occupation" and "accident not due to occupation." These high rates are to be explained in part as being due to double accidental death provisions, since the data are by policies, not by persons.
[4] Typhoid.

We have not felt that the rates themselves were of any great significance, owing to the differences which have been brought out in this paper. The percentages, however, put the comparison on a relative basis and make it much more interesting. Therefore the percentages have been plotted in Figure 5. The indications are more or less what would be expected, primarily a lower relative mortality

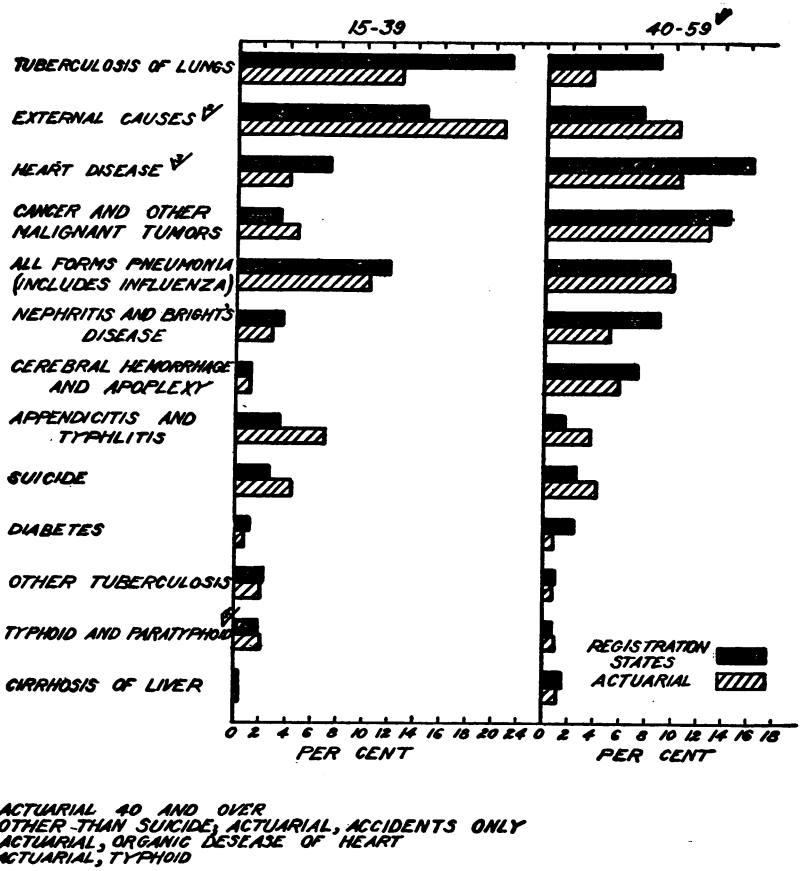

FIGURE 5.—Percentage of deaths, by cause, in two age groups, registration States and actuarial data, 1920-1926

from tuberculosis, heart disease, and some other degenerative diseases among the insured persons.

The particular bearing of these findings upon the major findings of this paper is the suggestion that the duration of selection due to the medical examination may not be identical for different causes of mortality, and may prove to be much greater for those causes given special stress in the medical examination.

It is of interest that various acute causes of death—external causes, for instance—and cancer (where the medical examination could not be a selective factor of any moment) do not show an excess in the mortality rates for the registration States.

The following conclusions are suggested:

1. The insurance medical examination results in a lower mortality during the earliest policy years.

2. The duration of such selection would appear to last for three or four years for all causes, except possibly at the highest ages.

3. Most of the difference occurs in the first year or two of policy life.

4. The ratio of the mortality rate in successive policy years to that in the first year reaches a comparatively constant level at about 158.

5. For certain diseases, such as tuberculosis and heart disease, it is possible that the selective factor is of much longer duration.

The direct application of these conclusions in the field of public health should be discussed. Perhaps of most importance is the bearing which they may have upon the value of the medical examination, or the so-called periodic health examination, in the assessment of physical condition.

Life-insurance mortality data are increasingly important as a measure of the vitality of our people, because of the fact that the number exposed to risk is accurately known and the knowledge in regard to insured persons is much greater than that obtained in the course of securing Census data. This fact is now being realized and we may expect in the future that life-insurance records will be given more thorough analysis. Interpretation of such data is difficult without a knowledge of the effect of selection due to the medical examination. On the basis of the conclusions presented in this paper it is possible to show that such mortality rates can be used as a measure of health; in other words, that the medical examination in itself does not interfere seriously with the comparability of the material.

It is also important that it should be understood generally in connection with the analysis of life-insurance mortality data that if we exclude special mortality issued on industrial groups, these rates to-day are definitely below those of the general population.

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APPENDIX TABLE

Number of persons exposed to risk and number of deaths classified by age at entry and by insurance year [1]

Insurance year	Age at entry										
	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 to 44	45 to 49	50 to 54	55 to 59	60 to 64	65 and over
EXPOSED TO RISK [2]											
First	1,288,063	2,624,578	3,612,033	4,224,547	4,164,913	3,315,752	2,224,245	1,276,931	565,367	168,949	30,503
Second	918,825	1,796,178	2,513,997	3,002,679	3,012,502	2,408,901	1,652,557	945,325	410,329	123,530	20,755
Third	669,710	1,320,320	1,857,174	2,194,719	2,204,733	1,708,832	1,218,283	687,258	297,820	86,628	14,671
Fourth	470,651	955,611	1,348,993	1,585,361	1,579,869	1,153,322	862,403	475,722	204,609	58,566	8,397
Fifth	555,953	1,212,547	1,717,361	1,987,515	1,894,530	1,479,977	977,006	503,436	216,314	61,356	9,637
Sixth	436,887	964,284	1,363,278	1,567,679	1,480,831	1,147,708	739,066	380,884	160,851	43,856	6,911
Seventh	335,562	755,831	1,066,337	1,233,670	1,150,238	890,065	567,311	289,950	122,736	32,886	5,285
Eighth	228,444	535,859	753,600	869,649	802,380	625,049	401,976	206,025	87,869	23,729	3,901
Ninth	137,830	352,409	485,221	545,617	500,551	399,550	262,252	135,678	60,657	15,460	2,761
Tenth	88,130	227,921	343,043	366,687	323,648	261,589	168,958	90,802	40,464	10,140	1,886
Eleventh	49,445	159,470	205,019	210,278	187,435	151,280	98,036	53,715	22,604	5,778	1,126
Twelfth	20,025	68,041	88,049	87,779	77,629	61,762	41,346	21,948	8,364	2,209	406
NUMBER OF DEATHS [2]											
First	2,530	4,628	5,654	7,447	9,749	9,747	9,847	7,732	5,929	2,476	868
Second	2,030	3,703	4,757	6,793	11,051	9,796	9,345	8,665	5,697	2,327	800
Third	1,434	3,003	4,033	5,627	8,410	8,996	8,999	7,881	5,283	1,518	679
Fourth	1,088	2,158	3,171	4,572	5,862	7,414	6,714	5,019	3,465	1,268	260
Fifth	1,413	2,944	4,796	6,623	7,886	8,557	8,889	6,762	3,567	1,677	342
Sixth	1,169	2,286	3,730	5,361	6,991	8,466	8,239	5,672	3,749	1,377	386
Seventh	885	1,740	2,781	4,306	5,608	6,451	5,984	5,196	3,203	1,162	341
Eighth	531	1,191	2,148	3,321	4,714	5,222	4,466	3,917	2,589	1,080	190
Ninth	366	939	1,503	2,266	3,071	4,179	3,432	2,950	1,562	878	145
Tenth	222	701	1,180	1,472	1,987	2,489	2,251	1,909	1,262	460	108
Eleventh	111	466	636	965	1,492	1,393	1,853	1,135	930	213	117
Twelfth	54	160	314	412	622	691	681	672	324	206	89

[1] First 4 insurance years, based on 1920–1926 data; the remaining years, on 1915–1926 data.
[2] Based on amounts insured and death claims paid, converted into persons on a unit of $1,000.

PARASITES OF BATS

The United States Public Health Service has issued four bulletins as a key catalogue of the parasites of man, and a fifth bulletin of this series dealing with the parasites of monkeys in their relation to public health.

There has recently been published a sixth number of the series, National Institute of Health Bulletin No. 155, entitled "Key-Catalogue of the Parasites Reported for Chiroptera, with Their Possible Public Health Importance," by Ch. Wardell Stiles and Mabelle O. Nolan.

Some bats are used as food. The members of one family (the *Desmodontidae*), known as "vampires," attack man and livestock, sucking the blood and causing wounds which may become fly blown and form portals of bacterial infection. It is popularly believed that bedbugs are distributed by bats, but this view is due to confusing the common bedbug with closely allied bugs which live on bats and in bat haunts. Occasionally bats are kept as household pets. Some bats feed on mosquitoes, and thus potentially contribute to a reduction of these pests and the diseases they carry, although evidence is lacking which would justify our building so-called "batteries," or bat roosts, as a panacea against mosquitoes. Bats have numerous parasites, both external and internal, and of these no less than 11 species are reported as parasites both of bats and of man. Three additional parasites of man, including the causative agent of African sleeping sickness, are transmissible experimentally to bats.

The bulletin gives a classification of the parasitic protozoa, worms, arachnoids, and insects reported for these hosts, together with a classification of the bats themselves, and under each species of host is given a list of the particular parasites reported for that particular animal.

The publication is exceedingly technical and is intended principally for distribution to public health officers, bacteriologists, and zoologists.

THE PATHOLOGY OF GENERALIZED VACCINIA IN RABBITS

An account of the pathologic histology of local and focal lesions of the skin, mucosæ, and viscera of rabbits produced by Armstrong's heat-selected vaccine virus is detailed in National Institute of Health Bulletin No. 156, recently issued by the United States Public Health Service. Also, the literature of the histology of variola and vaccinia is reviewed.

The visceral lesions are essentially coagulation necroses; those of the skin and mucosæ also show coagulation necrosis in addition to varied other proliferative, degenerative, hemorrhagic, and inflammatory changes.

The distribution of such focal lesions is summarized in tabular form according to organs and by routes of inoculation and lapse of time after inoculation.

This bulletin is intended for restricted distribution to persons especially interested in the subject.

COURT DECISION RELATING TO PUBLIC HEALTH

Relief not granted in action against city brought because marketability of oysters was affected by pollution of tidal waters.—(Connecticut Supreme Court of Errors; Lovejoy *v.* City of Norwalk, 152 A. 210; decided Nov. 7, 1930.) The plaintiff owned some oyster grounds under the navigable tidal waters of Long Island Sound in Norwalk Harbor. The title to such grounds had originated, pursuant to statute, in designations made by the oyster committee of the town of Norwalk, and had come to plaintiff by assignment from former owners. A substantial part had been purchased during and since 1925. Sewage from Norwalk had for more than 50 years been discharged into the tidal waters of Long Island Sound. The plaintiff had resided in Norwalk and had been in the oyster business for more than 30 years, and in all that period was familiar with the sewerage system maintained by Norwalk and its effect upon the tidal waters. Plaintiff's grounds, involved in this action, had been used exclusively for growing and fattening oysters transplanted from other localities. The discharge of sewage by the defendant city of Norwalk did not interfere with the health and growth of oysters upon the plaintiff's beds, but did introduce bacteria into the tidal waters. In 1925 the State health department adopted the policy of forbidding the marketing of oysters for human consumption from grounds within the State's jurisdiction unless an authorizing certificate was obtained. For the season of 1927–28, the plaintiff was refused certificates for the harvesting of oysters direct from his Norwalk beds, but was permitted to transplant oysters therefrom to other beds owned by him. In September, 1927, Norwalk employed competent engineers to make a survey of the sewage-disposal problem, and plans were submitted for the construction of a disposal plant. In November, 1928, the voters approved a proposal to issue bonds and to proceed with the building of the proposed plant. It was then the city's purpose, if legislative approval could be obtained, to construct such plant without delay. The plaintiff brought an action against the city of Norwalk for injury to his oyster grounds, resulting from the sewage discharged by the city. The judgment of the trial court in favor of the city was upheld by the supreme court of errors. After speaking of the city's action relative to the proposed disposal plant, the supreme court said:

* * * We think that this situation affords no indication that the defendant city had acted unreasonably, or negligently failed to take steps toward correction of the conditions of which the plaintiff complains. * * *

The supreme court stated the controlling conclusions reached by the trial court as follows:

* * * That the acts found were confined to tidal waters and did not constitute a public nuisance; that the plaintiff or his predecessors in title received their grants of oyster grounds subject to the public right of employing tidal waters for drainage purposes, and the exercise thereof by the defendant was not in derogation of any right of the plaintiff. * * *

After a discussion relative to the discharge of sewage into tidal waters and the designation, under the statutes, of places for the planting of oysters, the supreme court stated:

It follows, as stated subsequently by the United States Supreme Court in that case [Darling *v.* Newport News, 249 U. S. 540, 39 S. Ct. 371, 63 L. Ed. 759], that, as the trial court held, the recipients of the designations and the plaintiff, as their successor in interest, took the same subject to such rights as existed to discharge sewage into the waters of Norwalk River and harbor, and to the risk of the pollution of the water naturally resulting therefrom. * * *

The court also held against the plaintiff's further claim of an unconstitutional taking of his property without compensation.

DEATHS DURING WEEK ENDED DECEMBER 20, 1930

Summary of information received by telegraph from industrial insurance companies for the week ended December 20, 1930, and corresponding week of 1929. (From the Weekly Health Index issued by the Bureau of the Census, Department of Commerce)

	Week ended Dec. 20, 1930	Corresponding week, 1929
Policies in force	74, 932, 777	75, 191, 352
Number of death claims	13, 608	14, 578
Death claims per 1,000 policies in force, annual rate	9. 5	10. 1

Deaths [1] from all causes in certain large cities of the United States during the week ended December 20, 1930, infant mortality, annual death rate, and comparison with corresponding week of 1929. (From the Weekly Health Index issued by the Bureau of the Census, Department of Commerce)

[The rates published in this summary are based upon mid-year population estimates derived from the 1930 census]

City	Week ended Dec. 20, 1930				Corresponding week 1929		Death rate [2] for first 51 weeks	
	Total deaths	Death rate [2]	Deaths under 1 year	Infant mortality rate [3]	Death rate [2]	Deaths under 1 year	1930	1929
Total (78 cities)	7, 907	11. 9	638	[4] 51	13. 1	763	11. 9	12. 7
Akron	47	9. 6	2	18	8. 5	6	7. 9	9. 3
Albany [5]	30	12. 2	0	0	18. 6	3	14. 7	16. 3
Atlanta	85	16. 5	8	82	16. 3	10	15. 5	16. 0
White	50		5	79		4		
Colored	35	(6)	3	86	(6)	6	(6)	(6)

See footnotes at end of table.

Deaths [1] from all causes in certain large cities of the United States during the week ended December 20, 1930, infant mortality, annual death rate, and comparison with corresponding week of 1929—Continued

City	Week ended Dec. 20, 1930				Corresponding week 1929		Death rate [2] for first 51 weeks	
	Total deaths	Death rate [2]	Deaths under 1 year	Infant mortality rate [3]	Death rate [2]	Deaths under 1 year	1930	1929
Baltimore [4]	188	12.2	13	45	16.8	17	14.0	14.7
White	150		12	53		11		
Colored	38	(5)	1	16	(5)	6	(5)	(5)
Birmingham	61	12.3	7	67	13.2	3	13.6	15.8
White	26		3	48		3		
Colored	35	(5)	4	98	(5)	0	(5)	(5)
Boston	194	12.9	21	61	14.1	27	14.0	14.9
Bridgeport	34	12.0	1	17	12.4	6	10.9	11.9
Buffalo	141	12.8	8	36	14.6	13	12.9	14.0
Cambridge	30	13.8	3	69	8.7	2	11.8	12.5
Camden	22	9.8	1	18	15.6	4	13.5	14.4
Canton	20	9.8	1	27	6.5	1	9.8	11.1
Chicago [4]	644	9.9	32	28	11.8	69	10.4	11.3
Cincinnati	132	15.3	9	53	18.2	11	15.6	17.0
Cleveland	160	9.2	15	45	9.9	22	11.0	12.3
Columbus	76	13.7	9	89	17.3	7	15.4	14.8
Dallas	58	11.5	4		13.3	9	11.4	11.6
White	46		3			7		
Colored	12	(5)	1		(5)	2	(5)	(5)
Dayton	47	12.2	1	15	9.3	4	10.8	11.5
Denver	94	17.0	14	153	14.3	9	15.0	14.8
Des Moines	29	10.6	0	0	11.1	5	11.6	11.5
Detroit	262	8.6	45	69	11.1	32	9.2	11.1
Duluth	23	11.8	1	27	13.4	1	11.5	11.5
El Paso	35	17.8	3		11.9	1	17.1	19.2
Erie	25	11.2	5	110	9.1	2	11.0	11.9
Fall River [4] [7]	29	13.2	1	23	16.8	4	11.7	13.5
Flint	20	6.6	1	12	6.5	3	8.9	10.5
Fort Worth	55	17.8	5		9.8	1	11.2	12.2
White	47		5			1		
Colored	8	(5)	0		(5)	0	(5)	(5)
Grand Rapids	28	8.6	1	15	7.8	0	10.1	10.1
Houston	58	10.3	12		17.1	5	12.2	12.7
White	43		11			2		
Colored	15	(5)	1		(5)	3	(5)	(5)
Indianapolis	90	12.8	2	15	16.2	8	14.3	14.8
White	75		2	17		6		
Colored	15	(5)	0	0	(5)	2	(5)	(5)
Jersey City	69	11.4	10	87	12.9	8	11.3	12.4
Kansas City, Kans	39	16.6	7	163	10.3	1	11.8	12.7
White	34		5	138		1		
Colored	5	(5)	2	303	(5)	0	(5)	(5)
Kansas City, Mo	96	12.7	3	25	14.4	9	13.4	14.0
Knoxville	18	8.8	0	0	9.5	1	13.4	13.7
White	13		0	0		1		
Colored	5	(5)	0	0	(5)	0	(5)	(5)
Los Angeles	304	12.7	34	103	13.5	25	11.1	11.4
Louisville	96	16.3	4	34	17.8	9	13.5	15.2
White	68		1	10		9		
Colored	28	(5)	3	199	(5)	0	(5)	(5)
Lowell [7]	14	7.3	2	53	18.5	3	13.2	14.2
Lynn	23	11.7	1	28	10.2	1	10.5	11.4
Memphis	90	18.6	7	82	16.3	10	16.9	18.8
White	41		0	0		5		
Colored	49	(5)	7	235	(5)	5	(5)	(5)
Milwaukee	119	10.9	25	110	11.1	24	9.8	10.9
Minneapolis	95	10.7	11	72	12.5	4	10.8	10.8
Nashville	46	16.3	2	31	19.2	5	17.2	18.7
White	24		2	42		2		
Colored	22	(5)	0	0	(5)	3	(5)	(5)
New Bedford [7]	28	12.9	3	77	9.7	3	11.0	11.9
New Haven	36	11.5	1	15	9.9	2	12.5	13.4
New Orleans	149	17.0	14	78	18.6	16	17.4	17.8
White	99		8	68		9		
Colored	50	(5)	6	97	(5)	7	(5)	(5)

See footnotes at end of table.

Deaths [1] ***from all causes in certain large cities of the United States during the week ended December 20, 1930, infant mortality, annual death rate, and comparison with corresponding week of 1929***—Continued

City	Week ended Dec. 20, 1930				Corresponding week 1929		Death rate [2] for first 51 weeks	
	Total deaths	Death rate [2]	Deaths under 1 year	Infant mortality rate [3]	Death rate [2]	Deaths under 1 year	1930	1929
New York	1,449	10.8	112	47	12.2	142	10.7	11.3
Bronx Borough	198	8.1	8	23	9.3	18	7.8	8.2
Brooklyn Borough	488	9.7	56	59	10.6	47	9.7	10.2
Manhattan Borough	567	16.0	37	47	17.1	60	16.0	16.3
Queens Borough	152	7.2	8	32	9.6	14	7.0	7.7
Richmond Borough	44	14.5	3	58	17.9	3	13.9	15.9
Newark, N. J	93	10.9	6	31	15.5	9	11.9	12.7
Oakland	64	11.7	3	37	13.4	4	11.0	11.3
Oklahoma City	49	13.8	2	36	9.2	5	11.1	10.9
Omaha	44	10.7	3	36	13.5	1	13.5	13.5
Paterson	45	17.0	5	87	14.0	2	12.1	13.4
Philadelphia	471	12.5	35	52	13.7	46	12.5	13.1
Pittsburgh	173	13.4	22	78	13.0	14	13.8	14.8
Portland, Oreg	75	13.0	3	37	9.9	5	12.2	12.7
Providence	76	15.8	10	93	15.0	7	12.9	14.5
Richmond	49	13.9	5	73	17.2	5	14.8	16.2
White	32		2	44		3		
Colored	17	[6]	3	128	[6]	2	[6]	[6]
Rochester	70	11.2	5	44	12.9	3	11.6	12.3
St. Louis	199	12.6	13	45	14.1	15	14.0	14.6
St. Paul	52	10.0	2	20	10.5	4	10.1	10.6
Salt Lake City [4]	38	14.1	2	32	10.9	5	12.6	12.9
San Antonio	64	13.0	2	[3]	18.3	15	14.3	14.7
San Diego	48	16.8	4	84	14.6	3	14.5	15.1
San Francisco	191	15.8	4	27	14.0	10	13.3	13.1
Schenectady	15	8.2	1	31	14.2	3	11.0	12.2
Seattle	101	14.5	6	61	8.3	5	11.0	11.2
Somerville	25	12.6	4	126	12.7	3	9.7	9.3
Spokane	26	11.7	1	26	16.8	1	12.4	12.9
Springfield, Mass	43	14.9	5	86	14.1	4	12.1	12.7
Syracuse	46	11.5	7	86	13.2	6	11.7	12.9
Tacoma	20	9.7	1	27	7.9	1	12.4	11.7
Toledo	73	13.0	6	55	12.7	2	12.7	13.7
Trenton	31	13.2	4	77	21.7	5	16.6	17.1
Utica	39	19.8	2	56	17.9	1	14.5	15.5
Washington, D. C	132	14.1	4	23	15.6	6	15.2	15.4
White	81		2	17		3		
Colored	51	[6]	2	36	[6]	3	[6]	[6]
Waterbury	13	6.7	1	24	6.8	2	9.3	9.3
Wilmington, Del. [7]	32	15.9	2	48	12.4	4	14.6	13.8
Worcester	56	14.8	1	14	15.8	6	12.6	12.6
Yonkers	31	11.9	2	48	11.8	6	8.1	9.4
Youngstown	35	10.7	4	57	15.6	7	10.4	12.4

[1] Deaths of nonresidents are included. Stillbirths are excluded.

[2] These rates represent annual rates per 1,000 population, as estimated for 1930 and 1929 by the arithmetical method.

[3] Deaths under 1 year of age per 1,000 live births. Cities left blank are not in the registration area for births.

[4] Data for 73 cities.

[5] Deaths for week ended Friday.

[6] For 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.

[7] Population Apr. 1, 1930; decreased 1920 to 1930; no estimate made.

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 December 27, 1930, and December 28, 1929

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended December 27, 1930, and December 28, 1929

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Dec. 27, 1930	Week ended Dec. 28, 1929	Week ended Dec. 27, 1930	Week ended Dec. 28, 1929	Week ended Dec. 27, 1930	Week ended Dec. 28, 1929	Week ended Dec. 27, 1930	Week ended Dec. 28, 1929
New England States:								
Maine	8		3	6	18	4	0	1
New Hampshire	1	4	12		3	14	0	0
Vermont	2	2				41	0	0
Massachusetts	62	103	6	6	273	171	3	2
Rhode Island	8	7			1	1	0	0
Connecticut	11	23	3	3	118	19	0	3
Middle Atlantic States:								
New York	104	157	[1] 25	[1] 28	151	191	6	13
New Jersey	48	132	13	11	120	56	2	4
Pennsylvania	130				406		0	
East North Central States:								
Ohio	69	89	7	55	24	351	2	12
Indiana	35	21	1		138	22	4	28
Illinois	146	212	12	24	208	303	7	9
Michigan	16	114	2	3	49	163	1	28
Wisconsin	14	11	41	22	191	485	5	
West North Central States:								
Minnesota	10	24	2	1	24	119	1	5
Iowa	12	10				162	24	1
Missouri	25	34	3	11	656	11	3	5
North Dakota	3	8				98	0	6
South Dakota	13	1	1		5	3	0	1
Nebraska	4	15	2	8	2	174	3	3
Kansas	24	23	1		10	116	1	1
South Atlantic States:								
Delaware	3	1		1		1	0	0
Maryland [2]	39	23	12	19	18	13	0	2
District of Columbia	10	6	2		12		1	0
West Virginia	11	17	16	17	31	90	0	0
North Carolina	23	67	9	12	50	6	1	3
South Carolina	12	27	588	903			1	5
Georgia	23	34	42	148	32	24	0	6
Florida	6	9	1	5	25	7	0	0

[1] New York City only.

[2] Week ended Fridays.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended December 27, 1930, and December 28, 1929—Continued

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Dec. 27, 1930	Week ended Dec. 28, 1929	Week ended Dec. 27, 1930	Week ended Dec. 28, 1929	Week ended Dec. 27, 1930	Week ended Dec. 28, 1929	Week ended Dec. 27, 1930	Week ended Dec. 28, 1929
East South Central States:								
Kentucky	----	20	----	----	19	10	1	0
Tennessee	20	14	46	109	24	16	1	6
Alabama	39	19	36	62	122	----	0	0
Mississippi	22	18	----	----	----	----	4	1
West South Central States:								
Arkansas	3	8	25	69	1	7	1	1
Louisiana	12	36	10	24	----	10	0	6
Oklahoma [1]	24	49	41	113	11	19	1	8
Texas	33	112	22	40	81	51	1	2
Mountain States:								
Montana	----	----	----	----	1	38	0	1
Idaho	----	----	----	----	10	22	1	5
Wyoming	1	5	----	----	----	3	1	1
Colorado	8	6	----	----	43	14	2	4
New Mexico	6	28	----	----	121	3	0	0
Arizona	3	11	7	6	28	1	1	3
Utah [2]	----	----	15	4	1	66	0	2
Pacific States:								
Washington	11	14	----	----	6	15	0	5
Oregon	5	7	27	29	52	11	0	1
California	46	67	57	39	109	203	8	14

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Dec. 27, 1930	Week ended Dec. 28, 1929	Week ended Dec. 27, 1930	Week ended Dec. 28, 1929	Week ended Dec. 27, 1930	Week ended Dec. 28, 1929	Week ended Dec. 27, 1930	Week ended Dec. 28, 1929
New England States:								
Maine	3	0	19	38	0	0	2	0
New Hampshire	0	0	2	13	0	0	2	0
Vermont	0	0	4	13	0	6	0	1
Massachusetts	6	1	222	293	0	0	8	2
Rhode Island	0	0	31	23	0	0	0	0
Connecticut	0	1	55	63	0	0	1	0
Middle Atlantic States:								
New York	1	1	436	312	7	3	8	8
New Jersey	0	0	142	161	0	0	5	3
Pennsylvania	1	----	370	----	0	----	19	----
East North Central States:								
Ohio	2	3	381	289	45	136	18	15
Indiana	0	1	172	137	53	138	3	0
Illinois	4	1	389	455	53	90	17	3
Michigan	0	3	134	251	12	57	15	1
Wisconsin	1	0	122	92	9	29	2	0
West North Central States:								
Minnesota	3	0	61	98	4	8	2	8
Iowa	2	0	104	43	17	79	0	2
Missouri	0	0	128	57	3	50	4	1
North Dakota	1	1	9	44	2	13	0	0
South Dakota	1	0	6	11	20	14	1	0
Nebraska	2	1	37	54	22	32	1	0
Kansas	2	0	46	127	47	24	1	1
South Atlantic States:								
Delaware	0	0	12	5	0	0	0	0
Maryland [2]	0	0	75	50	0	0	8	7
District of Columbia	1	0	23	25	0	0	2	1
West Virginia	1	0	62	54	13	14	8	8
North Carolina	1	3	22	60	0	11	1	5
South Carolina	1	2	23	32	2	3	5	1
Georgia	0	0	28	42	0	0	6	7
Florida	0	0	8	3	0	2	1	1
East South Central States:								
Kentucky	0	0	43	52	10	31	5	0
Tennessee	0	1	22	20	0	5	5	8
Alabama	2	0	52	29	6	2	12	4
Mississippi	0	0	19	17	5	2	5	7

[1] Week ended Friday.
[2] 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 December 27, 1930, and December 28, 1929—Continued

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Dec. 27, 1930	Week ended Dec. 28, 1929	Week ended Dec. 27, 1930	Week ended Dec. 28, 1929	Week ended Dec. 27, 1930	Week ended Dec. 28, 1929	Week ended Dec. 27, 1930	Week ended Dec. 28, 1929
West South Central States:								
Arkansas	0	0	9	19	3	16	6	4
Louisiana	1	0	11	20	16	0	9	7
Oklahoma [2]	0	1	55	48	19	137	7	12
Texas	0	0	19	61	12	54	3	2
Mountain States:								
Montana	0	0	24	28	11	10	0	0
Idaho	1	0	1	4	0	7	0	0
Wyoming	1	0	6	6	0	3	0	1
Colorado	0	1	55	28	1	23	1	0
New Mexico	0	0	8	22	0	4	4	0
Arizona	0	0	3	9	0	16	0	1
Utah [1]	0	0	5	14	0	0	0	0
Pacific States:								
Washington	1	1	46	50	13	123	1	6
Oregon	2	0	8	38	9	14	0	1
California	12	1	76	208	21	60	7	4

[1] Week ended Friday.
[2] Figures for 1930 are exclusive of Oklahoma City and Tulsa.

SUMMARY OF MONTHLY REPORTS FROM STATES

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

State	Meningococcus meningitis	Diphtheria	Influenza	Malaria	Measles	Pellagra	Poliomyelitis	Scarlet fever	Smallpox	Typhoid fever
November, 1930										
Alabama	13	467	200	248	178	30	19	409	3	84
California	15	316	132	2	529	5	146	408	86	58
Colorado	5	72	----	----	248	----	8	136	43	25
Idaho	11	11	----	----	30	----	2	48	10	5
Illinois	23	728	26	5	373	----	48	1,336	96	70
Louisiana	9	152	53	72	13	23	6	89	8	85
Maryland	2	138	63	1	27	1	6	254	0	93
Minnesota	6	83	4	----	55	----	60	244	42	18
Missouri	21	351	28	10	1,290	1	35	511	63	124
Montana	1	11	11	----	10	----	3	132	24	6
New Hampshire	----	22	----	----	----	----	4	24	----	2
North Carolina	10	510	28	----	52	237	4	572	6	34
Oklahoma [1]	7	276	186	125	90	20	2	234	27	150
Oregon	2	18	51	----	194	----	3	86	65	21
Rhode Island	----	44	11	----	5	----	1	65	0	7
South Dakota	1	33	36	----	5	1	21	47	56	13
Texas	2	328	148	537	----	1	30	164	----	127
Virginia	9	370	1,298	28	483	21	8	438	12	50
Washington	4	89	23	----	66	----	3	180	89	23
Wisconsin	9	80	104	----	645	----	24	384	29	23

[1] Exclusive of Oklahoma City and Tulsa.

November, 1930

	Cases
Actinomycosis:	
California	1
Anthrax:	
California	1
Illinois	1
Chicken pox:	
Alabama	176
California	902
Colorado	282
Idaho	33
Illinois	1,694
Louisiana	43
Maryland	294
Minnesota	671
Missouri	405
Montana	280
North Carolina	580
Oklahoma [1]	47
Oregon	223
Rhode Island	76
South Dakota	122
Virginia	492
Washington	305
Wisconsin	1,894
Conjunctivitis:	
Montana	4
Oklahoma [1]	2
Dengue:	
Alabama	2
Diarrhea:	
Maryland	20
Diarrhea and dysentery:	
Virginia	118
Dysentery:	
California (amebic)	2
California (bacillary)	13
Illinois	37
Illinois (amebic)	4
Illinois (bacillary)	2
Louisiana	4
Maryland	21
Minnesota	1
Oklahoma [1]	11
Washington	4
German measles:	
California	36
Colorado	7
Illinois	13
Maryland	4
Montana	3
North Carolina	23
Rhode Island	2
Washington	23
Granuloma, coccidioidal:	
California	1
Hookworm disease:	
Louisiana	81
Impetigo contagiosa:	
Colorado	4
Maryland	22
Oregon	18
Lead poisoning:	
Illinois	2
Leprosy:	
California	1
Idaho	1
Louisiana	1
Washington	1
Lethargic encephalitis:	
Alabama	2
California	3
Colorado	2
Illinois	2
Louisiana	3
Texas	1
Wisconsin	1
Mumps:	
Alabama	31
California	617
Colorado	134
Idaho	5
Illinois	757
Louisiana	1
Maryland	31
Missouri	59
Montana	61
Oklahoma [1]	4
Oregon	106
Rhode Island	9
South Dakota	17
Washington	125
Wisconsin	477
Ophthalmia neonatorum:	
California	3
Illinois	48
Maryland	2
Missouri	10
Oklahoma [1]	2
Paratyphoid fever:	
California	3
Illinois	1
Minnesota	8
North Carolina	1
Texas	4
Washington	7
Puerperal septicemia:	
Illinois	4
Washington	1
Rabies in animals:	
California	69
Illinois	1
Louisiana	6
Maryland	2
Missouri	6
Oregon	1
Rhode Island	2
Scabies:	
Maryland	4
Oregon	9
Septic sore throat:	
Illinois	11
Maryland	7
Missouri	14
Montana	1
North Carolina	14
Oklahoma [1]	32
Oregon	3

[1] Exclusive of Oklahoma City and Tulsa.

Septic sore throat—Continued.	Cases
Rhode Island	1
South Dakota	4
Tetanus:	
California	8
Illinois	2
Louisiana	5
Oklahoma [1]	1
South Dakota	1
Trachoma:	
California	122
Illinois	1
Maryland	1
Minnesota	1
Missouri	61
Montana	1
Oklahoma	3
South Dakota	1
Trichinosis:	
California	2
Illinois	3
Tularaemia:	
Illinois	9
Louisiana	1
Maryland	1
Minnesota	3
Missouri	3
South Dakota	1
Virginia	6
Wisconsin	2
Typhus fever:	
Alabama	6
Maryland	2

Undulant fever:	Cases
California	13
Illinois	5
Louisiana	4
Maryland	6
Minnesota	2
Missouri	10
Oregon	2
Washington	7
Vincent's angina:	
Colorado	3
Illinois	3
Maryland	9
Washington	1
Whooping cough:	
Alabama	79
California	426
Colorado	81
Idaho	38
Illinois	491
Louisiana	24
Maryland	102
Minnesota	99
Missouri	54
Montana	111
North Carolina	370
Oklahoma	21
Oregon	66
Rhode Island	55
South Dakota	29
Virginia	254
Washington	139
Wisconsin	573

[1] Exclusive of Oklahoma City and Tulsa.

Cases of Certain Communicable Diseases Reported for the Month of August, 1930, by State Health Officers

State	Chicken pox	Diphtheria	Measles	Mumps	Scarlet fever	Smallpox	Tuberculosis	Typhoid and paratyphoid fever	Whooping cough
Maine	12	15	17	74	44	0	77	20	142
New Hampshire		6			6	0		4	
Vermont	19	3	18	16	11	0	[1] 4	2	63
Massachusetts	70	183	227	144	192	0	374	63	551
Rhode Island	5	11	8		13	0	56	6	37
Connecticut	17	24	32	23	31	0	109	6	129
New York	184	237	603	243	234	1	1,656	116	1,418
New Jersey	30	145	165	43	76	0	463	67	272
Pennsylvania	159	183	495	168	232	0	497	206	829
Ohio	157	101	97	61	234	42	578	201	401
Indiana	8	45	25	11	73	116	162	68	109
Illinois	100	258	75	172	235	79	855	173	652
Michigan	79	121	194	72	170	57	420	70	706
Wisconsin	136	51	255	140	108	23	185	32	930
Minnesota	33	48	19		59	11	158	27	101
Iowa	7	12	4	9	27	43	36	8	38
Missouri	25	78	66	29	78	54	217	148	79
North Dakota	4	8	15	34	29	30	14	25	64
South Dakota	7	30	7		10	29	11	19	9
Nebraska	25	19	28	6	17	36	13	20	58
Kansas	15	40	45	25	71	27	75	73	112

[1] Pulmonary.

Cases of Certain Communicable Diseases Reported for the Month of August, 1930, by State Health Officers—Continued

State	Chicken pox	Diphtheria	Measles	Mumps	Scarlet fever	Smallpox	Tuberculosis	Typhoid and paratyphoid fever	Whooping cough
Delaware	------	8	13	8	6	0	13	29	4
Maryland	13	41	18	13	34	0	233	240	123
District of Columbia	7	13	26	------	14	0	80	21	22
Virginia	90	98	208	------	135	4	190	312	285
West Virginia	15	44	43	------	58	19	46	245	145
North Carolina	32	244	16	------	136	11	------	244	437
South Carolina	46	86	13	22	26	2	135	305	233
Georgia	4	47	45	24	61	3	91	248	75
Florida	5	11	2	22	11	0	38	21	12
Kentucky [2]	------	------	------	------	------	------	------	------	------
Tennessee	10	43	27	14	76	9	[1] 233	529	115
Alabama	6	51	85	24	80	2	370	186	143
Mississippi	142	61	96	156	26	9	263	161	379
Arkansas	18	5	------	4	14	12	[1] 13	126	44
Louisiana	1	41	20	6	23	0	[1] 178	154	34
Oklahoma [3]	2	25	47	1	29	43	52	248	32
Texas	------	99	------	------	74	------	------	138	------
Montana	11	3	14	26	32	11	33	13	87
Idaho	11	7	13	2	8	8	6	8	60
Wyoming	2	------	2	2	15	0	------	3	15
Colorado	------	28	65	61	34	4	114	47	199
New Mexico	------	32	14	13	6	12	59	28	12
Arizona	2	11	37	9	7	1	118	27	29
Utah [3]	------	------	------	------	------	------	------	------	------
Nevada	4	------	------	------	------	0	[1] 5	0	4
Washington	43	29	81	75	44	42	115	21	188
Oregon	24	19	82	55	24	20	37	29	136
California	130	147	305	333	136	46	760	85	377

[1] Pulmonary [2] Reports received weekly. [3] Exclusive of Oklahoma City and Tulsa.

Case Rates per 1,000 Population (Annual Basis) for the Month of August, 1930, Based on Provisional Populations

State	Chicken pox	Diphtheria	Measles	Mumps	Scarlet fever	Smallpox	Tuberculosis	Typhoid and paratyphoid fever	Whooping cough
Maine	0.18	0.22	0.25	1.09	0.65	0.00	1.13	0.29	2.09
New Hampshire	------	.15	------	------	.15	.00	------	.10	------
Vermont	.62	.10	.59	.52	.36	.00	[1] 13	.07	2.06
Massachusetts	.19	.51	63	.40	.53	.00	1.03	.18	1.52
Rhode Island	.09	.19	.14	------	.22	.00	.96	.10	.63
Connecticut	.12	.18	.23	.17	.23	.00	.80	.04	.94
New York	.17	.22	.56	.23	.22	.00	1.54	.11	1.32
New Jersey	.09	.42	.48	.13	.22	.00	1.35	.19	.79
Pennsylvania	.19	.22	.60	.20	.28	.00	.61	.25	1.01
Ohio	.28	.18	.17	.11	.41	.07	1.02	.36	.71
Indiana	.03	.16	.09	.04	.27	.42	.59	.25	.40
Illinois	.16	.40	.12	.27	.36	.12	1.32	.27	1.01
Michigan	.19	.29	.47	.17	.41	.14	1.02	.17	1.71
Wisconsin	.55	.20	1.02	.56	.43	.09	.74	.13	3.73
Minnesota	.15	.22	.09	------	.27	.05	.72	.12	.46
Iowa	.03	.06	.02	.04	.13	.21	.17	.04	.18
Missouri	.08	.25	.21	.09	.25	.18	.70	.48	.26
North Dakota	.07	.14	.26	.59	.50	.52	.24	.43	1.10
South Dakota	.12	.51	.12	------	.17	.49	.19	.32	.15
Nebraska	.21	.16	.24	.05	.14	.31	.11	.17	.49
Kansas	.09	.25	.28	.16	.44	.17	.47	.46	.70
Delaware	------	.39	.64	.15	.30	.00	.64	1.43	.29
Maryland	.09	.30	.13	.09	.25	.00	1.68	1.73	.80
District of Columbia	.17	.31	.63	------	.34	.00	1.93	.51	.53
Virginia	.44	.48	1.01	------	.66	.02	.92	1.52	1.39

[1] Pulmonary.

Case Rates per 1,000 Population (Annual Basis) for the Month of August, 1930, Based on Provisional Populations—Continued

State	Chicken pox	Diphtheria	Measles	Mumps	Scarlet fever	Smallpox	Tuberculosis	Typhoid and paratyphoid fever	Whooping cough
West Virginia	.10	.30	.29		.39	.13	.31	1.66	.98
North Carolina	.12	.90	.06		.50	.04		.90	1.62
South Carolina	.31	.58	.09	.15	.18	.01	.92	2.07	1.58
Georgia	.02	.19	.18	.10	.25	.01	.37	1.01	.30
Florida	.04	.09	.02	.18	.09	.00	.30	.17	.10
Kentucky [2]									
Tennessee	.05	.19	.12	.06	.34	.04	[1] 1.05	2.38	.52
Alabama	.03	.23	.38	.11	.36	.01	1.64	.83	.63
Mississippi	.83	.36	.56	.91	.15	.05	1.54	.94	2.22
Arkansas	.11	.03	.00	.03	.09	.08	[1] .08	.80	.28
Louisiana	.01	.23	.11	.03	.13	.00	[1] 1.00	.86	.19
Oklahoma [3]	.01	.14	.27	.01	.16	.24	.30	1.41	.18
Texas		.20			.15			.28	
Montana	.24	.07	.31	.57	.70	.24	.72	.29	1.91
Idaho	.29	.18	.34	.05	.21	.21	.16	.21	1.58
Wyoming	.10		.10	.10	.78	.00		.16	.78
Colorado		.32	.74	.69	.39	.05	1.29	.53	2.26
New Mexico		.88	.38	.36	.16	.33	1.62	.77	.33
Arizona	.05	.30	.99	.24	.19	.03	3.17	.73	.78
Utah [3]									
Nevada	.52					.00	[1] .64	.00	.52
Washington	.32	.22	.61	.56	.33	.32	.86	.16	1.41
Oregon	.30	.23	1.01	.68	.30	.25	.46	.36	1.67
California	.27	.30	.63	.69	.28	.09	1.56	.17	.78

[1] Pulmonary [2] Reports received weekly. [3] Exclusive of Oklahoma City and Tulsa.

GENERAL CURRENT SUMMARY AND WEEKLY REPORTS FROM CITIES

The 94 cities reporting cases used in the following table are situated in all parts of the country and have an estimated aggregate population of more than 31,690,000. The estimated population of the 87 cities reporting deaths is more than 30,100,000. The estimated expectancy is based on the experience of the last nine years, excluding epidemics.

Weeks ended December 20, 1930, and December 21, 1929

	1930	1929	Estimated expectancy
Cases reported			
Diphtheria:			
46 States	1,483	1,756	
94 cities	584	767	1,066
Measles:			
45 States	3,470	3,846	
94 cities	1,181	663	
Meningococcus meningitis:			
46 States	73	165	
94 cities	39	100	
Poliomyelitis:			
46 States	91	24	
Scarlet fever:			
46 States	3,908	3,887	
94 cities	1,435	1,500	1,205
Smallpox:			
46 States	634	1,067	
94 cities	57	142	37
Typhoid fever:			
46 States	314	207	
94 cities	53	32	30
Deaths reported			
Influenza and pneumonia:			
87 cities	723	1,009	
Smallpox:			
87 cities	0	0	

City reports for week ended December 20, 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	2	1	0	1	1	0	0	2
New Hampshire:								
Concord	0	0	0		0	0	0	2
Vermont:								
Barre	0	0	0		0	0	0	0
Burlington	4	0	0		0	0	0	0
Massachusetts:								
Boston	56	41	33	1	0	59	13	25
Fall River	22	4	6		0	0	5	3
Springfield	14	5	0		0	3	5	2
Worcester	38	6	6		0	1	0	2
Rhode Island:								
Pawtucket	1	1	4		0	0	0	2
Providence	9	10	5		0	0	0	4
Connecticut:								
Bridgeport	3	7	0		0	1	3	2
Hartford		8						
New Haven	8	2	0		0	8	8	1
MIDDLE ATLANTIC								
New York:								
Buffalo	35	18	16		2	6	38	16
New York	180	195	71	23	5	98	35	154
Rochester	13	8	7		0	1	2	5
Syracuse	20	4	0		0	2	0	3
New Jersey:								
Camden	4	6	1		0	53	7	4
Newark	70	23	7	3	0	0	6	17
Trenton	7	3	0		0	0	2	2
Pennsylvania:								
Philadelphia	110	71	16	5	2	16	28	49
Pittsburgh	73	23	18		1	10	17	28
Reading	12	3	0		0	5	23	1
EAST NORTH CENTRAL								
Ohio:								
Cincinnati	6	14	1		4	10	15	10
Cleveland	170	44	14	7	0	2	72	12
Columbus	3	8	2	1	1	1	1	8
Toledo	110	10	10	3	3	2	7	2
Indiana:								
Fort Wayne	2	5	1		1	1	0	3
Indianapolis	19	10	3		0	0	0	12
South Bend	4	1	0		0	0	0	2
Terre Haute	3	1	0		0	1	0	2
Illinois:								
Chicago	105	132	122	4	7	11	60	30
Springfield	3	3	2		0	0	0	1
Michigan:								
Detroit	97	67	33	1	3	8	18	20
Flint	26	4	0		0	5	1	1
Grand Rapids		1						

City reports for week ended December 20, 1930—Continued

Division, State, and city	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases re-reported	Mumps, cases re-reported	Pneumonia, deaths reported
		Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
EAST NORTH CENTRAL—continued								
Wisconsin:								
Kenosha	32	1	0		0	0	7	0
Madison	48	2	2			1	10	
Milwaukee	132	20	9		0	5	68	9
Racine	55	3	0		0	0	0	0
Superior	5	0	0		0	1	0	0
WEST NORTH CENTRAL								
Minnesota:								
Duluth	7	1	0		0	0	1	1
Minneapolis	56	20	11		0	1	10	4
St. Paul	32	12	0	2	2	0	0	5
Iowa:								
Davenport	2	0	0			0	0	
Des Moines	1	3	0			0	0	
Sioux City	7	1	0			1	4	
Waterloo	10	0	0			0	0	
Missouri:								
Kansas City	32	8	3		2	3	0	2
St. Joseph	0	2	0		0	1	0	5
St. Louis	35	43	23			724	11	
North Dakota:								
Fargo	9	0	0		0	0	5	0
Grand Forks	0	0	0			0	9	
South Dakota:								
Aberdeen	3	0	0			1	2	
Nebraska:								
Omaha	12	7	8		0	0	0	6
Kansas:								
Topeka	6	2	0	1	1	1	0	2
Wichita	6	3	1		0	0	0	7
SOUTH ATLANTIC								
Delaware:								
Wilmington	3	1	1		0	1	0	3
Maryland:								
Baltimore	105	30	13	9	1	20	7	23
Cumberland	0	1	0		0	0	0	0
Frederick	0	0	1		0	0	0	0
District of Columbia:								
Washington	17	17	13	1	1	16	0	8
Virginia:								
Lynchburg	3	3	1		0	1	1	0
Norfolk	8	3	0		0	0	0	2
Richmond	2	9	4		0	7	4	3
Roanoke	10	3	2		1	0	0	2
West Virginia:								
Charleston	3	1	0	1	1	0	6	1
Wheeling	10	2	0		0	0	0	0
North Carolina:								
Raleigh		1						
Wilmington	2	1	1		0	0	0	2
Winston-Salem	6	2	1		0	0	1	3
South Carolina:								
Charleston	0	1	1	35	0	0	0	6
Columbia	20	1	1		0	3	10	10
Georgia:								
Atlanta	3	5	4	18	2	19	0	8
Brunswick	0	0	0		1	0	0	0
Savannah	0	1	1	12	3	0	1	0
Florida:								
Miami	2	3	3		0	0	2	1
St. Petersburg		0			0			1
Tampa	0	2	5		0	2	0	0

City reports for week ended December 20, 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			
EAST SOUTH CENTRAL								
Kentucky:								
Covington	1	1	1	----	0	0	2	0
Tennessee:								
Memphis	19	6	6	----	3	0	0	9
Nashville	3	2	3	----	0	4	0	7
Alabama:								
Birmingham	12	5	3	6	1	42	0	1
Mobile	0	1	1	----	1	0	0	0
Montgomery	1	2	0	----	----	0	0	----
WEST SOUTH CENTRAL								
Arkansas:								
Fort Smith	1	2	0	----	----	1	0	----
Little Rock	5	2	0	----	0	0	0	1
Louisiana:								
New Orleans	1	13	17	2	4	1	0	19
Shreveport	----	2	----	----	----	----	----	----
Oklahoma:								
Muskogee	6	2	2	----	0	1	0	0
Oklahoma City	0	3	3	5	0	0	0	7
Tulsa	8	4	5	----	----	7	1	----
Texas:								
Dallas	26	14	15	1	0	3	7	4
Fort Worth	10	5	1	----	2	0	0	6
Galveston	2	1	7	----	0	0	0	0
Houston	0	7	10	----	0	0	0	6
San Antonio	1	5	6	----	2	0	0	6
MOUNTAIN								
Montana:								
Billings	2	0	0	----	0	0	0	0
Great Falls	6	0	0	----	0	0	0	0
Helena	10	0	0	----	0	0	0	0
Missoula	0	1	0	----	0	0	0	0
Idaho:								
Boise	3	1	0	----	0	0	0	2
Colorado:								
Denver	34	8	0	----	2	7	3	16
Pueblo	2	1	0	----	0	10	0	1
New Mexico:								
Albuquerque	17	0	1	----	0	0	1	1
Arizona:								
Phoenix	0	0	0	----	0	0	0	3
Utah:								
Salt Lake City	20	4	2	----	0	2	3	6
Nevada:								
Reno	0	0	0	----	0	0	0	0
PACIFIC								
Washington:								
Seattle	19	5	18	----	----	0	20	----
Spokane	1	2	0	----	----	0	0	----
Tacoma	8	3	4	----	0	0	1	2
Oregon:								
Portland	27	11	0	----	0	2	10	8
Salem	0	0	0	----	0	1	1	0
California:								
Los Angeles	16	40	14	41	4	2	8	36
Sacramento	9	2	1	----	0	0	7	6
San Francisco	14	17	4	----	0	1	4	7

City reports for week ended December 20, 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	2	5	0	0	0	1	0	1	0	8	19
New Hampshire:											
Concord	0	0	0	0	0	0	0	0	0	0	10
Vermont:											
Barre	0	0	0	0	0	0	0	0	0	0	1
Burlington	1	0	0	0	0	0	0	0	0	0	5
Massachusetts:											
Boston	70	53	0	0	0	7	1	1	0	27	194
Fall River	2	8	0	0	0	3	0	0	0	1	29
Springfield	8	12	0	0	0	2	0	1	1	7	37
Worcester	11	13	0	0	0	3	0	0	0	1	56
Rhode Island:											
Pawtucket	1	8	0	0	0	0	0	0	0	1	15
Providence	8	15	0	0	0	2	0	0	0	7	76
Connecticut:											
Bridgeport	9	12	0	0	0	2	0	0	0	2	34
Hartford	6	----	0	----	----	----	0	----	----	----	----
New Haven	5	4	0	0	0	2	0	1	0	3	36
MIDDLE ATLANTIC											
New York:											
Buffalo	26	25	0	0	0	11	1	0	0	31	137
New York	192	164	0	0	0	103	9	5	1	134	1,449
Rochester	7	50	0	0	0	5	0	0	0	14	69
Syracuse	12	10	0	0	0	0	0	0	0	10	46
New Jersey:											
Camden	4	7	0	0	0	0	0	0	0	6	22
Newark	17	23	0	0	0	5	1	0	0	17	96
Trenton	4	10	0	0	0	0	0	0	0	0	31
Pennsylvania:											
Philadelphia	80	113	0	0	0	28	2	2	1	28	471
Pittsburgh	36	55	0	0	0	11	1	0	0	14	173
Reading	2	2	0	0	0	2	0	0	0	0	28
EAST NORTH CENTRAL											
Ohio:											
Cincinnati	16	35	1	0	0	5	0	4	0	8	132
Cleveland	37	83	1	0	0	12	0	2	0	17	160
Columbus	11	7	1	0	0	2	0	0	0	0	76
Toledo	13	11	1	1	0	6	1	0	0	3	74
Indiana:											
Fort Wayne	3	1	0	0	0	0	0	2	0	0	----
Indianapolis	10	52	5	5	0	4	0	2	1	8	----
South Bend	3	6	1	0	0	0	0	0	0	2	24
Terre Haute	3	0	0	0	0	0	0	0	0	0	17
Illinois:											
Chicago	115	183	1	0	0	34	2	5	0	64	644
Springfield	1	6	0	1	0	0	0	0	0	0	12
Michigan:											
Detroit	94	55	1	4	0	26	1	0	0	46	262
Flint	12	20	1	0	0	1	0	0	0	0	20
Grand Rapids	11	----	0	----	----	----	0	----	----	----	----
Wisconsin:											
Kenosha	2	1	0	0	----	0	0	0	0	0	8
Madison	2	6	0	0	----	----	0	0	----	0	----
Milwaukee	28	18	0	0	0	7	0	0	0	12	119
Racine	6	3	0	0	0	3	0	0	0	2	14
Superior	3	0	0	0	0	0	0	0	0	5	9
WEST NORTH CENTRAL											
Minnesota:											
Duluth	10	1	0	0	0	1	0	0	0	0	23
Minneapolis	50	13	1	0	0	2	0	0	0	9	95
St. Paul	27	4	2	0	0	0	0	0	0	11	57

City reports for week ended December 20, 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	1	2	1	6	----	----	0	0	----	0	----
Des Moines	10	9	1	3	----	----	0	0	----	0	29
Sioux City	2	19	1	0	----	----	0	0	----	0	----
Waterloo	2	0	1	2	----	----	0	0	----	7	----
Missouri:											
Kansas City	15	10	1	0	0	4	0	0	0	5	96
St. Joseph	4	5	0	0	0	0	0	0	0	0	20
St. Louis	33	76	0	0	0	9	1	4	0	6	199
North Dakota:											
Fargo	1	0	0	0	0	0	0	0	0	0	5
Grand Forks	1	0	0	0	----	----	0	0	----	0	----
South Dakota:											
Aberdeen	0	0	0	0	----	----	0	0	----	0	----
Nebraska:											
Omaha	5	11	1	16	0	2	0	0	0	1	44
Kansas:											
Topeka	2	0	0	0	0	2	0	0	0	0	18
Wichita	5	5	0	7	0	0	0	0	1	3	47
SOUTH ATLANTIC											
Delaware:											
Wilmington	2	4	0	0	0	2	0	0	0	2	32
Maryland:											
Baltimore	28	34	0	0	0	17	2	2	0	2	188
Cumberland	1	2	0	0	0	0	0	0	0	0	9
Frederick	0	0	0	0	0	0	0	0	0	0	5
District of Columbia:											
Washington	23	22	0	0	0	14	1	2	0	0	132
Virginia:											
Lynchburg	0	0	0	0	0	0	0	0	0	0	6
Norfolk	1	1	0	0	0	2	0	0	0	0	----
Richmond	7	8	0	0	0	2	1	0	0	1	46
Roanoke	3	1	0	0	0	1	0	0	0	0	13
West Virginia:											
Charleston	1	0	0	0	0	1	0	1	0	0	20
Wheeling	2	3	0	0	0	1	0	0	0	0	15
North Carolina:											
Raleigh	0	----	0	----	----	----	0	----	----	----	----
Wilmington	1	2	0	0	0	0	0	0	0	3	12
Winston-Salem	2	1	0	0	0	3	0	0	0	0	16
South Carolina:											
Charleston	0	0	0	0	0	0	0	0	0	0	24
Columbia	1	2	0	0	0	3	0	0	0	0	31
Georgia:											
Atlanta	5	19	0	0	0	5	0	0	0	4	85
Brunswick	0	0	0	0	0	0	0	0	0	0	6
Savannah	1	3	1	0	0	1	0	0	0	0	30
Florida:											
Miami	2	1	0	0	0	1	0	0	0	0	32
St. Petersburg	0	----	0	----	0	0	0	----	0	----	10
Tampa	1	3	0	0	0	1	0	1	0	0	28
EAST SOUTH CENTRAL											
Kentucky:											
Covington	2	6	----	0	0	0	0	0	1	0	19
Tennessee:											
Memphis	6	17	0	0	0	6	0	5	0	0	90
Nashville	3	0	0	0	0	0	0	1	1	0	46
Alabama:											
Birmingham	4	6	1	0	0	7	1	0	0	0	61
Mobile	1	3	0	0	0	0	0	0	0	0	24
Montgomery	1	1	0	0	----	----	0	0	----	1	----
WEST SOUTH CENTRAL											
Arkansas:											
Fort Smith	0	0	0	0	----	----	0	0	----	3	----
Little Rock	2	0	0	0	0	1	0	0	0	0	----

City reports for week ended December 20, 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—con.											
Louisiana:											
New Orleans	8	12	0	0	0	11	2	7	2	1	149
Shreveport	1	----	0	----	----	----	0	----	----	----	----
Oklahoma:											
Muskogee	1	0	0	0	0	0	0	0	0	0	----
Oklahoma City	2	6	0	2	0	4	0	0	0	0	49
Tulsa	2	7	1	5	----	----	0	1	----	0	----
Texas:											
Dallas	7	3	1	0	0	6	1	0	0	14	58
Fort Worth	3	3	1	5	0	2	0	0	0	0	55
Galveston	1	0	0	0	0	0	0	0	0	0	8
Houston	3	5	1	4	0	3	0	0	0	0	58
San Antonio	2	0	0	0	0	7	0	0	0	0	64
MOUNTAIN											
Montana:											
Billings	1	0	0	11	0	1	0	0	0	3	6
Great Falls	2	8	0	0	0	0	0	0	0	8	7
Helena	1	0	0	2	0	0	0	0	0	0	5
Missoula	1	0	0	0	0	0	0	0	0	1	1
Idaho:											
Boise	0	1	1	0	0	0	0	0	0	4	10
Colorado:											
Denver	13	18	0	0	0	0	0	0	5	15	94
Pueblo	2	1	0	0	0	2	0	0	0	7	7
New Mexico:											
Albuquerque	0	1	0	0	0	0	0	0	0	0	6
Arizona:											
Phoenix	1	0	0	0	0	4	0	0	0	0	17
Utah:											
Salt Lake City	2	6	1	0	0	3	0	1	0	11	38
Nevada:											
Reno	0	0	0	0	0	1	0	0	0	0	9
PACIFIC											
Washington:											
Seattle	8	11	1	0	----	----	1	1	----	11	----
Spokane	8	5	4	3	----	----	0	0	----	0	----
Tacoma	3	7	4	2	----	0	0	0	0	2	20
Oregon:											
Portland	7	2	7	0	0	3	0	0	0	1	75
Salem	0	2	0	0	0	0	0	0	0	0	----
California:											
Los Angeles	32	14	1	0	0	31	1	0	1	8	304
Sacramento	2	0	0	0	0	1	0	1	0	0	----
San Francisco	17	4	2	0	0	9	1	1	0	13	188

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	0	0	0	0	0	0	0	2	0
Worcester	1	1	0	0	0	0	0	3	0
MIDDLE ATLANTIC									
New York:									
New York [1]	7	2	0	0	0	0	1	0	0
Rochester	1	0	0	0	0	0	0	0	0
Pennsylvania:									
Philadelphia	2	0	0	0	0	0	0	0	0

[1] Typhus fever: 3 cases; 1 case at New York City, N. Y.; 1 case at Savannah, Ga.; and 1 case at Dallas, Tex.

City reports for week ended December 20, 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	0	0	0	0	0	0	0	0	1
Cleveland	3	1	0	0	0	0	0	0	0
Indiana:									
Indianapolis	0	1	0	0	0	0	0	0	0
Illinois:									
Chicago	4	0	0	0	0	0	0	1	0
Michigan:									
Detroit	6	2	0	0	0	0	0	0	0
Wisconsin:									
Milwaukee	0	0	0	0	0	0	0	1	0
WEST NORTH CENTRAL									
Minnesota:									
Minneapolis	0	0	0	0	0	0	0	3	0
St. Paul	0	0	0	0	0	0	0	1	0
Iowa:									
Des Moines	1	0	0	0	0	0	0	0	0
Waterloo	1	0	0	0	0	0	0	0	0
Missouri:									
Kansas City	1	1	0	0	0	0	0	1	0
St. Joseph	1	0	0	0	0	0	0	0	0
St. Louis	3	2	0	0	0	0	0	0	0
SOUTH ATLANTIC									
Delaware:									
Wilmington	1	0	0	0	0	0	0	0	0
Maryland:									
Baltimore	1	0	0	0	0	0	0	0	0
District of Columbia:									
Washington	0	1	0	0	0	0	0	1	0
Virginia:									
Norfolk	0	0	0	0	0	0	0	1	0
South Carolina:									
Charleston	1	0	0	0	0	0	0	0	0
Columbia	0	0	0	0	0	2	0	0	0
Georgia: [1]									
Atlanta	1	1	0	0	0	0	0	0	0
EAST SOUTH CENTRAL									
Tennessee:									
Memphis	1	2	0	0	0	0	0	0	0
WEST SOUTH CENTRAL									
Arkansas:									
Little Rock	0	0	0	0	0	1	0	0	0
Louisiana:									
New Orleans	1	1	0	0	2	2	0	0	0
Oklahoma:									
Oklahoma City	0	0	0	0	0	0	0	1	0
Texas:									
Dallas [1]	0	0	0	0	1	1	0	0	0
Fort Worth	1	0	0	0	0	0	0	0	0
MOUNTAIN									
Montana:									
Missoula	1	0	0	0	0	0	0	0	0
Arizona:									
Phoenix	0	2	0	0	0	0	0	0	0
Utah:									
Salt Lake	2	0	0	0	0	0	0	0	0
PACIFIC									
California:									
Los Angeles	0	0	0	0	2	0	0	0	0
Sacramento	1	0	0	0	0	0	0	1	0
San Francisco	1	0	0	0	0	0	0	6	1

[1] Typhus fever: 3 cases; 1 case at New York City, N. Y.; 1 case at Savannah, Ga.; and 1 case at Dallas, Tex.

The following tables give the rates per 100,000 population for 98 cities for the 5-week period ended December 20, 1930, compared with those for a like period ended December 21, 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 November 16 to December 20, 1930—Annual rates per 100,000 population, compared with rates for the corresponding period of 1929[1]

DIPHTHERIA CASE RATES

	Week ended—									
	Nov. 22, 1930	Nov. 23, 1929	Nov. 29, 1930	Nov. 30, 1929	Dec. 6, 1930	Dec. 7, 1929	Dec. 13, 1930	Dec. 14, 1929	Dec. 20, 1930	Dec. 21, 1929
98 cities	102	[2] 186	89	139	[3] 92	146	[4] 90	134	[5] 96	128
New England	113	117	80	177	111	112	117	117	[6] 130	168
Middle Atlantic	54	123	50	123	61	110	50	112	65	106
East North Central	125	302	123	167	113	191	[7] 122	170	[8] 120	167
West North Central	108	169	108	114	99	121	95	148	87	110
South Atlantic	141	135	60	144	[9] 104	127	[9] 113	107	[9] 91	107
East South Central	310	239	155	157	162	226	155	137	94	123
West South Central	183	446	164	259	[10] 159	362	[11] 147	2 3	[10] 219	225
Mountain	26	[2] 89	77	17	[12] 0	157	26	61	17	61
Pacific	73	60	111	56	76	84	64	58	97	56

MEASLES CASE RATES

98 cities	129	[2] 72	109	74	[3] 146	98	[4] 167	113	[5] 194	109
New England	164	56	148	70	202	81	250	85	[6] 173	92
Middle Atlantic	80	34	73	33	89	54	89	47	91	59
East North Central	31	94	28	101	28	93	[7] 27	133	[8] 29	94
West North Central	751	81	636	100	933	216	1,055	202	1,387	210
South Atlantic	59	24	40	22	[9] 57	4	[9] 74	28	[9] 128	39
East South Central	169	14	74	0	175	14	337	14	310	0
West South Central	4	27	11	38	[10] 12	46	[11] 8	61	[10] 20	133
Mountain	318	[2] 107	275	131	[12] 51	165	146	104	163	139
Pacific	33	280	12	249	31	377	31	464	7	418

SCARLET FEVER CASE RATES

98 cities	200	[2] 218	178	212	[3] 207	252	[4] 229	277	[5] 236	249
New England	217	249	241	258	246	276	237	375	[6] 312	310
Middle Atlantic	168	127	156	116	187	148	196	172	219	176
East North Central	266	347	224	361	259	409	[7] 318	438	[8] 300	355
West North Central	214	223	137	183	194	231	205	271	273	235
South Atlantic	198	163	172	139	[9] 211	159	[9] 241	193	[9] 193	253
East South Central	236	157	243	137	337	144	425	89	223	48
West South Central	101	156	142	118	[10] 100	156	[11] 94	137	[1] 80	99
Mountain	275	[2] 267	223	348	[12] 120	392	206	322	292	583
Pacific	102	261	97	266	113	355	83	340	97	244

[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 estimates as of July 1, 1930, and 1929, respectively.
[2] Reno, Nev., not included.
[3] Raleigh, N. C., Shreveport, La., and Denver, Colo., not included.
[4] South Bend, Ind., Raleigh, N. C., Fort Smith, Ark., and Shreveport, La., not included.
[5] Hartford, Conn., Grand Rapids, Mich., Raleigh, N. C., and Shreveport, La., not included.
[6] Hartford, Conn., not included.
[7] South Bend, Ind., not included.
[8] Grand Rapids, Mich., not included.
[9] Raleigh, N. C., not included.
[10] Shreveport, La., not included.
[11] Fort Smith, Ark., and Shreveport, La., not included.
[12] Denver, Colo., not included.

Summary of weekly reports from cities November 16 to December 20, 1930—Annual rates per 100,000 population, compared with rates for the corresponding period of 1929—Continued

SMALLPOX CASE RATES

	Week ended—									
	Nov. 22, 1930	Nov. 23, 1929	Nov. 29, 1930	Nov. 30, 1929	Dec. 6, 1930	Dec. 7, 1929	Dec. 13, 1930	Dec. 14, 1929	Dec. 20, 1930	Dec. 21, 1929
98 cities	3	[2] 24	8	14	[3] 7	19	[4] 15	23	[5] 9	23
New England	0	0	0	0	0	0	0	2	[6] 0	0
Middle Atlantic	0	0	0	0	0	0	0	0	0	0
East North Central	0	33	4	13	1	26	[7] 3	29	[8] 6	31
West North Central	33	50	66	48	47	64	120	56	47	60
South Atlantic	0	2	0	0	[9] 0	0	[9] 0	0	[9] 0	0
East South Central	0	0	0	0	0	0	0	0	0	7
West South Central	4	38	4	11	[10] 4	19	[11] 8	34	[10] 16	34
Mountain	43	[2] 71	34	35	[12] 205	78	146	78	112	52
Pacific	7	111	9	75	12	60	7	118	12	173

TYPHOID FEVER CASE RATES

98 cities	15	[2] 13	10	5	[3] 10	5	[4] 8	6	[5] 9	5
New England	15	11	11	2	7	2	18	7	[6] 10	0
Middle Atlantic	5	10	3	2	8	4	7	6	3	4
East North Central	9	9	4	5	10	4	[7] 7	3	[8] 10	3
West North Central	23	12	8	6	6	2	6	6	8	8
South Atlantic	26	19	29	4	[9] 17	6	[9] 4	7	[9] 11	4
East South Central	13	34	13	34	13	48	20	14	40	0
West South Central	90	34	75	15	[10] 28	0	[11] 25	8	[10] 28	38
Mountain	51	[2] 36	9	26	[12] 17	26	0	9	9	17
Pacific	12	5	7	2	12	10	7	7	7	2

INFLUENZA DEATH RATES

91 cities	11	[2] 8	9	11	[3] 10	17	[13] 10	16	[5] 10	19
New England	7	4	2	4	4	11	4	7	[6] 2	9
Middle Atlantic	8	9	11	5	6	14	8	9	5	18
East North Central	5	6	7	10	8	9	[7] 5	15	[8] 10	14
West North Central	6	9	0	21	12	27	21	12	15	15
South Atlantic	22	4	9	17	[9] 19	28	[9] 22	19	[9] 19	13
East South Central	15	30	29	15	15	60	29	60	37	52
West South Central	38	16	15	55	[10] 37	47	[10] 12	78	[10] 25	66
Mountain	60	[2] 9	26	17	[12] 34	17	9	0	17	26
Pacific	9	6	9	13	3	13	9	19	12	28

PNEUMONIA DEATH RATES

91 cities	119	[2] 101	112	106	[3] 102	136	[13] 108	150	[5] 115	158
New England	115	88	71	92	66	74	109	135	[6] 108	157
Middle Atlantic	140	106	125	101	107	139	109	156	133	165
East North Central	83	96	78	84	78	126	[7] 85	116	[8] 70	117
West North Central	136	102	92	126	130	126	145	174	95	180
South Atlantic	143	94	165	129	[9] 143	131	[9] 121	191	[9] 128	184
East South Central	199	254	155	224	177	239	140	216	125	216
West South Central	123	129	165	156	[10] 139	238	[10] 176	230	[10] 147	234
Mountain	163	[2] 107	223	157	[12] 137	165	154	192	215	235
Pacific	61	28	86	104	74	138	74	107	156	138

[2] Reno, Nev., not included.
[3] Raleigh, N. C., Shreveport, La., and Denver, Colo., not included.
[4] South Bend, Ind., Raleigh, N. C., Fort Smith, Ark., and Shreveport, La., not included.
[5] Hartford, Conn., Grand Rapids, Mich, Raleigh, N. C., and Shreveport, La., not included.
[6] Hartford, Conn., not included.
[7] South Bend, Ind., not included.
[8] Grand Rapids, Mich., not included.
[9] Raleigh, N. C., not included.
[10] Shreveport, La., not included.
[12] Denver, Colo., not included.
[13] South Bend, Ind., Raleigh, N. C., and Shreveport, La., not included.

FOREIGN AND INSULAR

CANADA

Provinces—Communicable diseases—Week ended December 20, 1930.—The Department of Pensions and National Health of Canada reports cases of certain communicable diseases for the week ended December 20, 1930, as follows:

Province	Cerebro-spinal fever	Influenza	Polio-myelitis	Smallpox	Typhoid fever
Prince Edward Island [1]					
Nova Scotia [1]					
New Brunswick					7
Quebec		5	1		11
Ontario			2	1	10
Manitoba	1				1
Saskatchewan			4		1
Alberta			1		
British Columbia					6
Total	1	5	8	1	36

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

Quebec Province—Communicable diseases—Week ended December 20, 1930.—The Bureau of Health of the Province of Quebec, Canada, reports cases of certain communicable diseases for the week ended December 20, 1930, as follows:

Disease	Cases	Disease	Cases
Chicken pox	194	Mumps	27
Diphtheria	66	Paratyphoid fever	1
Erysipelas	8	Scarlet fever	94
German measles	2	Tuberculosis	46
Influenza	5	Typhoid fever	11
Measles	56	Whooping cough	31

JAMAICA

Communicable diseases—Four weeks ended December 6, 1930.—During the four weeks ended December 6, 1930, cases of certain communicable diseases were reported in Kingston, Jamaica, and in the Island of Jamaica outside of Kingston as follows:

Disease	Cases		Disease	Cases	
	Kingston	Other localities		Kingston	Other localities
Cerebrospinal meningitis		1	Poliomyelitis		2
Chicken pox	1	4	Scarlet fever	1	1
Dysentery	1	3	Tuberculosis	43	66
Erysipelas	1	1	Typhoid fever	20	48
Leprosy	1	1			

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		June 29–July 26, 1930	July 27–Aug. 23, 1930	Aug. 24–Sept. 20, 1930	Week ended— Sept. 27, 1930	October, 1930 4	11	18	25	November, 1930 1	8	15	22	29	December, 1930 6	13	20	27
Afghanistan	C	P	P															
China:																		
Amoy	C			2														
	D			2														
Canton	C	2				1			1									
	D	1																
Shanghai	C			34	23	5	6	4	1		1							
	D			3	2			2										
Shensi Province	C			P														
Swatow	C		3	2														
Tientsin	C		2	1														
India	C	26, 121	42, 893	51, 551	11, 109	10, 172	7, 863											
	D	13, 822	22, 358	23, 959	5, 225	4, 808	3, 928											
Bassein	C			1														
Bombay	C		14	1	1	3	1	11	17	1	1		2	2	4			
	D		8	2	1	2		8	10	6	1		2	1	1			
Calcutta	C	220	63	27	4	4	7	9	7	7	11	8	4	6	2			
	D	128	30	12	3	4	4	4	4	2	6	4	4	4	1			
Madras	C		1				2			1								
	D		1				2											
Rangoon	C	1	1	2			1											
	D	1	1	1			1											
Tuticorin	C							1				1	4					
	D							1				1						
India (French):																		
Chandernagor	C	1		1		1	2							1				
	D					1												
Pondicherry	C						1						1	1	1	1		
	D						1						1	1	1	1		
India (Portuguese)	C		1	1						3	9	2						
	D			1						3	5	1						

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

CHOLERA—Continued

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

Place		June 29–July 26, 1930	July 27–Aug. 23, 1930	Aug. 24–Sept. 20, 1930	Week ended— Sept. 27, 1930	October, 1930 4	11	18	25	November, 1930 1	8	15	22	29	December, 1930 6	13	20	27
Indo-China (see also table below):																		
Pnompenh	C	32	11	-------	1	-------	1	-------	1	-------	-------	-------	-------	1	1	-------	-------	-------
	D	22	6	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	1	1	-------	-------	-------
Saigon and Cholon	C	10	5	-------	1	1	-------	-------	1	-------	-------	-------	-------	1	-------	-------	-------	-------
	D	3	1	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	1	-------	-------	-------	-------
Philippine Islands: [1]																		
Ports—																		
Cebu	C	65	9	2	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------
	D	36	8	2	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------
Iloilo	C	29	64	10	1	-------	-------	-------	-------	-------	-------	-------	-------	1	-------	-------	-------	-------
	D	22	56	14	2	-------	-------	2	-------	-------	-------	-------	-------	3	-------	-------	-------	-------
Manila	C	-------	1	43	2	1	2	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------
	D	-------	-------	12	-------	1	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------
Provinces—																		
Antique	C	-------	20	47	12	-------	28	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------
	D	-------	12	34	8	-------	10	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------
Bohol	C	-------	138	49	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------
	D	-------	79	20	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------
Bulacan	C	4	1	4	-------	2	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------
	D	-------	-------	2	-------	1	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------
Capiz	C	3	2	1	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------
	D	2	2	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------
Cebu	C	713	85	25	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------
	D	303	50	11	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------
Iloilo	C	309	571	238	18	7	13	12	10	10	4	6	11	21	13	-------	7	5
	D	193	376	151	15	6	7	12	7	7	3	6	8	11	8	-------	6	4
La Union	C	1	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------
Leyte	C	1	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------
	D	11	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------
Masbate	C	92	34	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------
	D	35	14	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------
Misamis, Occidental	C	3	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------
	D	3	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------
Negros, Occidental	C	568	343	122	8	10	5	5	12	3	19	22	44	38	48	33	28	19
	D	368	237	91	6	5	6	3	12	3	12	14	33	17	45	28	22	16

Negros, Oriental	C	23	8															
	D	13	4															
Nueva Acija	C	1																
	D	1																
Pampanga	C	2		1														
Pangasinan	C	3	1															
	D	2	1															
Rizal	C	1																
	D										4							
Samar	C		18	4	4			3	6	3	4	3	4	4			2	
	D		16	2	4			3	5	1	4	2	4	4			1	1
Sorsogon	C										5							
	D	1									4							
Surigao	C		28	1	(3)													
	D		17	2														
Tarlac	C		1															
Siam	C	20	3				1	3	3		1			1	1			
	D	9	2					1	3		1				1			
Bangkok	C	8	1				1	2	1	2			2	1				
	D	3	1				1	1	1	1			2	1				
Songkla	C	10																
	D	6																
On vessel: S. S. Malwa from Shanghai	D			1														

Place		May, 1930	June, 1930	July, 1930	August, 1930			September, 1930			October, 1930			November, 1930	
					1-10	11-20	21-31	1-10	11-20	21-30	1-10	11-20	2.-31	1-10	11-20
Indo-China (French) (see also table above):															
Annam [1]	C	23	16	1		3									
Cambodia [1]	C	88	144	43	37	22		23	13	2	16		6		1
Cochin-China [2]	C	671	273	46	22	5		9	6	18	14	6	8		5

[1] Figures for cholera in the Philippine Islands are subject to correction.
[2] During the period from Aug. 24 to Sept. 26, 1930, 26 cases of cholera with 17 deaths were reported in Manitum, Surigao Province, P. I.
[3] Reports incomplete.

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

PLAGUE

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

Place		June 29–July 26, 1930	July 27–Aug. 23, 1930	Aug. 24–Sept. 20, 1930	Week ended— Sept. 27, 1930	October, 1930 4	11	18	25	November, 1930 1	8	15	22	29	December, 1930 6	13	20	27
Algeria:																		
Algiers	C	3	7	11	1	1	2	2	5	3	1	2			1			
	D								3									
Constantine	C	1									1							
Oran	C	3	4	10		4	4	2	1			1						
	D			1			2	1										
Plague-infected rats		2		10	2			4	1									
Philippeville	C			1	1		1	1	1		1							
Argentina: Cordoba Province—Chazon	C															1		
Belgian Congo	C	2	2	5								1						
	D	2	2	3								1						
British East Africa (see also table below): Uganda	C	228	236	202	65	18	32	50	53									
	D	213	229	191	65	18	32	49	53									
Canary Islands: Las Palmas	D		1															
Ceylon:																		
Colombo	C	3	2	2	1	1									4			
	D	3	2	3	1			1				1	1		3			
Plague-infected rats		1										1	1	1				
China:																		
Manchuria—Tungliau and Nungan	C		30	29	2													
Shensi	C			P					P									
Dutch East Indies:																		
Batavia and West Java	C	84	83	79	22	14	26	45	41	36	27							
	D	84	83	76	22	14	26	41	42	37	28							
Plague-infected rats			1	3														
Java and Madura	D	217	188	260	75	68	95	97	124	140	107	130						
Ecuador (see table below).																		
Egypt:																		
Alexandria	C	23	11	10	2	1	3	3	2	1	1	3		1		2	1	
	D	10	6	8	3	1	1	1	3		2	2				1		
Assiout	C	2									3			2		7	5	1
	D	2									1					1		
Aswan	C													3				
Beni-Suef	C		1															

Gharbieh	C		3																
	D		1																
Girga	C	1		1														3	1
	D																		1
Minieh	C	3																1	
Port Said	C	1	1							1	1								
France:																			
Marseille	C			5				4	2	1		1							
St. Ouen	C	1																	
	D	1																	
Gambia	C		4																
	D		4																
Greece (see also table below):																			
Patras	C	1																	
Pyrgos	C					2													
India	C	377	877	2,497	672	527	627												
	D	256	477	1,132	289	222	269												
Bassein	C			2						1									
	D			3															
Bombay	C	1		1	1			1	1										
	D	1		1		1		1		1									
Plague-infected rats		52	35	47	21	13	16	14	2	9	11	8	11	5	12				
Madras Presidency	C	47	81	127	41	59	46	50	69	31									
	D	31	34	57	14	32	31	33	43	22									
Rangoon	C	2	3	10	2					1		1							
	D	2	2	9	2					1									
Plague-infected rats		6	7	8		1			1				1	1					
India (Portuguese)	D		P							3									
Indo-China (see also table below):																			
Pnompenh	C	2	4	3	1	1							1	3	1				
	D	2			1	1	1		1				1	3	1				
Saigon and Cholon	C		1	1	1														
Iraq: Baghdad	C	18	9		1							P	2						
	D	7	3		1								1						
Kwang-Chow-Wan	C	4	1																
Madagascar (see also table below): Tamatave	C	1	2	1		1			3		2			2	1				
	D					1			3					2					
Morocco	C	1	15						4		1								
	D		2																
Nigeria: Lagos	C	1	7	6		3		2	33	1	2	2	4	3	2				
	D	1	7	6		3		2		1	2	2	4	3	2				
Plague-infected rats		18	8	10				11	3	1	2								
Senegal (see table below).																			
Siam	C		7	3			1		3	1	1								1
	D		6	2					3	1									1
Bangkok	C		3															1	
	D		2															1	
Nagara Rajsima	C		2	1				1				1							
	D		2	1				1				1						8	
Syria: Beirut	C	9	2	5					1	1	3	1							
Tripolitania	C		2										4	6	2				

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

PLAGUE—Continued

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

Place		June 23–July 26, 1930	July 27–Aug. 23, 1930	Aug. 24–Sept. 20, 1930	Week ended— Sept. 27, 1930	October, 1930				November, 1930					December, 1930			
						4	11	18	25	1	8	15	22	29	6	13	20	27
Tunisia:																		
Sfax district	C	6	1															
Tunis	C	5								1		1				P		
	D	1																
Union of Socialist Soviet Republics: Salsk Region	C	5	7															
	D	4	5															
Union of South Africa:																		
Cape Province	C	1	1	1					1									
	D	1	1	1														
Orange Free State	C			2														
	D			2														

Place		May, 1930	June, 1930	July, 1930	Aug., 1930	Sept., 1930	Oct., 1930
British East Africa (see also table above):							
Kenya	C	171	107	97	87	53	50
Ecuador: Guayaquil	C	0	0				
	D	0	0				
Plague-infected rats		0	0				
Greece (see also table above)	C		1				2
Indo-China (see also table above)	C		11	1	2	4	
Madagascar (see also table above):							
Ambositra Province	C	1					
	D	1					
Antisirabe Province	C	19	3	24	11	21	
	D	19	3	24	11	21	
Miarinarivo Province	C	5	1	1	2	7	
	D	5	1	1	2	7	
Moramanga Province	C	1	3		27	18	
	D		3		27	17	

Place		May, 1930	June, 1930	July, 1930	Aug., 1930	Sept., 1930	Oct., 1930
Madagascar (see also table above)—Con.							
Tananarive Province	C	15	16	28	39	79	
	D	14	16	28	38	79	
Senegal:							
Baol [1]	C	13	2	62	79	48	53
	D	11	2	48	20	23	35
Dakar [1]	C	52	53	140	108	3	
	D	42	117	122	90	8	
Louga [1]	C	54	60	138	75	61	37
	D	27	21	103	33	30	25
Thies [1]	C	21	52	54	34	12	24
	D	8	35	30	20	4	15
Tivaouane [1]	C	135	43	119	110	20	53
	D	60	28	70	54	14	31

Place		June 1–28, 1930	June 29–July 26, 1930	July 27–Aug. 23, 1930	Aug. 24–Sept. 20, 1930	Week ended— Sept. 27, 1930	October, 1930 4	11	18	25	November, 1930 1	8	15	22	29	December, 1930 6	13
Algeria:																	
Algiers	C		1	3													
Constantine	C	1	1									1					
Arabia: Aden	C		1														
Brazil: Rio de Janeiro	C											2					
British East Africa (see also table below):																	
Tanganyika	C	1,610	168	242	522	27	43	4	21	3	1						
	D	301	42	37	60	1		1	4	1							
British South Africa: Southern Rhodesia	C	79	31	1	1	14	39	98	2	2	54	1	38				
Canada:																	
Alberta	C		5	1	1		13	8	1					1			
British Columbia—Vancouver	C	2	6	6	2	1			1		3					1	
Manitoba	C	4			1												
Ontario	C	47	24	20	10	1		3	15		20	9		7	12	3	
Ottawa	C	15	13	7	5					14		9	14		8	1	1
Toronto	C	4	1		1										2	2	
Quebec	C	4	3	5										1			1
Montreal	C			7													
Saskatchewan	C	22	5	8	1		3				2			2		16	
China:																	
Changking	C	1	P	P	P	P	P	P	P	P	P	P	P	P			
Foochow	C	P	P	P	P		P				P		P				
Hong Kong	C	4	2														
	D	3	1														
Manchuria—																	
Harbin	C	4	3	2													
Kwantung—Dairen	C	16	8											1		P	
	D	1															
Nanking	C	P	P	P	P	P	P	P	P	P	P	P					
Shanghai—																	
Foreigners only	C	5	4	3	18				1	1		1				3	
Including natives	D	3			2								1				
Swatow	D	4	1	4	2	1			3	1	1		1	1			
Tientsin	C					1											

[1] Reports incomplete.

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

SMALLPOX—Continued

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

Place		June 1–28, 1930	June 29–July 26, 1930	July 27–Aug. 23, 1930	Aug. 24–Sept. 20, 1930	Week ended— Sept. 27, 1930	October, 1930 4	11	18	25	November, 1930 1	8	15	22	29	December, 1930 6	13
Chosen (see table below).																	
Colombia:																	
Barranquilla	C			2													
Buenaventura	C	6	10	2													
Cali	D						1		1								
Costa Rica: Port Limon	C	2															
Curacao (alastrim)	C	1	2	1													
Dutch East Indies:																	
Borneo	C	12	2														
	D	1															
Java—																	
Batavia and West Java	C	13	8	12	11	10	2	1	1	2	13	11					
	D	3	5	5	4	1	1	1	1	2	1	1					
East Java and Madura	C		1														
Sanggi Islands	C		11	36	14					29							
	D		3	2	3					3							
Egypt: Port Said	C		3														
France (see table below).																	
Great Britain:																	
England and Wales	C	926	529	344	341	82	74	44	125	86	87	92	107	116	160	95	
Ashton under Lyne	C	7	8														
Bradford	C		1				1	1	1	1	1						
Cardiff	C		2							1							
Leeds	C		1							1			2				
London	C	498	250	178	164	30	34	23	33	29	32	41	47	52	67	27	
London and Great Towns	C	753	408	285	268	55	56	32	80	52	58	68	82	88	136	74	
	D							1			1						
Stoke-on-Trent	C	32	9	2	2			1			1						
Scotland	C	4	1		5												
	D		1														
Honduras: Naco	C				5												
India	C	12,962	7,630	4,877	3,131	611	528	567									
	D	3,531	2,348	1,246	680	202	122	113									

Bombay	C	113	50	12	6			1								1	
	D	79	33	10	5											1	
Calcutta	C	131	73	25	14	3	4	3	2	2	4	3		3	5	6	
	D	146	56	21	9	3	4	3	1	2	2	3		3	2	4	
Cochin	C	16	6	14	3			8	4	3	5	10	7	4	5	6	
	D	4			1			1		1			2	2		2	
Karachi	C	7	1	4	4									2			
	D	3		3	2										1		
Madras	C	35	49	38	34	4	4	8	3	2	1	2	4	3	5	6	
	D	10	12	11	6	1	2	3	2			2				2	
Moulmein	C	21	18	2	1												
	D	7	1	1	1												
Negapatam	C	2	4	4	9	4	2	5	3	2	2	2	3	3		1	
Rangoon	C	9		3					2			1			1		
	D	2										1					
Tuticorin	C	1							1								
Vizagapatam	C	1						1									
India (French):																	
Chandernagor	C	19	4		3			3			3						
	D	3	3		2			1			1						
Karikal	C	11	2	9	5	1											
	D	8	2	9	2	1											
Pondicherry Province	C	23	26	22	35	11	10	6	11	2	2		7	7			
	D	23	25	22	33	11	8	6	11	2	2		7	7			
India (Portuguese)	C	28	1	9	4												
	D	10	1	2													
Indo-China (see also table below):																	
Pnompenh	C		1					2							1		
	D	1	1	1											1		
Saigon and Cholon	C	1		1	1						2			2	1		
	D			3	1						2			1			
Iraq:																	
Baghdad	C	1	3	1	1		2										
	D		1	1													
Mossoul Liwa	C	4	67			63		4	2			6		7	9		
	D	1	20			27								1	1		
Ivory Coast (see table below).																	
Mexico (see also table below):																	
Jalisco (State) Guadalajara	D	15	4	1			2		1	1		1	1	1		2	
Juarez	C	6		2													
	D	1		1		1				1							
Mexico City and surrounding territory	C	77	37	10	12	1	3	5	4	1	3	3	2	1	2		
	D	17	8	6	5			1	2	1		1					
Progreso	D	1															
Vera Cruz	C										1						
Morocco (see table below).																	
Nigeria: Lagos	C	1															
Poland	C	2								2	3			1	2		
Portugal:																	
Lisbon	C	10	13	50	27	4	5		7	12			8	11		15	
Oporto	C			1													
Siam	C		6				1										
	D		3														

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

SMALLPOX—Continued

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

Place		June 1–28, 1930	June 29–July 26, 1930	July 27–Aug. 23, 1930	Aug. 24–Sept. 20, 1930	Week ended— Sept. 27, 1930	October, 1930				November, 1930					December, 1930	
							4	11	18	25	1	8	15	22	29	6	31
Somaliland, British: Boales	C						1					1				1	
	D						1										
Spain	C	12	5	2	5					14	5	11	21	23	21		
Straits Settlements	C	9	11	8	6	1	1	1	2	3	3	4		3	9		
	D	2	3	3	1			1			1	1		1	2		
Sudan (Anglo-Egyptian)	C	67	12	42	128	25	1	56		3			2		3		47
	D	3	1	3	52	2		5					1				5
Sudan (French) (see table below).																	
Switzerland: Berne Canton	C		1	2		1											
Syria (see table below).																	
Tunisia: Tunis	C	2	1			2											
Turkey (see table below).																	
Union of South Africa:																	
Cape Province	C		P		P			P	P	P	P	P	P				
Orange Free State	C		P	P							1	1	P				
Transvaal	C			P	P	P		P	P	P	P	P	P				
Upper Volta	C	13															
On vessel: S. S. Manoa, from Honolulu to San Francisco	C		1														

Place		May, 1930	June, 1930	July, 1930	August, 1930			September, 1930			October, 1930			November, 1930	
					1–10	11–20	21–31	1–10	11–20	21–30	1–10	11–20	21–31	1–10	11–20
Indo-China (see also table above)	C	305	213	238	59	84		54	52	86	32	62	164		86
Ivory Coast	C												4		2
Sudan (French)	C	274	76	34			39		P			17			
	D	32	18				3					2			
Syria: Beirut	C	7	7	2	1										

Place		May, 1930	June, 1930	July, 1930	Aug., 1930	Sept., 1930	Oct., 1930
British East Africa (see also table above):							
Kenya	C	171	142	186		424	
Uganda	C	78					
	D	69					
Chosen	C	107		3	2		
	D	35					
Seishin	C	2	1	2			
	D	1					

Place		May, 1930	June, 1930	July, 1930	Aug., 1930	Sept., 1930	Oct., 1930
France	C	51		1			
Mexico: Durango (see also table above)	D	4	3	3	3	2	
Morocco	C	18	5	3	8	1	4
Turkey	C	16					

TYPHUS FEVER

Place		June 1–28, 1930	June 29–July 26, 1930	July 27–Aug. 23, 1930	Aug. 24–Sept. 20, 1930	Week ended— Sept. 27, 1930	October, 1930				November, 1930					December, 1930		
							4	11	18	25	1	8	15	22	29	6	13	20
Algeria:																		
Algiers	C	3	6	2	3							1			2			
Constantine Department	C	12	2	3			2			1					1			
Oran	C	4	3	1	1			1	2						3			
Bulgaria	C	16	10	1	4	2		1	3			1	2	1				
	D	1	1															
China:																		
Manchuria—Harbin (see also table below)	C	8	2	2	2				1									
Shanghai	C			1														
Chosen (see table below).																		
Czechoslovakia (see table below).																		
Egypt:																		
Alexandria	C	1	1	1	3	1							2		1			
Beheira Province	C	45	15		1													1
	D	4	2															1
Cairo	C			7	2												1	
Port Said	C			4	1		1			1	1							
Great Britain: Scotland—Dunfermline	C		1															

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

TYPHUS FEVER—Continued

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

Place		June 1–28, 1930	June 29–July 26, 1930	July 27–Aug. 23, 1930	Aug. 24–Sept. 20, 1930	Week ended— Sept. 27, 1930	October, 1930				November, 1930					December, 1930		
							4	11	18	25	1	8	15	22	29	6	13	20
Greece (see table below).																		
Ireland:																		
Irish Free State—																		
Galway County—Oughterard	C		2															
Leitrim County—Mohill	C	9	1															
Mayo County—																		
Ballina	C	1	1															
Castlebar	C			1														
Westport	C		2	1														
Roscommon County—																		
Roscommon	C		1															
Strokestown	C		1															
Wicklow County—Shillelagh	C	4	2															
Latvia (see table below).																		
Lithuania (see table below).																		
Mexico:																		
Durango	D				1	1		1										
Mexico City, including municipalities in Federal District	C	9	5	9	7			3	5	1	1	5	4	1	1			
	D	1		2	2			2		1		3		2	3			
Morocco	C	15	11	8	2					1		1	1					
	D								1									
Palestine	C	2	6	8	3		1	1	1			2	1	1	6			1
Poland	C	117	36	34	23	3	6	6	7	7	8	15	7	12		21		
	D	11	4	8	1	1			1					1		3		
Portugal: Oporto	C			1			1		1		2	1	1	2	2	2		
Rumania	C	58	28	9	4	3	4	1	6	4	13	10	14	19				
	D	5	8	2								1	1	1				
Spain	C	8	3		1			1	1			4						
	D		1		1			1	1									
Tunisia	C	18	24	10	6	1	1	1	9					5		23		

Turkey (see table below).																				
Union of South Africa:																				
Cape Province	C	P	P	P	P	P	P	P	P	P	P	P	P							
Municipality of East London	C		1		2			1												
Natal	C	P	1	P	P		P	P	2	P	P									
Orange Free State	C	P	P	P	P															
Transvaal	C		P	P	P	P	P	P	P	P	P	P	P	P						
Yugoslavia (see table below).																				

Place		June, 1930	July, 1930	Aug., 1930	Sept., 1930	Oct., 1930	Nov., 1930
China: Harbin (see also table above)	C		14	5		3	
Chosen: Seoul	C	2	3	2	1		
Czechoslovakia	C	1		1			16
Greece: Athens	C	3	6	6	4	4	4
Latvia	C	3	3	1	2		
Lithuania	C	16	18	7	24	1	5
	D			1	2		1
Turkey	C	2	7	2			1
Yugoslavia	C	6					
	D						

YELLOW FEVER

	Cases
Brazil:	
Campos, Rio de Janeiro Province, May 23, 1930	1
Para, June 23, 1930	2
Gold Coast:	
July 10, 1930	1
Albosso, Aug. 4, 1930 (death)	1
Liberia, Monrovia, June 3, 1930	1
Nigeria, Lagos, July 12, 1930 (probably laboratory infection)	1

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