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INFLUENZA PREVALENCE IN THE UNITED STATES

Reports showing the numbers of cases of influenza reported for the week ended January 26, 1929, were received by the Public Health Service from the health officers of 43 States. (See p. 306.) Forty-one of these States showed a decrease in the prevalence of the disease as compared with the preceding week.

The number of cases of influenza reported for the week ended January 26, 1929, was 55,000, as compared with 90,000 cases for the week ended January 19.

The table on page 320 shows the death rate for influenza and pneumonia (combined) for 89 cities for the week ended January 19 to be 551 per 100,000 population. For the preceding week this rate was 648 per 100,000.

SUMMARY OF INFLUENZA MORTALITY ¹

The mortality of the current influenza epidemic continued to decline in the week ended January 26, 1929. The excess annual death rate for that week over the normal annual mortality rate for influenza and pneumonia amounted to 263 per 100,000 population in a group of cities in the United States. This excess is little more than half of the excess mortality rate (annual basis) in the same group of cities for two weeks earlier. Table 1 shows the excess mortality from influenza and pneumonia in this group of cities, the cities being classified according to geographic divisions of the United States.

TABLE 1.—*Excess^a mortality from influenza and pneumonia per 100,000 population in cities of the various geographical divisions of the United States^b*
(Excess annual rate per 100,000)

Geographic division	December, 1928					January, 1929			
	1	8	15	22	29	5	12	19	26
Total.....	+35	+60	+122	+233	+276	+392	+426	+328	+263
Pacific.....	+358	+458	+431	+240	+253	+212	+99	+33	-8
Mountain.....	+349	+627	+1,148	+764	+369	+196	+126	+101	-37
West South Central.....	+23	+43	+36	+246	+544	+809	+821	+526	+250
East South Central.....	-47	+128	+96	+36	219	+807	+1,628	+729	+690
West North Central.....	+32	+77	+224	+336	+379	+373	+315	+212	+121
East North Central.....	+30	+27	+87	+241	+500	+567	+514	+240	+102
South Atlantic.....	+10	+33	+152	+138	+268	+254	+443	+410	+285
Middle Atlantic.....	-1	+4	+54	+142	+229	+328	+400	+402	+377
New England.....	-36	-43	-16	+20	+24	+90	+171	+313	+567

^a Excess in the annual mortality rate for the week over the average of the years 1924-1927 up to January 5 and excess over the average of the years 1924, 1925, and 1927 after that week. The data for 1924-1927 (not shown in this table) are based on cities reporting to the Public Health Service. For 1928 this is true for the geographical districts, except for the last few weeks, when the Weekly Health Index of the Census Bureau was used. Although the cities are not identical in the two cases, a test has shown that the effect on the rates is slight. For the "total" line, the 1928 data were taken entirely from the Weekly Health Index.

^b Data for earlier weeks were published in PUBLIC HEALTH REPORTS for Jan. 1, 1929, p. 230.

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

It will be noted that the mortality is declining in the cities of every section except New England. The mortality in the East South Central cities for the week ended January 26 is higher than the mortality in the New England cities, but is much lower than in the East South Central cities in preceding weeks.

Table 2 presents the excess mortality from influenza and pneumonia in each of 50 cities.

TABLE 2.—*Excess of annual death rates per 100,000 from influenza and pneumonia (all forms) by weeks, November 25, 1928, to January 26, 1929,¹ over the average of rates in the corresponding week of the years ended June 30, 1921, 1924, and 1925.²*

City	Week ended—								
	December					January			
	1	8	15	22	29	5	12	19	26
Albany, N. Y.	+237	+319	+100	+312	+483	+565	+734	+1,033	+1,247
Atlanta, Ga.	-44	+68	+179	+883	+1,281	+681	+18	+317	+147
Baltimore, Md.	-13	+55	+65	+1	+191	+351	+612	+499	+389
Birmingham, Ala.	-43	-33	+4	-214	+105	+1,712	+3,227		+715
Boston, Mass.	-43	-21	-18	+52	+7	+73	+249	+426	+587
Bridgeport, Conn.	-54	+45	-36	-81	-123	+159	+335	+910	+1,158
Buffalo, N. Y.	+25	+16	+93	+226	+232	+390	+669	+507	+479
Cambridge, Mass.	-42	-92	-19	-70	+90	+127	+125	+496	+619
Chicago, Ill.	+22	+42	+144	+298	+499	+312	+197	+120	+31
Cincinnati, Ohio.	+65	+18	+59	+61	+263	+1,169	+1,009	+801	+499
Cleveland, Ohio.	-35	-22	-19	+173	+446	+731	+818	+544	+107
Columbus, Ohio.	-51	-41	-69	+221	+669	+996	+1,114	+552	+203
Dayton, Ohio.	-64	+128	-20	+141	+305	+327	+519	+431	+61
Denver, Colo.	+227	+614	+1,641	+1,084	+531	+315	+209	+208	-41
Des Moines, Iowa.	-112	+98	+150	+1,376	+515	+200	+93	+190	+187
Detroit, Mich.	+33	+26	+7	+149	+507	+778	+609	+228	+17
Fall River, Mass.	-143	0	-132	+8	+71	+97	+395	+386	+805
Grand Rapids, Mich.	+35	+126	+439	+690	+748	+208	+393	+70	-31
Indianapolis, Ind.	+55	+158	+380	+645	+692	+672	+407	+129	+205
Jersey City, N. J.	-48	+4	+54	+151	+109	+213	+353	+622	+505
Kansas City, Mo.	+63	+197	+679	+773	-38	+216	+88	+121	-30
Los Angeles, Calif.	+887	+1,121	+1,021	+578	+421	+305	+208	-5	
Louisville, Ky.	-37	+64	-5	-9	+65	+424	+562	+905	+685
Lowell, Mass.	-61	-71	+14	+55	-89	+50	-1	+372	+556
Memphis, Tenn.	-128	+264	-81	+69	+328	+1,519	+1,484	+687	
Milwaukee, Wis.	-28	-11	-46	+189	+316	+472	+619	+309	+297
Minneapolis, Minn.	-9	+89	+5	+284	+416	+422	+470	+145	+115
Nashville, Tenn.	+23	+232	-120	+55	+191	+330	+1,366	+1,027	+837
New Haven, Conn.	-67	-105	+50	-17	-52	+24	+99	+150	+311
New Orleans, La.	+71	+46	+129	+491	+945	+781	+777	+337	+143
New York, N. Y.	+3	+12	+30	+39	+58	+128	+301	+427	+458
Newark, N. J.	-30	+27	-17	-16	+56	+326	+692	+471	+446
Oakland, Calif.	+316	+64	+58	+127	+121	+175	+57	+113	
Omaha, Nebr.	+27	+85	+634	+715	+780	+261	-46	+160	+40
Paterson, N. J.	-30	-7	-54	+43	-107	+499	+749	+639	+496
Philadelphia, Pa.	-17	+34	+57	+309	+234	+428	+395	+290	+203
Pittsburgh, Pa.	-43	-158	+105	+877	+1,893	+2,169	+1,071	+453	+23
Portland, Oreg.	+13	+23	+241	+223	+396	+416	+292	+79	+95
Providence, R. I.	+39	-6	-34	-9	-20	+26	+87	+350	+468
Richmond, N. Y.	-29	-41	0	-94	+266	+599	+880	+440	+88
Rochester, N. Y.	+51	-16	+46	+23	+51	+93	+121	+133	+413
San Francisco, Calif.	+104	+51	+92	+53	+61	+52	-42	+64	-32
Seattle, Wash.	+75	+127	+248	+299	+433	+295	+241	+172	+63
Spokane, Wash.	+72	+352	+823	+820	+293	+385	0	-1	-98
St. Louis, Mo.	-41	-51	+13	0	+222	+279	+307	+207	+95
St. Paul, Minn.	+19	-9	+130	+352	+555	+635	+467	+219	+93
Syracuse, N. Y.	+56	+103	-33	+14	+271	+527	+783	+337	+124
Toledo, Ohio.	+70	+113	+355	+615	+973	+438	+434	+230	+114
Washington, D. C.	-65	-7	+5	+45	+78	+112	+409	+426	+329
Worcester, Mass.	-79	-57	-141	-145	-97	-23	-2	-32	

¹ Data for earlier weeks were published in PUBLIC HEALTH REPORTS for Jan. 18, 1929, on pp. 120 and 121.

² The weekly rates for the average of the 3 years were approximated by plotting the average monthly rates for each city and drawing through them, by inspection, a smooth curve, thus affording a rough "normal" seasonal curve. From this curve values were read for each week.

An examination of this table shows that the cities of New York and New England are the only ones that do not show a decreasing mortality for the week ended January 26. Among the highest excess annual rates for this week were Albany, N. Y. (1,247); Bridgeport, Conn. (1,158); Fall River, Mass. (805); Cambridge, Mass. (619); Boston, Mass. (567); and Lowell, Mass. (556). A few cities in other sections of the country have rates as high as these, but they represent declines from higher rates in preceding weeks, whereas during the week ended January 26 occurred the highest mortality yet experienced for all of the New York and New England cities mentioned above.

A STUDY OF THE RELATIONSHIP BETWEEN TYPE OF VENTILATION AND RESPIRATORY ILLNESS IN CERTAIN SCHOOLS OF NEW HAVEN, CONN.

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The frequency of the common cold among adults throughout this country is so high that one hardly requires a statistical treatment of this subject to become aware of the importance of this problem. Recent studies of the United States Public Health Service¹ show that respiratory diseases account for 47 per cent of all the cases of illness reported in a large industrial group during a five-year period. Among school children the problem is one of greater magnitude, for the child is more susceptible to respiratory diseases than is the adult.

Evidence has been slowly accumulating which serves to show that the method of ventilating the schoolroom has an important bearing on the health of the school child as measured in terms of respiratory disease rates. The first study of this kind with which the writer is familiar is that of the New York State Commission on Ventilation.² This comparative study of window and fan ventilation was made during the winter of 1916 (February, March, and April) and the autumn and winter of 1916-17. The study dealt with some 5,500 pupils, distributed in classrooms ventilated by two distinct methods, namely, window-ventilated rooms provided with gravity exhaust, some maintained at 59° F. and some averaging 66°-67°; and plenum fan ventilated rooms with gravity exhaust maintained at temperatures of 68°-69°. This study disclosed no material difference in the prevalence of respiratory affections in window-ventilated rooms kept at 59° as compared with those maintained at 66°. On the other hand, the comparison between the respiratory illness rates for all

¹ Sickness among industrial employees. Pub. Health Rep., vol. 41, No. 4, p. 113, Jan. 22, 1925.

² Ventilation. Report of the New York State Commission on Ventilation. E. P. Dutton & Co., New York, 1923.

window-ventilated schools and the fan-ventilated schools was found to be striking. The report states: "The absence rate from respiratory illness in the fan rooms is 11.1 as against 9.4 for the window rooms. The illness rate among pupils present in school is 73 for the fan rooms as against 43 for the window rooms." Converted to a percentage basis these results indicate an absence rate due to respiratory disease 18 per cent greater, and 70 per cent more respiratory disease among pupils in attendance in the fan-ventilated schools than in the window-ventilated schools.

The results of this study were considered of such importance that the New York State Commission on Ventilation (since renamed the New York Commission on Ventilation) decided to repeat this type of investigation. Accordingly, during the winter of 1926-27, a similar study was conducted in certain schools of the city of Syracuse, N. Y. In all, approximately 2,000 children attending six schools were kept under observation. Three of the school buildings were fan ventilated and three were window ventilated. The results of this study^{3 4} confirmed the New York studies in indicating that the high air flow produced by plenum fans tends to be associated with an excessive incidence of minor respiratory illness among school children.

The result of the New York State Commission's first studies (1916-17) appeared of unusual significance and importance. In order to throw more light on this problem the study described in this paper was inaugurated in the fall of 1926.

SELECTION OF SCHOOLS

The present study was conducted in the schools of New Haven, Conn. The desideratum was, of course, to select schools of both types (mechanically and naturally ventilated) situated geographically as closely as possible together in order to study pupils from homes having the same social and economic backgrounds. It was felt that the schools should be representative of the best the city had to offer in ventilation equipment. Satisfactory examples of both types of ventilated schools were not always to be found in one neighborhood. Seven schools were finally selected as being the most suitable for study. Three of these were window-ventilated schools, three were fan-ventilated, and one was ventilated by the univent system.

The four mechanically ventilated schools—Barnard, Scranton, Worthington Hooker, and Dante—are between 14 and 26 years old and average 19 years. The first of these, the Barnard School, is

³ Relation between respiratory illness and air conditions in certain Syracuse schools. *School and Society*, vol. 26, pp. 785-788, Dec. 17, 1927.

⁴ Effects of mechanical and natural ventilation on the health of school children, by T. J. Duffield. *Jour. Am. Soc. of Heating and Ventilating Engineers*, vol. 34, p. 327, April, 1928.

14 years old. It is a 2-story brick and cement building with classroom floors of wood. There are four classrooms on each floor and a kindergarten in the basement. Heating is obtained chiefly by means of an indirect gravity system. A small amount of direct radiation is, however, provided in some of the rooms. Heat control is maintained entirely by thermostatic means. Ventilation is obtained by gravity or by the fan located in the gravity heating chamber, the air entering the classrooms through registers 29 by 36 inches in size, located near the ceiling. The exhaust is obtained by gravity means only, each room being provided with a 24 by 32 inch duct located at the floor level. The building is in an excellent state of maintenance and repair.

The Scranton School is 22 years old. It is a 2-story brick building with cement and wooden floors, housing in all 17 classrooms. Heating is obtained chiefly by an indirect system supplemented by direct radiation, all of which is controlled by means of hand-actuated valves. Ventilation is obtained by means of the gravity heating system, supplemented by the fan located in the supply chamber. The air enters the classrooms near the ceiling through a register 26 by 30 inches in size and leaves through a 24 by 26 inch register located near the floor level at the rear of the room. The maintenance and repair of the building may be classed as good.

The Dante School building is 14 years old. It is a 2-story and basement building, housing in all 11 rooms. It is built of brick and has cement floors in the corridors and wooden ones in the classrooms. Heating is obtained by indirect means supplemented, in the case of the basement room and the first-floor rooms, by direct radiation. The indirect radiation is controlled completely by thermostats, while the direct radiation is controlled by means of hand valves located near the floor level. Ventilation is secured by gravity means supplemented by a fan located in the air-heating chamber. The warmed air is admitted to the rooms through 32 by 36 inch registers located near the ceiling, while the air is removed through a 30 by 32 inch register located near the floor level. The construction, repair, and maintenance of this building are excellent.

The Worthington Hooker School, the last of the mechanically ventilated schools, is 26 years old. It is a 2-story brick building with wooden floors, housing 12 rooms on the upper floors and 1 room in the basement. Heating, as well as ventilation, is accomplished by means of the univent system which, according to the superintendent of school buildings, was installed in the summer of 1925. The univents are of various sizes, the majority being either 38 or 49 inches in width. The electric fans of the univents are all connected with the electrical control board in the basement and are kept in continuous operation by the custodian of the building. The

inlets for both cold and warm air are controlled by the individual classroom teacher. The exhaust of air for the rooms is obtained by means of a gravity duct 25 by 31 inches, opening into each room at the floor level either on the side or front of the room. The maintenance of this building is excellent, and it is kept in good repair.

The three window-ventilated schools, Lovell, Wooster, and Washington, are all older than those mechanically ventilated. They average 54 years, and vary from 39 to 65 years. The Lovell School, the first of the naturally ventilated group, is 39 years old. It is a 3-story brick building with wood and cement floors. The building houses 12 classrooms, 4 on each floor. Heating is completely accomplished by means of direct radiation, hand controlled, the valves being at the waist level. Ventilation is obtained by the window method, all the windows being provided with slanting window boards. Exhaust air is removed through gravity ducts, one in each room, at the floor level. These vary somewhat in size, being 24 by 30 inches, on the ground floor, 24 by 24 inches on the second floor, and 24 by 19 inches on the third floor. The building is in a good state of maintenance and repair.

The Wooster School is 65 years old. It is a 2-story brick and wood building, housing 14 classrooms. Heating is accomplished by means of direct radiation controlled by hand valves located at waist level. The radiators are placed under the windows, which are provided with slanting window boards. Ventilation is accomplished by opening and closing these windows. In this school the provision of exhaust ducts falls far short of the requirements. Each room is provided with two registers, 12 by 18 inches, which represent the remains of an old hot-air heating system. It is doubtful whether these are of much value in removing air from the rooms, for their location, as well as design, is not satisfactory for this purpose. The maintenance of this building is good.

The Washington School is a 2-story brick building with cement floors in the corridors and wooden floors in the classrooms. It houses 12 rooms, 6 on each floor. Heating is supplied by direct radiation located beneath the windows which are provided with window boards. The direct radiation is controlled by means of hand valves located at waist height. Exhaust is obtained by means of gravity ducts, terminating in registers, 12 by 18 inches, at the floor level of each room, some rooms having two such registers. They represent the remains of an old heating system, and as such they fall far short of the requirements of the satisfactory window-ventilated room.

ORGANIZATION AND CONDUCT OF THE STUDY

As in the studies previously discussed, we used as our chief criterion of the effects of the ventilating system on health the amount of res-

piratory illness among the pupils of each of the groups of schools under study.

In all there were 3,598 pupils under observation and study—2,052 in the four mechanically ventilated schools and 1,546 in the three window-ventilated buildings. The study was begun in the month of December, 1926; but, because of a preliminary period during which time the teachers became familiar with the record forms and the interruption due to the long Christmas vacation, we have not analyzed this material, but have restricted our analysis to a period of 13 weeks extending from January 3, 1927, to April 1, 1927, inclusive. During this period we have obtained satisfactory absence records from the teachers of each room of the seven schools with but one exception, that of the Dante School for the week of January 3, 1927, for which the records were lost.

The absence blank used for the reporting was provided with space for the name of the school, the number of the room, the number of children on the school register, the names of the children, the various attendance periods of the weeks, and the cause of absence. In filling out this form the teacher determined the cause of absence from the child, from the parents, and, in some cases, by notification from the family doctor. In this manner a record of all absences of one-half day or more was obtained. In addition to the data of all absences we have been able to obtain a complete set of absolutely independent data concerning absences of a duration of three days or more. The board of education of the city of New Haven requires that all school children absent for a period of three days or more before returning to school be passed upon by one of the physicians or nurses of the city board of health. The data regarding absences of three days and over, are the result of the assemblage and analysis of the returns from these doctors' and nurses' examinations. Our study, therefore, makes use of two independently collected sets of data—one of all absences and one of those absences of three or more days' duration. When the data were being analyzed we considered the respiratory illnesses to consist of colds, sore throat, and other respiratory affections, such as pneumonia, bronchitis, etc.

By means of a suitable mimeographed record form we collected data from the schools showing the number of children who while in attendance appeared to be suffering from respiratory disorders. This information was obtained by the teacher, who used her judgment solely in arriving at a diagnosis of the child's condition. It did not take very long for us to realize that these data would be of very little or no use. In the same school one would often find large discrepancies in the reported number of cases; and throughout the period of collection of this information some teachers would report very large groups, whereas others would find a very low incidence through-

out the period of collection. It appeared on mature consideration that it was hardly likely that data such as these would be of great significance, and we have accordingly refrained from using them in our study.

The information concerning the temperature of the schoolrooms consisted of the observation by the teacher, or one of the pupils, of the dry-bulb thermometer four times during the day—9.15 a. m., 11.30 a. m., 1.30 p. m., and 3 p. m. The temperatures were recorded on a mimeographed form provided for the purpose. The school thermometers were in some cases found to be in unsatisfactory condition. In order to remedy this defect we supplied 54 of the schoolrooms with new thermometers of an approved type. In order to balance up this distribution the new thermometers were supplied on a percentage basis of the number of rooms in each school. All of the new thermometers, as well as some of the old ones, were fastened to the wall at a point normally removed from the presence of drafts and at a distance from the floor level approximately midway between the sitting and standing height of the average pupil.

TEMPERATURE RECORD

School.....

Room number.....

Temperatures for week beginning.....

Time	Monday	Tuesday	Wednesday	Thursday	Friday

At the outset of the study each teacher was supplied with the necessary forms for recording absenteeism, for respiratory illness in attendance, and for the temperature observations. They were impressed with the importance of learning the true cause of absence in each case and of recording the true temperature. No instructions or suggestions were issued to the teachers, principals, or custodians of the building concerning the management of the ventilating systems or the proper temperature to be maintained in the rooms. The test was devised as a study of actual operating conditions as found in

the ordinary schools of an average American city. Every effort was made to allow the usual management to take its course, and under these conditions to observe the normal operating results and learn its bearing on the health of the pupils.

RESULTS OF THE STUDY

The reports from the seven schools were collected each week and at the close of the study were brought together and analyzed. The first analysis of the data revealed the results presented in Tables 1 and 2. These have been arranged in a form very similar to that presenting the results of the New York commission's Syracuse study, so that comparisons may easily be drawn between the two studies.

TABLE 1.—Attendance and health records in mechanically ventilated schools, New Haven, Conn., 1926-27

	Barnard	Scranton	Worth- ington Hooker	Dante	Total
A. Total pupil sessions.....	55,693	86,748	62,498	37,742	242,681
B. Total absences.....	4,221	4,943	4,252	1,643	15,059
Per cent of total pupil sessions.....	7.6	5.7	6.8	4.4	6.2
C. Absences due to respiratory illness.....	2,171	2,526	2,014	775	7,486
Per cent of total pupil sessions.....	3.9	2.9	3.2	2.1	3.1
Per cent of total absences.....	51.4	51.1	47.4	47.2	49.7
D. Pupil sessions attended.....	51,472	81,805	58,246	36,099	227,622
Per cent of total pupil sessions.....	92.4	94.3	93.2	95.6	93.8
E. Three-day and over absences due to respiratory disease ¹	2,898	2,106	2,524	1,180	8,708
Per cent of total pupil sessions.....	5.2	2.4	4.0	2.7	3.5
Per cent of total absences.....	68.7	42.6	59.4	71.8	57.8
Per cent of total 3-day absences.....	72.4	63.6	59.1	66.3	65.3
F. Mean temperature, °F.....	68.0	67.9	69.2	66.8	68.0
G. Average age of pupils.....	7.7	7.9	9.8	8.2	8.3
H. Per cent of pupils of American parents.....	43.2	9.1	70.8	.5	29.9
I. Number of pupils in school.....	477	733	479	363	2,052
J. Percentage which male pupils are of total.....	49	53	50	53	51.5

¹ 3-day and over absences include all those of a duration of 3 days or more. In the case of absences starting on Friday and terminating on Tuesday, the absence includes Saturday and Sunday. This appears to explain higher rates for the 3-day and longer absences than for respiratory absences of all durations.

TABLE 2.—Attendance and health records in window-ventilated schools, New Haven, Conn., 1926-27

	Lovell	Wooster	Wash- ington	Total
A. Total pupil sessions.....	69,382	62,168	55,317	186,867
B. Total absences.....	2,673	1,987	2,621	7,281
Per cent of total pupil sessions.....	3.9	3.2	4.7	3.9
C. Absences due to respiratory illness.....	1,400	865	1,143	3,408
Per cent of total pupil sessions.....	2.0	1.4	2.1	1.8
Per cent of total absences.....	52.4	43.5	43.6	46.8
D. Pupil sessions attended.....	66,709	60,181	52,696	179,586
Per cent of total pupil sessions.....	96.2	96.8	95.3	96.1
E. Three-day and over absences due to respiratory disease.....	700	452	1,094	2,246
Per cent of total pupil sessions.....	1.0	0.7	2.0	1.2
Per cent of total absences.....	26.2	22.8	41.7	30.8
Per cent of total 3-day absences.....	44.4	43.1	75.7	55.2
F. Mean temperature °F.....	68.7	68.0	67.7	68.1
G. Average age of pupils.....	10.2	7.9	7.6	8.6
H. Per cent of pupils of American parents.....	35.3	1.3	7.1	15.0
I. Number of pupils in school.....	542	526	478	1,546
J. Percentage which male pupils are of total.....	50	51	53	51

It will be observed that the group of fan-ventilated schools was composed of 2,052 pupils, with a total of 242,681 pupil sessions, while the three window-ventilated schools had a total of 1,546 pupils and 186,867 pupil sessions.

It was pointed out earlier that the validity of a study of this type depends largely upon the true comparability of the two groups of school children under study. It requires little consideration to be convinced that the population of the two groups (school children of fan and window ventilated schools) should be composed of children of the same race stock and age distribution. This conclusion was reached by the New York Commission on Ventilation in the study of the school ventilation in Syracuse, to which reference has been made previously. The differences in numbers of pupil sessions are not of real significance, for in the making of rates they do not affect the end results. There are, however, important and significant differences in nationality and age distribution between the two groups in Tables 1 and 2. The percentage of pupils of American parentage in the mechanically ventilated group of schools is 29.9, while the window-ventilated group has but 15 per cent of such pupils. The nationality of the pupils probably has an important bearing on the absence rate. It seems fair to believe that there may exist certain racial differences in regard to attendance at school, particularly in the case of the younger school child. The native American family, with its generally higher economic status, may not permit the return of the child to school as soon after an illness as does the family of foreign extraction.

The age of the pupils apparently has a very important influence on the absence rate. The younger children have higher absence rates than the older ones. This is clearly shown by the data collected in the present study. In the accompanying table are presented the absence rates in per cent of total pupil sessions for each of the grades of each school.

Average total absenteeism (absence rates in per cent of total pupil sessions) by grades, New Haven, Conn.

MECHANICALLY VENTILATED SCHOOLS

School	Kinder- garten	1	2	3	4	5	6	7	8	Special	School average
Barnard.....	10.4	8.6	10.0	9.4	4.7	5.5	4.9				7.6
Seranton.....	10.6	8.3	5.8	5.4	4.0	4.6	3.7				5.7
Worthington Hooker.....		12.7	7.1	6.8	5.6	8.5	3.7	6.9	4.9		6.8
Dante.....	6.4	5.1	3.4	5.3	3.6	3.2				4.6	4.4
Grade average.....	9.4	8.6	7.0	6.6	4.7	5.6	4.1	6.9	4.9	4.6	6.2

NATURALLY VENTILATED SCHOOLS

School	Kinder- garten	1	2	3	4	5	6	7	8	School average
Lovell.....		6.0	5.7	2.1	2.6	3.4	2.8	3.7	3.6	3.9
Wooster.....	5.5	3.0	3.4	2.4	3.6	2.6				3.2
Washington.....	8.7	3.6	4.0	5.1	5.2	3.2	2.2			4.7
Grade average.....	7.3	4.1	4.0	3.5	4.1	3.0	2.5	3.7	3.6	3.9

It will be observed that the absence rate is higher among the younger children of the lower grades than among the older children of the higher grades.

In order to make the two groups of schools strictly comparable we have been required to alter the composition of the groups in some manner so as to equalize the average percentage of pupils of American parentage, at the same time keeping the average age of the pupils approximately the same. By omitting the Worthington Hooker School (mechanically ventilated) with its relatively high percentage of pupils of American parentage (70.8) this has been accomplished. It is to be recalled that this school is ventilated by means of the univent system, and its omission will therefore make the schools of the mechanical group more nearly comparable. The revised mechanically ventilated group is presented in Table 3. The average percentage of pupils of American parentage in the mechanically ventilated group is reduced to 17.5, as compared with 15.0 per cent for the naturally ventilated group. This procedure certainly brings the two groups together so that they may be regarded as comparable on this point. With respect to age distribution the two groups are comparable also, the difference in the average age being about 0.7 years. The two groups of schools are comparable in the sex distribution of pupils. From Table 4 it will be observed that the mechanically ventilated group showed six-tenths per cent more male pupils than did the naturally ventilated group of schools.

TABLE 3.—Attendance and health records in three mechanically ventilated schools, New Haven, Conn., 1926-27

	Barnard	Scranton	Dante	Total
A. Total pupil sessions.....	55,693	86,748	37,742	180,183
B. Total absences.....	4,221	4,943	1,643	10,807
Per cent of total pupil sessions.....	7.6	5.7	4.4	6.0
C. Absences due to respiratory illness.....	2,171	2,526	775	5,472
Per cent of total pupil sessions.....	3.9	2.9	2.1	3.0
Per cent of total absences.....	51.4	51.1	47.2	50.6
D. Pupil sessions attended.....	51,472	81,805	36,099	169,376
Per cent of total pupil sessions.....	92.4	94.3	95.6	94.0
E. Three-day and over absences due to respiratory disease.....	2,898	2,106	1,180	6,184
Per cent of total pupil sessions.....	5.2	2.4	2.7	3.3
Per cent of total absences.....	68.7	42.6	71.8	57.2
Per cent of total 3-day absences.....	72.4	63.6	66.3	68.0
F. Mean temperature, ° F.....	68.0	67.9	66.8	67.6
G. Average age of pupils.....	7.7	7.9	8.2	7.9
H. Per cent of pupils of American parents.....	43.2	9.1	0.5	17.5
I. Number of pupils in school.....	477	733	363	1,573
J. Percentage which male pupils are of total.....	49	53	53	51.6

From the point of view of the total number of pupils under observation the two groups are very similar, the mechanically ventilated school group having 1,573 pupils and the naturally ventilated group 1,546 pupils.

Our study now resolves itself into the comparison of these two groups of schools and the illness rates obtained in them. In Table 4 are presented the summary data for the two groups of schools.

TABLE 4.—*Summary of attendance and health records according to type of ventilation, New Haven schools, 1926-27*

	Mechanically ventilated schools	Naturally ventilated schools	Excess in mechanically ventilated schools
			<i>Per cent</i>
A. Total pupil sessions.....	180, 183	186, 867	-----
B. Total absences.....	10, 807	7, 281	-----
Per cent of total pupil sessions.....	6.0	3.9	54
C. Absences due to respiratory illness.....	5, 472	3, 408	-----
Per cent of total pupil sessions.....	3.0	1.8	67
Per cent of total absences.....	50.6	46.8	-----
D. Pupil sessions attended.....	169, 376	179, 586	-----
Per cent of total pupil sessions.....	94.0	96.1	-----
E. Three-day and over absences due to respiratory disease.....	6, 184	2, 246	-----
Per cent of total pupil sessions.....	3.3	1.2	175
Per cent of total absences.....	57.2	30.8	-----
Per cent of total 3-day absences.....	68.0	55.2	23
F. Mean temperature, °F.....	67.6	68.1	-----
G. Average age of pupils.....	7.9	8.6	-----
H. Per cent of pupils of American parents.....	17.5	15.0	-----
I. Number of pupils in school.....	1, 573	1, 546	-----
J. Percentage which male pupils are of total.....	51.6	51.0	-----

On examination of the table the results of our study become evident. The three schools provided with mechanical ventilation and automatic temperature control have an average rate of total absence of 6.0 per cent of pupil sessions as compared with 3.9 per cent of pupil sessions for the naturally ventilated group. The respiratory illness absenteeism rate for all respiratory illnesses (one-half day or more) is 3.0 per cent of pupil sessions in the mechanically ventilated group and 1.8 per cent in the naturally ventilated group. If, instead of the total respiratory illness we consider those respiratory illnesses causing absences of three or more days—that is, the data which have been independently collected—the results are still more striking. Here we find the mechanically ventilated group to have a respiratory illness absenteeism rate of 3.3 per cent of pupil sessions, while in the naturally ventilated group of schools the rate is 1.2 per cent of pupil sessions.

The actual number of absences due to respiratory illness of three or more days' duration may be of some interest at this point. Following is the distribution of these absences in both types of schools:

Number of absences due to respiratory illness of three days' or more duration in three mechanically ventilated and three window-ventilated schools in New Haven, Conn., 1926-27

MECHANICALLY VENTILATED

Bernard	Scranton	Dante	Total
165	115	79	359

WINDOW VENTILATED

Lovell	Wooster	Washington	Total
42	37	74	133

It is to be pointed out that the Worthington Hooker School has a comparatively high absence rate due to respiratory illness—a rate higher than that of any of the window-ventilated schools and second to but one of the mechanically ventilated schools. If we were to maintain this school in the group for comparison our data would be still more striking.

All of our data then, including, if we will, the Worthington Hooker School, or the reduced group for mechanically ventilated schools, using total respiratory illness absenteeism, or, finally, the reduced group using the data on respiratory illness absenteeism of three or more days, agree in indicating that the mechanically ventilated group of schools has a higher incidence of respiratory illness absenteeism than the naturally ventilated group.

The observed differences in these two groups of schools can not be ascribed to differences in age distribution; for in the same grades (and, hence, about the same ages) the respiratory disease rate is higher in the mechanically ventilated schools than in the naturally ventilated ones, as shown by Table 5.

TABLE 5.—*Respiratory illness absenteeism by grades, New Haven (Conn.) schools, 1926-27*

MECHANICALLY VENTILATED SCHOOLS

School	Kinder- garten	1	2	3	4	5	6	7	Special	School average
Barnard.....	2.9	4.9	6.1	3.8	2.3	4.0	2.4	-----	-----	3.9
Scranton.....	6.9	3.5	3.1	2.3	1.9	2.5	1.7	-----	-----	2.9
Dante.....	3.9	2.9	10.6	2.6	2.0	.9	-----	-----	2.2	2.1
Grade average.....	5.0	3.8	3.8	2.8	2.1	2.3	2.0	-----	2.2	3.0

NATURALLY VENTILATED SCHOOLS

School	Kinder- garten	1	2	3	4	5	6	7	8	School average
Lovell.....	-----	2.7	3.7	1.3	1.2	1.4	1.6	1.8	2.2	2.0
Wooster.....	2.6	1.9	1.1	1.2	1.9	.2	-----	-----	-----	1.4
Washington.....	4.7	.8	1.8	2.1	2.2	1.6	.9	-----	-----	2.1
Grade average.....	3.7	2.0	1.8	1.6	1.9	.9	1.3	1.8	2.2	1.8

It will be observed that the mechanically ventilated schools have higher rates of illness in all grades than the naturally ventilated schools in the corresponding grades. This comparison involves the assumption that the ages are about equal in each grade of the various schools, and there is little question that such an assumption is valid.

The respiratory illness absenteeism in the two groups may be examined from still another viewpoint. In Table 6 is presented the analysis of the 3-day or more absences in both groups of schools for all causes and for respiratory illness.

TABLE 6.—Absences of three days or longer for all causes and for respiratory illness, New Haven (Conn.) schools, 1926-27

MECHANICALLY VENTILATED SCHOOLS

School	All causes	Respiratory illness		Other illness	
		Number	Per cent	Number	Per cent
Barnard.....	4,002	2,898	72.4	1,104	27.6
Scranton.....	3,310	2,106	63.6	1,204	36.4
Dante.....	1,780	1,180	66.3	600	33.7
Total.....	9,092	6,184	68.0	2,908	32.0

NATURALLY VENTILATED SCHOOLS

Lovell.....	1,578	700	44.4	878	55.6
Wooster.....	1,048	452	43.1	596	56.9
Washington.....	1,446	1,094	75.7	352	24.3
Total.....	4,072	2,246	55.2	1,826	44.8

It becomes obvious from these statistics that the gross number of absences in the mechanically ventilated group is greatly in excess of the absences in the naturally ventilated group; and, in addition to this larger number of absences, the respiratory illnesses account for a greater proportion of absences in the former group. Sixty-eight per cent of the absences in the mechanically ventilated group are respiratory by cause, as compared with 55.2 per cent in the naturally ventilated group.

It may be of interest to analyze our results on a basis of absences in per cent of pupil sessions and by cause in an effort to obtain the full meaning of the statistics collected. Accordingly, there has been computed the absences of three days and longer on this basis, and the results are presented in Table 7.

TABLE 7.—Absences of three days or longer, in number and per cent of pupil sessions, by cause, New Haven (Conn.) schools, 1926-27

Type of ventilation	All causes		Respiratory illness		Other illness		Other causes	
	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent
Mechanical ¹	9,092	5.04	6,184	3.43	2,404	1.33	504	0.28
Natural ²	4,072	2.18	2,246	1.20	1,712	0.92	114	0.06
Excess of mechanical over natural....	5,020	2.86	3,938	2.23	692	0.41	390	0.22

¹ Number of pupil sessions, 180,183.² Number of pupil sessions, 186,867.

From Table 7 it becomes obvious that there is an excess in the rate of absences due to respiratory illness in the mechanically ventilated group of schools over that in the naturally ventilated group of schools of 2.23 per hundred pupil sessions; whereas the rate for other illness showed an excess of but 0.41 per hundred pupil

sessions, and other causes of absence an excess of but 0.22 per hundred pupil sessions. It will be noted that in the mechanically ventilated schools the rate was practically three times that in the naturally ventilated schools. So far as we are aware there is no reason why the mechanically ventilated school should show an excess of absence from other causes over that of the naturally ventilated schools. The excess is slight in the case at hand. To some extent this is also true of the absences from other diseases, the actual numbers in this case being 2,404 as compared with 1,712.

From our data one is justified in saying that there exists a real difference in the respiratory illness absenteeism rates in the two groups of schools under study, and that the naturally ventilated school is apparently the favored group with the lower rates. Both groups of our data—for absences of one-half day or more and for three days or more—agree in pointing out this as a logical conclusion.

The analysis of temperature data collected during the present study has been designed to yield an average temperature for each school for the period of the whole study. In the mechanically ventilated group the resulting average temperature is 67.6° F., the three schools having weighted average temperatures lying between 66.8° and 68.0°. The naturally ventilated group, on the other hand, had temperatures lying between 67.7° and 68.7° and averaging 68.1°. The mean weighted temperatures of the two groups differ only by 0.5°, the naturally ventilated group having the higher temperatures. This finding is not in accord with the first study of the New York State Commission on Ventilation, in which the mechanically ventilated schools were found to have higher temperatures than the naturally ventilated ones. The Worthington Hooker school, ventilated by the univent system, yielded a higher average temperature than any of the other schools, the average temperature being 69.2°. It is to be noted that the use of average temperatures, even if they are weighted, is open to some criticism. The lower temperatures obtained at certain times serves to keep the general average down, but at the same time the absence due to respiratory illness may not be reduced proportionately, due to the existence of these lower temperatures in the schoolrooms. If, for example, we were to agree that a certain temperature was the optimum one, then the existence of temperatures below this level would not be attended with a lower absence rate due to respiratory illness; but, at the same time, this low temperature would serve to reduce the average temperature of the group of schools under consideration. It appears fair to argue from this that the interpretation of average temperatures should be attempted with caution and reservations.

As a further check on the reliability of average temperatures as a basis of comparison between the two groups of schools an analysis

was made of typical monthly temperature records. This analysis showed the schools to have had approximately the same temperature classes throughout this period. It was pointed out earlier that no instructions with reference to the operation of the ventilating systems were issued to any of the school officials. It is to be noted, however, that most of the school-teachers in the larger American cities understand the most desirable room temperature to be between 65° and 70°.

Passing from average temperatures of the groups of schools to the individual schools composing these groups it is found that the temperatures are very nearly alike. For the three mechanically ventilated schools they are 66.8°, 67.9°, and 68.0°; for the three naturally ventilated schools they are 67.7°, 68.0°, and 68.7°. The striking fact about the results is that for the same temperature range—a range in fact slightly higher for the window ventilated than the mechanically ventilated group—the respiratory illness in the fan group is higher on the basis both of all respiratory illness absenteeism and the respiratory illness absenteeism causing absences of three days or over. The facts are summarized in Table 8.

TABLE 8.—*Respiratory illness rates by temperature range, New Haven (Conn.) schools, 1926-27*

Mechanically ventilated group			Naturally ventilated group		
Temperature	Respiratory illness absenteeism		Temperature	Respiratory illness absenteeism	
	All	3 days or more		All	3 days or more
68.0.....	3.9	5.2	68.7.....	2.0	1.0
67.9.....	2.9	2.4	68.0.....	1.4	0.7
66.8.....	2.1	2.7	67.7.....	2.1	2.0

It would appear from these data that the small differences in average room temperature which serves to characterize the difference in conditions maintained by the two systems is not responsible for the marked difference in respiratory disease rates in the schools. The lowest average temperature for the whole period maintained in any of the mechanically ventilated schools was 66.8, and this was found to be associated with a respiratory illness absence rate of 2.1 or 2.7, depending on which of the respiratory illness absence rates one is considering. These figures are greater than the absence rates found in the hottest of the naturally ventilated school rooms (2.0 or 1.0). The two groups of schools, from the temperature viewpoint, are very similar; but from the respiratory illness absentee rate they appear to be on a different plane, the mechanically ventilated schools being clearly associated with a much higher rate than the naturally ven-

tilated schools. The factor of temperature between 66.8° and 68.7° does not appear to play an important rôle in the causation of absence due to respiratory illness. There appears to be something, not temperature, inherently a part of fan ventilation which is responsible for the marked excess of illness observed when this system is in use, if the observations of the present study are correct.

The fallacy of the use of average temperatures was pointed out earlier in this paper. This same criticism applies to the use of the average temperature for each school room and each school building itself. We have discussed these data from the point of view of average temperatures, because our data for the greater part show no significant temperature variations. All of the average temperatures lie below 70° , and, similarly, most of our individual temperature records are below this level.

CONCLUSION

In the present study a comparison is drawn between two groups of schools, one group ventilated by mechanical means and the other by the natural open window method. The groups are very nearly equal in size, the mechanically ventilated group having 1,573 pupils and the window-ventilated group 1,546 pupils. The two groups are highly comparable in composition, the first having 17.5 per cent of pupils of American parentage and the second 15.0 per cent of such pupils; the average age of the pupils of the first group is 7.9 years, and of the second 8.6 years. The sex distribution of pupils is practically the same in both groups of schools. The weighted mean temperature of the rooms of the schools throughout the course of the study was found to be very nearly the same for both groups, being 67.8° F. for the mechanically ventilated group and 68.1° for the naturally ventilated group. The total respiratory illness absenteeism findings of the study show the rate for such absences in the mechanically ventilated group to be 3.0 per cent of pupil sessions and for the naturally ventilated group to be 1.8. If, instead of total respiratory illness, we use independently collected data concerning only those illnesses causing an absence of three days or more the study disclosed a respiratory illness rate of 3.3 per cent of pupil sessions in the mechanically ventilated group of schools, as compared with 1.2 per cent for the naturally ventilated group. It is important to note that the respiratory illness absences of a duration of three days or more in the mechanically ventilated group of schools was in excess of that found in the naturally ventilated group in all cases, and that the same was true for respiratory illness absenteeism for a duration of one-half day and more, with but one exception. In this case, the Dante School (mechanically ventilated) had a rate of 4.4 while the Washington School (window ventilated) had a rate of 4.7 per cent. And, lastly, it might well be pointed out that the actual numbers of absences

of a duration of three days or more amounted to 359 in the mechanically ventilated group as compared with 133 in the window-ventilated group. From these data it appears reasonable to conclude that the atmospheric conditions produced by the systems of mechanical ventilation in use at the time of the study were associated with higher respiratory illness absence rates. These studies, however, should certainly not be interpreted as condemning all mechanical systems of air conditioning.

It is not possible to state with which element or elements of the atmospheric conditions lies the responsibility for these observed differences in absenteeism. Our investigations concerning temperature conditions indicate the weighted mean temperature of the two groups of schools to be very nearly alike. More detailed investigations of temperature may be of value. Certainly in the problem of school ventilation the elements of humidity and air motion require further detailed study, which, unfortunately, this investigation could not supply.

The present study confirms the findings of the New York State Commission on Ventilation of 1916-17, except in so far as these studies bear on the importance of very slight degrees of overheating. Likewise, the present studies confirm those of the New York Commission on Ventilation made in Syracuse, N. Y., in 1927. In closing, it may be well to quote a statement from the report of the New York State Commission on Ventilation, with which the writer is in accord:

"Because window ventilation is practicable for the ordinary schoolroom it does not follow of course that the assembly room, the theater, and other places seating, in certain cases, many people can also be dealt with in this manner. Each type of inclosure must be handled as a distinct problem. Natural ventilation has its limitations. That the schoolroom is not beyond these limitations is indicated by this study."

ACKNOWLEDGMENTS

The writer takes this opportunity to express his thanks to Mr. F. H. Beede, superintendent of schools, New Haven, Conn., with whose permission the study was made; to Mr. J. D. Maloney, superintendent of school buildings, who aided in the selection of suitable buildings; to Dr. C.-E. A. Winslow, professor of public health, Yale Medical School, for most valuable and cordial assistance throughout the investigation, as well as for the use of thermometers and facilities of the Yale Medical School; to Dr. J. L. Rice, health officer of New Haven, for his cooperation and efforts in supplying data on school absence; and to Mr. C. C. Wilson, student in the Yale Medical School, for the use of material he had collected in a general study of school absences.

COURT DECISION RELATING TO PUBLIC HEALTH

Provisions of ordinance relative to sale of meat passed on.—(Washington Supreme Court; *Brown v. City of Seattle et al.*, 272 P. 517; decided December 10, 1928.) An ordinance of the city of Seattle contained the following provisions:

SEC. 17. It shall be unlawful for any person to sell meat intended for human consumption within the city without first obtaining a permit so to do from the commissioner of health. Any person desiring such a permit shall first make written application therefor to the commissioner of health, setting forth therein the name of such person and the location, by street and number, of the shop or plant where such person desires to sell such meat. The commissioner of health shall thereupon cause such shop or plant, with all the fixtures and appliances connected therewith, or to be used therein, to be carefully inspected, and if said shop or plant fully complies with the rules and regulations as prescribed by ordinances of the city of Seattle relating to health and sanitation, the said commissioner of health shall, if he be satisfied that the applicant be responsible and trustworthy, issue to said applicant, free of charge, a numbered permit in accordance therewith.

SEC. 21. It shall be unlawful for any person within the city to sell any meat, poultry, or game, intended for human consumption therein, from any shop, or for any shop to keep open for business, or to permit any shop to keep open for business, or to receive at any shop, any such meat, poultry, or game, or for any restaurant to receive any such meat, poultry, or game on any day except between the hours of 7 o'clock a. m. and 6 o'clock p. m.

The plaintiff, who conducted a retail meat business, instituted an action against the city and others, alleging that a considerable portion of his trade consisted of sales made after 6 o'clock in the afternoon, and that defendants were threatening to enforce against him the provisions of the ordinance referred to and to close his shop if he kept it open after the time mentioned. The plaintiff contended that section 17 was void because it attempted to vest in the health commissioner authority arbitrarily to determine the persons entitled to receive a permit. Section 21, he also contended, was unreasonable, arbitrary, and void. He prayed that the defendants be enjoined from using the provisions of section 21 as the basis for proceedings against him.

The supreme court decided that section 17 of the ordinance was valid, but held void that portion of section 21 which provided for the closing of shops at 6 o'clock p. m. each day. The opinion, in part, read as follows:

Respondent contends that the portion of section 17, *supra*, to the effect that the commissioner of health of defendant city shall, if he be satisfied that the applicant for a permit to sell meat "be responsible and trustworthy," issue a permit, is unconstitutional and void, for the reason that it purports to delegate to the commissioner of health the right to determine the responsibility and trustworthiness of each applicant without fixing any standard by which these qualities may be determined, and that therefore the matter is left to the arbitrary judgment of the commissioner.

In support of the validity of section 17, appellants cite the opinion of this court in the case of *Town of Sumner v. Ward*, 126 Wash. 75, 217, p. 502, in which

an ordinance providing for and regulating the issuance of peddling licenses was upheld. The ordinance in question in that case provided that "the town clerk shall, unless he has good reason to believe such applicant to be dishonest or immoral and that he desires such license to enable him to practice some dishonest or immoral act, issue to said applicant a license." The court held that the ordinance could be sustained on the ground that it was a revenue measure, but goes on to discuss the provision above referred to, and holds the same valid, as it does not purport to grant to the town clerk arbitrary power to grant or refuse the license in his discretion, but, on the contrary, binds him to grant the license to every applicant unless he finds him disqualified for the reasons stated in the ordinance. It was further held that the discretion vested in the town clerk was of a judicial nature and subject to review in the courts for any arbitrary exercise thereof.

While it is true that the ordinance considered in the last-mentioned case provided that the town clerk shall issue the desired license "unless," while section 17 of the ordinance now before us provides that the commissioner shall issue the license "if," we do not think that the ordinances are essentially different in their structure or intent. In each instance the officer of the municipality is called upon to exercise a discretion of a judicial nature, and his failure to act or his affirmative acts may be reviewed in the courts in case he refuses to exercise his discretion or exercises the same arbitrarily.

We are of the opinion that section 17 of the ordinance which is the subject matter of this action is valid.

* * * * *

A more serious and difficult question is presented by the portion of section 21, supra, which provides for the closing of shops for the sale of meat at 6 o'clock on the afternoon of each day, which section the superior court also held unconstitutional and void.

* * * * *

Does the provision of section 21 of the ordinance in question, in so far as it provides for the closing to the public of butcher shops at 6 o'clock p. m. of each day, reasonably tend to the carrying out of the purpose of the ordinance, to wit, to prevent the sale of uninspected or unwholesome meat to the public at large?

* * * * *

A careful consideration of the ordinance in question, and an application thereto of the principles which we have discussed, convinces us that the provision of section 21 thereof, which purports to make it unlawful for any shop conducted for the sale of meat and meat products to keep open for business after 6 o'clock in the afternoon, does not in any practical manner tend to prevent the sale to the public at large of unwholesome meat products, is, under existing circumstances, an unreasonable interference with the rights of the plaintiff in this action, and is consequently unconstitutional and void.

We do not, in holding section 21, supra, unconstitutional, adopt the doctrine that a municipality has no authority whatever to control by ordinance the hours during which a shop for the sale of meat products may remain open. As to whether or not an ordinance providing that shops close at some hour appreciably later than 6 o'clock in the afternoon should be held constitutional, we express no opinion.

* * * * *

DEATHS DURING WEEK ENDED JANUARY 26, 1929

Summary of information received by telegraph from industrial insurance companies for the week ended January 26, 1929, and corresponding week of 1928. (From the Weekly Health Index, January 30, 1929, issued by the Bureau of the Census, Department of Commerce)

	Week ended Jan. 26, 1929	Corresponding week, 1928
Policies in force.....	72, 783, 842	70, 112, 682
Number of death claims.....	21, 310	14, 662
Death claims per 1,000 policies in force, annual rate.....	15. 3	10. 9

Deaths from all causes in certain large cities of the United States during the week ended January 26, 1929, infant mortality, annual death rate, and comparison with corresponding week of 1928. (From the Weekly Health Index, January 30, 1929, issued by the Bureau of the Census, Department of Commerce)

City	Week ended Jan. 26, 1929		Annual death rate per 1,000 corre- sponding week, 1928	Deaths under 1 year		Infant mor- tality rate week ended Jan. 26, 1929 ¹
	Total deaths	Death rate ¹		Week ended Jan. 26, 1929	Corre- sponding week, 1928	
Total (65 cities).....	10, 143	17. 9	13. 0	962	717	' 83
Akron.....	59			6	2	62
Albany ⁴	64	27. 8	16. 5	6	0	119
Atlanta.....	101	20. 7	13. 7	11	5	114
White.....	55			5	3	
Colored.....	46	(°)	(°)	6	2	
Baltimore ⁴	343	21. 6	14. 9	14	24	45
White.....	276			9	20	36
Colored.....	67	(°)	(°)	5	4	79
Birmingham.....	98	23. 0	15. 0	13	2	118
White.....	54			8	0	120
Colored.....	44	(°)	(°)	5	2	115
Boston.....	304	25. 8	13. 7	32	21	89
Bridgeport.....	74			7	2	121
Buffalo.....	234	22. 0	14. 8	19	22	82
Cambridge.....	45	18. 7	10. 8	7	3	126
Camden.....	30	15. 1	10. 4	7	2	121
Canon.....	33	14. 8	8. 5	5	2	119
Chicago ⁴	795	13. 2	11. 9	89	45	79
Cincinnati.....	213			20	14	117
Cleveland.....	243	12. 6	12. 0	26	18	77
Columbus.....	98	17. 1	13. 1	5	6	47
Dallas.....	70	16. 8	13. 2	9	7	
White.....	51			8	7	
Colored.....	19	(°)	(°)	1	0	
Dayton.....	63	17. 9	9. 1	2	2	32
Denver.....	84	14. 0	18. 1	7	13	68
Des Moines.....	33	11. 4	11. 0	3	3	54
Detroit.....	370	14. 0	11. 3	51	46	82
Duluth.....	15	6. 7	6. 7	0	1	0
El Paso.....	47	20. 9	12. 4	7	2	
Erie.....	40			2	1	41
Fall River ⁴	71	27. 6	10. 1	11	1	207
Flint.....	27	9. 5	9. 1	4	4	49
Fort Worth.....	67	20. 5	10. 4	7	6	
White.....	51			6	5	
Colored.....	16	(°)	(°)	1	1	
Grand Rapids.....	28	8. 9	5. 7	2	0	30
Houston.....	92			8	5	
White.....	62			4	2	
Colored.....	30	(°)	(°)	4	3	
Indianapolis.....	110	15. 1	14. 5	5	10	40
White.....	96			5	7	46
Colored.....	14	(°)	(°)	0	3	0
Jersey City.....	119	19. 2	13. 2	11	9	85
Kansas City, Kans.....	34	15. 0	11. 5	4	4	88
White.....	24			4	3	101
Colored.....	10	(°)	(°)	0	1	0
Kansas City, Mo.....	123	16. 4	13. 5	9	5	76

(See footnotes at end of table)

Deaths from all causes in certain large cities of the United States during the week ended January 26, 1929, infant mortality, annual death rate, and comparison with corresponding week of 1928—Continued

City	Week ended Jan. 26, 1929		Annual death rate per 1,000 corresponding week, 1928	Deaths under 1 year		Infant mortality rate week ended Jan. 26, 1929 ²
	Total deaths	Death rate ¹		Week ended Jan. 26, 1929	Corresponding week, 1928	
Knoxville	43	21.3	10.9	6	3	131
White	26			4	3	98
Colored	17	(³)	(³)	2	0	422
Los Angeles	292			17	29	50
Louisville	176	27.9	11.1	9	2	73
White	140			7	2	65
Colored	36	(³)	(³)	2	0	126
Lowell	32			2	2	45
Lynn	31	15.4	10.9	2	1	55
Memphis	113	31.1	16.2	17	10	200
White	56			9	5	170
Colored	57	(³)	(³)	8	5	250
Milwaukee	152	14.6	9.8	19	11	83
Minneapolis	124	14.2	9.6	14	6	87
Nashville	76	28.5	19.1	7	7	113
White	47			4	6	87
Colored	29	(³)	(³)	3	1	189
New Bedford	60			4	5	86
New Haven	54	15.0	10.9	3	2	46
New Orleans	169	20.6	21.4	5	16	25
White	92			2	9	14
Colored	77	(³)	(³)	3	7	50
New York	2,372	20.6	13.2	224	194	92
Bronx borough	332	18.2	10.8	19	18	56
Brooklyn borough	837	19.0	11.5	88	70	89
Manhattan borough	900	26.9	18.4	90	73	110
Queens borough	237	14.5	9.7	22	28	90
Richmond borough	66	22.9	15.3	5	5	91
Newark, N. J.	167	18.4	9.8	17	8	90
Oklahoma City	55			5	0	100
Omaha	65	15.3	11.3	9	2	105
Paterson	58	20.9	14.1	1	2	18
Philadelphia	650	16.5	13.3	67	48	95
Pittsburgh	252	19.6	16.1	23	34	79
Portland, Oreg.	101			4	7	46
Providence	123	22.5	12.1	10	10	88
Richmond	58	15.6	15.9	4	9	56
White	38			2	5	42
Colored	20	(³)	(³)	2	4	82
Rochester	130	20.7	14.3	16	13	136
St. Louis	329	20.3	15.1	30	8	101
St. Paul	64			4	4	41
Salt Lake City ⁴	38	14.4	11.4	5	1	77
San Antonio	80	19.2	16.8	10	15	70
San Diego	58	25.3	20.1	4	1	77
San Francisco	198	17.7	16.3	11	4	70
Schenectady	48	26.9	10.1	2	0	64
Seattle	85	11.6	9.6	3	2	32
Somerville	33	16.8	11.2	3	4	108
Spokane	30	14.4	15.8	2	3	52
Springfield, Mass.	56	19.5	12.9	5	5	83
Syracuse	68	17.8	12.3	7	5	84
Tacoma	30	14.2	12.8	1	0	26
Toledo	89	14.9	10.9	9	4	84
Trenton	59	22.2	12.4	7	2	127
Utica	32	16.1	15.1	2	2	51
Washington, D. C.	201	19.0	13.9	20	9	117
White	133			7	5	59
Colored	68	(³)	(³)	13	4	246
Waterbury	13			0	6	0
Wilmington, Del.	31	12.6	13.0	3	0	78
Worcester	47	12.4	13.8	12	4	151
Yonkers	32	13.8	8.6	5	2	117
Youngstown	38	11.4	9.6	2	5	29

¹ Annual rate per 1,000 population.

² Deaths under 1 year per 1,000 births. Cities left blank are not in the registration area for births.

³ Data for 72 cities.

⁴ Deaths for week ended Friday.

⁵ In the cities for which deaths are shown by color, the colored population in 1920 constituted the following percentages of the total population: Atlanta, 31; Baltimore, 15; Birmingham, 30; Dallas, 15; Fort Worth, 14; Houston, 25; Indianapolis, 11; Kansas City, Kans., 14; Knoxville, 15; Louisville, 17; Memphis, 38; Nashville, 30; New Orleans, 26; Richmond, 32; and Washington, D. C., 25.

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary and the figures are subject to change when later returns are received by the State health officers

Reports for Weeks Ended January 26, 1929, and January 28, 1928

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended January 26, 1929, and January 28, 1928

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Jan. 26, 1929	Week ended Jan. 28, 1928	Week ended Jan. 26, 1929	Week ended Jan. 28, 1928	Week ended Jan. 26, 1929	Week ended Jan. 28, 1928	Week ended Jan. 26, 1929	Week ended Jan. 28, 1928
New England States:								
Maine.....	7	3	1,256	4	224	75	0	0
New Hampshire.....		3	74	17	38	68	0	0
Vermont.....	1	1	53			24	0	0
Massachusetts.....	109	115	2,110	11	630	1,319	2	3
Rhode Island.....	14	16	595	11	43	1	1	0
Connecticut.....	35	46	3,319	7	324	164	2	0
Middle Atlantic States:								
New York.....	221	436	1,929	133	735	1,081	34	8
New Jersey.....	137	185	890	13	184	269	8	1
Pennsylvania.....	176	232			1,265	822	5	2
East North Central States:								
Ohio.....	50	221	486	16	395	291	3	5
Indiana.....	33	45	178	22	185	132	0	0
Illinois.....	130	178	418	21	407	61	11	5
Michigan.....	85	77	858	5	186	404	15	6
Wisconsin.....	11	42	2,407	86	217	48	7	5
West North Central States:								
Minnesota.....	37	27	65	3	176	3	1	4
Iowa.....	12	32				86	6	1
Missouri.....	43	48	942	9	135	57	14	3
North Dakota.....	9	6	39		31	26	9	1
South Dakota.....	2	4	2	2	64	15	1	0
Nebraska.....	14	19	31	17	23	6	0	0
Kansas.....	9	33	293	5	72	21	7	1
South Atlantic States:								
Delaware.....		7	27	1	31	10	0	0
Maryland.....	31	30	3,391	47	82	365	1	0
District of Columbia.....	14	34	171	9	2	20	0	0
West Virginia.....	20	26	5,372	22	97	79	2	1
North Carolina.....	25	53			43	4,056	1	1
South Carolina.....	20	27	2,157	1,083	4	1,126	0	0
Georgia.....	12	14	1,446	231	40	251	2	1
Florida.....	14	14	593	20	4	13	0	1
East South Central States:								
Kentucky.....		15	575	21	51	141	0	0
Tennessee.....	9	17	2,877	147	4	495	1	1
Alabama.....	78	47	11,508	275	104	332	0	3
Mississippi.....	9	25	1,482					

¹ New York City only.

² Week ended Friday.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended January 26, 1929, and January 28, 1928—Continued

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Jan. 26, 1929	Week ended Jan. 28, 1928	Week ended Jan. 26, 1929	Week ended Jan. 28, 1928	Week ended Jan. 26, 1929	Week ended Jan. 28, 1928	Week ended Jan. 26, 1929	Week ended Jan. 28, 1928
West South Central States:								
Arkansas.....	7	15	1,572	144	30	254	9	0
Louisiana.....	21	27	2,631	65	28	83	8	1
Oklahoma ¹	26	49	2,585	194	7	111	17	1
Texas.....	42	39	1,467	127	145	21	3	0
Mountain States:								
Montana.....	2	9	104	-----	139	-----	8	5
Idaho.....	5	-----	-----	-----	10	-----	0	0
Wyoming.....	1	3	15	-----	3	8	2	0
Colorado.....	10	19	6	-----	2	139	5	8
New Mexico.....	7	-----	306	-----	1	115	0	0
Arizona.....	6	2	13	-----	3	8	17	3
Utah ¹	2	6	4	5	3	1	2	1
Pacific States:								
Washington.....	17	15	85	2	38	198	4	1
Oregon.....	17	7	247	32	80	21	5	1
California.....	85	155	250	40	29	100	18	7
Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Jan. 26, 1929	Week ended Jan. 28, 1928	Week ended Jan. 26, 1929	Week ended Jan. 28, 1928	Week ended Jan. 26, 1929	Week ended Jan. 28, 1928	Week ended Jan. 26, 1929	Week ended Jan. 28, 1928
New England States:								
Maine.....	0	0	25	23	0	0	0	5
New Hampshire.....	0	0	11	18	0	0	0	0
Vermont.....	0	0	4	17	3	0	0	0
Massachusetts.....	2	1	272	333	0	0	4	10
Rhode Island.....	0	0	30	45	0	0	0	1
Connecticut.....	0	1	65	124	0	15	0	1
Middle Atlantic States:								
New York.....	3	7	482	723	0	5	10	25
New Jersey.....	1	1	161	262	0	1	1	9
Pennsylvania.....	0	2	420	580	0	0	6	14
East North Central States:								
Ohio.....	2	0	195	347	22	21	4	15
Indiana.....	0	4	189	127	63	93	4	3
Illinois.....	3	4	362	358	143	38	20	11
Michigan.....	2	1	279	275	14	26	4	6
Wisconsin.....	0	0	144	187	11	35	1	1
West North Central States:								
Minnesota.....	0	0	94	170	1	2	2	3
Iowa.....	0	0	106	81	22	75	0	2
Missouri.....	0	2	97	93	26	42	2	1
North Dakota.....	0	1	57	32	0	2	2	3
South Dakota.....	0	0	31	54	17	1	0	0
Nebraska.....	0	0	73	97	26	68	1	3
Kansas.....	0	0	121	180	15	106	2	4
South Atlantic States:								
Delaware.....	0	0	2	3	0	0	0	0
Maryland ¹	2	0	49	66	2	1	36	6
District of Columbia.....	0	0	10	39	6	0	0	2
West Virginia.....	1	2	42	68	28	37	2	4
North Carolina.....	0	0	40	70	39	117	0	0
South Carolina.....	1	4	17	21	0	10	3	9
Georgia.....	0	0	17	15	0	0	1	7
Florida.....	0	0	8	13	5	1	2	12
East South Central States:								
Kentucky.....	0	0	85	48	0	41	2	3
Tennessee.....	0	1	29	28	1	35	4	7
Alabama.....	0	0	39	24	33	11	12	19
Mississippi.....	1	0	10	12	2	22	2	8

¹ Week ended Friday.

² Figures for 1929 are exclusive of Oklahoma City and Tulsa, and for 1928 are exclusive of Tulsa.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended January 26, 1929, and January 28, 1928—Continued

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Jan. 26, 1929	Week ended Jan. 28, 1928	Week ended Jan. 26, 1929	Week ended Jan. 28, 1928	Week ended Jan. 26, 1929	Week ended Jan. 28, 1928	Week ended Jan. 26, 1929	Week ended Jan. 28, 1928
West South Central States:								
Arkansas.....	0	2	10	12	0	18	2	10
Louisiana.....	1	0	14	10	11	17	10	8
Oklahoma ¹	0	2	38	52	42	150	3	11
Texas.....	0	3	53	58	61	41	2	22
Mountain States:								
Montana.....	0	0	35	22	11	20	1	1
Idaho.....	0	0	20	6	26	13	4	0
Wyoming.....	0	0	14	36	0	4	0	0
Colorado.....	0	2	17	146	7	18	0	3
New Mexico.....	1	0	6	11	0	1	1	3
Arizona.....	0	1	9	2	17	8	0	0
Utah ¹	0	0	14	11	5	19	0	1
Pacific States:								
Washington.....	1	1	30	66	53	46	2	4
Oregon.....	0	5	33	18	34	51	2	2
California.....	3	4	345	226	44	27	9	6

¹ Week ended Friday.

² Figures for 1929 are exclusive of Oklahoma City and Tulsa, and for 1928 are exclusive of Tulsa.

Report for Week Ended January 5, 1929

PENNSYLVANIA

	Cases		Cases
Diphtheria.....	367	Poliomyelitis.....	1
Measles.....	1,300	Scarlet fever.....	628
Meningococcus meningitis.....	7	Typhoid fever.....	14

SUMMARY OF MONTHLY REPORTS FROM STATES

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

State	Meningococcus meningitis	Diphtheria	Influenza	Malaria	Measles	Pellagra	Poliomyelitis	Scarlet fever	Smallpox	Typhoid fever
<i>November, 1928</i>										
Hawaii Territory	10	51	10		19			7	0	5
<i>December, 1928</i>										
Alabama.....	2	317	8,773	203	357	20	2	232	19	46
California.....	54	328	22,794	4	75		8	751	87	23
Idaho.....	18	7	245		30		2	28	136	4
Illinois.....	50	870	7,471	4	1,275		4	1,417	272	55
Louisiana.....	9	132	5,052	63	415	23	2	100	43	34
Massachusetts.....	9	483	8,478		2,754	1	10	1,037	6	12
Michigan.....		421	16,582		312		3	1,195	107	18
Minnesota.....	18	103	8,361		288		5	564	31	10
Mississippi.....	2	121	108,860	1,745	690	279	1	76	2	42
Missouri.....	56	340	16,730	3	408		5	408	137	31
North Carolina.....	2	430			91		4	338	11	9
Ohio.....	15	458	15,747	3	1,469		6	1,021	188	42
Oklahoma ¹	16	256	22,496	92	23	9	7	199	164	89
Oregon.....	11	49	8,801		228	1	2	149	147	12
Washington.....	15	73	6,470		166		11	172	186	4
Wisconsin.....	19	103	27,673		642		4	648	72	6

¹ Exclusive of Oklahoma City and Tulsa.

November, 1928

Hawaii Territory:	Cases
Chicken pox.....	11
Conjunctivitis.....	658
Dysentery (amebic).....	2
Hookworm disease.....	2
Impetigo contagiosa.....	8
Leprosy.....	4
Mumps.....	24
Tetanus.....	2
Trachoma.....	9
Whooping cough.....	9

December, 1928

Anthrax:	
Oregon.....	1
Botulism:	
California.....	1
Chicken pox:	
Alabama.....	204
California.....	723
Idaho.....	49
Illinois.....	2,107
Louisiana.....	32
Massachusetts.....	1,567
Michigan.....	1,612
Minnesota.....	1,829
Mississippi.....	785
Missouri.....	683
North Carolina.....	611
Ohio.....	2,672
Oklahoma ¹	136
Oregon.....	172
Washington.....	603
Wisconsin.....	1,804
Dengue:	
Alabama.....	1
Mississippi.....	1
Dysentery:	
California (amebic).....	1
California (bacillary).....	3
Illinois.....	20
Louisiana.....	2
Massachusetts.....	1
Mississippi (amebic).....	15
Mississippi (bacillary).....	82
Oklahoma ¹	11
Washington.....	3
German measles:	
California.....	28
Illinois.....	30
Massachusetts.....	37
North Carolina.....	7
Ohio.....	13
Washington.....	145
Wisconsin.....	21
Granuloma, coccidoidal:	
California.....	5
Hookworm disease:	
California.....	1
Louisiana.....	20
Mississippi.....	123
Impetigo contagiosa:	
Oregon.....	13
Jaundice:	
California.....	1

December, 1928—Continued

Lead poisoning:	Cases
Illinois.....	10
Massachusetts.....	8
Ohio.....	12
Leprosy:	
California.....	3
Minnesota.....	1
Lethargic encephalitis:	
Alabama.....	2
California.....	6
Illinois.....	11
Louisiana.....	3
Massachusetts.....	12
Michigan.....	9
Minnesota.....	3
Ohio.....	10
Washington.....	9
Wisconsin.....	3
Mumps:	
Alabama.....	31
California.....	653
Idaho.....	5
Illinois.....	386
Louisiana.....	1
Massachusetts.....	308
Michigan.....	430
Mississippi.....	256
Missouri.....	67
Ohio.....	212
Oklahoma ¹	35
Oregon.....	85
Washington.....	100
Wisconsin.....	285
Ophthalmia neonatorum:	
California.....	2
Illinois.....	31
Massachusetts.....	134
Mississippi.....	9
North Carolina.....	1
Ohio.....	63
Oklahoma ¹	1
Wisconsin.....	3
Paratyphoid fever:	
Illinois.....	1
Ohio.....	1
Puerperal septicemia:	
Illinois.....	6
Mississippi.....	34
Ohio.....	4
Rabies in animals:	
California.....	54
Idaho.....	2
Illinois.....	15
Minnesota.....	2
Mississippi.....	2
Missouri.....	2
Washington.....	1
Scabies:	
Oregon.....	21
Washington.....	7
Septic sore throat:	
Illinois.....	21
Massachusetts.....	22
Michigan.....	44
Missouri.....	13

¹ Exclusive of Oklahoma City and Tulsa.

December, 1928—Continued

	Cases
Septic sore throat—Continued.	
North Carolina.....	6
Ohio.....	88
Oklahoma ¹	11
Oregon.....	8
Tetanus:	
Illinois.....	6
Louisiana.....	2
Massachusetts.....	1
Missouri.....	4
Ohio.....	2
Washington.....	1
Trachoma:	
California.....	4
Illinois.....	3
Massachusetts.....	2
Minnesota.....	1
Mississippi.....	10
Missouri.....	26
Ohio.....	3
Oklahoma ¹	7
Trichinosis:	
California.....	2
Tularæmia:	
Alabama.....	1
Illinois.....	4
Michigan.....	1
Minnesota.....	1

December, 1928—Continued

	Cases
Tularæmia—Continued.	
Ohio.....	3
Oklahoma ¹	1
Typhus fever:	
Alabama.....	8
Undulant fever:	
California.....	1
Minnesota.....	1
Ohio.....	2
Vincent's angina:	
Oklahoma.....	5
Washington.....	6
Whooping cough:	
California.....	445
Idaho.....	1
Illinois.....	493
Louisiana.....	19
Massachusetts.....	588
Michigan.....	914
Minnesota.....	174
Mississippi.....	725
Missouri.....	261
North Carolina.....	231
Ohio.....	1,063
Oklahoma ¹	55
Oregon.....	9
Washington.....	75
Wisconsin.....	479

¹ Exclusive of Oklahoma City and Tulsa.

RECIPROCAL NOTIFICATIONS

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

Disease	Connecticut	Illinois	Kansas	Minnesota	New Mexico	New York	Washington
Chicken pox.....					1		
Dysentery (amebic).....				1			
Measles.....	1					1	
Poliomyelitis.....						1	
Scarlet fever.....						1	
Smallpox.....		1		1		1	
Tuberculosis.....				21			
Typhoid fever.....				2		5	
Veneral diseases.....							1
Gonorrhœa.....			1				
Syphilis.....			23				
Whooping cough.....						1	

GENERAL CURRENT SUMMARY AND WEEKLY REPORTS FROM CITIES

The 96 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 31,405,000. The estimated population of the 89 cities reporting deaths is more than 29,830,000. The estimated expectancy is based on the experience of the last nine years, excluding epidemics.

Weeks ended January 19, 1929, and January 21, 1928

	1929	1928	Estimated expectancy
<i>Cases reported</i>			
Diphtheria:			
46 States.....	1,618	2,279	-----
96 cities.....	795	1,145	1,146
Measles:			
45 States.....	5,324	12,117	-----
96 cities.....	1,287	3,625	-----
Poliomyelitis:			
46 States.....	14	50	-----
Scarlet fever:			
46 States.....	4,006	5,231	-----
96 cities.....	1,358	1,550	1,527
Smallpox:			
46 States.....	822	1,222	-----
96 cities.....	41	131	88
Typhoid fever:			
46 States.....	89	210	-----
96 cities.....	25	37	40
<i>Deaths reported</i>			
Influenza and pneumonia:			
89 cities.....	3,154	1,166	-----
Smallpox:			
89 cities.....	1	0	-----
Omaha, Nebraska.....	1	0	-----

City reports for week ended January 19, 1929

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 1920 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	Population, July 1, 1926, estimated	Chick-on pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
			Cases estimated expectancy	Cases reported	Cases reported	Deaths reported			
NEW ENGLAND									
Maine:									
Portland.....	76,400	2	1	0	75	6	36	0	13
New Hampshire:									
Concord.....	122,546	0	0	0	1	0	0	0	7
Manchester.....	84,000	0	1	1	-----	3	0	0	2
Nashua.....	129,723	0	1	0	-----	2	0	0	3
Vermont:									
Barre.....	110,008	0	0	0	-----	1	0	7	0
Massachusetts:									
Boston.....	787,000	59	50	24	606	16	9	11	80
Fall River.....	131,000	3	6	2	23	3	16	0	13
Springfield.....	145,000	19	4	23	10	1	176	0	5
Worcester.....	193,000	26	6	3	13	2	7	1	5
Rhode Island:									
Pawtucket.....	71,000	-----	2	-----	-----	-----	-----	-----	-----
Providence.....	275,000	0	11	10	273	6	15	1	24
Connecticut:									
Bridgeport.....	(?)	2	8	5	1,245	14	11	2	12
Hartford.....	164,000	2	9	9	216	11	5	0	21
New Haven.....	182,000	22	2	1	76	2	3	1	11

¹ Estimated, July 1, 1925.

² No estimate made.

City reports for week ended January 19, 1929—Continued

Division, State, and city	Population, July 1, 1926, estimated	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
			Cases estimated expectancy	Cases reported	Cases reported	Deaths reported			
MIDDLE ATLANTIC									
New York:									
Buffalo.....	544,000	25	17	10	54	7	5	3	59
New York.....	5,924,000	200	232	224	3,249	154	57	62	565
Rochester.....	321,000	8	13	3	90	6	25	16	8
Syracuse.....	185,000	5	6	0	-----	3	1	1	12
New Jersey:									
Camden.....	131,000	2	9	5	11	8	0	1	8
Newark.....	459,000	30	21	45	339	18	4	35	36
Trenton.....	134,000	1	5	1	29	5	0	1	8
Pennsylvania:									
Philadelphia.....	2,008,000	90	84	28	125	55	12	5	157
Pittsburgh.....	637,000	47	25	10	-----	51	14	8	62
Reading.....	114,000	8	4	2	-----	8	28	0	9
Scranton.....	143,000	6	5	13	4	0	46	0	0
EAST NORTH CENTRAL									
Ohio:									
Cincinnati.....	411,000	13	13	11	55	39	0	0	41
Cleveland.....	960,000	68	41	16	117	46	160	11	91
Columbus.....	285,000	18	6	0	3	25	4	3	17
Toledo.....	295,000	41	10	4	16	16	1	0	5
Indiana:									
Fort Wayne.....	99,500	3	5	5	-----	4	1	0	4
Indianapolis.....	367,000	41	10	3	-----	5	22	1	18
South Bend.....	81,700	1	1	-----	-----	-----	-----	-----	-----
Terre Haute.....	71,900	0	1	0	-----	2	0	0	6
Illinois:									
Chicago.....	3,048,000	106	91	81	89	39	92	9	125
Springfield.....	64,700	1	1	0	12	4	0	2	2
Michigan:									
Detroit.....	1,242,044	62	66	40	101	32	8	12	75
Flint.....	136,000	26	7	1	23	10	3	0	16
Grand Rapids.....	156,000	3	4	1	-----	2	18	0	3
Wisconsin:									
Kenosha.....	52,700	14	2	0	1	0	3	2	1
Milwaukee.....	517,000	110	23	7	38	19	105	21	28
Racine.....	69,400	12	2	1	10	2	52	0	7
Superior.....	139,671	5	1	0	-----	0	1	1	0
WEST NORTH CENTRAL									
Minnesota:									
Duluth.....	113,000	7	0	0	2	0	0	58	2
Minneapolis.....	434,000	147	24	8	483	8	97	12	17
St. Paul.....	248,000	37	13	2	-----	6	4	19	9
Iowa:									
Davenport.....	152,469	0	1	0	-----	-----	0	0	-----
Des Moines.....	146,000	0	4	0	-----	-----	0	0	-----
Sioux City.....	78,000	19	2	0	-----	-----	1	2	-----
Waterloo.....	36,900	0	1	2	-----	-----	0	34	-----
Missouri:									
Kansas City.....	375,000	24	9	5	1	7	93	2	19
St. Joseph.....	78,400	3	2	3	-----	1	1	1	9
St. Louis.....	830,000	32	53	41	32	8	12	3	-----
North Dakota:									
Fargo.....	126,403	6	0	0	-----	1	0	0	3
Grand Forks.....	114,811	0	1	0	-----	-----	0	0	-----
South Dakota:									
Aberdeen.....	115,036	6	0	0	-----	-----	1	1	-----
Sioux Falls.....	130,127	0	1	0	-----	-----	40	0	-----
Nebraska:									
Lincoln.....	62,000	1	3	2	-----	0	0	0	0
Omaha.....	216,000	6	4	15	-----	0	3	0	15
Kansas:									
Topeka.....	56,500	27	2	0	12	6	9	3	3
Wichita.....	92,500	1	4	0	-----	4	0	2	3

¹ Estimated, July 1, 1925.¹ Special census.

City reports for week ended January 19, 1929—Continued

Division, State, and city	Population, July 1, 1928, estimated	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
			Cases estimated expectancy	Cases reported	Cases reported	Deaths reported			
SOUTH ATLANTIC									
Delaware:									
Wilmington.....	124,000	1	3	2		2	13	0	15
Maryland:									
Baltimore.....	808,000	127	41	12	1,084	37	4	65	87
Cumberland.....	133,741	1	1	3	46	1	14	1	6
Frederick.....	112,035	1	0	0	4	0	0	0	0
District of Columbia:									
Washington.....	528,000	28	23	9	407	11	4	0	53
Virginia:									
Lynchburg.....	38,493	15	2	0	392	3	0	11	8
Norfolk.....	174,000	8	2	4	95	0	1	4	13
Richmond.....	189,000	1	7	3	90	19	1	1	8
Roanoke.....	61,900	1	1	3		14	0	4	2
West Virginia:									
Charleston.....	50,700	0	2	2	6	5	1	0	5
Wheeling.....	56,208	1	2	1	300	9	5	7	7
North Carolina:									
Raleigh.....	130,371	3	1	0		3	0	0	6
Wilmington.....	37,700	4	1	0		2	0	0	3
Winston-Salem.....	71,800	2	1	2		5	0	0	5
South Carolina:									
Charleston.....	74,100	0	1	4	129	5	0	0	6
Columbia.....	41,800	0	0	0	0	0	0	2	11
Greenville.....	127,311	1	0	0	1	2	0	2	2
Georgia:									
Atlanta.....	(2)	4	4	7	189	18	1	1	15
Brunswick.....	116,809	0	0	0		3	0	0	2
Savannah.....	94,900	0	1	3	113	10	2	0	10
Florida:									
Miami.....	131,286	0	3	1	60	0	7	0	4
St. Petersburg.....	47,629	0	0		10	1			2
Tampa.....	102,000	5	3	2	27	7	0	0	4
EAST SOUTH CENTRAL									
Kentucky:									
Covington.....	58,500	0	0	1	3	5	0	0	11
Louisville.....	311,000	4	5	3	472	10	0	0	59
Tennessee:									
Memphis.....	177,000	3	6	17	1,528	27	0	0	10
Nashville.....	137,000	0	2	0		23	0	0	12
Alabama:									
Birmingham.....	211,000	7	3	3	918	61	1	2	28
Mobile.....	66,800	1	2	3	64	11	0	0	2
Montgomery.....	47,000	3	1	1	153		4	0	
WEST SOUTH CENTRAL									
Arkansas:									
Fort Smith.....	131,643	1	0	0	0	0	0	3	
Little Rock.....	75,900	3	2	0	44	0	2	3	2
Louisiana:									
New Orleans.....	419,000	1	14	6	70	30	0	0	18
Shreveport.....	59,500	4	2	0	6	5	0	0	12
Oklahoma:									
Tulsa.....	133,000	13	2	4			1	4	
Texas:									
Dallas.....	203,000	5	8	8	12	18	0	0	19
Fort Worth.....	159,000	2	4	9	66	23	3	0	6
Galveston.....	49,100	0	1	1	0	0	0	0	10
Houston.....	164,954	0	6	2	0	10	1	0	20
San Antonio.....	205,000	2	2	3	5	19	0	0	17
MOUNTAIN									
Montana:									
Billings.....	117,971	0	0	0		0	2	0	0
Great Falls.....	129,883	10	0	0		2	70	2	1
Helena.....	112,037	0	0	0	91	0	4	0	3
Missoula.....	112,668	0	1	0	3	0	19	0	0
Idaho:									
Boise.....	123,042	2	1	0		0	0	0	0

1 Estimated, July 1, 1925.

2 No estimate made.

3 Special census.

City reports for week ended January 19, 1929—Continued

Division, State, and city	Population, July 1, 1926, estimated	Chick-en pox, cases re-ported	Diphtheria		Influenza		Meas-les, cases re-ported	Mumps, cases re-ported	Pneu-monia, deaths re-ported
			Cases esti-mated expect-ancy	Cases re-ported	Cases re-ported	Deaths re-ported			
MOUNTAIN—continued									
Colorado:									
Denver.....	285,000	17	11	5	15	14	2	22	15
Pueblo.....	43,900	7	2	1	1	0	1	3	1
New Mexico:									
Albuquerque.....	121,000	0	1	0	1	2	0	0	3
Utah:									
Salt Lake City.....	133,000	51	3	1		2	0	52	2
Nevada:									
Reno.....	112,665	0	0	0		0	0	0	1
PACIFIC									
Washington:									
Seattle.....	(?)	23	4	9			1	7	
Spokane.....	109,000	15	3	2	2	2	12	0	
Tacoma.....	106,000	6	4	1	9	3	2	11	1
Oregon:									
Portland.....	1282,383	11	10	8	4	3	20	1	8
Salem.....	119,709	3	0	0	5	0	1	0	0
California:									
Los Angeles.....	(?)	35	48	21	160	11	5	34	20
Sacramento.....	73,400	4	3	0	2	1	0	12	7
San Francisco.....	567,000	10	21	10	20	9	3	4	10

Division, State, and city	Scarlet fever		Smallpox			Tuber-culosis, deaths re-ported	Typhoid fever			Whoop-ing cough, cases re-ported	Deaths, all causes
	Cases, esti-mated expect-ancy	Cases re-ported	Cases, esti-mated expect-ancy	Cases re-ported	Deaths re-ported		Cases, esti-mated expect-ancy	Cases re-ported	Deaths re-ported		
NEW ENGLAND											
Maine:											
Portland.....	3	4	0	0	0	0	0	0	0	0	45
New Hampshire:											
Concord.....	0	3	0	0	0	0	0	0	0	1	12
Manchester.....	2	5	0	0	0	0	0	0	0	0	15
Nashua.....	1	0	0	0	0	0	0	0	0	0	15
Vermont:											
Barre.....	1	0	0	0	0	0	0	0	0	2	5
Massachusetts:											
Boston.....	85	58	0	0	0	16	1	1	1	19	352
Fall River.....	3	6	0	0	0	1	0	0	0	5	64
Springfield.....	10	12	0	0	0	0	0	0	0	3	44
Worcester.....	12	6	0	0	0	4	0	1	0	13	57
Rhode Island:											
Pawtucket.....	1		0			0	0				
Providence.....	10	23	0	0	0	2	0	0	0	11	89
Connecticut:											
Bridgeport.....	12	3	0	0	0	2	0	0	0	2	73
Hartford.....	8	9	0	0	0	3	0	0	0	2	66
New Haven.....	11	2	0	0	0	0	0	0	0	6	52
MIDDLE ATLANTIC											
New York:											
Buffalo.....	26	32	0	0	0	12	1	1	0	28	236
New York.....	276	204	0	0	0	104	10	6	1	56	2,308
Rochester.....	15	5	0	0	0	2	0	0	0	24	90
Syracuse.....	15	10	0	0	0	1	0	0	0	9	90
New Jersey:											
Camden.....	6	18	0	0	0	2	0	0	0	0	42
Newark.....	31	9	0	0	0	9	1	0	0	21	176
Trenton.....	6	2	0	0	0	4	1	0	0	0	54
Pennsylvania:											
Philadelphia.....	103	72	0	0	0	29	3	0	0	51	709
Pittsburgh.....	44	22	0	0	0	11	1	1	1	16	241
Reading.....	3	5	0	0	0	2	0	0	0	4	40
Scranton.....	5	4	0	0	0	0	0	0	0	2	

¹ Estimated, July 1, 1925.

² No estimate made.

City reports for week ended January 19, 1929—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuber- culosis, deaths re- ported	Typhoid fever			Whoop- ing cough, cases re- ported	Deaths all causes
	Cases, esti- mated expect- ancy	Cases re- ported	Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		
EAST NORTH CENTRAL											
Ohio:											
Cincinnati.....	21	23	1	3	0	12	0	1	0	26	253
Cleveland.....	47	21	0	0	0	15	1	0	0	52	382
Columbus.....	13	2	1	0	0	7	0	0	0	7	132
Toledo.....	17	16	0	0	0	5	1	0	0	77	94
Indiana:											
Fort Wayne.....	6	5	1	1	0	2	1	0	0	0	33
Indianapolis.....	10	33	13	4	0	4	0	0	0	13	108
South Bend.....	3		1			0	0				
Terre Haute.....	4	2	0	0	0	3	0	0	0	0	32
Illinois:											
Chicago.....	148	101	1	1	0	35	3	2	1	79	952
Springfield.....	3	21	0	0	0	0	0	0	0	0	31
Michigan:											
Detroit.....	103	114	4	0	0	25	1	1	0	59	413
Flint.....	12	14	1	0	0	1	0	0	0	3	43
Grand Rapids.....	14	7	0	0	0	1	1	0	0	12	47
Wisconsin:											
Kenosha.....	2	1	0	0	0	0	0	0	0	6	9
Milwaukee.....	38	52	1	0	0	4	0	1	0	72	179
Racine.....	7	1	0	0	0	1	0	0	0	11	23
Superior.....	3	3	2	0	0	0	0	0	0	0	11
WEST NORTH CENTRAL											
Minnesota:											
Duluth.....	10	0	1	0	0	2	0	0	0	0	26
Minneapolis.....	60	17	4	0	0	3	1	0	0	28	128
St. Paul.....	33	17	1	0	0	4	0	0	0	25	71
Iowa:											
Davenport.....	2	0	2	1			0	0		0	
Des Moines.....	8	23	2	1			0	0		0	
Sioux City.....	2	0	1	0			0	0		1	
Waterloo.....	2	29	0	0			0	0		14	
Missouri:											
Kansas City.....	15	15	4	1	0	8	0	0	2	0	120
St. Joseph.....	3	2	0	1	0	0	0	0	0	1	30
St. Louis.....	48	27	2	1	0	14	1	0	0	31	312
North Dakota:											
Fargo.....	2	3	0	0	0	1	0	0	0	2	11
Grand Forks.....	2	0	0	0			0	0		0	
South Dakota:											
Aberdeen.....	1	0	0	0			0	0		0	
Sioux Falls.....	2	2	0	0			0	0		0	3
Nebraska:											
Lincoln.....	2	13	0	0	0	0	0	0	0	0	16
Omaha.....	6	8	3	4	1	5	0	0	0	3	72
Kansas:											
Topeka.....	3	7	0	0	0	0	0	0	0	5	20
Wichita.....	6	4	0	0	0	2	0	1	0	3	39
SOUTH ATLANTIC											
Delaware:											
Wilmington.....	6	0	0	0	0	0	0	0	0	2	44
Maryland:											
Baltimore.....	38	20	0	0	0	15	2	1	0	77	366
Cumberland.....	0	1	0	0	0	1	0	0	0	1	17
Frederick.....	0	0	0	0	0	1	0	0	0	0	3
Dist. of Columbia:											
Washington.....	27	22	1	0	0	7	1	0	0	18	225
Virginia:											
Lynchburg.....	1	0	0	0	0	1	0	0	0	0	22
Norfolk.....	2	3	0	0	0	4	0	0	0	0	
Richmond.....	5	10	0	0	0	3	0	0	0	0	79
Roanoke.....	2	3	0	0	0	2	0	0	0	0	27
West Virginia:											
Charleston.....	1	0	0	0	0	2	0	0	0	0	30
Wheeling.....	2	0	0	0	0	0	0	1	0	1	32
North Carolina:											
Raleigh.....	1	1	1	0	0	1	0	0	0	0	27
Wilmington.....	0	0	0	3	0	0	0	0	0	0	14
Winston-Salem.....	1	1	2	0	0	1	0	0	0	2	21

City reports for week ended January 19, 1929—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuber- culosis, deaths re- ported	Typhoid fever			Whoop- ing cough, cases re- ported	Deaths, all causes
	Cases, esti- mated expect- ancy	Cases re- ported	Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		
SOUTH ATLANTIC— continued											
South Carolina:											
Charleston.....	1	1	0	0	0	1	0	0	0	0	32
Columbia.....	1	0	0	0	0	2	0	0	0	0	23
Greenville.....	0	0	0	0	0	2	0	0	0	2	11
Georgia:											
Atlanta.....	4	4	2	0	0	6	0	0	0	1	95
Brunswick.....	0	0	0	0	0	0	0	0	0	0	8
Savannah.....	0	1	1	0	0	3	1	1	0	0	78
Florida:											
Miami.....	2	0	1	0	0	2	1	1	0	0	13
St. Petersburg.....	0	0	0	0	0	0	0	0	0	0	14
Tampa.....	1	1	0	0	0	2	1	0	0	4	47
EAST SOUTH CENTRAL											
Kentucky:											
Covington.....	2	12	0	1	0	0	0	0	0	0	44
Louisville.....	6	22	0	0	0	9	0	0	0	5	167
Tennessee:											
Memphis.....	7	8	2	0	0	6	0	3	0	5	95
Nashville.....	2	3	0	0	0	3	1	0	0	0	89
Alabama:											
Birmingham.....	4	5	5	0	0	5	1	0	0	2	157
Mobile.....	1	2	0	0	0	2	0	0	0	0	49
Montgomery.....	1	4	0	0	0	0	1	0	0	0	0
WEST SOUTH CENTRAL											
Arkansas:											
Fort Smith.....	1	1	0	0	0	0	0	0	0	0	0
Little Rock.....	2	8	0	0	0	1	0	0	0	4	0
Louisiana:											
New Orleans.....	6	21	0	0	0	19	3	2	1	7	199
Shreveport.....	1	1	0	1	0	2	0	0	0	0	39
Oklahoma:											
Tulsa.....	2	2	1	2	0	0	0	0	0	0	0
Texas:											
Dallas.....	5	9	1	8	0	5	0	0	1	1	101
Fort Worth.....	1	9	1	9	0	0	0	0	0	0	0
Galveston.....	1	3	0	0	0	3	0	0	0	0	19
Houston.....	4	2	2	2	0	3	0	0	0	0	102
San Antonio.....	2	3	0	1	0	13	0	0	0	0	110
MOUNTAIN											
Montana:											
Billings.....	1	0	0	0	0	0	0	0	0	0	5
Great Falls.....	2	3	2	0	0	1	0	0	0	13	10
Helena.....	1	2	0	0	0	0	0	0	0	2	8
Missoula.....	1	0	0	0	0	0	0	0	0	0	2
Idaho:											
Boise.....	1	0	0	0	0	0	0	0	0	0	9
Colorado:											
Denver.....	12	4	3	0	0	6	0	0	0	1	114
Pueblo.....	2	2	0	0	0	2	0	0	0	0	13
New Mexico:											
Albuquerque.....	2	0	0	0	0	4	0	0	0	23	16
Utah:											
Salt Lake City.....	4	10	3	2	0	0	0	0	0	0	42
Nevada:											
Reno.....	0	0	0	0	0	0	0	0	0	0	2
PACIFIC											
Washington:											
Seattle.....	12	3	4	2	0	1	1	0	0	17	0
Spokane.....	8	3	5	0	0	0	0	0	0	7	0
Tacoma.....	3	6	4	1	0	0	0	0	0	4	25
Oregon:											
Portland.....	6	4	8	32	0	6	0	2	0	0	77
Salem.....	0	0	1	0	0	0	0	0	0	0	0
California:											
Los Angeles.....	30	79	6	0	0	18	1	0	0	19	256
Sacramento.....	2	17	1	0	0	2	0	0	0	1	50
San Francisco.....	17	48	2	4	0	8	1	0	0	14	196

City reports for week ended January 19, 1920—Continued

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	1	0	0	0	0	1	0	0
Worcester.....	0	0	0	1	0	0	0	0	0
MIDDLE ATLANTIC									
New York:									
Buffalo.....	1	0	0	0	0	0	0	0	0
New York.....	25	8	5	2	0	0	1	0	0
New Jersey:									
Newark.....	5	1	0	0	0	0	0	0	0
Trenton.....	0	0	1	0	0	0	0	0	0
Pennsylvania:									
Philadelphia.....	3	1	1	0	0	0	0	0	0
Pittsburgh.....	2	0	0	0	0	0	0	0	0
EAST NORTH CENTRAL									
Ohio:									
Cleveland.....	6	7	0	0	0	0	0	0	0
Columbus.....	0	0	1	1	0	0	0	0	0
Toledo.....	1	0	0	0	0	0	0	0	0
Indiana:									
Indianapolis.....	1	2	0	0	0	0	0	0	0
Illinois:									
Chicago.....	6	2	0	0	0	0	1	0	0
Michigan:									
Detroit.....	11	7	0	1	0	0	0	1	0
Grand Rapids.....	1	0	0	0	0	0	0	0	0
Wisconsin:									
Milwaukee.....	6	4	0	0	0	0	0	0	0
WEST NORTH CENTRAL									
Minnesota:									
St. Paul.....	1	0	0	0	0	0	0	0	0
Iowa:									
Waterloo.....	11	1	0	0	0	0	0	0	0
Missouri:									
Kansas City.....	1	1	0	1	0	0	0	0	0
St. Louis.....	5	1	0	0	0	0	0	0	0
North Dakota:									
Fargo.....	2	1	0	0	0	0	0	0	0
SOUTH ATLANTIC									
Maryland:									
Baltimore.....	1	0	0	1	0	0	0	0	0
South Carolina:									
Columbia.....	0	0	0	0	0	0	0	1	0
Greenville.....	0	0	0	0	0	1	0	0	0
Georgia:									
Atlanta.....	0	0	0	0	2	0	0	0	0
Florida:									
Miami.....	0	0	0	0	0	1	0	0	0
Tampa.....	1	0	0	0	0	0	0	0	0
EAST SOUTH CENTRAL									
Tennessee:									
Memphis.....	0	0	0	0	1	0	0	0	0
Nashville.....	1	1	0	0	0	0	0	0	0
Alabama:									
Birmingham.....	0	0	0	0	1	0	0	0	0

1 Nonresident.

City reports for week ended January 19, 1929—Continued

Division, State, and city	Meningococcus meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
WEST SOUTH CENTRAL									
Louisiana:									
New Orleans.....	2	0	0	0	0	0	0	0	0
Shreveport.....	0	1	0	0	0	0	0	0	0
Texas:									
Dallas.....	0	0	0	0	1	0	0	0	0
Houston.....	0	0	0	1	0	1	0	0	0
MOUNTAIN									
Colorado:									
Denver.....	6	4	0	0	0	0	0	0	0
Pueblo.....	1	0	0	0	0	0	0	0	0
Utah:									
Salt Lake City.....	4	2	0	0	0	0	0	0	0
PACIFIC									
Washington:									
Seattle.....	2	0	0	0	0	0	0	0	0
Tacoma.....	0	0	0	0	0	0	1	1	0
Oregon:									
Portland.....	2	0	0	0	0	0	0	0	0
California:									
Los Angeles.....	0	1	0	0	0	0	0	0	0
San Francisco.....	1	3	1	1	0	0	0	0	0

The following table gives the rates per 100,000 population for 98 cities for the 5-week period ended January 19, 1929, compared with those for a like period ended January 21, 1928. 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 had estimated aggregate populations of more than 31,000,000. The 91 cities reporting deaths had nearly 30,000,000 estimated population. The number of cities included in each group and the estimated aggregate populations are shown in a separate table below.

Summary of weekly reports from cities, December 16, 1928, to January 19, 1929—
Annual rates per 100,000 population compared with rates for the corresponding
period of 1927-28 ¹

DIPHTHERIA CASE RATES

	Week ended—									
	Dec. 22, 1928	Dec. 24, 1927	Dec. 29, 1928	Dec. 31, 1927	Jan. 5, 1929	Jan. 7, 1928	Jan. 12, 1929	Jan. 14, 1928	Jan. 19, 1929	Jan. 21, 1928
98 cities.....	144	201	131	185	² 148	² 170	138	204	⁴ 132	193
New England.....	159	193	170	165	163	149	183	200	⁵ 180	168
Middle Atlantic.....	145	232	155	220	178	202	157	254	⁵ 158	253
East North Central.....	106	212	133	200	153	176	121	220	⁶ 107	192
West North Central.....	138	123	119	125	161	96	158	111	146	139
South Atlantic.....	117	143	100	128	⁷ 111	³ 160	118	155	99	155
East South Central.....	105	127	95	112	88	105	190	56	170	105
West South Central.....	188	339	172	261	⁸ 95	243	119	207	79	154
Mountain.....	71	117	18	63	70	71	87	115	61	168
Pacific.....	95	157	43	141	60	123	67	143	107	125

MEASLES CASE RATES

98 cities.....	176	284	158	321	² 197	² 510	231	551	⁴ 214	611
New England.....	800	537	678	709	964	917	873	1,021	⁵ 650	1,249
Middle Atlantic.....	68	250	77	330	80	468	94	501	70	480
East North Central.....	251	157	207	159	230	265	301	300	⁶ 302	325
West North Central.....	224	38	201	46	198	135	394	110	423	260
South Atlantic.....	49	794	68	828	⁷ 115	¹ 403	66	1,366	84	1,624
East South Central.....	20	710	15	396	14	2,118	7	2,020	34	1,845
West South Central.....	12	83	4	112	⁸ 29	203	43	272	12	567
Mountain.....	203	18	106	36	383	62	427	106	853	97
Pacific.....	49	256	84	282	40	384	115	527	57	532

SCARLET FEVER CASE RATES

98 cities.....	185	186	184	209	² 195	² 206	221	260	⁴ 225	268
New England.....	241	281	308	346	296	340	317	398	⁵ 294	508
Middle Atlantic.....	144	173	138	200	148	196	190	266	183	269
East North Central.....	234	212	220	257	239	233	250	285	⁶ 258	286
West North Central.....	240	202	261	192	258	203	283	262	248	225
South Atlantic.....	161	144	130	148	⁷ 155	³ 158	124	182	122	210
East South Central.....	200	117	259	117	197	63	156	63	231	91
West South Central.....	100	91	160	124	⁸ 133	101	182	126	190	89
Mountain.....	27	170	27	233	113	195	157	301	183	266
Pacific.....	197	191	151	125	185	184	282	220	389	241

SMALLPOX CASE RATES

98 cities.....	8	16	4	15	² 3	² 17	5	23	⁴ 7	22
New England.....	2	0	2	0	0	0	2	0	⁵ 0	0
Middle Atlantic.....	0	0	0	0	1	0	0	0	0	0
East North Central.....	4	12	3	12	6	9	3	7	⁶ 6	9
West North Central.....	6	77	10	79	2	106	6	147	13	121
South Atlantic.....	0	20	2	4	⁷ 0	³ 13	2	29	6	15
East South Central.....	0	20	5	10	7	7	41	7	7	70
West South Central.....	40	12	12	4	⁸ 5	16	16	28	47	4
Mountain.....	44	99	35	143	35	106	78	142	17	106
Pacific.....	56	26	15	29	5	26	7	31	17	64

¹ The figures given in this table are rates per 100,000 population, annual basis, and not the number of cases reported. Populations used are estimated as of July 1, 1929, 1928, and 1927, respectively.

² Brunswick, Ga., and Dallas Tex., not included.

³ Atlanta, Ga., not included

⁴ Pawtucket, R. I., and South Bend, Ind., not included.

⁵ Pawtucket, R. I., not included.

⁶ South Bend, Ind., not included

⁷ Brunswick, Ga., not included.

⁸ Dallas, Tex., not included.

Summary of weekly reports from cities, December 16, 1928, to January 19, 1929—
Annual rates per 100,000 population compared with rates for the corresponding
period of 1927-28—Continued

TYPHOID FEVER CASE RATES

	Week ended—									
	Dec. 22, 1928	Dec. 24, 1927	Dec. 29, 1928	Dec. 31, 1927	Jan. 5, 1929	Jan. 7, 1928	Jan. 12, 1929	Jan. 14, 1928	Jan. 19, 1929	Jan. 21, 1928
	98 cities.....	4	11	5	7	24	35	4	8	44
New England.....	2	9	2	14	5	7	2	14	5	9
Middle Atlantic.....	4	10	4	4	2	3	4	5	4	3
East North Central.....	1	8	5	5	3	3	1	3	3	6
West North Central.....	2	8	6	10	0	2	0	8	2	2
South Atlantic.....	7	16	5	13	79	17	4	2	6	6
East South Central.....	5	25	5	10	0	28	7	77	20	42
West South Central.....	8	17	8	21	5	0	28	20	8	12
Mountain.....	9	9	9	18	9	9	0	9	0	9
Pacific.....	10	10	8	0	7	5	0	10	2	8

INFLUENZA DEATH RATES

91 cities.....	112	17	172	19	230	20	241	25	184	26
New England.....	14	5	14	5	48	16	100	7	145	18
Middle Atlantic.....	66	11	120	14	165	13	161	21	152	19
East North Central.....	124	13	201	10	238	10	235	13	148	17
West North Central.....	147	10	199	8	240	6	165	21	123	28
South Atlantic.....	123	20	280	22	345	23	395	40	289	29
East South Central.....	88	48	193	58	970	130	1,592	115	940	153
West South Central.....	209	72	373	81	555	88	467	67	333	67
Mountain.....	593	27	265	72	218	53	165	62	157	71
Pacific.....	213	24	182	31	134	24	79	37	79	17

PNEUMONIA DEATH RATES

91 cities.....	241	135	303	156	381	175	407	196	367	182
New England.....	159	121	159	146	201	103	323	179	446	156
Middle Atlantic.....	246	126	293	158	395	186	443	214	446	193
East North Central.....	285	105	352	135	466	140	411	158	280	137
West North Central.....	295	97	242	108	216	187	285	168	240	205
South Atlantic.....	228	182	330	184	353	238	485	243	474	230
East South Central.....	188	213	246	191	533	268	659	253	452	207
West South Central.....	250	229	402	306	698	241	528	291	398	312
Mountain.....	398	242	363	197	174	195	200	168	200	186
Pacific.....	169	166	169	138	148	175	134	142	125	142

² Brunswick, Ga., and Dallas, Tex., not included.

³ Atlanta, Ga., not included.

⁴ Pawtucket, R. I., and South Bend, Ind., not included.

⁵ Pawtucket, R. I., not included.

⁶ South Bend, Ind., not included.

⁷ Brunswick, Ga., not included.

⁸ Dallas, Tex., not included.

Number of cities included in summary of weekly reports, and aggregate population of cities of each group, approximated as of July 1, 1929 and 1928, respectively

Group of cities	Number of cities reporting cases	Number of cities reporting deaths	Aggregate population of cities reporting cases		Aggregate population of cities reporting deaths	
			1929	1928	1929	1928
			Total.....	98	91	31,568,400
New England.....	12	12	2,305,100	2,273,900	2,305,100	2,273,900
Middle Atlantic.....	10	10	10,809,700	10,702,200	10,809,700	10,702,200
East North Central.....	16	16	8,181,900	8,001,300	8,181,900	8,001,300
West North Central.....	12	9	2,712,100	2,673,300	1,736,900	1,708,100
South Atlantic.....	19	19	2,783,200	2,732,900	2,783,200	2,732,900
East South Central.....	6	5	767,900	745,500	704,200	682,400
West South Central.....	8	7	1,319,100	1,289,900	1,285,000	1,254,400
Mountain.....	9	9	598,800	590,200	598,800	590,200
Pacific.....	6	4	2,080,600	2,043,500	1,590,300	1,551,200

FOREIGN AND INSULAR

INFLUENZA IN EUROPE

The following data relative to influenza in Europe were taken from current publications of the health section of the League of Nations:

Germany.—In Berlin a large sickness insurance society reported 11 deaths from influenza from December 21 to 31, 1928; 31 deaths from January 1 to 14, 1929; and 27 from January 15 to 18. The largest number of cases of influenza for one day was 1,643, reported January 15, 1929, giving a daily rate of 3.5 per 1,000 members.

In Breslau the maximum of the epidemic was reached on December 28, 1928, with 468 cases in the sickness insurance society, a daily rate of 3 per 1,000 members. Influenza deaths in the society numbered 15 in December, and 12 from January 1 to 14.

The influenza case rate in the Leipzig society varied from 1.5 to 2.5 per 1,000 members per day.

In Bremen the highest number of cases among members of the society was reached on January 7, 1929, with a rate of 2 cases per 1,000.

England and Wales.—Influenza deaths in 107 large towns for the week ended January 12, 1929, numbered 122, as compared with 99 during the preceding week. The figures are not abnormal.

Northern Ireland.—Seven deaths were attributed to influenza at Belfast during the week ended January 12, and the general death rate was 22.7 per 1,000, as compared with 19 during the preceding week. The death rate of Londonderry was 30, and 2 deaths were attributed to influenza.

Irish Free State.—The general death rate of Dublin was 23.4 per 1,000 during the week ended January 12, as compared with 17.8 during the preceding week. Two deaths were attributed to influenza.

Scotland.—During the week ended January 19 the average death rate for 16 towns was 23 per 1,000 (preceding week 24.1), and for Glasgow 45 (preceding week 31.8). The number of deaths attributed to influenza was 151 in Glasgow (50 during the preceding week) and in the other 15 towns, 28 (preceding week 6). The number of deaths from nontuberculous respiratory diseases was 390 in Glasgow (preceding week 259) and 155 in the other towns (preceding week 137).

CANADA

Provinces—Communicable diseases—Week ended January 19, 1929.—The Department of Pensions and National Health reports cases of certain communicable diseases from seven Provinces of Canada for the week ended January 19, 1929, as follows:

Disease	Prince Edward Island	Nova Scotia	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	Total
Cerebrospinal fever.....		1	3	3	1			8
Influenza.....	52	182		606	13	5		860
Lethargic encephalitis.....					1			1
Poliomyelitis.....				1				1
Smallpox.....		1	9	7	3	3	3	26
Typhoid fever.....			5	8		1		14

Quebec Province—Communicable diseases—Two weeks ended January 19, 1929.—The Bureau of Health of the Province of Quebec reports cases of certain communicable diseases for the two weeks ended January 19, 1929, as follows:

Disease	Week ended—		Disease	Week ended—	
	Jan. 12	Jan. 19		Jan. 12	Jan. 19
Cerebrospinal meningitis.....		3	Scarlet fever.....	101	91
Chicken pox.....	44	34	Smallpox.....	12	9
Diphtheria.....	56	45	Tuberculosis.....	54	47
German measles.....	5	2	Typhoid fever.....	6	5
Influenza.....	394	94	Whooping cough.....	13	16
Measles.....	23	27			

DENMARK

Communicable diseases—October, 1928.—During the month of October, 1928, communicable diseases were reported in Denmark as follows:

Disease	Cases	Disease	Cases
Broncho-pneumonia.....	1,402	Paratyphoid fever.....	168
Cerebrospinal meningitis.....	11	Pneumonia.....	290
Chicken pox.....	34	Poliomyelitis.....	22
Diphtheria and croup.....	551	Puerperal fever.....	14
Erysipelas.....	285	Scarlet fever.....	262
Influenza.....	3,472	Tetanus.....	3
Jaundice.....	95	Tuberculosis (pulmonary).....	248
Lethargic encephalitis.....	6	Typhoid fever.....	10
Measles.....	830	Undulant fever.....	136
Mumps.....	396	Whooping cough.....	1,784

¹ Reported from State serum institute.

JAMAICA

Communicable diseases—Four weeks ended January 5, 1929.—During the four weeks ended January 5, 1929, cases of certain communicable diseases were reported from Kingston, Jamaica, and from the island of Jamaica outside of Kingston, as follows:

Disease	Kings-ton	Other local-ities	Disease	Kings-ton	Other local-ities
Cerebrospinal meningitis.....		4	Leprosy.....		1
Chicken pox.....	4	9	Poliomyelitis.....	1	
Diphtheria.....	1	1	Tuberculosis (pulmonary).....	34	61
Dysentery.....	1	5	Typhoid fever.....	19	62

MANCHURIA

Plague in eastern Asia.—Information dispatched by the North Manchurian Plague Prevention Service, December 30, 1928, states that although the Tungliao district continues to be free from plague (the last case at Chien Chia Tien having been reported early in November) several other localities have lately reported suspicious outbreaks.

In Kirin Province, at Nungan, about 23 miles from the Changchun-Harbin Railway, 23 suspicious deaths were reported between November 18 and December 8, 1928. The early cases were traced to neighboring Mongolian territory. No new case had been reported for two weeks.

A medical officer was sent to Fu Yu (Petune) to investigate a reported outbreak of plague there. He returned December 28, and reported that an outbreak had occurred in the village of Cha-Chia-Yuantze, about a mile from the city of Fu Yu, and that seven deaths had occurred in the city. No new cases had appeared for three weeks, and the temporary quarantine bureau established in the Fu Yu police office was soon to be closed. A medical inspection of the southern line of the Chinese Eastern Railway revealed nothing suspicious along its route.

On December 21 information was received by the North Manchurian Plague Prevention Service of the occurrence of 17 cases of pneumonic plague in Transbaikalia, at a point 300 miles south of the Chita-Verkhne-Vdinsk Railway.

Several cases of plague having been reported in the Shansi Province, the Nanking Ministry of Health inaugurated an antiplague campaign. The latest information was reassuring.

MEXICO

Torreon—Spinal meningitis.—According to information dispatched January 21, 1929, from Torreon, Mexico, 11 cases of spinal meningitis, resulting in 4 deaths, had appeared in that city during the preceding 10 days. Schools, theaters, and clubs had been closed and special precautions were being taken by the sanitary commission to keep the disease from spreading.

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

From medical officers of the Public Health Service, American consuls, health section of the League of Nations, and other sources. (The reports contained in the following table 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; F, present]

Place	Week ended—														
	Sept. 1920			October, 1920			November, 1920			December, 1920			January, 1921		
	July 20-31, 1920	Aug. 1-31, 1920	Sept. 1-31, 1920	Oct. 1-10, 1920	Oct. 11-20, 1920	Oct. 21-31, 1920	Nov. 3-12, 1920	Nov. 13-22, 1920	Nov. 23-31, 1920	Dec. 1-10, 1920	Dec. 11-20, 1920	Dec. 21-31, 1920	Jan. 1-10, 1921	Jan. 11-20, 1921	Jan. 21-31, 1921
Ceylon:															
Colombo.....	C														1
Ingriya Province.....	D														
China:															
Canton.....	C	4	1	1											
Kwantung—Dairen.....	C	2	3	3											
Shanghai.....	D														
Dutch East Indies: Java—Batavia.....	D	3	3	3											
India:															
Bassein.....	C	52,796	32,287	17,028	4,976	5,771	4,714	5,476	5,581						
Bombay.....	D	26,987	17,731	10,187	3,226	3,066	2,896	3,279	3,369						1
Calcutta.....	D	9	0	15	1	1	1	3	3						
Madras.....	D	5	4	4	50	44	62	63	87	61	52	47			
Madras Presidency.....	D	83	68	41	25	35	42	38	53	39	36	27	15		
Moulmein.....	D	51	40	39	69	45	48	41	32	32	11	28	6		
Negapatam.....	D	556	149	97	69	32	21	31	15	15	6	6	4		
Rangoon.....	D	271	88	73	31	32	21	31	15	15	6	6	4		
Tuticorin.....	D														
Vizagapatam.....	D														
India (French):															
Chandernagor.....	D	31	5	5			1	1				1	33	39	1
Karikal.....	D	7	3	16			11	20	18	4	3	2	2	2	
Pondicherry Province.....	D	3	2	7			12	8	14	6	3	1	2	2	
	D	30	41	9			4	4	99	6	3	1	4	4	20
	D	21	26	8			3	4	3	76	3	1	4	4	13
	D	114	132	31			4	1	13	10	8	5	5	5	37
	D	60	72	19			4	1	9	11	7	3	3	3	21

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

PLAGUE—Continued

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

Place	Aug- ust, 1928	Sep- tem- ber, 1928	Octo- ber, 1928	No- vem- ber, 1928	De- cem- ber, 1928	Place	Aug- ust, 1928	Sep- tem- ber, 1928	Octo- ber, 1928	No- vem- ber, 1928	De- cem- ber, 1928
British East Africa (see also table above):											
Kenya.....	144	15	37	16	15	Madagascar—Continued					
Uganda.....	34			2		Tamatave.....	C	12	18		
	162	128	134			Tananarive Province.....	D	7	10		
Ecuador: Guayaquil.....	141	98	108	21		Peru.....	D	51	75	100	
Plague-infected rats.....	3	3	2	8		Senegal.....	D	4	3	10	
Greece (see also table above).....	27	21	29	36	2	Baol.....	D	1	1	4	
Indo-China (see also table above).....	2	6	2		1	Cayor.....	D	32	177	39	18
Madagascar (see also table above).....	65	59	88			Fattek.....	D	68	73	14	6
Ambositra Province.....	61	51	84			Louga.....	D	38	40	14	6
Antsirabe Province.....	3	3	8			Rufisque.....	D	46	20	17	14
Itasy Province.....	10	10	2			Thies.....	D	15	8	6	10
Majunga.....	2	2	5			Tiyanouane.....	D	151	106	51	11
Meramanga Province.....	2	2	5			Syria: Beirut.....	C	119	78	29	
	11	20	38								
	10	18	35								

¹ Reports incomplete.

SMALLPOX

Place	Week ended—																			
	July 1928			Aug. 1928			Sept. 1928			November, 1928				December, 1928				January, 1929		
	July 28-31, 1928	Aug. 4-7, 1928	Aug. 11-14, 1928	Aug. 18-21, 1928	Aug. 25-28, 1928	Sept. 1-4, 1928	Sept. 8-11, 1928	Sept. 15-18, 1928	Sept. 22-25, 1928	Sept. 29-Oct. 2, 1928	Oct. 5-8, 1928	Oct. 12-15, 1928	Oct. 19-22, 1928	Oct. 26-29, 1928	Nov. 2-5, 1928	Nov. 9-12, 1928	Nov. 16-19, 1928	Nov. 23-26, 1928		
Algeria:																				
Algiers.....	8	2	4																	
Oran.....	5	1	21																	
Arabia: Aden.....	1	1																		
Brazil (see table below).																				
British East Africa (see also table below), Kenya—																				
Mombasa.....	C		1																	
British South Africa:																				
Northern Rhodesia.....	310	382	195																	
Southern Rhodesia.....	23	22	7																	
Tanganyika.....	17	5	9																	
Canada:																				
Alberta.....	C	25	6	4	1															
Edmonton.....	C																			
British Columbia—Vancouver.....	C	5	16																	
Manitoba.....	C	1																		
Winnipeg and vicinity.....	C																			
New Brunswick.....	C	5																		
Nova Scotia.....	C																			
Ontario:																				
Kingston.....	C	5	3	15	5															
North Bay.....	C	1	1	1	1															
Ottawa.....	C	1	6	2	2															
Sarulia.....	C	1																		
Quebec.....	C	27	28	75	20															
Montreal.....	C	2	12	4	7															
Quebec.....	C	12	13	12	3															
Saskatchewan:																				
Moose Jaw.....	C	6	3	1	6															
Regina.....	C	2	2	1	2															
Regina.....	C	1	1																	

