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NEGRO MORTALITY

III. COURSE OF MORTALITY FROM SPECIFIC CAUSES, 1920–1944 [1]

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The course of mortality from specific causes is of great importance in considering the general aspects of Negro mortality in the United States. In presenting the trend of mortality it is well to control as many of the major factors affecting mortality as practical. Age is of prime importance in this connection; sex is relatively less so since males and females are usually about equally represented in a population; a constant area is advisable. However, the area of the expanding death registration States includes the entire country from 1933 on, and for every year it comprises all of the Negro population living in States where registration of deaths met the requirements set by the Bureau of the Census.

Differences in the age distribution of nonwhite and white populations are clearly marked in any enumeration, the nonwhite population having proportionately more children and fewer old people than the white. In the 1940 Census, among nonwhite and white, respectively, 9.8 and 7.8 percent of the population were children under 5 years of age and 4.8 and 7.1 percent were persons 65 years of age or older. Not only do the age distributions of nonwhite and white populations differ at a specific time but there has been a gradual aging of the population evident in successive enumerations. The percentage of persons 65 years and over in the 1920, 1930, and 1940 enumerations was 3.2, 3.2, and 4.8 for nonwhite and 4.8, 5.7, and 7.1 percent for white, respectively.

Adjustment of mortality rates at all ages for differences in age composition of the population for comparative purposes has been made by the direct method of adjustment, that is, by applying observed age-specific rates to a population chosen as standard.[2] Since (1) nonwhite and white rates are adjusted to the same standard population,

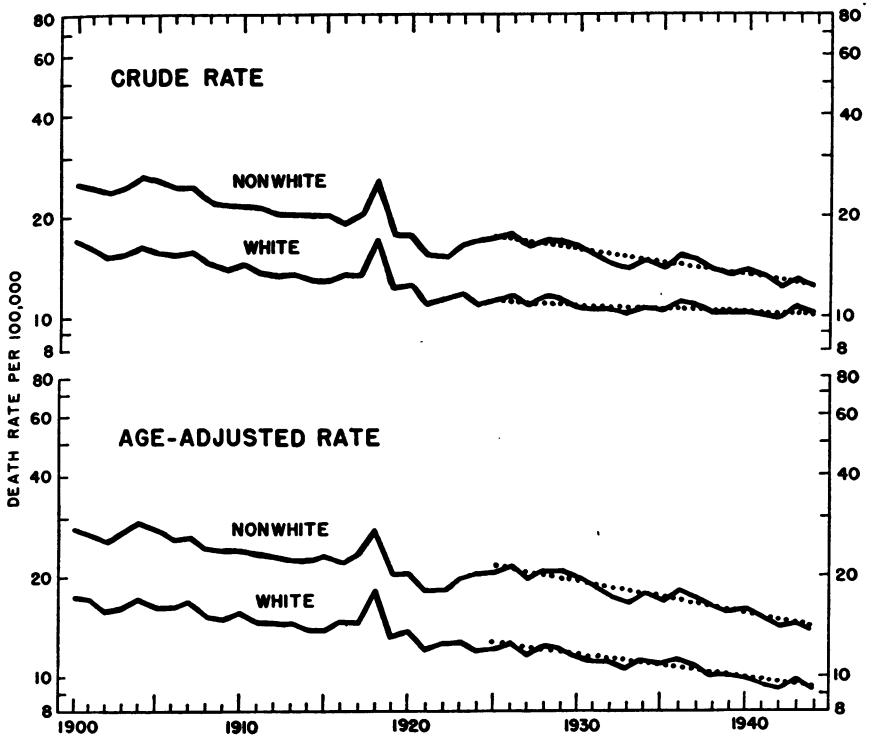
[1] From the Division of Public Health Methods. This is the third in a series of studies of Negro mortality (*1*) consisting of data assembled principally from reports of the U. S. Bureau of the Census and prepared at the request of the Office of Negro Health Work, U. S. Public Health Service.

[2] For further details of the method see Raymond Pearl: Medical Biometry and Statistics, 3rd edition, pp. 274–276.

namely, the total enumerated population of the United States in 1940, and since (2) the enumerated nonwhite population is relatively younger than the white, it follows that age adjustment of the crude rates frequently raises the nonwhite rate by a considerable amount, and on the other hand makes a comparatively small change in the white rate. This is the case when crude nonwhite and white rates for 1940 are adjusted to the total population in 1940 with the result that nonwhite rates are higher and white are lower than before adjustment for age has been made. In the present study of *trends* of mortality a further purpose of age-adjustment of crude rates is to make a comparison of successive annual rates of nonwhite and white mortality uninfluenced by age changes in the populations. Such age changes in the past have been more rapid for white than nonwhite elements of our population. The rate of decrease of age-adjusted rates for all causes can be compared also, since adjustment has been made to the same standard population for both nonwhite and white mortality.

In the charts which follow, annual rates for those causes of death which have a high mortality in old age have been adjusted for age (figs. 3 and 4); the remainder (figs. 2, 5, 6, and 7) are constructed from crude rates. In adjusting for age the following method was used: rates specific for cause and color for the years 1920–21, 1929–31, 1939–41, 1941, 1942, and 1943 were adjusted for age in the usual way, using the enumerated population of the United States in 1940 as the standard. The ratio of the adjusted to the crude rate was computed for the same years, interpolations between these ratios giving annual ratios for successive intervening years. The annual ratios were then applied to the crude rates to obtain an age-adjusted rate for each year (see footnote 8, table 2). Since age-specific populations must be obtained by interpolation between census enumerations in order to adjust each annual rate for age by the direct method, it seems that the shorter method of interpolating the ratio and applying it to the crude rate for each year is accurate enough.

Figure 1 shows the rate of decline of nonwhite and white mortality from all causes for both crude and age-adjusted rates in the expanding area of the death registration States, from 1900 to 1944. Prior to 1925 the death registration States included a relatively small proportion of the total nonwhite population; 5 percent in 1900, 12 percent in 1910, 66 percent in 1920, and 86 percent in 1930. For this reason the period 1925–44 was chosen for the construction of trend lines. Straight lines have been fitted by the method of least squares to the logarithms of the nonwhite and white rates, both crude and adjusted, for 1925 to 1944. The average annual percentage decline of the fitted lines and the probable error of the decline is shown in figure 1; namely, crude nonwhite, -1.77 ± 0.095; crude white, -0.49 ± 0.075; age-



DEATH RATE PER 100,000				
	CRUDE		ADJUSTED	
YEAR	NONWHITE	WHITE	NONWHITE	WHITE
1919-1921	17.0	12.0	19.8	13.1
1929-1931	16.2	10.9	20.0	11.8
1939-1941	13.5	10.3	15.9	10.0
AVERAGE ANNUAL PERCENTAGE CHANGE				
1930 to 1940 (average rates)	-1.7	-.6	-2.1	-1.5
1925 to 1944 (fitted line)	$-1.77 \pm .095$	$-.49 \pm .075$	$-2.08 \pm .099$	$-1.51 \pm .090$

FIGURE 1.—Crude and age-adjusted mortality from all causes, nonwhite and white persons in the death registration States, 1900-1944. Trend lines, represented by dotted lines, have been fitted to the logarithms of the rates, 1925-1944.

adjusted nonwhite, -2.08 ± 0.099; and age-adjusted white, -1.51 ± 0.090.[3]

[3] The average annual percentage decline and probable error was computed from straight lines fitted to the logarithms of annual rates as follows:

$Y = A + BX$ where Y is the logarithm of the observed rate

$b = (\text{antilog of } B) - 1$ where b is the average annual percentage change in the rates

$\sigma_B = \frac{\bar{\sigma}}{\sqrt{\Sigma(x-\bar{x})^2}}$, where $\bar{\sigma}$ is the square root of the sum of the squares of the differences between the observed and calculated values of Y (logarithms) divided by n−2, in which n is the number of years (20) used in fitting the straight line, and $\Sigma(x-\bar{x})^2$ is the sum of the squares of the deviations of x from the mean of x.

$PE_b = 0.67449 \frac{(1+b)\sigma_B}{0.4342945}$

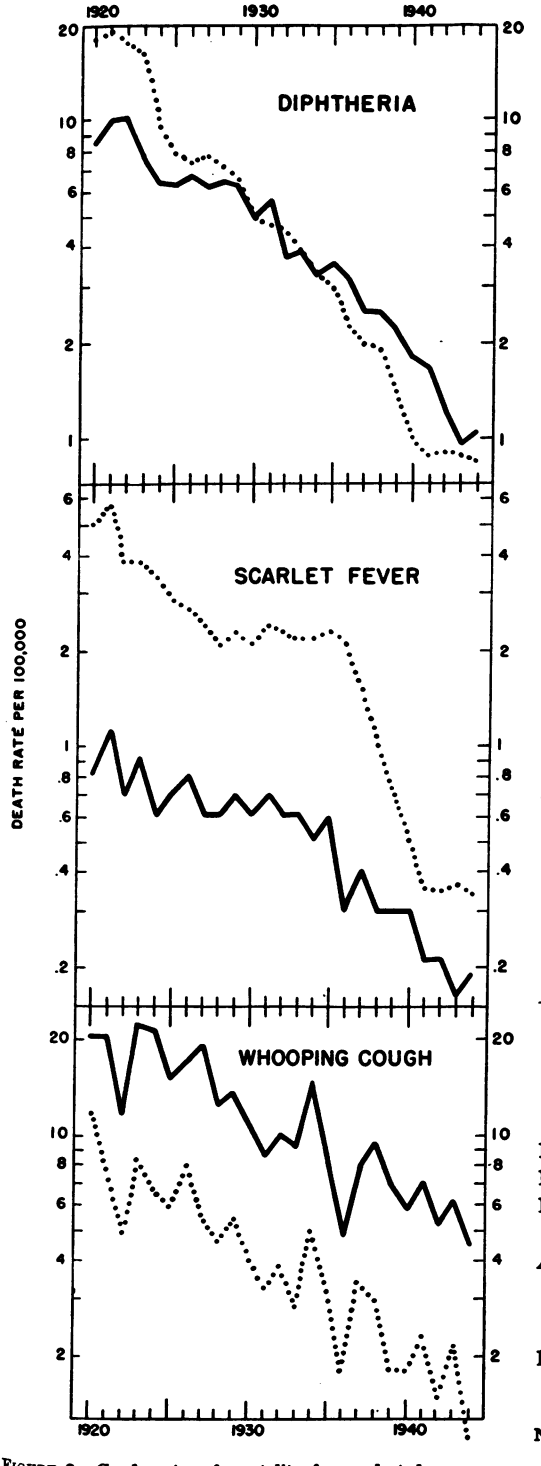
The rate of decline in mortality during the last 20 years is increased by age-adjustment of the crude rates for both nonwhite and white persons (fig. 1). The change in the annual rate of decline brought about by adjustment for age is not significant for the nonwhite, that is, from -1.77 ± 0.095 to -2.08 ± 0.099 percent; while for the white the change from -0.49 ± 0.075 to -1.51 ± 0.090 percent is statistically significant. That is, age-adjustment of mortality from all causes increases the rate of decline in the rates only slightly for nonwhite and significantly so for white.

During the last 20 years crude rates of mortality from all causes have been declining at a somewhat faster rate for nonwhite than white (fig. 1). Rates adjusted for age also show a more rapid rate of decline for nonwhite. The difference between the rates of decline for nonwhite and white is less for age-adjusted than for crude rates, owing to the greater acceleration in the rate of decline of the white rates occasioned by age-adjustment. The difference between the rate of decline (1925–44) in age-adjusted nonwhite mortality, -2.08 ± 0.099 percent, and that for white, -1.51 ± 0.090 percent, is -0.57 ± 0.134 percent, or a small but significant difference.

In the charts (figs. 2–7) which follow, showing the trend of mortality from specific causes, the rates of decline are predominantly faster among whites, in spite of the more rapid rate of decline in mortality from all causes among the nonwhite. The chief reason for the apparent discrepancy is the faster rate of decline in the relatively large rate for ill-defined causes among the nonwhite. Other contributing factors are the absence of any marked increase in heart disease mortality among nonwhite, and the fact that tuberculosis, which is declining rapidly, is a relatively larger part of the total death rate among nonwhite.

Figures 2–7 show the course of mortality from selected causes among nonwhite and white and are self-explanatory. The rates are for the expanding death registration States and have been adjusted for age for the causes shown in figures 3 and 4; crude rates are shown in figures 2 and 5–7. Average rates for three successive decades are tabled opposite the charts for each specific cause together with the average annual increase or decrease in the rates from 1930 to 1940.

Communicable diseases (fig. 2) including tuberculosis (fig. 3) have decreased rapidly in recent years. The slower rate of decline for the nonwhite may be associated with a lower rate of immunization and less extensive use of the sulfa-compounds. Pneumonia (fig. 4), pellagra (fig. 5) and malaria (fig. 5) have also shown spectacular rates of decline. Syphilis (fig. 4) has been declining in very recent years among nonwhite.



Death rate per 100,000

Year	Nonwhite	White
1919–21	8.7	16.7
1929–31	5.6	5.4
1939–41	1.9	1.1

Average annual percentage change

	Nonwhite	White
1930–40	−6.6	−8.0

Death rate per 100,000

Year	Nonwhite	White
1919–21	0.82	4.57
1929–31	.70	2.25
1939–41	.26	.53

Average annual percentage change

	Nonwhite	White
1930–40	−6.3	−7.6

Death rate per 100,000

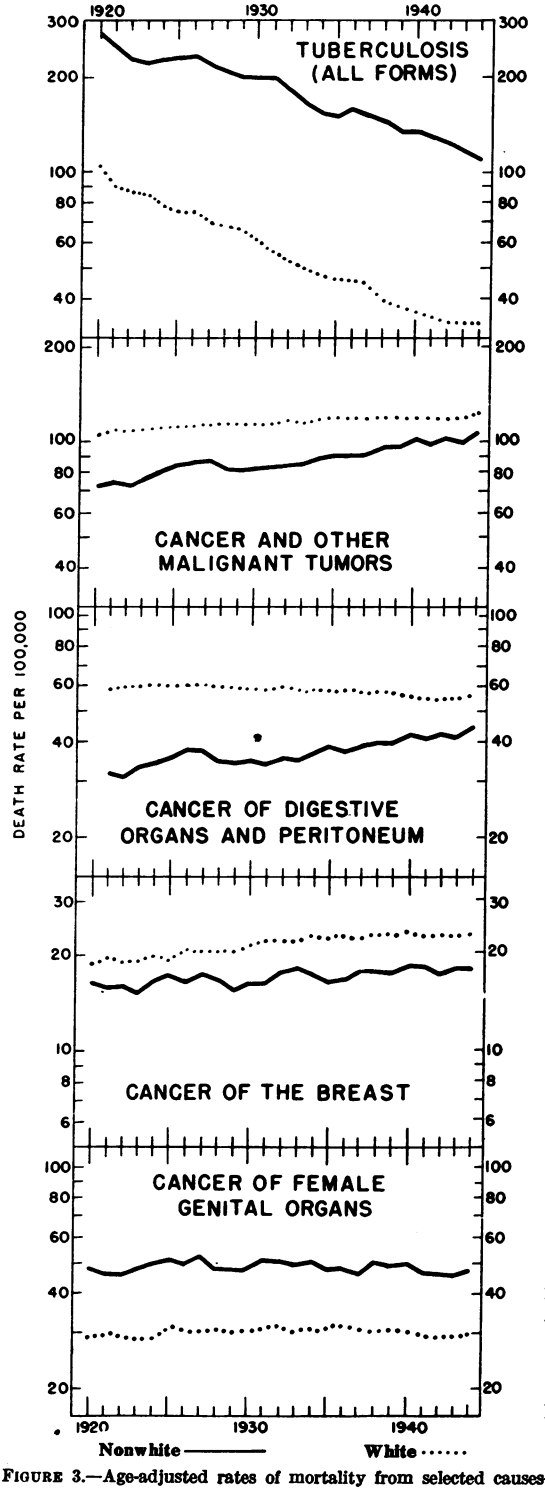
Year	Nonwhite	White
1919–21	17.7	8.2
1929–31	11.2	4.3
1939–41	6.7	2.0

Average annual percentage change

	Nonwhite	White
1930–40	−4.0	−5.3

Nonwhite ——— White .....

FIGURE 2.—Crude rates of mortality from selected causes—nonwhite and white mortality in the death registration States, 1920–1944.



Death rate per 100,000

Year	Crude Non-White	Crude White	Adjusted Non-White	Adjusted White
1920–21	250.9	92.1	261.6	97.1
1929–31	191.7	58.1	199.4	60.8
1939–41	126.4	36.5	132.0	36.1

Average annual percentage change

	Adjusted Non-white	Adjusted White
1930–40	−3.4	−4.1

Death rate per 100,000

Year	Crude Non-White	Crude White	Adjusted Non-White	Adjusted White
1920–21	48.9	87.7	73.4	107.4
1929–31	56.9	101.9	83.0	115.0
1939–41	76.2	124.0	99.5	120.5

Average annual percentage change

	Adjusted Non-white	Adjusted White
1930–40	+2.0	+0.5

Death rate per 100,000

Year	Crude Non-White	Crude White	Adjusted Non-White	Adjusted White
1921	20.0	47.5	31.5	59.0
1929–31	22.8	51.8	34.8	59.0
1939–41	30.4	57.7	40.9	55.9

Average annual percentage change

	Adjusted Non-white	Adjusted White
1930–40	+1.8	−0.5

Death rate per 100,000

Year	Crude Non-White	Crude White	Adjusted Non-White	Adjusted White
1920–21	9.9	16.1	16.3	19.4
1929–31	10.6	19.3	16.2	21.5
1939–41	13.6	24.0	18.1	23.3

Average annual percentage change

	Adjusted Non-white	Adjusted White
1930–40	+1.2	+0.8

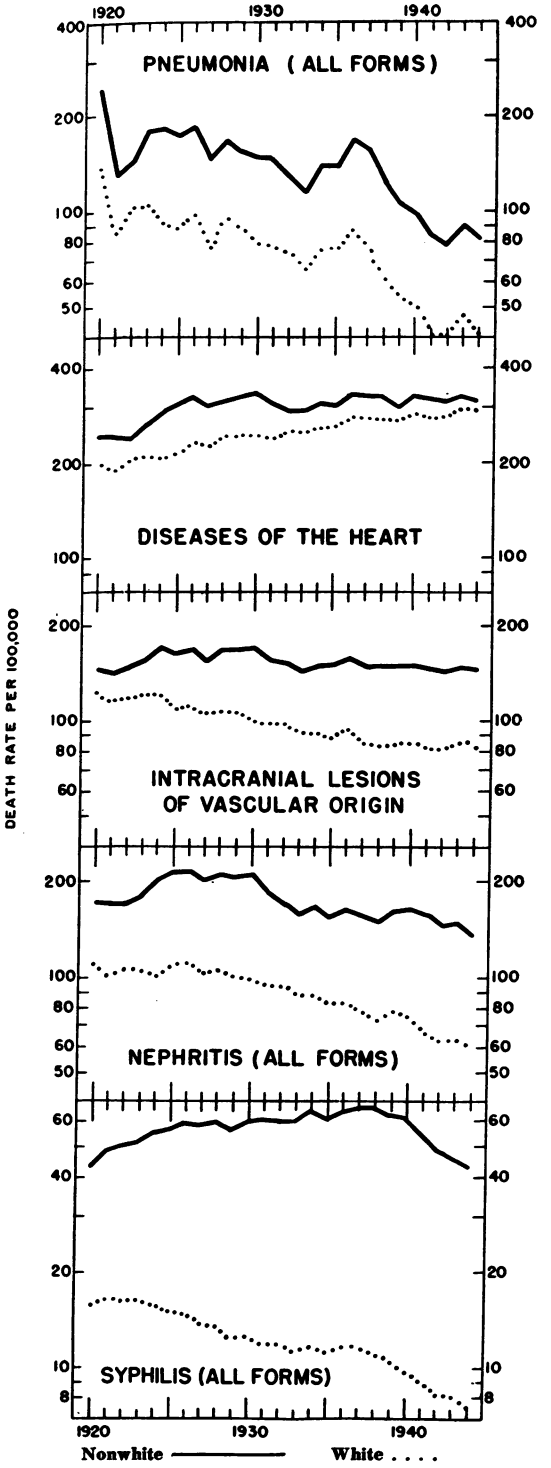
Death rate per 100,000

Year	Crude Non-White	Crude White	Adjusted Non-White	Adjusted White
1920–21	30.8	24.5	47.1	29.2
1929–31	33.8	27.5	48.7	30.5
1939–41	37.8	31.2	48.3	30.4

Average annual percentage change

	Adjusted Non-white	Adjusted White
1930–40	−0.1	−0.03

FIGURE 3.—Age-adjusted rates of mortality from selected causes—nonwhite and white mortality in the death registration States, 1920–1944.



Death rate per 100,000

Year	Crude Non-White	Crude White	Adjusted Non-White	Adjusted White
1919–21	160.7	107.7	167.3	111.8
1929–31	140.1	79.1	150.8	82.8
1939–41	91.4	49.7	97.2	48.7

Average annual percentage change

	Adjusted Non-white	Adjusted White
1930–40	−3.6	−4.1

Death rate per 100,000

Year	Crude Non-White	Crude White	Adjusted Non-White	Adjusted White
1919–21	160.7	157.7	245.5	196.7
1929–31	217.6	212.4	325.3	243.4
1939–41	239.2	290.8	320.9	281.9

Average annual percentage change

	Adjusted Non-white	Adjusted White
1930–40	−0.1	+1.6

Death rate per 100,000

Year	Crude Non-White	Crude White	Adjusted Non-White	Adjusted White
1919–21	86.7	91.5	144.2	117.7
1929–31	104.9	87.1	164.7	101.1
1939–41	109.7	86.8	150.1	84.0

Average annual percentage change

	Adjusted Non-white	Adjusted White
1930–40	−0.9	−1.7

Death rate per 100,000

Year	Crude Non-White	Crude White	Adjusted Non-White	Adjusted White
1919–21	110.5	84.3	172.1	104.8
1929–31	133.5	85.0	203.4	97.3
1939–41	120.3	75.0	162.0	72.8

Average annual percentage change

	Adjusted Non-white	Adjusted White
1930–40	−2.0	−2.5

Death rate per 100,000

Year	Crude Non-White	Crude White	Adjusted Non-White	Adjusted White
1919–21	40.9	14.9	45.9	16.1
1929–31	51.6	11.6	58.7	12.3
1939–41	52.3	9.9	59.4	9.6

Average annual percentage change

	Adjusted Non-white	Adjusted White
1930–40	+0.1	−2.2

FIGURE 4.—Age-adjusted rates of mortality from selected causes—nonwhite and white mortality in the death registration States, 1920–1944.

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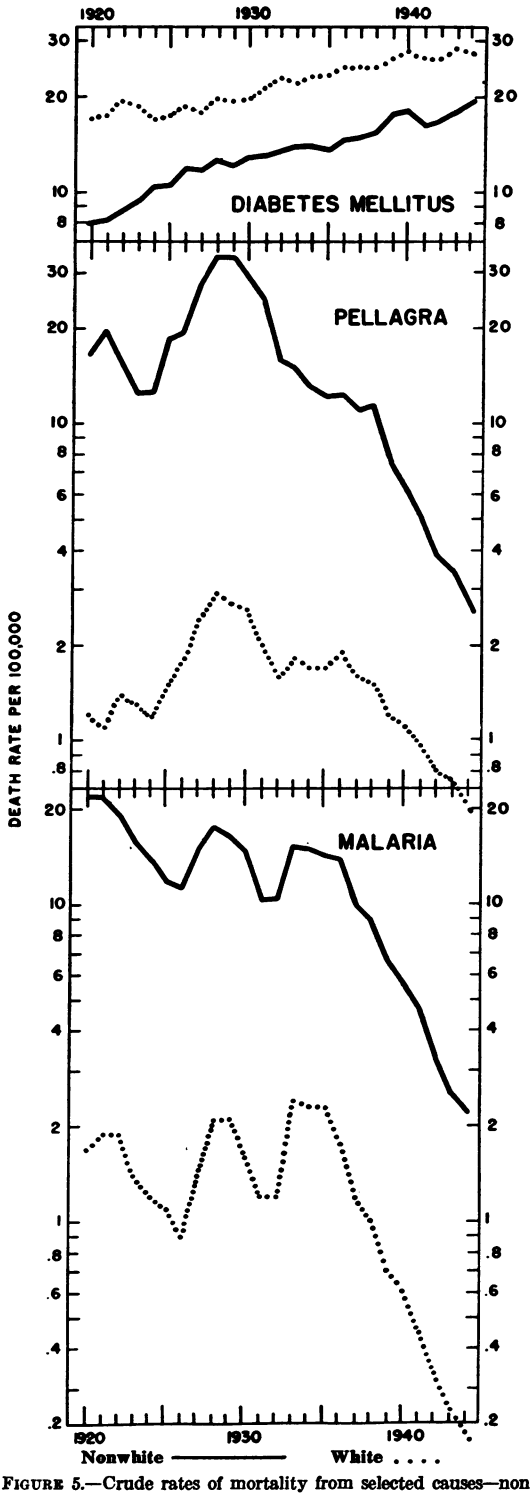


Death rate per 100,000

Year	Non-white	White
1919–21	7.5	16.7
1929–31	12.7	20.2
1939–41	17.3	26.8

Average annual percentage change

	Non-white	White
1930–40	+3.6	+3.3

Death rate per 100,000

Year	Non-white	White
1919–21	18.2	1.3
1929–31	28.9	2.4
1939–41	6.3	1.1

Average annual percentage change

	Non-white	White
1930–40	−7.8	−5.4

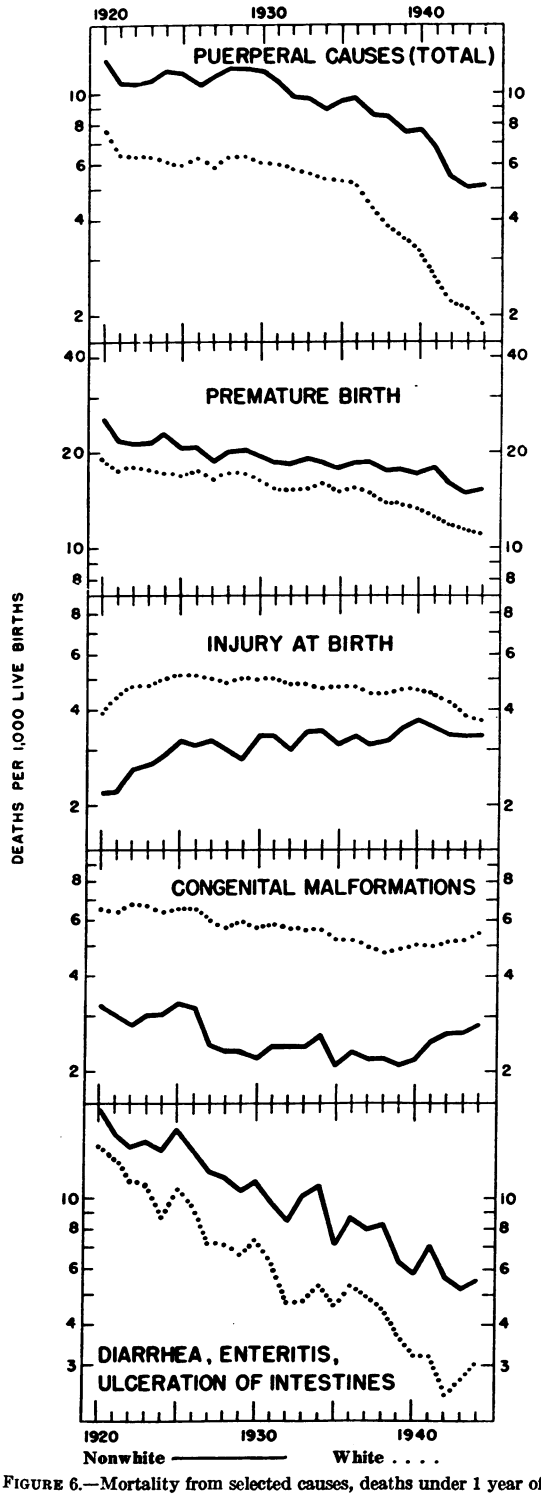
Death rate per 100,000

Year	Non-white	White
1919–21	22.4	1.9
1929–31	13.8	1.6
1939–41	5.6	.6

Average annual percentage change

	Non-white	White
1930–40	−5.9	−6.3

FIGURE 5.—Crude rates of mortality from selected causes—nonwhite and white mortality in the death registration States, 1920–1944.



Deaths per 1,000 live births

Year	Nonwhite	White
1919–21	12.0	7.0
1929–31	11.6	6.1
1939–41	7.4	3.1

Average annual percentage change

	Nonwhite	White
1930–40	−3.6	−4.9

Deaths per 1,000 live births

Year	Nonwhite	White
1919–21	24.3	18.4
1929–31	19.5	16.3
1939–41	17.6	13.2

Average annual percentage change

	Nonwhite	White
1930–40	−1.0	−1.9

Deaths per 1,000 live births

Year	Nonwhite	White
1919–21	2.2	3.9
1929–31	3.1	5.0
1939–41	3.6	4.5

Average annual percentage change

	Nonwhite	White
1930–40	+1.6	−1.0

Deaths per 1,000 live births

Year	Nonwhite	White
1919–21	3.1	6.5
1929–31	2.3	5.8
1939–41	2.3	5.0

Average annual percentage change

	Nonwhite	White
1930–40	0.0	−1.4

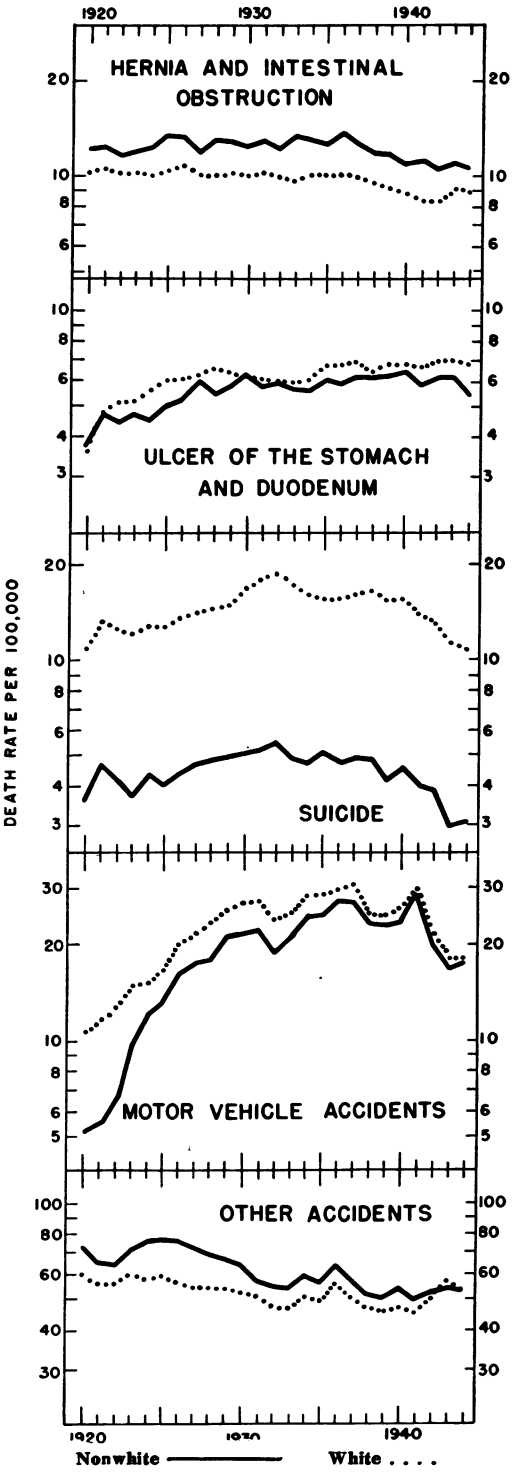
Deaths per 1,000 live births

Year	Nonwhite	White
1919–21	18.3	14.4
1929–31	10.6	6.8
1939–41	6.4	3.4

Average annual percentage change

	Nonwhite	White
1930–40	−4.0	−5.0

FIGURE 6.—Mortality from selected causes, deaths under 1 year of age, per 1,000 live births and maternal mortality—nonwhite and white mortality in the death registration States, 1920-1944.



Death rate per 100,000

Year	Nonwhite	White
1919–21	12.1	10.3
1929–31	12.7	10.1
1939–41	11.3	8.7

Average annual percentage change

	Nonwhite	White
1930–40	−1.1	−1.4

Death rate per 100,000

Year	Nonwhite	White
1919–21	4.1	4.0
1929–31	6.0	6.2
1939–41	6.2	6.8

Average annual percentage change

	Nonwhite	White
1930–40	+0.3	+1.0

Death rate per 100,000

Year	Nonwhite	White
1919–21	4.1	12.0
1929–31	5.0	16.6
1939–41	4.3	14.9

Average annual percentage change

	Nonwhite	White
1930–40	−1.4	−1.0

Death rate per 100,000

Year	Nonwhite	White
1919–21	5.2	10.8
1929–31	22.0	26.9
1939–41	25.3	27.1

Average annual percentage change

	Nonwhite	White
1930–40	+1.5	+0.1

Death rate per 100,000

Year	Nonwhite	White
1919–21	70.2	59.0
1929–31	62.4	52.3
1939–41	51.0	45.9

Average annual percentage change

	Nonwhite	White
1930–40	−1.8	−1.2

FIGURE 7.—Crude rates of mortality from selected causes—nonwhite and white mortality in the death registration States, 1920–1944.

TABLE 1.—*Mortality from selected causes, 1941–45*

Cause of death	Nonwhite					White				
	1941	1942	1943	1944	1945	1941	1942	1943	1944	1945
	Rate per 100,000 population									
All causes:										
Crude [1]	1,324.91	1,245.62	1,276.45	1,240.47	1,204.65	1,011.05	1,003.57	1,067.67	1,044.15	1,044.90
Age-adjusted [2]	1,549.28	1,452.34	1,479.83	1,413.50	1,357.96	972.46	948.58	988.84	941.69	930.80
	Crude rate per 100,000 population									
Selected causes:										
Diphtheria	1.65	1.22	0.96	1.03	1.39	0.89	0.91	0.89	0.84	1.19
Scarlet fever	.21	.21	.16	.17	.10	.35	.35	.36	.34	.24
Whooping cough	7.15	5.23	6.25	4.51	3.22	2.33	1.49	2.08	1.05	1.10
Tuberculosis (all forms)	122.09	116.46	112.86	106.23	102.59	35.23	34.26	34.35	33.68	32.71
Cancer and other malignant tumors	76.78	78.49	79.74	84.32	89.22	124.35	126.37	129.77	134.39	139.76
Cancer of digestive organs and peritoneum	30.46	31.59	31.92	34.34	35.88	57.33	58.34	60.09	61.71	63.69
Cancer of female genital organs [3]	36.65	36.22	36.58	37.69	37.19	31.11	30.49	31.17	31.42	31.35
Cancer of the breast [3]	13.76	13.65	14.16	13.78	15.36	23.99	24.40	24.44	24.56	25.60
Pneumonia (all forms)	82.50	78.88	88.30	79.64	73.79	43.72	43.57	50.46	45.01	40.58
Diseases of the heart	241.90	237.56	251.40	246.15	243.59	293.71	299.84	326.08	323.51	330.60
Intracranial lesions of vascular origin	108.15	107.63	111.93	110.35	113.27	86.28	87.51	93.05	91.79	96.00
Nephritis (all forms)	116.31	109.69	113.85	106.16	101.57	69.81	67.58	69.46	64.84	62.60
Syphilis (all forms)	47.49	42.47	42.14	39.56	37.11	9.27	8.60	8.64	7.94	7.53
Diabetes mellitus	16.25	16.68	17.95	19.18	17.51	26.34	26.23	28.17	27.21	27.71
Pellagra	5.03	3.77	3.39	2.45	1.86	.95	.81	.74	.58	.55
Malaria	4.65	3.31	2.49	2.16	1.49	.44	.33	.25	.24	.20
Hernia and intestinal obstruction	11.22	10.64	10.97	10.56	10.95	8.31	8.28	9.10	8.86	8.55
Ulcer of stomach or duodenum	5.86	6.14	6.21	5.41	5.71	6.71	6.96	7.06	6.75	6.91
Suicide	4.07	3.87	2.99	3.04	3.50	13.78	12.92	11.09	10.80	12.10
Motor-vehicle accidents	28.88	19.85	16.84	17.76	18.75	29.96	21.16	17.89	18.38	21.56
Other accidents	49.46	52.48	54.12	53.03	51.93	45.55	49.93	56.38	53.59	51.32
	Rate per 1,000 live births									
Puerperal causes (total)	6.78	5.44	5.10	5.06	4.55	2.66	2.22	2.11	1.89	1.72
Premature birth	17.90	15.97	14.98	15.34	14.85	12.62	11.81	11.36	11.37	11.09
Injury at birth	3.51	3.29	3.28	3.25	3.11	4.45	4.18	3.81	3.70	3.63
Congenital malformations	2.47	2.65	2.66	2.81	4.58	5.00	5.15	5.21	5.40	5.92
Diarrhea, enteritis, ulceration of intestines	7.07	5.59	5.17	5.55	4.97	3.19	2.42	2.70	3.00	2.75

[1] For crude death rates in the death registration States, 1900–1940, see reference (*2*).
[2] For age-adjusted death rates in the death registration States, 1900–1940, see reference (*3*). Death rates are adjusted to the total population as numerated in 1940.
[3] Per female population.

TABLE 2.—*Mortality from selected causes, adjusted for age, 1920–44* [1]

Year	Tuberculosis (all forms)		Cancer and other malignant tumors		Cancer of digestive organs and peritoneum [2]		Cancer of the breast [3]		Cancer of female genital organs		Pneumonia (all forms)		Diseases of the heart [4]		Intracranial lesions of vascular origin [5]		Nephritis (all forms) [6]		Syphilis (all forms) [7]	
	Nonwhite	White	Nonwhite	White	Nonwhite	White	Nonwhite	White	Nonwhite	White	Nonwhite	White	Nonwhite	White	Nonwhite	White	Nonwhite	White	Nonwhite	White
	Rate per 100,000 population, adjusted for age [8]																			
1920	273.7	104.9	72.8	106.5	(2)	(2)	16.6	19.1	47.6	29.0	204.8	136.2	245.8	199.8	146.3	120.8	173.1	108.2	43.5	15.8
1921	249.5	89.2	74.0	108.4	31.5	59.0	15.9	19.7	46.5	29.4	129.9	87.3	245.3	193.5	142.1	114.5	171.0	101.4	48.2	16.5
1922	228.2	87.0	73.8	109.0	31.2	59.0	16.1	19.3	45.9	29.3	144.5	101.4	241.5	204.1	147.9	116.9	172.7	104.7	50.3	16.4
1923	222.1	83.7	77.3	110.6	33.3	60.1	15.3	19.4	47.4	28.7	180.7	105.3	267.9	212.3	155.8	120.1	179.7	105.1	51.4	16.3
1924	227.7	78.8	80.5	111.9	34.3	60.3	16.9	20.1	49.5	28.9	184.4	92.1	292.1	210.7	170.6	119.6	201.9	101.0	54.9	15.8
1925	230.5	75.3	83.7	112.8	35.8	60.1	17.4	19.7	50.9	30.6	174.1	89.3	310.1	219.6	161.8	108.6	216.4	108.6	56.3	15.1
1926	233.0	75.6	86.2	114.9	37.8	60.6	16.8	20.9	50.2	30.7	187.6	98.6	320.8	234.8	168.1	109.3	216.1	110.5	58.7	14.7
1927	217.3	69.8	87.0	114.8	37.6	60.7	17.7	21.0	52.3	30.6	146.7	77.5	306.5	229.5	155.9	104.7	204.2	103.0	58.1	13.8
1928	207.6	68.1	83.1	115.2	35.0	60.0	17.0	20.8	48.0	30.9	169.8	95.0	320.9	242.2	168.3	107.5	212.1	105.2	59.0	13.3
1929	199.7	65.5	82.1	114.3	34.6	59.3	15.7	20.7	47.7	30.3	156.5	89.4	328.4	243.8	167.6	104.7	206.8	99.9	56.2	12.5
1930	199.7	60.5	82.8	115.3	35.1	59.1	16.5	21.7	47.8	30.5	149.1	80.7	337.1	244.8	170.4	101.0	212.1	98.3	59.7	12.4
1931	198.8	56.5	84.1	115.4	34.6	58.6	16.4	22.2	50.7	30.8	146.7	78.2	310.3	241.7	156.2	97.5	191.4	93.7	60.1	11.9
1932	180.5	52.0	85.9	117.5	35.4	59.4	17.8	22.5	50.2	31.2	130.5	74.4	298.2	251.9	152.9	96.7	174.4	93.5	59.7	11.8
1933	164.0	49.9	85.6	115.9	35.2	58.0	18.3	22.2	49.5	30.4	116.3	66.7	297.4	252.4	144.1	91.4	160.9	87.5	59.5	11.3
1934	154.8	47.3	88.8	118.6	37.1	58.7	17.6	23.1	50.5	31.1	140.8	75.4	315.1	261.1	149.6	90.8	170.4	86.7	64.3	11.6
1935	150.9	45.7	90.8	118.7	38.7	58.1	16.6	22.7	47.9	31.1	140.3	77.8	307.0	263.2	150.7	89.2	157.7	82.3	61.3	11.2
1936	157.7	45.5	90.4	120.5	37.7	58.4	16.9	23.0	48.2	31.5	169.2	86.9	335.8	280.4	158.7	92.9	166.0	82.8	64.5	11.6
1937	150.8	43.6	91.8	119.5	38.7	57.9	17.6	22.8	46.6	31.2	158.4	78.7	331.2	278.2	150.9	86.6	158.0	77.8	65.8	11.4
1938	142.3	39.1	96.1	120.1	39.7	57.6	17.5	23.2	50.0	30.6	127.0	61.9	327.3	274.2	149.8	83.9	151.9	73.9	66.1	11.0
1939	134.3	37.4	96.5	120.9	39.8	56.8	17.6	23.3	49.0	30.7	106.5	54.3	306.0	277.1	150.3	84.2	162.3	77.6	62.5	10.3
1940	133.1	36.1	101.7	121.2	41.8	56.1	18.6	23.6	49.3	30.5	99.7	49.9	330.3	288.1	151.3	85.6	166.5	74.2	61.6	9.7
1941	128.5	34.7	100.4	119.4	41.1	54.9	18.2	23.0	46.6	30.0	85.5	41.9	326.3	280.6	148.5	82.2	157.4	66.7	54.2	9.0
1942	123.4	33.5	102.2	119.3	42.4	54.8	17.6	23.1	46.3	29.1	80.0	41.1	316.5	281.2	145.5	81.8	146.7	63.4	48.5	8.2
1943	116.6	33.3	101.0	119.7	41.7	55.1	18.1	22.8	45.6	29.3	91.3	46.5	326.9	297.8	147.6	84.7	148.1	63.6	45.8	8.1
1944	109.7	32.7	106.9	124.0	44.8	56.6	18.0	23.2	47.0	29.6	82.3	41.5	320.2	295.5	145.6	83.5	138.1	59.3	43.1	7.4

[1] For crude death rates in the death registration States, 1900–1940 see reference (*2*).

For purposes of comparability, the Bureau of the Census has pointed out changes in classification, or has made transfers of deaths in some cases, which are fully described in the notes to the tables in the above reference. Some of these notes are included among the notes appended to this table.

Mexicans are included with the white in all populations. Deaths of Mexicans were recorded as colored in 1930–34; for 1930 and 1931 they have been tabulated and transferred to white deaths; for 1932–34 they were included with the nonwhite; in all other years deaths of Mexicans are tabulated as white deaths.

[2] Excludes cancer of the pancreas in 1920. [3] Per female population.

[4] Excludes disease of coronary arteries, 1920–29. See also footnote 6 to this table. [5] Includes all embolism and thrombosis, except puerperal, in 1920.

[6] Certain terms relating to combined cardiorenal conditions were transferred from diseases of the heart to nephritis in 1939 and following.

[7] Includes the total of "aneurysm (except of heart)" for 1921–38; includes only aneurysm of the aorta for 1939 and following.

[8] Death rates specific for cause and color for 1920–21, 1929–31, 1939–41, 1941, 1942, and 1943 were adjusted for age by the direct method to the total population of the United States as enumerated in 1940. That is, age specific rates were multiplied into a standard, the expected deaths summed, and divided by the total population of the standard. A ratio of adjusted to crude rate was computed for the same years and annual interpolations of the ratios were made between the ratios for successive decades (1920–30 and 1930–40). Annual rates adjusted for age were then obtained by multiplying the crude rate by the ratio of the adjusted to the crude. The adjusted rate for 1944 was obtained by multiplying the crude rate for 1944 by the ratio obtained for 1943.

Rates shown on the charts are averages of the crude annual rates as computed by the Bureau of the Census (*2*), and averages of the annual rates adjusted for age as described above.

Cancer (fig. 3), heart disease (fig. 4), and diabetes (fig. 5) are among the causes which have increased markedly in recent years. Cancer of the digestive organs and peritoneum has shown a marked increase in the rate among nonwhite. Heart disease has been increasing among white but shows no increase in the age-adjusted rates for nonwhite, in recent years.

Causes of death peculiar to early infancy are computed per 1,000 live births; among the causes shown (fig. 6) mortality from injury at birth has increased among the nonwhite; mortality in the first year of life from congenital malformations has increased since 1940 among both nonwhite and white. Maternal mortality and premature births have decreased more rapidly since 1935 among white than nonwhite.

Table 1 shows mortality rates (not adjusted for age) for the specific causes shown in figures 2–7 for the years 1941–45; rates for the years 1920–40 can be obtained from vital statistics rates in the United States 1900–40 (*2*). Table 2 shows mortality rates adjusted for age, as described earlier, for the causes of death shown in figures 3 and 4.

REFERENCES

(*1*) Gover, Mary: Negro Mortality. I. Mortality from all causes in the death registration States, Pub. Health Rep. **61**, 259–265 (1946). II. The birth rate and infant and maternal mortality, Pub. Health Rep. **61**, 1529–38 (1946).

(*2*) United States Bureau of the Census: Vital Statistics Rates in the United States, 1900–40 (1943).

(*3*) United States Bureau of the Census: Age-adjusted death rates in the United States, 1900–40: Iwao M. Moriyama. Vital Statistics—Special Reports, vol. 23, no. 1 (1945).

DEATHS DURING WEEK ENDED JANUARY 17, 1948

[From the Weekly Mortality Index, issued by the National Office of Vital Statistics]

	Week ended Jan. 17, 1948	Corresponding week, 1947
Data for 93 large cities of the United States:		
Total deaths	10,150	9,960
Median for 3 prior years	9,960	
Total deaths, first 3 weeks of year	31,881	30,807
Deaths under 1 year of age	671	846
Median for 3 prior years	658	
Deaths under 1 year of age, first 3 weeks of year	2,219	2,523
Data from industrial insurance companies:		
Policies in force	66,858,967	67,232,072
Number of death claims	14,551	14,888
Death claims per 1,000 policies in force, annual rate	11.4	11.5
Death claims per 1,000 policies, first 3 weeks of year, annual rate	9.5	9.4

Q FEVER STUDIES IN SOUTHERN CALIFORNIA

I. Recovery of *Rickettsia burneti* from raw milk [1] [2]

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A previous report (*1*) of observations made during the spring of 1947 on the occurrence of 17 cases of Q fever in Los Angeles County and subsequent studies (*2*) of 100 additional cases, indicated that Q fever is endemic [6] in Southern California. Proximity to dairies by reason of occupation or residence was a common factor in the histories of more than 50 percent of the cases. Except for dairy workers, it was noted that the infected persons rarely used milk from nearby dairies. It was also found in fairly extensive serological surveys that 10 to 20 percent of the dairy cows in the Los Angeles area possessed serum antibodies for Q fever.

These studies, when completed, will be reported later. The purpose of this paper is to report the recovery of *R. burneti*, the causative agent of Q fever, from the raw milk of four widely separated dairies in Los Angeles County.

METHODS OF STUDY

Epidemiological data pointed to certain dairies as being involved in recent human cases (dairy workers or nearby residents). Raw milk from suspected dairies was tested as being the possible source of infection. The cows were prepared for milking in the usual manner by washing the udder with water, but the udders of some were further washed with 70 percent alcohol before specimens were taken. Specimens from individual cows were hand milked into sterile wide-mouth vials which were sealed immediately after sampling all four quarters of the udder. In some instances the specimens represented strippings taken after milking machines had been used.

Specimens of pooled milk were obtained in three ways: (1) By pooling at the Q Fever Laboratory samples obtained by the above method, (2) by taking samples from milk cans by means of milk dippers, and (3) by similarly collecting samples of milk which had been mixed in the pasteurizing vat of a bottling plant.

The fresh raw milk specimens in 3 to 5 cc. amounts were promptly injected intraperitoneally or subcutaneously into adult guinea pigs at the Q Fever Laboratory, or were frozen with carbon dioxide and

[1] This work has been facilitated by the Q Fever Laboratory, which was established September 12, 1947, in the endemic area of Southern California, as a cooperative undertaking of the National Institute of Health, the California State Department of Public Health, and the Los Angeles County Health Department.

[2] From the Division of Infectious Diseases, NIH, Bethesda, Md.

[3] From NIH, U. S. Public Health Service, Bethesda, Md.

[4] From the Rocky Mountain Laboratory, U. S. Public Health Service.

[5] From the California State Department of Public Health.

[6] Cases have been recognized in Los Angeles, Ventura, Santa Barbara, and Orange Counties.

shipped to the National Institute of Health, Bethesda, Md., and the Rocky Mountain Laboratory of the National Institute of Health, Hamilton, Mont. At the Q Fever Laboratory, uninoculated control guinea pigs were kept in the same cages with milk-inoculated guinea pigs. One of each group of guinea pigs, showing elevated temperatures for 2 or 3 days, was sacrificed and the whole blood or spleen passed to other guinea pigs. All surviving guinea pigs, including the controls, were bled 30 to 35 days after inoculation, and the serums were tested by the complement fixation test[7 8] for Q fever antibodies. The development of antibodies in the serums of guinea pigs was regarded as evidence that the material inoculated was infected. However, in those instances where a disease-producing agent appeared to have been recovered, passages in guinea pigs were continued, and where strains of rickettsiae appeared to be well established, cross-immunity tests were performed with known strains of Q fever rickettsiae. Blood, spleen, or other tissues of well-established strains were inoculated into mice and into the yolk sacs of fertile hen's eggs. Yolk sacs which showed infection with a rickettsia-like agent were prepared as antigens and tested by the complement fixation test with standard Q fever serums, human and bovine serums from California, and control serums.

RESULTS

Rickettsial organisms, identified by all available criteria as *R. burneti*, were recovered by each of the three laboratories from the milk of four widely separated dairies located in Los Angeles County. A total of 50 milk specimens was injected into guinea pigs, 40 of them giving evidence of infection with *R. burneti*. Table 1 shows in some detail the isolation studies that have been completed on milk specimens from the four dairies as tested in two laboratories. Table 2 gives the results obtained in the third laboratory.

Dairy No. 1.—Approximately 12.5 percent of 1,050 cows from dairy No. 1 were found to possess antibodies for Q fever in the complement fixation test, and 28 cases of Q fever were found in persons living or working in close proximity to this dairy. The pooled milk of each of 33 milking strings[9] representing 28 to 30 cows was collected by methods described above.[10] The 33 milk specimens were promptly frozen and shipped by air express to the National Institute of Health where they were inoculated into guinea pigs.

[7] Both Bengtson and modified Kolmer techniques were used.

[8] Henzerling and Nine Mile strains were used as antigen.

[9] A group of cows milked together as a unit.

[10] The milk specimens were cultured on blood agar plates and ascertained to be free of pathogenic bacteria detectable by that technique. We are indebted to Dr. Charles W. Bonynge of the University of Southern California for these tests.

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TABLE 1.—*Data on rickettsial agents recovered from raw milk of 4 dairies in the Los Angeles area as acquired by means of the complement fixation test, yolk sac cultivation and cross-immunity tests in the Q Fever Laboratory, Los Angeles County, and the National Institute of Health*

Source of raw milk	Results of complement fixation test for Q fever on serums of guinea pigs injected with milk at specified laboratories		Rickettsial trains cultivated in yolk saes of fertile eggs (National Institute of Health)	Cross-immunity test with Dyer strain of *R. burneti* (National Institute of Health)
	Q Fever Laboratory	National Institute of Health		
Dairy No. 1:				
Pool No. 1 (5 cows)	x	x		
Pool No. 2 (500 cows)	x			
Pool No. 3 (500 cows)	x			
Strings 28–30 cows each: [1]				
1		x		
2		x	x	
3		—		
4		x		
5		x		
6		x		x
7		x		
8		x		
9		x		
10		x		
11		x		
12		x		
13		—		
14		x	x	
15		x		
16		—		
17		x		x
18		x		
19		— [2]	x [2]	—
20		x	x	
21		x		x
22		x		
23		x		
24		x		
25		x	x	x
26		x		
27		x	x	x
28		x		
29		x		
30		x		
31		x		
32		x		
33		x		
34		x	x	
Individual cows with mastitis of unknown cause:				
5203	—	—		
5708	—	—		
5282	—	—		
7111	—	—		
Cows:				
7334		x	x	
6832		x	x	
Dairy No. 2:				
Pool No. 1 (15 cows)	x			
Pool No. 2 (15 cows)	—			
Individual cows:				
95	x			
129	—			
185	x			
Dairy No. 3:				
Pool No. 1 (10 cows) (serologically positive)	x	x		
Dairy No. 4:				
Pool No. 1 (30 cows)	x			
Pool of entire herd (90 cows)	x	x		

Note:
x = Positive.
— = Negative.
[1] = Group of cows milked together as a unit.
[2] = A rickettsia-like organism immunologically distinct from Q fever.

After an average incubation period of 9.7 days (variation 5 to 17 days) 26 of these specimens produced febrile episodes in guinea pigs. Twenty-nine specimens produced serum antibodies for Q fever in the guinea pigs which were bled 30 days after inoculation. Seven of the milk specimens therefore failed to produce fever, but only 4 failed to produce Q fever antibodies.

Guinea pigs which became febrile following inoculation with 8 of the specimens were sacrificed, and illnesses typical of the reaction following injection with Q fever rickettsiae were produced in other guinea pigs inoculated with the blood or spleen of these animals. Gross pathological changes typical of this infection were observed in second passage guinea pigs, i. e., large friable spleens and subcutaneous indurated nonsuppurative inflammatory reactions. Attempts to culture an agent by ordinary bacteriological methods from the blood and spleen of infected guinea pigs were negative.

Eight strains of rickettsiae were established in the yolk sacs of fertile hen's eggs by the use of infected guinea pig blood and tissues. The cultural, morphological, and tinctorial characteristics of these strains could not be distinguished from known strains of *R. burneti*. Antigens prepared from infected yolk sacs reacted specifically in the complement fixation test with standard Q fever serums and positive human and cattle serums from California. Positive reactions were not obtained with normal serums nor with serums positive for other diseases.

Complete cross immunity in guinea pigs which had been inoculated with the Dyer strain of Q fever rickettsiae was demonstrated with five guinea-pig California adapted strains.

Specimens of milk from each of 86 cows from dairy No. 1 were also injected into guinea pigs at the National Institute of Health. Complete results are not available. However, 13 of the 86 specimens produced antibodies in guinea pigs and 2 strains (6,832 and 7,334) were readily cultured in the yolk sacs of fertile hen's eggs.

Another organism fulfilling the cultural and tinctorial requirements of a rickettsia when grown on the yolk sac of fertile eggs was recovered from the pooled milk of string 19 (table 1), 1 of the 4 strings from which *R. burneti* was not recovered. This organism produced early onset of fever, ecchymosis, and necrosis of the scrotum and frequently death when it was inoculated into male guinea pigs. It was found in cross immunity and complement fixation tests to be immunologically distinct from *R. burneti*. Attempts to grow this organism on cell-free media have failed. This organism as well as an apparently identical organism recovered from the feces of cows represented in milk pool No. 1 (table 1) will be studied further.

At the Q Fever Laboratory, samples from 3 pools of milk from dairy No. 1 were inoculated into guinea pigs. Each of 2 speci-

mens represented pooled milk from half the cows of the dairy, approximately 500 cows each. Strains of Q fever rickettsiae were established in guinea pigs from each specimen. The third specimen represented the pooled milk of 5 cows which were serologically positive for Q fever. This specimen was divided and injected into guinea pigs at the National Institute of Health, as well as at the Q Fever Laboratory. Illnesses typical of Q fever and specific Q fever antibodies were produced in guinea pigs at both laboratories.

At the Rocky Mountain Laboratory, samples from 10 pools of milk representing 16 strings from dairy No. 1 were injected into guinea pigs. Nine recoveries of a rickettsial agent were made. One strain was cultivated in the yolk sacs of fertile hen's eggs and 9 strains were shown to produce immunity in guinea pigs to the Nine Mile strain of Q fever. These tests fully confirmed the results at the other 2 laboratories and indicated again that the recovered organisms were strains of *R. burneti* (table 2).

TABLE 2.—*Complement fixation and immunity test on guinea pigs injected at the Rocky Mountain Laboratory with milk specimens from dairy No. 1*

Strings [1] of dairy cows from which pooled milk specimens were injected into guinea pigs	Results of complement fixation tests for Q fever on serums of guinea pigs injected with milk	Strains cultivated in yolk sac	Immunity to Nine Mile strain of *R. burneti*
String No.:			
1	x		x
5	x		x
8			x
14			x
Pooled strings:			
12 and 24	x		x
15 and 20	x		-
21 and 22			x
23 and 26			x
28 and 30		x	x
19 and 33			x

[1] Pooled milk specimens taken from milking strings consisting of 28 to 30 cows identical with those listed in table 1.

NOTE.—x = Positive for Q fever.
- = Negative for Q fever.

Dairy No. 2.—A small dairy milking less than 100 cows was studied because a son of the dairy owner had recently contracted Q fever. Five specimens of milk were tested and results on 3 indicated infection with Q fever. One of the cows found to be shedding *R. burneti* was a young Guernsey, producing milk with a high butterfat content. No illness was apparent and the cow was regarded by the owner as one of his best producers.

Dairy No. 3.—Dairy No. 3, a dairy milking approximately 200 cows, was one of the dairies found during the preliminary studies in the spring of 1947 to have a number of serologically positive cows. One pool of milk representing 10 cows found to be positive by the complement fixation test was divided and injected into guinea pigs

in both the Q Fever Laboratory and at the National Institute of Health. Organisms identical with *R. burneti* were recovered.

Dairy No. 4.—Approximately one-third of the cows on dairy No. 4 (90 cows) were found to be positive for Q fever in the complement fixation test. A pool of milk representing the entire herd was tested at the National Institute of Health and at the Q Fever Laboratory. All injected guinea pigs developed fever after a relatively short incubation period and were subsequently shown to have antibodies for Q fever. Another pool of milk representing one string of approximately 28 cows inoculated at the Q Fever Laboratory likewise resulted in the production of Q fever antibodies in the guinea pigs and the establishment of a strain.

The raw milk of a fifth dairy was also studied. A single specimen of milk pooled from the entire herd of 130 cows was obtained at a bottling plant. Whole milk, cream, and resuspended sediment (concentrated 10 times) were each injected into guinea pigs. Studies which were incomplete at the time of writing this report indicated that *R. burneti* was not recovered.

No perceptible evidence of illness was apparent in cows which were found to be shedding *R. burneti* in milk. This observation was supported by the observations of five or more well qualified veterinarians. Several cows with demonstrable mastitis were tested. In each instance both blood and milk from the cows gave negative results for Q fever when injected into guinea pigs (table 1, numbers 5203, 5708, 5282, 711, and 129).

TESTS OF MATERIALS OTHER THAN MILK

Cattle blood.—Injections of whole blood and blood clots from more than 150 cattle, most of them lactating cows (some serologically positive) from dairies where there were human cases of Q fever, have not resulted in the recovery of *R. burneti.* However, most of these specimens were shipped unfrozen to the National Institute of Health and preserved at icebox temperatures for as long as a month before they were inoculated.

Urine and feces.—A pool of urine and a pool of feces taken from the cows represented in pool No. 1 from dairy No. 1 (table 1) were inoculated into guinea pigs. Q fever rickettsiae were not recovered from these excretions despite the fact that organisms were recovered from milk taken from the same cows at the same time. Other specimens of urine and feces have been tested with negative results; however, more extensive studies with these excretions are planned.

Sick calves.—Four blood specimens and one spleen specimen from calves ill with fever and diarrhea of undetermined origin were tested. Inoculation experiments and serological tests of recovered calves indicated that these animals were not infected with Q fever organisms.

Insects and arthropods.—Pooled specimens of flies,[11] mosquitoes,[12] and several species of free living mites,[13] collected from alfalfa feed were injected into guinea pigs on a limited scale. Completely negative results were obtained. Spinose ear ticks [14] also were injected but tests are not yet complete.

VALIDITY OF RESULTS

Since the Q Fever Laboratory was located in an area in which this disease appeared to be highly endemic in both human and animal populations and since spontaneous infection of guinea pigs with this agent is known to occur in experimental laboratories (*3*), it was necessary to determine the likelihood of spontaneous infections in milk-inoculated guinea pigs. The results of the inoculation experiments and a serological check of 20 normal guinea pigs and a large pool of guinea-pig serums (complement) indicated that guinea pigs raised commercially in the area were free of Q fever infection.

Fifty guinea pigs inoculated with materials other than milk and 20 uninoculated guinea pigs which were kept in cages with inoculated animals at no time showed signs of illness suggestive of infection with Q fever rickettsiae. These animals when bled were without exception negative for Q fever by the complement fixation test. In contrast to these negative results, 9 recoveries of this organism were made from 15 specimens of milk inoculated during the same period.

At the National Institute of Health the milk specimens reported on in this paper represented the first inoculations of experimental material to be made in a newly constructed laboratory. No instance of spontaneous Q fever infection in guinea pigs has been encountered in this building to date.

The results obtained at the Rocky Mountain Laboratory were fully confirmatory of the results obtained in the other laboratories. Further evidence bearing on the validity of the results was provided by the fact that in seven instances where a pool of milk produced the infection in one laboratory, it was also found positive in another.

DISCUSSION

The relative ease with which *R. burneti* was recovered from milk of dairies in Los Angeles City and County suggests a high degree of availability of this pathogenic agent to the human and animal populations of the area, since nearly all of this milk is transported about the county before processing and much of it is sold raw. The occurrence

[11] *Siphona irritans* (L.) and *Musca domestica* L.
[12] *Culex quinquefasciatus* Say.
[13] *Gohiera fusca* Oudms and *Histiostoma* Sp.
[14] *Otobius megnini* (Duges).

NOTE.—Footnotes 12, 13, and 14 determined at U. S. National Museum.

of Q-fever infection in the human population and a demonstrable widely disseminated source of *R. burneti* in the same area suggest a causal relationship. Whether or not milk represents an effective source of infection to man, however, cannot be determined by the data presented in this report.

The evidence presented by outbreaks in packing houses, stockyards, (*4*, *5*) and laboratories (*3*) did not indicate that the drinking of infected milk was a cause of those outbreaks. A pulmonary route of infection was considered the most likely possibility in several of these outbreaks. Incomplete studies in California (*1*, *2*) suggest that, for certain specific occupational and residential groups, the drinking of infected milk is an improbable mode of infection. However, the evidence did not rule out infected milk as a potential source of infection to man by some mode yet to be determined.

The failure to recover *R. burneti* from whole blood, blood clots, urine, and feces of a limited number of cows shedding *R. burneti* in their milk and the absence of a demonstrable illness in the infected animals suggested that a local infection of the udder may occur in the absence of concurrent severe systemic infection in the cow. The presence of *R. burneti* was not associated, however, with observable pathology in the udder or with diminution in either quantity or quality of milk.

SUMMARY

R. burneti, the causative agent for Q fever was recovered from the raw milk of four dairies in Southern California. These recoveries were made in three laboratories: The Q Fever Laboratory, Los Angeles County, Calif.; The National Institute of Health, Bethesda, Md.; and the Rocky Mountain Laboratory, Hamilton, Mont. Seven isolations were made from duplicate specimens studied in two of the three laboratories.

The isolation of *R. burneti* from milk was established on the basis of the following manifestations of the recovered strains:

1. Febrile episodes typical of Q fever were produced in guinea pigs, and gross pathological findings typical of infection with Q fever rickettsiae were observed.
2. Specific antibodies for Q fever were demonstrated in the serums of guinea pigs previously injected with milk. The failure of such antibodies to appear in a large group of uninoculated control guinea pigs and the guinea pigs injected with materials other than milk provided good evidence against the occurrence of spontaneous infection in the guinea pig colonies.
3. Cross-immunity tests performed at the National Institute of Health and at the Rocky Mountain Laboratory showed that five newly isolated strains were identical with the Dyer strain of *R. burneti* and nine strains were shown to produce immunity to the Nine Mile strain of *R. burneti*.
4. Rickettsia-like organisms were cultivated in the yolk sac of fertile hen's eggs from the blood and spleen of guinea pigs inoculated with milk. The cultural, morphological, and tinctorial characteristics of eight such strains were identical with those of *R. burneti*.

5. Yolk sac antigens prepared from milk strains by the usual techniques reacted specifically in the complement fixation test with standard Q fever serums.

6. Serums from California cows and humans found to contain antibodies for Q fever were tested with antigens prepared from milk strains. Specific reactions occurred in the complement fixation test.

While *R. burneti* was recovered from raw milk the available epidemiological evidence did not indicate that the drinking of milk was the cause of the majority of cases which have been studied thus far. However, that infected milk may serve as a source of infection to man by some mode as yet undetermined appeared to be a distinct possibility.

ADDENDUM

Tests,[15] as yet incomplete, indicate that the two methods of pasteurization in general use in two large commercial milk plants rendered the raw milk naturally infected with *R. burneti* apparently noninfectious for guinea pigs. Three tests using the vat method and four tests using the high-temperature short-time method of pasteurization have been completed. A fourth experiment with vat pasteurization was incomplete at the time of preparation of this manuscript.

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REFERENCES

(*1*) Shepard, C. C., and Huebner, R. J.: Q fever in Los Angeles County. Description of some of its epidemiological features. Am. J. Pub. Health (to be published).

(*2*) Huebner, R. J., Jellison, W. L., and Beck, M. D.: Unpublished data.

(*3*) Huebner, Robert J.: Report of an outbreak of Q fever at the National Institute of Health. II. Epidemiological Features. Am. J. Pub. Health, **37**: 431–440. (April 1947.)

(*4*) Topping, N. H., Shepard, C. C., and Irons, J. V.: Q Fever in the United States. I. Epidemiological studies of an outbreak among stock handlers and slaughterhouse workers. J. A. M. A. **133**: 813–815. (March 1947.)

(*5*) Shepard, C. C.: An outbreak of Q fever in a Chicago packing house. Am. J. Hyg. **46**: 185–192. (Sept. 1947.)

[15] Report, Feb. 9, 1948, from the Q Fever Laboratory to the Director, California State Department of Public Health.

TWO NEW *SALMONELLA* TYPES: *SALMONELLA HIDALGO* AND *SALMONELLA MISSION* [1]

By JAMES WATT, *Surgeon*, and THELMA M. DECAPITO, *Assistant Bacteriologist, United States Public Health Service*, P. R. EDWARDS and ALICE B. MORAN, *National Salmonella Center* [1]

Two new *Salmonella* types have been isolated in the course of diarrheal disease studies in Hidalgo County, Texas.

A. Organisms of the *Salmonella* group are known to infect a large number of animals. In the present investigation of the epidemiology of salmonellosis in humans, routine cultures are being made on a series of domestic animals in the study areas. The organism described below as *Salmonella hidalgo* was isolated from a duck that was examined as a part of this work.

The specimens are collected by inserting a cotton-tipped applicator into the rectum or cloaca of the animal or fowl being studied. The entire swab is then placed in a tube of tetrathionate broth (Difco) which is incubated for 20–24 hours and then plated on SS agar (Difco). Suspicious colonies are fished to Kligler's iron agar and then identified in the routine manner. Specimens from a dog, a cow, and three ducks were cultured at the home involved. The cultures from the dog, cow, and one duck were negative. The culture from the second duck was positive for *Salmonella anatum*, and *Salmonella hidalgo* was isolated from the third duck culture.

The complete description of the organism follows: *S. hidalgo* possessed the cultural and biochemical characteristics generally attributed to the *Salmonella* group, except that it produced a slight acidity in salicin broth after 33 days' incubation. Hydrogen sulfide was produced, but indol was not formed nor was gelatin liquefied. Acid and gas were produced from glucose, arabinose, maltose, trehalose, rhamnose, xylose, dulcitol, sorbitol, and mannitol within 24 hours. Cellobiose was fermented after 5 days. Lactose, sucrose, raffinose, and inositol were not attacked. Jordan's tartrate was acidified.

On serological examination the organism was strongly agglutinated by *S. newport* O serum (VI, VIII) and in absorption tests removed all agglutinins from that serum. Examination of the H antigens revealed that the organism was diphasic. Phase 1 was agglutinated to the titer of *S. rubislaw* phase 1 serum (r) and completely removed H agglutinins from the serum in absorption tests. Phase 2 was agglutinated strongly by *S. abortus-equi* serum (enx) and by *S. glostrup*,

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phase 2 serum (enz_{15}). Absorption tests showed that phase 2 of *S. hidalgo* was identical with phase 2 of *S. glostrup*. The antigenic formula of *S. hidalgo* is VI, VIII : r-enz_{15}.

B. A previous communication described a new *Salmonella* type (1) isolated from humans in Hidalgo County, Texas. *Salmonella mission*, another new type was isolated in October 1946 in a continuation of these studies.

This organism was isolated from an SS agar plate prepared by streaking with a rectal swab. The organism was not recovered from tetrathionate broth in which the swab was incubated.

The patient was an 18-month-old Spanish-American male. The child had not had any diarrheal or other disease during the 6 months he had been followed prior to October 14, 1946, nor did he develop any illness during the next 6 weeks. Cultures were made in April, May, June, July, and August, 1946, and no *Salmonellas* were isolated from any of these cultures. No culture was made in September as the child was in Mexico from September 14 tc 25. Again, in November cultures were made, and no *Salmonellas* were isolated. A specimen from a 5-year-old sibling was obtained at the same time and was found to be negative.

A description of the organism follows: The biochemical properties of *S. mission* were the same as those given for *S. hidalgo* except that it did not ferment salicin and that gelatin was liquefied after 65 days incubation.

S. mission was agglutinated strongly by *S. oranienburg* O serum (VI, VII) and in absorption tests removed all agglutinins from the serum. The culture was diphasic and phase 1 was agglutinated to the titer of *S. typhi* H serum (d). In absorptions it reduced the titer of *S. typhi* serum from 1–10,000 to 1–200. It completely removed agglutinins for phase 1 of *S. oregon*, *S. muenchen*, and *S. stanley* from the serum. Phase 2 was agglutinated by serums for all the nonspecific phases of the Kauffmann-White classification. When tested with absorbed serums for factors 2, 3, 5, 6, 7, 10, and 11 it was agglutinated only by factor 5 serum. In absorption tests it was found that phase 2 of *S. mission* was not identical with phase 2 of *S. thompson*. Lack of uniformity in the 1–5 phases long has been recognized.

The diagnostic formula for *S. mission* is VI, VII : d–1, 5.

A second strain of *S. mission* was isolated from a rectal swab culture of a cat in April 1947. This specimen, cultured in the manner described in A above, was obtained in a town 15 miles from the original source.

REFERENCE

(1) Watt J.; DeCapito T.; and Moran, A. B.: A new *Salmonella* type isolated from man: *Salmonella texas*. Pub. Health Rep., **62**: 808–809 (May 30, 1947).

INCIDENCE 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

REPORTS FROM STATES FOR WEEK ENDED JANUARY 24, 1948

Summary

A slight increase in the incidence of influenza was reported, from 10,360 cases to 11,687 for the current week, as compared with 4,129 for the corresponding week last year and a 5-year (1943–47) median of 4,387. Of the current total, 10,696 cases (92 percent) occurred in 8 South Atlantic, South Central, Mountain, and Pacific States, as follows (last week's figures in parentheses): Virginia 949 (868), South Carolina 1,218 (880), Tennessee 233 (110), Alabama 344 (265), Arkansas 586 (439), Texas 5,027 (4,509), Arizona 1,274 (1,039), California 1,065 (1,023). Only 3 other States reported more than 76 cases—Wisconsin 108 (last week 51), West Virginia 139 (last week 159), and Oklahoma 161 (last week 442). The cumulative total for the first 3 weeks of the year is 32,382, as compared with 12,522 and 239,498, respectively, for the same periods of 1947 and 1944, and a 5-year median of 12,712.

Of 46 cases of poliomyelitis reported for the week (last week 40, same week last year 69, 5-year median 27), Idaho reported 10, New York 5, and North Carolina 4. For the first 3 weeks of the year 127 cases have been reported, as compared with 239 for the corresponding period last year and a 5-year median of 111.

One case of smallpox was reported, in Louisiana. Massachusetts and Pennsylvania each reported 1 case of anthrax. Totals reported for the first 3 weeks of the year for certain other diseases (corresponding week last year and 5-year medians in parentheses) are as follows: Diphtheria 729 (988, 1,014); the dysenteries, combined, 2,271 (1,834, 1,610); infectious encephalitis 14 (20, 22), measles 23,405 (10,949, 13,573); meningococcus meningitis 263 (266, 711); scarlet fever 6,330 (6,844, 10,749); smallpox 9 (13, 30); tularemia 74 (154, 87); typhoid and paratyphoid fever 111 (127, 132); endemic typhus fever 56 (155, 191), whooping cough 7,321 (6,582, 6,526).

Deaths recorded during the week in 93 large cities of the United States totaled 10,244, as compared with 10,150 last week, 9,958 and 10,157, respectively, for the corresponding weeks of 1947 and 1946, and a 3-year (1945–47) median of 9,958. The total for the 4 weeks ended January 24 is 42,125, as compared with 40,765 for the same period in 1947. Infant deaths during the week totaled 722, as compared with 671 last week, and a 3-year median of 622. The cumulative figure is 2,940, as compared with 3,378 same period last year.

Telegraphic morbidity reports from State health officers for the week ended Jan. 24, 1948, and comparison with corresponding week of 1947 and 5-year median

In these tables a zero indicates a definite report, while leaders imply that, although none was reported, cases may have occurred.

Division and State	Diphtheria			Influenza			Measles			Meningitis, meningococcus		
	Week ended—		Median 1943–47	Week ended—		Median 1943–47	Week ended—		Median 1943–47	Week ended—		Median 1943–47
	Jan. 24, 1948	Jan. 18, 1947		Jan. 24, 1948	Jan. 18, 1947		Jan. 24, 1948	Jan. 18, 1947		Jan. 24, 1948	Jan. 18, 1947	
NEW ENGLAND												
Maine	1	2	1	1	3	3	3	190	29	1	0	2
New Hampshire	0	0	0	1	2	------	2	------	6	0	0	0
Vermont	0	0	0	------	42	42	2	179	28	1	0	0
Massachusetts	5	10	5	------	------	------	388	431	409	2	4	8
Rhode Island	0	0	0	------	------	------	------	44	17	1	0	1
Connecticut	0	0	2	4	2	8	16	215	65	2	2	2
MIDDLE ATLANTIC												
New York	11	21	18	[1] 2	[1] 13	[1] 15	557	209	573	5	11	27
New Jersey	13	9	5	2	5	18	543	85	85	1	6	8
Pennsylvania	11	13	10	(2)	[2] 4	[2] 4	391	640	656	6	3	12
EAST NORTH CENTRAL												
Ohio	10	9	9	12	7	18	560	330	82	4	2	9
Indiana	10	5	5	13	3	16	249	24	61	1	1	7
Illinois	6	0	4	1	2	11	1,483	35	177	3	2	13
Michigan [3]	12	15	15	8	1	4	719	46	129	1	0	5
Wisconsin	5	3	3	108	46	101	275	71	71	3	3	3
WEST NORTH CENTRAL												
Minnesota	2	6	6	------	------	------	385	30	16	0	2	3
Iowa	2	0	3	1	1	1	312	10	95	5	4	1
Missouri	8	1	4	15	4	12	39	2	45	0	4	9
North Dakota	0	0	1	1	34	34	93	1	2	1	0	1
South Dakota	0	0	0	------	------	------	20	16	33	1	0	0
Nebraska	2	0	1	40	13	51	7	14	13	1	1	2
Kansas	3	14	3	76	67	67	9	9	130	1	0	5
SOUTH ATLANTIC												
Delaware	0	0	0	------	------	------	61	2	4	2	0	0
Maryland [3]	6	15	12	3	5	26	30	158	33	3	2	4
District of Columbia	0	0	0	------	------	3	63	21	17	0	0	2
Virginia	4	10	10	949	596	763	136	67	116	2	1	11
West Virginia	10	6	4	139	51	51	244	------	18	0	2	3
North Carolina	17	7	12	------	------	------	2	169	59	3	0	7
South Carolina	15	1	6	1,218	713	775	24	46	46	1	1	1
Georgia	7	9	7	62	14	66	27	150	41	0	0	3
Florida	8	6	7	18	20	13	44	7	21	0	4	4
EAST SOUTH CENTRAL												
Kentucky	5	13	6	5	2	16	11	2	25	1	1	5
Tennessee	5	6	6	233	39	78	98	35	48	1	1	6
Alabama	5	5	6	344	50	175	7	8	11	2	2	4
Mississippi [3]	2	5	5	48	------	------	30	------	------	0	1	3
WEST SOUTH CENTRAL												
Arkansas	2	9	10	586	105	148	85	58	52	0	4	4
Louisiana	4	6	6	7	35	35	267	3	11	0	0	5
Oklahoma	11	0	5	161	114	126	6	6	19	1	0	3
Texas	19	26	44	5,027	1,788	2,094	778	71	111	12	6	10
MOUNTAIN												
Montana	3	0	1	31	9	35	97	135	54	2	0	0
Idaho	1	0	0	32	30	30	10	7	7	0	0	1
Wyoming	0	2	0	------	6	6	122	7	10	0	1	1
Colorado	6	6	4	50	15	57	69	25	109	0	0	0
New Mexico	6	1	3	6	1	6	3	13	10	0	0	0
Arizona	4	4	4	1,274	259	259	12	43	14	0	0	0
Utah [3]	0	0	0	55	5	7	11	8	32	0	1	2
Nevada	0	0	0	------	------	------	------	------	1	0	0	0
PACIFIC												
Washington	2	11	8	31	------	1	102	19	140	3	0	2
Oregon	2	4	4	58	14	33	33	25	71	0	2	4
California	7	22	22	1,065	9	59	372	73	273	13	9	20
Total	252	282	312	11,687	4,129	4,387	8,797	3,739	5,490	86	83	240
3 weeks	729	988	1,014	32,382	12,522	12,712	23,405	10,949	13,573	263	266	711
Seasonal low week [4]	(27th) July 5–11			(30th) July 26–Aug. 1			(35th) Aug. 30–Sept. 5			(37th) Sept. 13–19		
Total since low	7,087	8,554	9,463	75,940	45,497	45,497	58,351	33,836	39,697	1,045	1,238	2,197

[1] New York City only.
[2] Philadelphia only.
[3] Period ended earlier than Saturday.
[4] Dates between which the approximate low week ends. The specific date will vary from year to year.

Telegraphic morbidity reports from State health officers for the week ended Jan. 24, 1948, and comparison with corresponding week of 1947 and 5-year median—Con.

Division and State	Poliomyelitis			Scarlet fever			Smallpox			Typhoid and paratyphoid fever		
	Week ended—		Median 1943–47	Week ended		Median 1943–47	Week ended—		Median 1943–47	Week ended—		Median 1943–47
	Jan. 24, 1948	Jan. 18, 1947		Jan. 24, 1948	Jan. 18, 1947		Jan. 24, 1948	Jan. 18, 1947		Jan. 24,[5] 1948	Jan. 18, 1947	
NEW ENGLAND												
Maine	0	0	0	13	35	35	0	0	0	0	0	0
New Hampshire	0	0	0	2	8	8	0	0	0	0	0	0
Vermont	0	1	1	17	7	7	0	0	0	0	1	0
Massachusetts	1	0	0	86	172	287	0	0	0	2	4	1
Rhode Island	0	0	0	5	14	14	0	0	0	0	0	0
Connecticut	0	0	0	34	59	63	0	0	0	0	1	1
MIDDLE ATLANTIC												
New York	5	4	4	244	290	372	0	0	0	2	6	2
New Jersey	2	1	1	102	104	107	0	0	0	0	1	1
Pennsylvania	1	2	0	184	147	285	0	0	0	3	1	3
EAST NORTH CENTRAL												
Ohio	1	1	0	287	287	287	0	1	1	0	1	1
Indiana	1	0	1	49	83	100	0	2	2	0	0	1
Illinois	1	5	1	152	126	221	0	0	0	0	0	1
Michigan[3]	0	5	0	171	133	145	0	0	0	1	1	1
Wisconsin	0	0	0	66	95	175	0	0	0	0	1	0
WEST NORTH CENTRAL												
Minnesota	0	2	0	47	40	75	0	0	0	0	0	0
Iowa	3	1	0	63	33	49	0	0	0	0	0	1
Missouri	0	1	1	41	38	82	0	1	0	1	2	1
North Dakota	0	1	0	9	6	11	0	0	0	0	1	0
South Dakota	0	0	0	9	4	15	0	1	0	1	0	0
Nebraska	0	1	1	23	32	49	0	0	0	0	2	0
Kansas	0	3	0	30	77	77	0	0	0	1	0	0
SOUTH ATLANTIC												
Delaware	0	0	0	9	25	12	0	0	0	0	0	0
Maryland[3]	0	1	0	33	48	56	0	0	0	1	1	1
District of Columbia	0	0	0	11	12	28	0	0	0	0	0	0
Virginia	0	0	0	28	44	48	0	0	0	2	1	1
West Virginia	0	2	0	29	23	35	0	0	0	0	0	0
North Carolina	4	0	0	36	36	51	0	0	0	1	0	0
South Carolina	1	0	0	6	3	7	0	0	0	1	0	0
Georgia	0	0	0	15	18	18	0	0	0	1	0	2
Florida	0	2	0	16	8	8	0	0	0	3	1	1
EAST SOUTH CENTRAL												
Kentucky	0	0	0	24	44	50	0	0	0	0	0	1
Tennessee	0	3	1	44	30	62	0	0	0	1	2	1
Alabama	2	0	0	25	8	16	0	0	0	0	1	0
Mississippi[3]	0	4	1	5	8	13	0	0	1	0	2	1
WEST SOUTH CENTRAL												
Arkansas	1	1	1	4	4	6	0	0	0	0	0	0
Louisiana	1	0	0	6	5	11	1	0	0	0	4	4
Oklahoma	2	1	0	22	1	25	0	0	0	1	1	1
Texas	0	2	3	36	40	103	0	0	0	8	5	5
MOUNTAIN												
Montana	0	1	0	23	11	14	0	0	0	0	1	1
Idaho	10	1	0	8	13	14	0	0	0	1	0	0
Wyoming	0	0	0	7	6	6	0	0	0	0	0	0
Colorado	0	0	0	22	53	53	0	0	0	0	0	1
New Mexico	0	0	0	3	7	10	0	0	0	0	0	1
Arizona	0	0	0	11	14	11	0	0	0	1	0	2
Utah[3]	1	1	1	36	28	45	0	0	0	0	0	0
Nevada	1	0	0	0	0	0	0	0	0	0	0	0
PACIFIC												
Washington	3	1	2	57	30	57	0	0	0	0	0	0
Oregon	3	0	0	34	13	24	0	0	0	0	0	0
California	2	21	3	81	106	206	0	0	0	8	5	2
Total	46	69	27	2,265	2,428	3,655	1	5	13	40	46	51
3 weeks	127	239	111	6,353	6,844	10,749	9	13	30	111	127	132
Seasonal low week[4]	(11th) Mar. 15–21			(32nd) Aug. 9–15			(35th) Aug. 30–Sept. 5			(11th) Mar. 15–21		
Total since low	10,338	25,036	13,499	28,892	33,530	49,070	30	67	113	3,520	3,655	4,708

[3] Period ended earlier than Saturday.
[4] Dates between which the approximate low week ends. The specific date will vary from year to year.
[5] Including paratyphoid fever reported separately as follows: Massachusetts 2 (salmonella infection); Georgia 1; Tennessee 1; Arizona 1; California 1.

Telegraphic morbidity reports from State health officers for the week ended Jan. 24, 1948, and comparison with corresponding week of 1947 and 5-year median—Con.

Division and State	Whooping cough			Week ended January 24, 1948							
	Week ended—		Median 1943–47	Dysentery			Encephalitis, infectious	Rocky Mt. spotted fever	Tularemia	Typhus fever, endemic	Undulant fever
	Jan. 24, 1948	Jan. 18, 1947		Amebic	Bacillary	Unspecified					
NEW ENGLAND											
Maine	38	14	16								1
New Hampshire	2	1	2								
Vermont	132	30	34								
Massachusetts	115	226	111		2						
Rhode Island	5	45	27		1						1
Connecticut	28	59	47								1
MIDDLE ATLANTIC											
New York	129	251	251	12	10						15
New Jersey	88	139	139	8							
Pennsylvania	84	225	220		1		1				1
EAST NORTH CENTRAL											
Ohio	151	101	101								1
Indiana	30	36	16								
Illinois	70	133	100	5	2				1		13
Michigan [3]	139	219	129	1	1						9
Wisconsin	122	135	98						1		6
WEST NORTH CENTRAL											
Minnesota	44	9	35			1					3
Iowa	5	7	10	2							16
Missouri	30	17	6								3
North Dakota	26					2	1				
South Dakota	2	3	2								
Nebraska	10	2	5	1							1
Kansas	73	19	26				1				
SOUTH ATLANTIC											
Delaware	3										
Maryland [3]	41	96	60			5			2		1
District of Columbia	5	1	6								
Virginia	51	39	70	1		51			1	1	2
West Virginia	13		29								
North Carolina	59	23	119							2	
South Carolina	158	39	53	3	2						
Georgia	12	7	7	1	2				1	3	3
Florida	28	25	20	1						6	
EAST SOUTH CENTRAL											
Kentucky	7	48	33								
Tennessee	34	28	28	1		1	1				
Alabama	49	50	15								3
Mississippi [3]	5				1				1		
WEST SOUTH CENTRAL											
Arkansas	25	5	15	3							
Louisiana	10	7	3	1					1		
Oklahoma	39	11	10								
Texas	387	252	193	18	280	66			1	3	14
MOUNTAIN											
Montana	10	3	5	1							
Idaho	5	1	2								
Wyoming	10	1	5	1							
Colorado	59	1	30								3
New Mexico	12	3	11								3
Arizona	35	20	19			21			1		
Utah [3]	15		14						1		1
Nevada			1								
PACIFIC											
Washington	78	32	32								
Oregon	6	10	10	5							
California	97	112	123	2	4						5
Total	2,576	2,485	2,418	67	306	147	4	0	11	15	106
Same week: 1947	2,485			22	344	67	8	0	60	56	97
Median, 1943–47	2,418			27	309	67	8	0	35	56	[6] 78
3 weeks: 1948	7,321			167	1,047	1,057	14	2	75	56	267
1947	6,582			77	1,093	664	20	1	154	155	250
Median, 1943–47	6,526			81	1,093	436	22	0	87	191	[6] 200

[3] Period ended earlier than Saturday.
[6] 3-year median, 1945–47.

Anthrax: Massachusetts 1, Pennsylvania 1.
Territory of Hawaii: Leprosy 1, paratyphoid fever 1, whooping cough 33.

WEEKLY REPORTS FROM CITIES [1]

City reports for week ended Jan. 17, 1948

This table lists the reports from 87 cities of more than 10,000 population distributed throughout the United States, and represents a cross section of the current urban incidence of the diseases included in the table.

Division, State, and City	Diphtheria cases	Encephalitis, infectious, cases	Influenza		Measles cases	Meningitis, meningococcus, cases	Pneumonia deaths	Poliomyelitis cases	Scarlet fever cases	Smallpox cases	Typhoid and paratyphoid fever cases	Whooping cough cases
			Cases	Deaths								
NEW ENGLAND												
Maine:												
Portland	0	0	------	0	-------	0	1	0	0	0	0	12
New Hampshire:												
Concord	0	0	------	0	-------	0	1	0	0	0	0	------
Vermont:												
Barre	0	0	------	0	-------	0	1	0	0	0	0	3
Massachusetts:												
Boston	4	0	------	1	99	0	23	0	29	0	0	17
Fall River	0	0	------	0	-------	0	0	0	0	0	0	12
Springfield	0	0	------	0	-------	0	0	0	4	0	0	4
Worcester	0	0	------	0	1	0	9	0	7	0	0	7
Rhode Island:												
Providence	0	0	------	0	-------	0	2	0	5	0	0	6
Connecticut:												
Bridgeport	0	0	------	0	2	0	0	0	7	0	0	------
Hartford	0	0	------	0	-------	0	4	0	3	0	0	1
New Haven	0	0	------	0	-------	0	2	0	3	0	0	3
MIDDLE ATLANTIC												
New York:												
Buffalo	1	0	------	0	-------	1	5	0	7	0	0	12
New York	11	1	3	4	355	5	75	2	70	0	2	27
Rochester	0	0	------	0	2	0	3	1	12	0	0	7
Syracuse	0	0	------	0	11	0	0	0	10	0	0	11
New Jersey:												
Camden	0	0	------	0	------	0	0	0	0	0	0	------
Newark	0	0	1	2	16	0	1	0	14	0	0	4
Trenton	3	0	------	0	3	0	4	0	3	0	0	------
Pennsylvania:												
Philadelphia	3	0	4	2	57	1	37	0	48	0	1	31
Pittsburgh	0	0	------	1	1	0	5	0	9	0	0	15
Reading	0	0	------	0	1	0	4	0	8	0	0	6
EAST NORTH CENTRAL												
Ohio:												
Cincinnati	0	0	1	1	13	0	11	0	18	0	0	4
Columbus	2	0	3	3	67	0	2	0	10	0	0	3
Indiana:												
Fort Wayne	0	0	------	0	2	0	2	0	5	0	0	------
Indianapolis	1	0	------	0	44	0	4	0	3	0	0	3
South Bend	0	0	------	0	------	0	0	0	0	0	0	1
Terre Haute	0	0	------	0	18	0	1	0	1	0	0	------
Illinois:												
Chicago	1	0	2	0	383	2	25	0	52	0	0	22
Michigan:												
Detroit	3	0	1	0	23	1	19	1	66	0	0	21
Flint	0	0	------	0	1	0	3	0	3	0	0	------
Grand Rapids	0	0	------	0	123	0	1	0	3	0	0	5
Wisconsin:												
Kenosha	0	0	------	0	16	0	0	0	0	0	0	1
Milwaukee	0	0	------	0	7	0	1	0	16	0	0	15
Racine	0	0	------	0	15	0	1	0	0	0	0	5
Superior	0	0	------	0	-------	0	0	0	0	0	0	2
WEST NORTH CENTRAL												
Minnesota												
Duluth	0	0	------	0	2	0	1	0	3	0	0	11
Minneapolis	0	0	------	0	148	0	4	0	15	0	0	20
St. Paul	0	0	------	0	8	0	5	0	5	0	0	17
Missouri:												
Kansas City	0	0	2	0	3	2	1	0	3	0	0	9
St. Joseph	0	0	------	0	1	0	0	0	2	0	0	------
St. Louis	4	0	2	1	22	1	6	0	14	0	0	9

[1] In some instances the figures include nonresident cases.

City reports for week ended Jan. 17, 1948—Continued

Division, State, and City	Diphtheria cases	Encephalitis, infectious, cases	Influenza		Measles cases	Meningitis, meningococcus, cases	Pneumonia deaths	Poliomyelitis cases	Scarlet fever cases	Smallpox cases	Typhoid and paratyphoid fever cases	Whooping cough cases
			Cases	Deaths								
WEST NORTH CENTRAL—continued												
North Dakota												
Fargo	0	0	------	0	11	0	2	0	1	0	0	5
Nebraska:												
Omaha	0	0	------	0	3	0	4	0	5	0	0	3
Kansas:												
Topeka	0	0	------	0	------	0	0	0	3	0	0	6
Wichita	0	0	------	0	2	1	3	0	4	0	0	5
SOUTH ATLANTIC												
Delaware:												
Wilmington	1	0	------	0	3	0	3	0	1	0	0	------
Maryland:												
Baltimore	2	0	3	1	3	0	8	0	13	0	0	35
Cumberland	4	0	------	0	------	0	1	0	1	0	0	1
District of Columbia:												
Washington	0	0	1	1	49	2	9	0	10	0	0	11
Virginia:												
Lynchburg	0	0	------	0	------	0	3	0	5	0	0	4
Richmond	0	0	------	0	------	0	2	0	6	0	0	8
Roanoke	0	0	------	0	------	0	0	0	0	0	1	------
West Virginia:												
Charleston	0	0	------	0	9	0	6	0	0	0	0	------
Wheeling	0	0	------	0	1	0	3	0	2	0	0	------
North Carolina:												
Raleigh	0	0	------	0	------	0	2	0	0	0	0	------
Wilmington	1	0	------	0	------	0	1	0	0	0	0	------
Winston-Salem	0	0	------	0	------	0	4	0	0	0	0	1
South Carolina:												
Charleston	0	0	83	1	1	0	2	0	0	0	0	2
Georgia:												
Atlanta	0	0	22	1	------	0	9	0	3	0	0	------
Brunswick	0	0	------	0	------	0	0	0	0	0	0	------
Savannah	0	0	5	0	1	0	2	0	2	0	0	3
Florida:												
Tampa	1	0	1	0	16	0	4	0	2	0	0	8
EAST SOUTH CENTRAL												
Tennessee:												
Memphis	1	0	1	0	23	0	5	0	1	0	2	8
Nashville	0	0	------	0	1	0	7	0	4	0	0	------
Alabama:												
Birmingham	0	0	5	0	1	1	6	0	0	0	0	1
Mobile	0	0	11	0	------	0	2	0	1	0	0	------
WEST SOUTH CENTRAL												
Arkansas:												
Little Rock	0	0	4	0	------	0	1	0	1	0	0	1
Louisiana:												
New Orleans	1	0	3	2	3	0	7	1	2	0	0	3
Shreveport	0	0	------	0	------	0	6	0	0	0	0	------
Oklahoma:												
Oklahoma City	0	0	------	0	54	1	4	0	2	0	0	4
Texas:												
Dallas	1	0	1	1	------	0	6	0	4	0	3	4
Galveston	0	0	------	0	------	0	2	0	0	0	0	------
Houston	1	0	5	0	15	0	7	0	1	0	0	10
San Antonio	0	0	3	4	1	0	1	0	0	0	0	2
MOUNTAIN												
Montana:												
Billings	0	0	------	0	4	0	0	0	1	0	0	1
Great Falls	0	0	------	0	4	0	0	0	0	0	0	1
Helena	0	0	------	0	------	0	0	0	0	0	0	------
Missoula	0	0	------	0	------	0	0	0	0	0	0	1
Colorado:												
Denver	2	0	9	0	17	0	2	0	4	0	0	28
Pueblo	0	0	------	0	------	0	0	0	2	0	0	14
Utah:												
Salt Lake City	0	0	------	0	5	0	1	0	2	0	0	------

City reports for week ended Jan. 17, 1948—Continued

Division, State, and City	Diphtheria cases	Encephalitis, infectious, cases	Influenza		Measles cases	Meningitis, meningococcus, cases	Pneumonia deaths	Poliomyelitis cases	Scarlet fever cases	Smallpox cases	Typhoid and paratyphoid fever cases	Whooping cough cases
			Cases	Deaths								
PACIFIC												
Washington:												
Seattle	0	0	------	0	11	0	1	1	9	0	0	5
Spokane	0	0	------	0	1	0	1	1	1	0	0	------
Tacoma	0	0	------	0	45	0	0	0	0	0	0	------
California:												
Los Angeles	3	0	461	11	22	3	25	1	11	0	0	36
Sacramento	0	0	1	1	3	0	3	0	1	0	1	------
San Francisco	5	0	15	0	151	1	13	1	13	0	0	6
Total	56	1	653	38	1,904	22	432	9	576	0	10	543
Corresponding week, 1947[1]	102	------	84	16	894	------	449	------	558	0	4	747
Average, 1943–47[1]	75	------	1,065	[2] 49	[3] 1,874	------	[2] 491	------	970	0	9	600

[1] Exclusive of Oklahoma City.
[2] 3-year average, 1945–47.
[3] 5-year median, 1943–47.

Anthrax.—Cases: Philadelphia, 1.
Dysentery, amebic.—Cases: Philadelphia, 1; Atlanta, 1; New Orleans, 6; Los Angeles, 2; San Francisco, 1.
Dysentery, bacillary.—Cases: New York, 1; Memphis, 2; Los Angeles, 2.
Dysentery, unspecified.—Cases: Baltimore, 4; San Antonio, 1.
Leprosy.—Cases: Los Angeles 1.
Tularemia.—Cases: Baltimore, 1; Atlanta, 3; New Orleans, 2.
Typhus fever, endemic.—Cases: New York, 1; Kansas City, 3; Savannah, 1; Los Angeles, 1.

Rates (annual basis) per 100,000 population, by geographic groups, for the 87 cities in the preceding table (latest available estimated population, 33,633,900)

	Diphtheria case rates	Encephalitis, infectious, case rates	Influenza		Measles case rates	Meningitis, meningococcus, case rates	Pneumonia death rates	Poliomyelitis case rates	Scarlet fever case rates	Smallpox case rates	Typhoid and paratyphoid fever case rates	Whooping cough case rates
			Case rates	Death rates								
New England	10.5	0.0	0.0	2.6	267	0.0	112.4	0.0	152	0.0	0.0	170
Middle Atlantic	8.3	0.5	3.7	4.2	206	3.2	62.0	1.4	84	0.0	1.4	52
East North Central	4.8	0.0	4.8	2.7	487	2.1	47.9	0.7	121	0.0	0.0	56
West North Central	8.0	0.0	8.0	2.0	398	8.0	51.7	0.0	109	0.0	0.0	169
South Atlantic	14.8	0.0	188.8	6.6	136	3.3	96.9	0.0	74	0.0	1.6	120
East South Central	5.9	0.0	100.3	0.0	148	5.9	118.0	0.0	35	0.0	11.8	53
West South Central	7.6	0.0	40.6	17.8	185	2.5	86.4	2.5	25	0.0	7.6	61
Mountain	16.5	0.0	74.3	0.0	248	0.0	24.8	0.0	74	0.0	0.0	372
Pacific	12.7	0.0	754.4	19.0	368	6.3	68.0	6.3	55	0.0	1.6	74
Total	8.7	0.2	101.5	5.9	296	3.4	67.2	1.4	90	0.0	1.6	84

FOREIGN REPORTS

CANADA

Provinces—Communicable diseases—Week ended January 3, 1948.—During the week ended January 3, 1948, cases of certain communicable diseases were reported by the Dominion Bureau of Statistics of Canada as follows:

Disease	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia	Total
Chickenpox		13	7	26	452	47	31	32	74	682
Diphtheria			1	6		2	1	1	1	12
Dysentery:										
Amebic					1					1
Unspecified									1	1
Encephalitis, infectious					1		2			3
German measles				2	11			6	5	24
Influenza		31			1				6	38
Measles				198	452	3	2	7	72	734
Meningitis, meningococcus					3	1		1		5
Mumps		29	2	74	328	26	19	37	26	541
Poliomyelitis						1	7	2	1	11
Scarlet fever		2	3	16	98	3		4	10	136
Tuberculosis (all forms)		5	10	31	37	30	13		58	184
Typhoid and paratyphoid fever				1	1			1		3
Undulant fever				4				2		6
Venereal diseases:										
Gonorrhea	4	11	11	83	95	31	29	28	83	375
Syphilis		9	6	39	49	4	3	2	23	135
Other forms							2			2
Whooping cough		3		20	20	18	2	18	17	98

REPORTS OF CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER RECEIVED DURING THE CURRENT WEEK

NOTE.—Except in cases of unusual incidence, only those places are included which had not previously reported any of the above-mentioned diseases, except yellow fever, during recent months. All reports of yellow fever are published currently.

A table showing the accumulated figures for these diseases for the year to date is published in the PUBLIC HEALTH REPORTS for the last Friday in each month.

Smallpox

Iran.—For the week ended December 12, 1947, 38 cases of smallpox with 2 deaths were reported in Iran.

Siam (Thailand)—Bangkok.—For the period January 1–21, 1948, 24 cases of smallpox with no fatalities were reported in Bangkok, Siam.

Yellow Fever

Belgian Congo—Orientale Province—Uele District—Bondo.—Information dated January 16, 1948, stated that 1 fatal case of yellow fever was reported in Bondo, Uele District, Orientale Province, Belgian Congo.

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