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CURRENT PREVALENCE OF COMMUNICABLE DISEASES IN THE UNITED STATES [1]

April 19–May 16, 1936

Influenza.—From a total of 6,138 cases of influenza reported for the week ended April 18 the incidence of influenza dropped to 1,945 cases for the week ended May 16. For the current 4-week period the cases reported by weeks were as follows: 4,163, 3,065, 2,610, and 1,945. For the same period the weekly death rate from all causes in a group of large cities was 13.0, 13.2, 12.6, and 11.9, respectively. While the number of cases of influenza remained considerably in excess of last year's incidence, the death rate for the last week of the 4-week period dropped to the level of 1935 for the first time since the beginning of a minor influenza epidemic in February. Later reports for the week ended May 23 show a still further decline in the number of cases (991) and also in the death rate (11.7).

The current epidemic of influenza apparently started in the West, where the peak was reached during February, and spread into the South Central and South Atlantic regions, where the highest incidence was reached during the month of March. The peak was not reached in the North Central sections until April, and the North Atlantic regions were little affected by the epidemic. While neither the number of cases nor the death rate reached the high level of the 1928–29 epidemic, the weekly death rates have been of about the same magnitude as the peak rates of the minor epidemics of 1931 and 1932–33.

A comparison of geographic areas shows that in the South Central regions the number of cases (6,886) for the 4 weeks ended May 16 was almost 6 times the incidence for the corresponding period in each of

[1] From the Office of Statistical Investigations, U. S. Public Health Service. These summaries include only the 8 important communicable diseases for which the Public Health Service receives weekly telegraphic reports from the State health officers. The numbers of States included for the various diseases are as follows: Typhoid fever, 48; poliomyelitis, 48; meningococcus meningitis, 48; smallpox, 48; measles, 47; diphtheria, 48; scarlet fever, 48; influenza, 44 States and New York City. The District of Columbia is counted as a State in these reports.

the 2 preceding years, and in the West North Central region the incidence was almost 4 times that of 1935 and 1934. While the number of cases (1,211) in the Mountain and Pacific regions was not large, it was about 3 times that for any corresponding period in the 8 years for which these data are available. In the Atlantic Coast and East North Central regions the incidence during the current 4-week period was not far from the seasonal expectancy. While the weekly incidence was fluctuating considerably, the total number of cases in each area for the current period was considerably below that for the preceding 4-week period.

Meningococcus meningitis.—For the 4 weeks ended May 16 there were 912 cases of meningococcus meningitis reported, as compared with 1,169 for the preceding 4-week period. In all sections of the country the disease declined according to the seasonal expectancy. For the country as a whole, the current incidence was about 1.3 times that for the corresponding period in 1935 and more than 4 times the incidence in each of the years 1934 and 1933; it was the highest incidence for any corresponding period since 1929, when 1,166 cases were reported.

A situation similar to that described for the country as a whole existed in the New England and Middle Atlantic region, while in the South Atlantic and South Central regions the number of cases (211 and 217, respectively) exceeded that of 1929 and was the highest in the 8 years for which these data are available. The North Central regions reported appreciable decreases from last year's figure, and in the Mountain and Pacific regions the incidence was practically the same as that of last year.

States showing considerable increases over last year were Tennessee (122 cases), Maryland (53), Pennsylvania (50), New Jersey (28), Texas (26), North Carolina (22), Florida and South Carolina (16 each). In each of these States, however, the current figure was considerably below that for the preceding 4 weeks, and a still further decline may be expected.

Scarlet fever.—The incidence of scarlet fever continued to decline, with 26,142 cases reported for the 4 weeks ended May 16. As compared with recent years, the current incidence was slightly below that for 1935, when 27,281 cases were reported for this period, but it remained well above the incidence in the 6 preceding years. For the first time since the beginning of 1935 the number of cases has fallen as much as 6 percent below the incidence for a corresponding period in the preceding year.

The number of cases (5,180) reported from the West North Central States was about 1.7 times the number reported for this period in 1935 and more than 3 times the number in each of the 3 preceding years; the number from the South Central regions (722) was almost 1.5

times that of last year, and in the Mountain and Pacific regions the increase was about 15 percent. In the New England and Middle Atlantic, East North Central, and South Atlantic regions the incidence fell considerably below that of last year. As compared with earlier years the incidence in the West North Central and Mountain and Pacific regions was the highest in the 8 years for which data are available; in the New England and Middle Atlantic regions the number of cases was considerably below the average for the years 1929–34, inclusive, while in the East North Central States the incidence was about 20 percent above the average for those years. In the South Atlantic States the incidence stood at about the seasonal expectancy.

Typhoid fever.—For the 4 weeks ended May 16 the number of cases of typhoid fever totaled 532, as compared with 629, 843, and 706 for the corresponding period in the years 1935, 1934, and 1933, respectively. The New England and Middle Atlantic and East North Central regions reported increases over 1935, the Mountain and Pacific regions approximately the same incidence, the West North Central and South Central regions about a 50 percent decrease, and the South Atlantic States almost a 25 percent decrease. For the country as whole, as well as for the West North Central, South Atlantic, and South Central regions, the current incidence was the lowest for this period in 8 years. New York, with 52 cases, and Pennsylvania, with 57 cases, seemed mostly responsible for the excess over last year in the New England and Middle Atlantic region, while Ohio, with 40 cases, and Michigan, with 21, placed the incidence in the East North Central region about 35 percent above that of last year.

Measles.—The number of cases of measles (52,581) reported for the current 4-week period was only about 40 percent of the number reported for the corresponding period in each of the years 1935 and 1934; both of these years, however, were unusually high "measles years." A comparison with the more normal years preceding those two shows that the current incidence was considerably below the seasonal expectancy. In the East North Central regions, where the disease has been unusually prevalent, the number of cases (2,812) was only about 10 percent of the average for the years 1929–33, inclusive. In the West North Central region the number (2,248) was less than half of the average for the same period. The disease still remained quite prevalent in the Mountain and Pacific regions. The current incidence (12,190 cases) did not quite reach the high peak of 1935, but it was considerably higher than in preceding years. In the South Atlantic and South Central regions the incidence was relatively low, while in the New England and Middle Atlantic it was about normal.

Diphtheria.—The total number of diphtheria cases reported for the 4 weeks ended May 16 was 1,649, or about 80 percent of the number for the corresponding period in each of the 3 preceding years. For

this period the number of cases in the South Atlantic region was about 10 percent above last year's figure, in the New England and Middle Atlantic region the number (426) closely approximated that of last year, while in all other regions the disease was considerably less prevalent. During the 8 years for which these data are available, diphtheria has gradually declined until the incidence for the current year for the country as a whole has been only about 35 percent of that for the corresponding period in 1929. For the 4-week period in that year corresponding to the one under report, 5,646 cases were reported.

Smallpox.—For the 4 weeks ended May 16 there were 956 cases of smallpox reported. Of the total, Iowa reported 170, Kansas 128, South Dakota 102, Oregon 100, Nebraska 76, Missouri 56, Montana 42, Wyoming 38, Colorado and Wisconsin 29 each, and most of the remaining cases were distributed among the other States in the same geographic regions in which the States mentioned are located. Only 2 cases were reported from the South Atlantic States, 19 from the South Central groups, and none from the New England and Middle Atlantic. For the entire reporting area the current incidence was the highest for any corresponding period in 4 years.

Poliomyelitis.—The incidence of poliomyelitis (64 cases) increased about 35 percent during the current period over the preceding 4-week period. The cases were widely distributed throughout the various geographic regions. California reported 12 cases, Massachusetts and New York 6 cases each, and Texas 5; no more than 4 cases were reported from any other State. The current incidence for the country as a whole was the lowest for this period in the 8 years for which data are available. The New England and Middle Atlantic region reported 16 cases, as compared with 10 last year, but in all other regions the incidence either approximated that of last year or fell considerably below.

Mortality, all causes.—The average mortality from all causes in large cities as reported by the Bureau of the Census for the 4 weeks ended May 16 was 12.7 per 1,000 inhabitants (annual basis). For the corresponding period in the years 1935, 1934, and 1933, the rate was 12.1, 11.8, and 11.0 respectively. The current rate was the highest for this period since 1929, when a rate of 13.0 was reported.

SMALLPOX IMMUNITY IN 5,000 COLLEGE STUDENTS

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Vaccination against smallpox is widely, though not universally, practiced in the United States. The mildness of many cases of smallpox and active opposition to vaccination have tended to create

a feeling that smallpox is not a serious menace and that vaccination is of minor importance. Moreover, in the minds of many persons, one vaccination, successful or unsuccessful, gives or indicates permanent immunity to the disease. On the other hand, many articles have appeared which question the duration of immunity from a single vaccination and which indicate a considerable variation in the time that an individual remains effectively immune following vaccinia.

Scammon and Dudley report an individual relatively immune 64 years after vaccination.[1] Kellogg cites Weil (1899) as reporting 72.5 percent "successful revaccinations" after 7 years and 88.6 percent "successful vaccinations" after 10 years; Kellogg himself [2] reports 204 out of 219, or 93 percent, successful vaccinations averaging 12 years after the first vaccination on school entrance. Dearing and Rosenau report as low as 1.25 percent primary takes (counting as primary takes only those reactions which reach their height on the tenth day or later) in vaccinating over 400 medical students.[3] McCallum reports loss of immunity, as indicated by a typical Jennerian reaction on vaccination, as follows: 2.7 percent within 7 years, 7.4 percent in 7–15 years, 26.4 percent in 15–30 years, and 56.9 percent in 30 years and over.[4]

With such wide variation indicated (perhaps with vaccines of varying degrees of potency as used, and with varying methods of observing and recording the reactions) it would be of value to determine the status of immunity to smallpox, by the criterion of vaccination reactions, on a reasonably large number of the rising generation to see whether we are resting on a false sense of security. This was made possible at Lehigh University through a threat of smallpox which resulted in a regulation requiring vaccination on entrance of all students who had not been successfully vaccinated within 3 years. In our view "successful vaccination within 3 years", so far as a safe interpretation of this rule is concerned, is vaccinia. Under this ruling nearly all of the students who have matriculated at the university since 1924 have been vaccinated by the Students' Health Service. All vaccinations have been carefully observed, and the reaction (diameters in mm) was recorded daily. At first the scratch method was used, and approximately 1,000 vaccinations were performed by this method. Then the multiple pressure method was employed and found equally effective, more convenient, and more acceptable to the students.[5]

[1] Scammon, C. L., and Dudley, O. A.: Bost. Med. & Surg. Jour., *195:* 538 (1926).
[2] Kellogg, Frederic S.: Nation's Health, *6:* 591 (1924).
[3] Dearing, W. P., and Rosenau, M. J.: Jour. Am. Med. Assoc., *102:* 1998–2000 (1934).
[4] McCallum, F.: The Medical Officer (Lond.), vol. 37, no. 19, May 7, 1927.
[5] Thomas, Stanley, and Bull, R. C.: Jour. Am. Med. Assoc., *88:* 1879–81 (1927).

In the 11 years since vaccination has been required, 6,821 vaccinations have been performed on 5,918 students[6] and 5,488 well read records are available. One vaccination was sufficient to supply a good record in 4,813 cases, but in 675 cases revaccination was necessary, mostly on account of missed readings. In 430 cases the students left school before a satisfactory record could be obtained.

In the following tables the "day of reaction" means the day on which the reaction reached its height, i. e., the greatest diameter of areola, counting the day after vaccination as the first day. The designation of immune reactions, vaccinoid reactions, and vaccinias is in accordance with the scheme reported by Surg. J. P. Leake of the U. S. Public Health Service.[7]

The result of the vaccination of the 4,813 students who produced a satisfactory record on the first vaccination at Lehigh is shown in table 1.

TABLE 1.—*One vaccination at college*

Day of reaction	Number	Percent	Number	Percent
1	1,232	25.60	3,384	70.31 Immune.
2	1,499	31.14		
3	653	13.57		
4	548	11.39	1,038	21.56 Vaccinoid.
5	275	5.71		
6	159	3.30		
7	56	1.16		
8+	391	8.13	391	8.13 Vaccinia.
Total	4,813	100.00	4,813	100.00

The result of the vaccination of the 675 students who had to be revaccinated to produce a satisfactory record is shown in table 2.

TABLE 2.—*Repeated college vaccination*

Day of reaction	Number	Percent	Number	Percent
1	295	43.71	557	82.52 Immune.
2	198	29.33		
3	64	9.48		
4	42	6.22	97	14.37 Vaccinoid.
5	32	4.74		
6	19	2.82		
7	4	.59		
8+	21	3.11	21	3.11 Vaccinia.
Total	675	100.00	675	100.00

It would appear that revaccination changed the picture somewhat, giving a higher percentage of immune reactions and a lower percentage of vaccinoid reactions and vaccinias. The combination of tables 1

[6] While a few faculty members and children of faculty families are included, the number of these is so small as to be negligible.

[7] Leake, James P.: Questions and answers on smallpox vaccination. Pub. Health Rept., *42*: 221-238, 2798 (1927). (Reprint No. 1137; revised 1934.)

and 2 gives the end result in the 5,488 cases in which we have good records. This combined result is shown in table 3.

TABLE 3.—*Entire group*

Day of reaction	Number	Percent	Number	Percent
1	1,527	27.83	3,941	71.81 Immune.
2	1,697	30.92		
3	717	13.07		
4	590	10.75	1,135	20.68 Vaccinoid.
5	307	5.59		
6	178	3.24		
7	60	1.09		
8+	412	7.51	412	7.51 Vaccinia.
Total	5,488	100.00	5,488	100.00

Of the entire group, 4,994, or 91 percent of the total, not only gave a history of previous vaccination but showed a good definite scar as evidence of vaccinia. The results in this group are shown in table 4.

TABLE 4.—*Definite scars*

Day of reaction	Number	Percent	Number	Percent
1	1,473	29.50	3,808	76.25 Immune.
2	1,638	32.80		
3	697	13.96		
4	573	11.47	1,099	22.01 Vaccinoid.
5	294	5.89		
6	173	3.46		
7	59	1.18		
8+	87	1.74	87	1.74 Vaccinia.
Total	4,994	100.00	4,994	100.00

In 248 cases, or 4.52 percent of the total, the students gave a history of previous vaccination, and many insisted that they had had "takes", but no scar was found as supporting evidence. The results in this group are shown in table 5.

TABLE 5.—*History of previous vaccination but no scar*

Day of reaction	Number	Percent	Number	Percent
1	33	13.31	85	34.27 Immune.
2	38	15.32		
3	14	5.64		
4	14	5.64	28	11.29 Vaccinoid.
5	8	3.23		
6	5	2.02		
7	1	.40		
8+	135	54.44	135	54.44 Vaccinia.
Total	248	100.00	248	100.00

In 193 cases, or 3.52 percent of the total, the students gave a history of never having been vaccinated. Some of these objected to

vaccination, but the majority did not object when the reason for vaccination was explained to them, showing, in the instances in which there was not a forgotten immunization, that the lack of protection was due either to parental objection or to plain neglect. The results in this group are shown in table 6.

TABLE 6.—*Never vaccinated*

Day of reaction	Number	Percent	Number	Percent
1	7	3.63	11	5.70 Immune.
2	8	1.55		
3	1	.52		
4	0	0.00	2	1.04 Vaccinoid.
5	2	1.04		
6	0	0.00		
7	0	0.00		
8+	180	93.26	180	93.26 Vaccinia.
Total	193	100.00	193	100.00

In a small group of 53, or less than 1 percent of the total, there was a history of previous vaccination, but through clerical oversight the record of a scar was not entered on the card. These could not properly be included in tables 4 or 5, but probably some belonged in each. They do not belong in table 6, since each gave a history of previous vaccination. The results in this group are shown in table 7.

TABLE 7.—*History of previous vaccination but no record made as to scar*

Day of reaction	Number	Percent	Number	Percent
1	14	26.42	37	69.81 Immune.
2	18	33.96		
3	5	9.43		
4	3	5.66	6	11.32 Vaccinoid.
5	3	5.66		
6	0	0.00		
7	0	0.00		
8+	10	18.87	10	18.87 Vaccinia.
Total	53	100.00	53	100.00

In table 6 it will be noted that 13 students who gave a history of never having been vaccinated did not develop vaccinia but showed varying degrees of immunity. Of these, 1 gave a very definite history of smallpox, which undoubtedly accounts for his immunity. Five gave a history of chicken pox which, from conversation with Surg. J. P. Leake, leads us to suspect that some of these may have had mild cases of smallpox diagnosed as chicken pox, which would account for their immunity. Five definitely stated that they had never had either chicken pox or smallpox, and we cannot explain their immunity if the history of no previous immunization is correct. In 2 cases this portion of the history was not obtained.

In connection with those never vaccinated (table 6), there are 2 cases recorded in table 5 which should be considered with this group. One graduate student gave a very definite history of having had a severe case of smallpox twenty-eight years previously, when he was less than 1 year of age. He was never vaccinated until 2 years before entering Lehigh, when vaccination was required on account of crossing an international boundary. He reported that nothing happened on that vaccination, which probably means that he gave an immune reaction if the vaccine was potent. On revaccination here he showed a very definite first day immune reaction. The other student, now in school, gives a history of having had a mild case of smallpox 17 years before entering the university. At the time he had the disease he said that 40 out of 45 pupils in the school he was attending had the infection. Some of the cases were quarantined as smallpox, others as chicken pox, all being mild in nature. He had been vaccinated before the attack but got no scar, and so probably the vaccine was impotent and afforded no protection. He was revaccinated once after the attack with no result, according to his statement. On this first vaccination here he showed a very typical vaccinia, with the exception of the fact that it reached its height seven days after vaccination. Three months later he was revaccinated here and gave a first day immune reaction. This case was reported to Surg. J. P. Leake, who said that he thought it should be counted as a vaccinia accelerated by the previous attack of smallpox.[8]

Out of the total of 5,918 we have records of the geographical distribution of 5,379, representing 43 States, the District of Columbia, and 27 foreign countries. On 539 records this information is lacking. The distribution is shown in table 8.

TABLE 8.—*Geographic distribution of 5,379 students vaccinated*

Alabama	7	Louisiana	1	Oklahoma	5
Arkansas	4	Maine	4	Oregon	2
California	7	Maryland	124	Pennsylvania	2,417
Colorado	7	Massachusetts	81	Rhode Island	14
Connecticut	119	Michigan	21	South Carolina	3
Delaware	36	Minnesota	10	Tennessee	5
District of Columbia	83	Missouri	13	Texas	13
Florida	8	Montana	3	Utah	5
Georgia	7	Nebraska	1	Vermont	3
Idaho	1	Nevada	1	Virginia	39
Illinois	34	New Hampshire	6	Washington	4
Indiana	15	New Jersey	1,063	West Virginia	40
Iowa	3	New York	993	Wisconsin	8
Kansas	3	North Carolina	4	Wyoming	2
Kentucky	6	Ohio	94	Foreign	60

[8] Personal communication.

The relative distribution of those students who had never been vaccinated is interesting. In table 6, 193 such cases are listed. Five others falling in this group were vaccinated but their records were never completed (hence are not included in the 5,488 recorded in tables 1–7), making a total of 198 with no previous vaccination, or 3.38 percent of the 5,858 students from the United States. All foreign-born students had been vaccinated before coming to Lehigh. The geographical distribution of these students not previously vaccinated, together with the total number from each State, is shown in table 9. In this table only individual States having 30 or more students are shown, since the smaller delegations would give unreliable figures.

TABLE 9.—*Geographic distribution of those never vaccinated*

State	Number of students	Never vaccinated	
		Number	Percent
Connecticut	119	10	8.40
New Jersey	1,063	86	8.09
New York	993	50	5.04
Massachusetts	81	4	4.94
Ohio	94	3	3.19
Delaware	36	1	2.78
Virginia	39	1	2.56
West Virginia	40	1	2.50
Maryland	124	3	2.42
Pennsylvania	2,417	7	.29
District of Columbia	83	0	0.00
Illinois	34	0	0.00
Other Northeastern States	27	1	3.70
Other East North Central States	44	2	4.55
Other South Atlantic and East South Central States	40	2	5.00
Other West North Central States	30	2	6.67
Other West South Central States	23	2	8.70
Other Mountain and Pacific States	32	3	9.38
State unknown	539	20	3.71
Foreign	60	0	0.00
Total	5,918	198	

Among those students who had been previously vaccinated and whose histories contained definite statements as to the years which had elapsed since vaccinia, there is a considerable variation. This is best shown by means of a graph (figure 1). In this graph only the periods of 1 to 20 years are shown, as very few students have had vaccinia more than 20 years before coming to college; most of the faculty members fall in the latter group.

It will be noted that the largest group had been vaccinated and developed vaccinia 12 years before coming to college. This is explained by the fact that most children are vaccinated when they start in grade school and the normal period from grade school to college is 12 years. Considering the group as a whole, it can be divided readily into 3 subgroups—those from 1 to 9 years, inclusive, those from 10 to 15 years, inclusive, and those from 16 to 40 years, inclusive. The results of the vaccination in these 3 subgroups is shown in table 10.

TABLE 10.—*Years since vaccinia*

Years since vaccinated	Number	Immune reaction		Vaccinoid reaction		Vaccinia	
		Number	Percent	Number	Percent	Number	Percent
1 to 9	1,007	778	77.26	204	20.26	25	2.48
10 to 15	3,627	2,755	75.96	802	22.11	70	1.93
16 to 40	407	292	71.74	103	25.31	12	2.95
	5041						

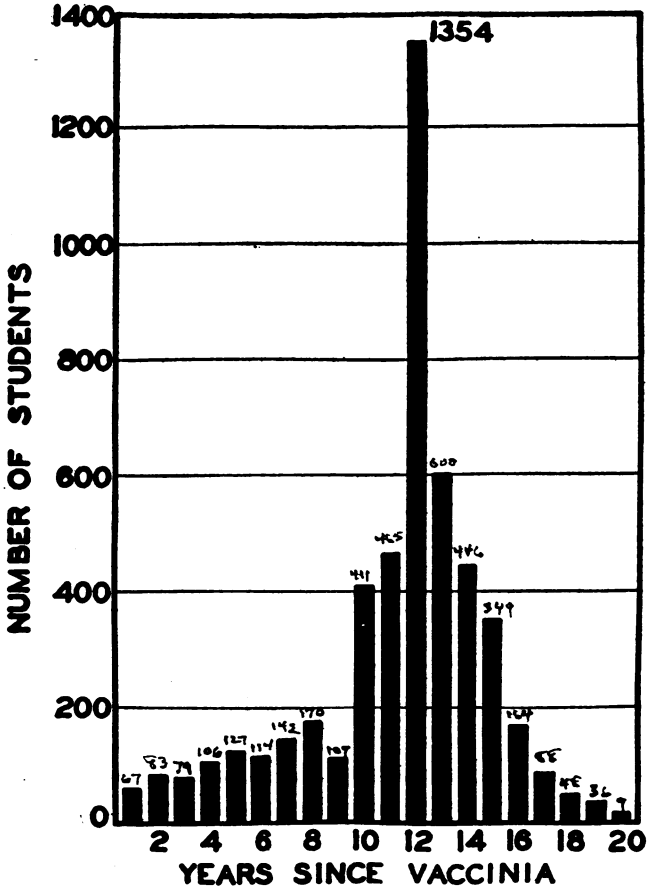

FIGURE 1.—Number of years since vaccinia.

These figures differ considerably from some reports that have been published in recent years. Muldoon reports on one group of 235 individuals who had vaccinias in 1923 and the same group showed 44 percent vaccinias on revaccination in 1928, but this author does not distinguish vaccinoid reactions. The same author reports another group of 32 individuals all of whom were "successfully vaccinated" in 1921. Seven years later, in 1928, all were revaccinated, and 88

percent again developed typical takes.[9] The official German publication on vaccination [10] states that during the years 1917–1921, 92.99 to 93.89 percent of individuals were successfully revaccinated 10 years after their primary vaccination, and that revaccination is necessary after this period. Kellogg states that 92 percent of 310 applicants for life insurance, presumably in Pittsburgh, had only one vaccination.[11] Woodward, in speaking of the epidemic of smallpox in Los Angeles during the first 4 months of 1926, states that of the 1,000 cases, with 164 deaths "not one person who had been vaccinated within 20 years died." [12] This would indicate that, while immunity may be very markedly decreased after 20 years, there is still some immunity retained in many instances. Since the largest group in our series had been vaccinated 12 years before coming to college, it is of interest to note the reactions of these 1,354 students, which are shown in table 11.

TABLE 11.—*Twelve years since vaccinia*

Day of reaction	Number	Percent	Number	Percent
1	405	29.91	1,019	75.26 Immune.
2	435	32.13		
3	179	13.22		
4	163	12.04	308	22.75 Vaccinoid.
5	89	6.57		
6	46	3.40		
7	10	.74		
8+	27	1.99	27	1.99 Vaccinia.
Total	1,354	100.00	1,354	100.00

The requirement of daily readings in the development of our records has been rather rigidly adhered to. We have insisted on consecutive daily observations, with a uniform method of measurement, until 3 days after the height of the reaction has been reached. Of the 5,488 on whom we have good records, 4,813 completed their records on one vaccination while 675 had to be revaccinated, and 870 revaccinations had to be performed on these before all records were complete. Missed readings caused the greatest number of revaccinations. Other causes for revaccination were as follows: "Insufficient reaction", "neuro vaccine" (which was tried but discarded), the multiple pressure method when it was considered in the experimental stage here and designated "new method", also "later at request", "no previous vaccinia", and a few cases where no reason can

[9] Muldoon, Mary T.: New Eng. Jour. Med., *198:* 32 (1923).
[10] Blattern und Schutzpockenimpfung. Berlin, 1925. Pp. 77, 91.
[11] Kellogg, Frederic S.: Nation's Health, *6:* 591 (1924).
[12] Woodward, S. B.: Boston Med. & Surg. Jour., *195:* 832 (1926).

be assigned from a study of the records. The numbers revaccinated for various reasons are shown in table 12.

TABLE 12.—*Reasons for revaccinations*

Missed readings	458	Later at request	14
Insufficient reaction	266	No previous vaccinia	13
Neuro vaccine	62		
No reason assigned	38		870
New method	19		

Of the 430 records which have been discarded as incomplete, revaccination was ordered for one of the reasons noted in table 12, but the students left school before a satisfactory record could be obtained, although 33 revaccinations were done on members of this group.

In all, 24 different operators performed 6,821 vaccinations. In this entire series we have found that approximately 4 percent of the original vaccinations were unsatisfactory because of insufficient reaction. Fourteen operators performed 100 or more vaccinations each. Table 13 shows these operators, with the number of vaccinations performed by each, the number of failures, and the percent of failures for each.

TABLE 13.—*Vaccinations and failures*

Operator	Number of vaccinations	Insufficient reactions	
		Number	Percent
a	2,454	35	1.43
b	1,271	48	3.78
c	437	17	3.89
d	413	18	4.36
e	346	4	1.16
f	336	7	2.08
g	239	7	2.93
h	198	67	33.84
i	187	25	13.37
k	131	3	2.29
l	114	8	7.02
m	112	1	.89
n	110	5	4.54
o	100	8	8.00
Subtotal	6,448	253	----------
10 other operators	373	13	3.48
Total	6,821	266	----------

It will be noted that one operator had a very high record of failures. This particular operator worked two different years. In the first year's work his record was practically the same as that of the other operators, but in the second year, for some unknown reason, his record of failures was very high. While no difference was noted in his technique during the vaccinations, we suspect that he became a little careless in applying a good firm pressure each time the needle was applied to the arm. This experience, which caused us to revaccinate nearly 60 students in one year for this reason alone, has

been a warning to us that the pressure technique must be carefully followed if satisfactory results are to be obtained.

COMMENTS

In making this survey it will be noted that we have reported on only 5,488 out of 5,918 students vaccinated. The reason for the elimination of 430 records is that they do not show definitely a result which is not subject to question. In some of the earlier vaccinations the cards show that the individuals were certified as immune, vaccinoid, or vaccinia, which may have been justified at the time, but sufficient data was not entered on the cards to enable us to draw the same conclusion from a subsequent study of the record alone. We desired that only well read vaccinations should enter into the report.

With the large numbers to be vaccinated, it was necessary to develop some scheme which would permit the handling of such numbers in a minimum amount of time. Four specially selected student clerks were used to fill out the face of the cards, with one member of the health-service staff available to supervise and check this work. The students who were to be vaccinated reported to these clerks and then, carrying their cards, passed single file and with sleeves rolled up through a door, at which point a nurse cleaned the arms with 25-percent acetone in alcohol. Each student then passed on to one of three tables at each of which was an operator and a clerk As the subject was being vaccinated, the clerk entered on the card the date of vaccination, the operator's initials, and the vaccine used, together with its serial number and date of expiration. The students then passed out of the building by a second door; no "back tracking" was permitted. The clerks retained the cards, filing them immediately after the work of the day had been completed. In this manner over 400 students were vaccinated in 2 hours. The same general scheme was followed in making the readings, the students getting their records from the file clerks and getting the readings at the same tables where they were vaccinated. No clerks were employed in recording the readings, as it was felt that greater accuracy would be obtained by having each trained observer make his own notations. In general, it required only about half as long to make the readings as it did to make the first record and vaccinate.

We used the scratch method at first, but it had many objections. Sleeves could not be rolled down until the vaccine was dry, unless some special form of dressing or protection was used, which is undesirable from many standpoints. The method was slower than the multiple pressure method. The latter method is also much more acceptable to those being vaccinated and has done much to eliminate objection on the part of the students. Many of them do not realize that they are being vaccinated, speaking of the procedure as "only

a test." While we were using the scratch method it was not unusual to have a dozen boys faint in the course of an afternoon's vaccinating, but since we have introduced the multiple pressure method fainting is a very rare occurrence.

In making the readings we use a millimeter scale and always measure the reaction in the transverse diameter. The diameter recorded includes all of the tissue involved in the reaction; and where there are definite zones present, these are recorded with the diameter of each. Degrees of elevation, redness, and vesiculation are also roughly indicated by the very ingenious "shorthand" system developed by von Pirquet and modified by Force and Leake, but the diameter of the tissue involved in the reaction is the criterion used in determining the type of reaction.

Exceptional support by the administrative officers of the university has made it possible for us to vaccinate practically every student who has entered the university in the past 11 years. A few students, on seeing the rule in the catalog, have been vaccinated during the summer before entrance and have presented certificates of such vaccination. The only certificates we accept are those which are accompanied by a record of readings comparable to ours, a good and evidently very recent scar, or a vaccination actually in the process of "taking." At first many students tried by various means to escape the vaccination requirement. In recent years the objections have been less numerous and less strenuous, partly on account of the apparent ease and mildness of the pressure method and partly on account of the fact that the student body has become educated to the procedure.

We have been very careful to use good potent virus, ordering our vaccine from one of the larger manufacturers not far from Bethlehem, always requesting fresh material and storing it in an electric refrigerator. Since our order is a fairly large one, we usually get vaccine all of one lot number and from the last lot tested. We have tried vaccine from two different lots in one vaccination period, but have never been able to detect any difference in potency. One fall we tried 100 tubes of a vaccine made from rabbits' spinal cords and compared results with the regular vaccine. We were not satisfied with the reactions in most of the cases, and this accounts for the 62 revaccinations on account of "neuro vaccine."

In our series the loss of immunity has apparently not been so rapid as in some other reports. We do not wish this to be taken as an indication that we feel that revaccination is any the less necessary; quite the contrary. According to our figures, at least 1.74 percent of all who have been previously vaccinated and have definite scars have completely lost their immunity; and in the group who had their last vaccinia 12 years previously, 1.99 percent had completely lost

their immunity. Even though this may indicate a reasonable retention of immunity, it is not fair to those who have lost their protection to argue against revaccination. Had virulent smallpox appeared, the degree of protection corresponding to a vaccinoid would not have been satisfactory.

We had one individual who apparently loses his immunity rapidly, as evidenced by 4 scars each representing a vaccinia and the vaccinias spaced approximately 2 years apart. Our revaccination of this individual was 2 years following his last vaccinia and resulted in a perfectly typical "take." Similar cases might be more prominent in another series.

With the exception of the one student who had an accelerated vaccinia, due to previous smallpox, we have counted as vaccinia only those cases in which the reaction by actual measurement reached its height on the eighth day or later. Many of the cases which we recorded as vaccinoid looked like vaccinia and would have been so designated except for the record of measurements and observation of the later course of the reaction. Some of our vaccinoids left apparent scars, but they were not as definite at any time as true vaccinia scars and tended to fade out in a few months. In our experience the scar of a true vaccinia never disappears.

Whether the results obtained at Lehigh are a fair cross section of the college students of the country may be open to some question. It is a men's college and is located in the industrial section of the country. While it is probably best known as an engineering college, the enrollment in arts and business administration combined is only slightly less than that in engineering. The geographical distribution of the student body is fairly representative, though naturally the majority come from Pennsylvania, New Jersey, and New York. Still, youth is youth no matter from what part of the country it originates. We see no reason why those who have never been vaccinated should either seek or avoid Lehigh. We see no reason why Lehigh students should either retain immunity longer or lose their immunity more rapidly than others. Records gathered here, we feel, should apply with a reasonable degree of accuracy to the country at large.

CONCLUSIONS

1. Seventy-five out of each 1,000 college students are without adequate protection against smallpox. This means that 83,250 [13] students in our colleges today need to be vaccinated and the only way to find these individuals is to revaccinate all.

2. More than 33 out of each 1,000 American students starting college each year have never been vaccinated. They offer a fertile

[13] Based on enrollment of 1,110,078 college students in regular session 1931-32, estimated by Dr. Emery M. Foster, chief of statistics, Office of Education, Department of the Interior, July 30, 1935. (Personal communication.)

field for the infection of smallpox and, with no protection at all, might easily be the nucleus for an epidemic of virulent smallpox with a high mortality rate.

3. As college students are the future leaders of public opinion, we can imagine no better group to be educated in what constitutes adequate protection against smallpox. They, in turn, should disseminate this information among the public at large.

DEATHS DURING WEEK ENDED MAY 16, 1936

[From the Weekly Health Index, issued by the Bureau of the Census, Department of Commerce]

	Week ended May 16, 1936	Corresponding week, 1935
Data from 86 large cities of the United States:		
Total deaths	8,511	8,380
Deaths per 1,000 population, annual basis	11.9	11.7
Deaths under 1 year of age	586	550
Deaths under 1 year of age per 1,000 estimated live births	53	50
Deaths per 1,000 population, annual basis, first 20 weeks of year	13.4	12.5
Data from industrial insurance companies:		
Policies in force	68,269,107	67,773,031
Number of death claims	13,213	14,299
Death claims per 1,000 policies in force, annual rate	10.1	11.0
Death claims per 1,000 policies, first 20 weeks of year, annual rate	10.8	10.7

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 May 23, 1936, and May 25, 1935

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended May 23, 1936, and May 25, 1935

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended May 23, 1936	Week ended May 25, 1935	Week ended May 23, 1936	Week ended May 25, 1935	Week ended May 23, 1936	Week ended May 25, 1935	Week ended May 23, 1936	Week ended May 25, 1935
New England States:								
Maine	4	1	6	3	352	172	0	0
New Hampshire	----	----	----	----	69	12	0	0
Vermont	----	----	----	----	354	49	0	0
Massachusetts	6	11	----	----	1,448	378	4	2
Rhode Island	2	1	----	----	70	488	1	3
Connecticut	3	1	----	2	219	918	3	0
Middle Atlantic States:								
New York	35	29	[1] 1	[1] 5	3,212	2,904	19	12
New Jersey	5	23	3	6	588	2,258	4	3
Pennsylvania	42	36	----	----	1,257	2,877	15	9
East North Central States:								
Ohio	9	38	19	5	435	1,241	9	13
Indiana	13	13	29	7	10	270	5	4
Illinois	35	57	62	10	29	1,675	9	20
Michigan	9	12	2	3	104	4,316	5	3
Wisconsin	8	1	34	18	222	1,694	0	2
West North Central States:								
Minnesota	1	4	2	----	412	523	2	3
Iowa	2	9	1	5	8	231	1	2
Missouri	16	23	50	36	20	332	2	7
North Dakota	----	----	----	4	2	32	0	0
South Dakota	1	2	----	----	----	35	0	0
Nebraska	----	4	----	----	22	191	0	1
Kansas	2	3	4	1	10	656	1	3
South Atlantic States:								
Delaware	----	1	----	----	11	12	0	0
Maryland [2] [3]	----	11	5	6	216	96	7	8
District of Columbia	19	12	1	----	161	66	4	10
Virginia	10	15	33	----	111	683	9	6
West Virginia	5	8	30	35	93	357	6	1
North Carolina	9	10	4	4	19	131	6	2
South Carolina	3	1	104	119	62	12	1	0
Georgia [4]	6	10	----	----	8	26	3	0
Florida	4	----	4	1	19	39	0	0

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended May 23, 1936, and May 25, 1935—Continued

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended May 23, 1936	Week ended May 25, 1935	Week ended May 23, 1936	Week ended May 25, 1935	Week ended May 23, 1936	Week ended May 25, 1935	Week ended May 23, 1936	Week ended May 25, 1935
East South Central States:								
Kentucky	9	4	30	9	37	268	13	2
Tennessee	7	5	74	12	35	24	4	7
Alabama [4]	11	8	14	7	5	119	1	1
Mississippi [3]	4	3	----	----	----	----	2	1
West South Central States:								
Arkansas	3	5	43	38	9	83	0	0
Louisiana	12	13	44	5	72	24	1	1
Oklahoma [3]	4	4	71	47	21	65	1	1
Texas [4]	26	31	138	57	216	54	3	6
Mountain States:								
Montana [3]	2	2	14	54	4	389	0	0
Idaho [3]	----	----	----	3	16	9	1	0
Wyoming [3]	1	----	----	----	2	71	0	0
Colorado [3]	7	2	----	----	36	339	0	1
New Mexico	6	1	2	7	43	18	2	1
Arizona	----	7	30	8	137	22	1	2
Utah [3]	----	2	5	2	24	----	0	0
Pacific States:								
Washington	3	----	----	----	437	286	0	1
Oregon [3]	2	----	18	21	238	182	0	0
California	27	23	147	32	2,096	1,612	6	14
Total	373	446	1,024	572	12,971	26,239	151	152
First 21 weeks of year	11,339	13,475	135,782	100,109	207,146	576,371	4,872	2,995

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended May 23, 1936	Week ended May 25, 1935	Week ended May 23, 1936	Week ended May 25, 1935	Week ended May 23, 1936	Week ended May 25, 1935	Week ended May 23, 1936	Week ended May 25, 1935
New England States:								
Maine	0	0	8	6	0	0	0	2
New Hampshire	0	0	10	12	0	0	0	0
Vermont	0	0	1	2	0	0	0	1
Massachusetts	5	2	202	234	0	0	1	1
Rhode Island	1	0	26	9	0	0	0	0
Connecticut	0	0	34	130	0	0	0	1
Middle Atlantic States:								
New York	0	2	703	1,105	0	0	5	6
New Jersey	0	1	284	177	0	0	2	2
Pennsylvania	3	0	573	564	0	0	10	5
East North Central States:								
Ohio	0	0	171	533	0	0	14	0
Indiana	0	0	123	79	1	1	1	2
Illinois	1	0	512	1,184	20	5	4	5
Michigan	4	0	259	374	0	0	5	7
Wisconsin	0	1	416	538	6	7	2	1
West North Central States:								
Minnesota	0	0	244	279	10	4	1	3
Iowa	0	0	136	79	33	3	7	4
Missouri	0	0	194	48	4	6	1	3
North Dakota	0	0	130	83	6	0	1	3
South Dakota	0	0	71	11	21	9	0	0
Nebraska	0	0	77	54	14	39	0	0
Kansas	0	0	267	40	38	45	0	2
South Atlantic States:								
Delaware	0	0	9	9	0	0	0	0
Maryland [3] [5]	0	0	50	91	0	0	2	7
District of Columbia	0	0	17	46	0	0	0	1
Virginia	0	0	37	23	0	0	4	7
West Virginia	0	0	28	56	0	0	9	9
North Carolina	1	17	12	16	0	0	4	6
South Carolina	0	0	2	4	0	0	1	17
Georgia [4]	0	3	8	----	0	1	7	17
Florida	0	0	4	2	0	0	5	8

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended May 23, 1936, and May 25, 1935—Continued

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended May 23, 1936	Week ended May 25, 1935	Week ended May 23, 1936	Week ended May 25, 1935	Week ended May 23, 1936	Week ended May 25, 1935	Week ended May 23, 1936	Week ended May 25, 1935
East South Central States:								
Kentucky	1	0	22	29	0	0	5	2
Tennessee	2	0	13	9	0	0	4	5
Alabama [4]	0	1	3	8	0	0	0	9
Mississippi [2]	0	0	4	6	0	0	1	4
West South Central States:								
Arkansas	0	0	5	7	0	0	3	7
Louisiana	0	2	4	5	0	0	13	10
Oklahoma [5]	0	1	34	-------	2	2	6	0
Texas [4]	0	0	49	26	1	8	7	9
Mountain States:								
Montana [3]	0	0	56	9	12	12	0	0
Idaho [3]	0	0	16	1	6	0	1	0
Wyoming [3]	0	0	25	20	10	2	0	0
Colorado [3]	0	0	83	124	1	3	4	1
New Mexico	0	0	75	11	0	0	7	1
Arizona	0	1	11	31	0	0	2	3
Utah [3]	0	0	55	108	3	0	0	0
Pacific States:								
Washington	0	0	91	55	3	39	4	1
Oregon [3]	0	0	18	22	20	1	0	2
California	4	6	266	235	4	16	13	5
Total	22	37	5,438	6,494	215	203	156	179
First 21 weeks of year	381	515	155,837	149,363	4,834	3,981	2,455	2,911

[1] New York City only.
[2] Week ended earlier than Saturday.
[3] Rocky Mountain spotted fever, week ended May 23, 1936, 28 cases, as follows: Maryland, 2; Montana, 10; Idaho, 2; Wyoming, 6; Colorado, 2; Oregon, 6.
[4] Typhus fever, week ended May 23, 1936, 15 cases, as follows: Georgia, 8; Alabama, 2; Texas, 5.
[5] Exclusive of Oklahoma City and Tulsa.

SUMMARY OF MONTHLY REPORTS FROM STATES

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

State	Meningococcus meningitis	Diphtheria	Influenza	Malaria	Measles	Pellagra	Poliomyelitis	Scarlet fever	Smallpox	Typhoid fever
April 1936										
Arizona	6	15	543	1	643	2	0	116	0	3
California	39	147	2,015	18	13,745	14	13	1,610	12	38
Georgia	18	42	1,381	212	45	24	1	100	0	17
Idaho	4	3	25	-------	167	-------	1	198	5	0
Illinois	69	147	287	17	128	-------	1	3,392	21	24
Kansas	8	35	274	4	85	2	2	1,685	171	4
Louisiana	14	39	1,129	165	248	7	0	36	1	15
Mississippi	7	18	10,652	3,945	-------	286	1	24	4	1
Nevada	2	-------	18	-------	20	-------	0	70	0	0
Oklahoma [1]	20	35	1,693	55	49	18	2	181	3	8
Oregon	5	5	345	2	1,058	-------	2	184	102	14
Rhode Island	8	6	3	-------	345	-------	1	163	0	1
South Dakota	1	8	23	-------	31	-------	0	340	124	1
Texas	39	174	2,635	1,901	1,581	58	0	322	6	19
West Virginia	48	37	453	-------	297	-------	2	173	0	19

[1] Exclusive of Oklahoma City and Tulsa.

April 1936

	Cases
Actinomycosis:	
Illinois	2
Anthrax:	
Georgia	1
Botulism:	
California	1
Chicken pox:	
Arizona	105
California	2,755
Georgia	237
Idaho	22
Illinois	1,592
Kansas	592
Louisiana	48
Mississippi	330
Nevada	6
Oklahoma [1]	31
Oregon	141
Rhode Island	34
South Dakota	56
Texas	304
West Virginia	118
Conjunctivitis:	
Georgia	1
Oklahoma [1]	3
Dengue:	
Louisiana	1
Texas	1
Dysentery:	
Arizona	25
California (amoebic)	5
California (bacillary)	13
Georgia (amoebic)	8
Georgia (bacillary)	4
Illinois (amoebic)	8
Illinois (amoebic carriers)	16
Illinois (bacillary)	5
Louisiana (amoebic)	3
Mississippi (amoebic)	49
Mississippi (bacillary)	311
Oklahoma [1]	2
Texas (bacillary)	3
Epidemic encephalitis:	
Arizona	1
Georgia	1
Illinois	7
Louisiana	1
Oklahoma [1]	4
Oregon	1
Texas	5
Favus:	
Illinois	1
Food poisoning:	
California	24
German measles:	
Arizona	94
California	2,337
Illinois	45
Kansas	8
Rhode Island	473
Granuloma, coccidioidal:	
California	4

April 1936—Continued

	Cases
Hookworm disease:	
California	1
Georgia	1,165
Louisiana	17
Mississippi	142
Impetigo contagiosa:	
Kansas	1
Oklahoma [1]	2
Oregon	41
Jaundice, epidemic:	
California	1
Lead poisoning:	
Illinois	4
Leprosy:	
California	1
Louisiana	1
Mumps:	
Arizona	184
California	2,770
Georgia	459
Idaho	172
Illinois	1,222
Kansas	341
Louisiana	56
Mississippi	1,239
Nevada	10
Oklahoma [1]	108
Oregon	127
Rhode Island	167
South Dakota	51
Texas	1,453
West Virginia	149
Ophthalmia neonatorum:	
Illinois	6
Kansas	1
Mississippi	14
Oklahoma [1]	1
Paratyphoid fever:	
California	1
Georgia	2
Oregon	1
Texas	13
Plague:	
California	1
Puerperal septicemia:	
Mississippi	15
Oregon	1
Rabies in animals:	
California	80
Illinois	40
Louisiana	15
Mississippi	6
Oregon	3
Texas	18
West Virginia	1
Rocky Mountain spotted fever:	
California	1
Idaho	1
Nevada	2
Oregon	5
Scabies:	
Oklahoma [1]	7
Oregon	27

April 1936—Continued

	Cases
Septic sore throat:	
California	17
Georgia	43
Idaho	4
Illinois	7
Kansas	15
Louisiana	5
Oklahoma	28
Oregon	5
Rhode Island	7
South Dakota	6
Tetanus:	
California	7
Georgia	3
Illinois	3
Louisiana	4
Rhode Island	1
South Dakota	1
Trachoma:	
Arizona	69
California	25
Idaho	15
Illinois	159
Mississippi	6
Oklahoma [1]	7
Trichinosis:	
California	2
Tularaemia:	
California	1
Georgia	4
Illinois	1
Kansas	1
Louisiana	5
Typhus fever:	
Georgia	6
Texas	8
Undulant fever:	
California	10
Georgia	6
Idaho	3
Illinois	2
Kansas	4
Mississippi	2
Oklahoma [1]	2
Vincent's infection:	
Illinois	19
Kansas	26
Oklahoma [1]	4
Oregon	11
Whooping cough:	
Arizona	47
California	1,962
Georgia	68
Idaho	11
Illinois	1,031
Kansas	179
Louisiana	174
Mississippi	516
Nevada	7
Oklahoma [1]	43
Oregon	55
Rhode Island	42
South Dakota	27
Texas	162
West Virginia	45

[1] Exclusive of Oklahoma City and Tulsa.

WEEKLY REPORTS FROM CITIES

City reports for week ended May 16, 1936

This table summarizes the reports received weekly from a selected list of 140 cities for the purpose of showing a cross section of the current urban incidence of the communicable diseases listed in the table. Weekly reports are received from about 700 cities, from which the data are tabulated and filed for reference.

State and city	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
		Cases	Deaths								
Maine:											
Portland	0	------	0	118	0	3	0	0	0	7	21
New Hampshire:											
Concord	0	------	0	0	1	1	0	1	0	0	8
Manchester	------	------	------	------	------	------	------	------	------	------	------
Nashua	0	------	------	17	------	0	0	------	0	0	------
Vermont:											
Barre	------	------	------	------	------	------	------	------	------	------	------
Burlington	0	------	0	73	0	0	0	0	0	0	10
Rutland	0	------	0	23	0	1	0	0	0	0	3
Massachusetts:											
Boston	3	------	0	453	10	65	0	7	0	36	217
Fall River	1	------	0	12	0	3	0	0	0	4	32
Springfield	0	------	0	1	0	9	0	0	0	3	35
Worcester	2	------	0	121	9	12	0	0	0	9	51
Rhode Island:											
Pawtucket	0	------	0	0	0	2	0	0	0	0	14
Providence	0	------	1	25	3	18	0	3	0	1	61
Connecticut:											
Bridgeport	1	------	0	2	4	0	0	1	0	7	33
Hartford	0	------	0	3	2	10	0	0	0	2	20
New Haven	0	1	0	0	3	0	0	0	0	42	48
New York:											
Buffalo	0	------	0	42	8	41	0	8	0	0	145
New York	34	------	8	1,964	132	410	0	89	4	81	1,467
Rochester	0	------	0	7	6	4	0	1	0	2	88
Syracuse	0	------	0	95	3	13	0	1	0	17	44
New Jersey:											
Camden	1	1	1	19	2	5	0	0	0	0	------
Newark	0	1	0	11	6	83	0	6	0	10	97
Trenton	0	------	0	1	3	10	0	3	0	13	38
Pennsylvania:											
Philadelphia	1	5	5	729	41	79	0	18	0	58	494
Pittsburgh	6	------	2	12	44	97	0	10	0	23	200
Reading	2	------	0	28	3	1	0	0	0	4	42
Scranton	0	------	------	0	------	1	0	------	0	2	------
Ohio:											
Cincinnati	1	------	0	42	10	13	0	13	0	3	129
Cleveland	3	5	1	117	21	50	0	13	0	109	212
Columbus	2	------	0	2	2	5	0	6	0	12	99
Toledo	0	------	0	61	5	5	0	6	1	26	66
Indiana:											
Anderson	0	------	0	0	1	7	0	0	0	4	5
Fort Wayne	1	------	0	0	0	4	0	0	0	0	28
Indianapolis	0	------	1	3	25	31	0	7	0	23	120
Muncie	0	------	0	2	2	3	0	1	0	0	13
South Bend	0	------	0	0	0	3	0	0	0	1	16
Terre Haute	1	------	0	0	0	2	0	0	0	0	19
Illinois:											
Alton	0	------	0	0	1	3	0	0	0	0	9
Chicago	24	6	5	15	68	201	0	27	1	168	727
Elgin	0	------	0	0	3	1	0	0	0	2	12
Moline	0	------	0	0	1	7	0	0	0	0	11
Springfield	0	1	1	1	0	6	0	0	0	0	16
Michigan:											
Detroit	7	2	2	41	22	108	0	10	1	262	306
Flint	0	------	1	1	8	7	0	1	4	21	34
Grand Rapids	0	------	0	7	2	6	0	0	0	1	29
Wisconsin:											
Kenosha	0	------	0	0	0	5	0	0	0	2	12
Madison	0	------	------	4	------	10	0	------	0	7	------
Milwaukee	0	------	0	9	6	63	0	3	0	78	110
Racine	0	------	0	9	0	5	0	0	0	1	13
Superior	0	------	0	2	4	16	0	0	0	0	11
Minnesota:											
Duluth	0	------	0	10	4	16	0	0	0	22	24
Minneapolis	1	------	1	146	20	91	0	3	0	11	107
St. Paul	0	------	0	246	3	32	0	2	0	0	53

City reports for week ended May 16, 1936—Continued

State and city	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths all causes
		Cases	Deaths								
Iowa:											
Cedar Rapids	1			0		2	0		1	1	
Davenport	0			0		4	0		0	0	
Des Moines	0		0	0		5	18		0	0	24
Sioux City	0			0		12	19		1	1	
Waterloo	0			1		3	2		0	0	
Missouri:											
Kansas City	4		1	2	13	50	0	3	0	1	88
St. Joseph	0		0	0	2	2	3	0	0	0	21
St. Louis	4	1	0	2	8	49	0	5	0	9	186
North Dakota:											
Fargo	0		0	0	0	0	0	0	0	0	7
Grand Forks	0			0		0	0		1	0	
Minot	0		0	1	0	11	0	0	0	0	3
South Dakota:											
Aberdeen	0			0		2	0		0	0	
Nebraska:											
Omaha	1		0	15	5	33	7	1	0	0	46
Kansas:											
Lawrence	0		0	0	2	0	1	0	0	0	5
Topeka											
Wichita	1		0	1	2	20	0	1	0	0	24
Delaware:											
Wilmington	0		0	2	4	0	0	0	0	6	4
Maryland:											
Baltimore	3		0	362	27	25	0	8	0	39	225
Cumberland	0		0	0	1	2	0	0	0	0	16
Frederick	0		0	0	0	0	0	0	0	0	3
District of Columbia:											
Washington	17		0	186	12	24	0	11	0	28	159
Virginia:											
Lynchburg	1		0	3	3	0	0	1	1	2	16
Norfolk	0		0		2	2	0	1	0	5	26
Richmond	1		0	0	4	24	0	4	0	1	60
Roanoke	0		0	1	1	0	0	1	0	0	19
West Virginia:											
Charleston	1	1	0	0	1	0	0	0	0	0	23
Huntington	0			0		2	0		0	0	
Wheeling	0		0	64	2	1	0	1	1	0	18
North Carolina:											
Gastonia	0		2	0	0	0	0	0	0	0	5
Raleigh	0		0	0	2	0	0	0	0	1	13
Wilmington	0		0	0	2	0	0	2	0	0	18
Winston-Salem	0	1	0	20	2	0	0	1	0	0	9
South Carolina:											
Charleston	0	9	0	0	0	0	0	2	0	0	18
Columbia	0		0	0	0	0	0	0	0	0	8
Florence	0		0	1	0	0	0	0	0	0	5
Greenville	0		0	2	3	0	0	0	0	0	13
Georgia:											
Atlanta	1		0	0	14	11	0	1	0	0	117
Brunswick	0		0	0	1	0	0	0	0	0	5
Savannah	0	2	1	0	4	0	0	2	0	0	33
Florida:											
Miami	0	5	1	4	2	1	0	3	1	15	23
Tampa	0		0	12	1	1	0	3	0	1	27
Kentucky:											
Ashland	0	4	2	9	5	0	0	1	0	3	27
Covington	0		0	3	0	1	0	1	0	0	18
Lexington	0		0	10	2	0	0	2	0	2	19
Louisville	0	1	0	79	6	14	0	2	0	10	75
Tennessee:											
Knoxville	0	4	1	4	9	1	0	2	0	0	37
Memphis	0		1	0	7	5	0	6	4	24	76
Nashville	0		1	3	10	3	0	2	0	0	45
Alabama:											
Birmingham	0	3	1	0	4	2	0	5	1	0	78
Mobile	0		0	0	0	0	0	0	0	0	20
Montgomery	0	1		0		0	0		0	1	
Arkansas:											
Fort Smith	0			0		0	0		0	0	
Little Rock	0		1	0	4	0	0	1	0	0	7
Louisiana:											
Lake Charles	0		0	1	0	0	0	0	0	0	2
New Orleans	9	6	3	6	17	2	0	9	1	34	147
Shreveport	1		0	23	3	1	0	2	0	0	34
Oklahoma:											
Oklahoma City	1	10	0	0	4	12	0	1	0	0	40
Tulsa	0			0		4	0		0	0	

City reports for week ended May 16, 1936—Continued

State and city	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
		Cases	Deaths								
Texas:											
Dallas	5	------	0	63	7	9	0	1	0	7	49
Fort Worth	1	------	0	5	2	2	0	2	0	0	40
Galveston	1	------	0	0	1	0	0	0	0	0	9
Houston	8	------	0	0	10	0	0	9	0	0	76
San Antonio	2	------	0	19	8	2	0	8	0	0	59
Montana:											
Billings	0	------	0	0	1	1	0	0	0	1	8
Great Falls	0	------	0	0	0	1	0	0	0	0	8
Helena	0	------	0	0	0	6	3	0	0	0	5
Missoula	0	------	0	1	0	3	0	0	0	0	4
Idaho: Boise	0	------	0	3	1	1	0	0	0	0	10
Colorado:											
Colorado Springs	0	------	0	0	2	8	0	0	0	2	12
Denver	1	------	0	15	4	14	1	3	0	30	92
Pueblo	0	------	0	0	0	31	0	1	0	1	6
New Mexico:											
Albuquerque	0	1	1	18	1	16	0	1	0	0	11
Utah:											
Salt Lake City	0	------	1	18	4	23	4	1	0	14	35
Nevada: Reno	------	------	------	------	------	------	------	------	------	------	------
Washington:											
Seattle	0	------	0	208	2	7	1	2	0	6	70
Spokane	0	------	0	14	1	20	0	2	0	14	37
Tacoma	0	------	0	30	2	0	0	0	0	0	24
Oregon:											
Portland	0	------	0	9	2	6	0	4	0	32	79
Salem	0	2	------	14	------	3	0	------	0	0	------
California:											
Los Angeles	6	22	2	323	13	38	0	26	0	50	317
Sacramento	1	------	0	1	0	7	0	1	0	18	26
San Francisco	4	2	0	201	6	89	0	16	0	30	182

State and city	Meningococcus meningitis		Poliomyelitis cases
	Cases	Deaths	
Massachusetts:			
Boston	5	3	0
Rhode Island:			
Providence	0	1	0
New York:			
Buffalo	1	0	0
New York	23	9	0
New Jersey:			
Newark	3	0	0
Pennsylvania:			
Philadelphia	1	0	0
Pittsburgh	1	2	0
Reading	4	0	0
Ohio:			
Cincinnati	1	0	0
Cleveland	2	0	0
Columbus	1	1	0
Indiana:			
Indianapolis	1	0	0
Illinois:			
Chicago	10	2	0
Michigan:			
Detroit	1	0	2
Minnesota:			
Minneapolis	2	1	0
St. Paul	1	0	0
Iowa:			
Des Moines	2	0	0
Missouri:			
St. Louis	3	1	0
North Dakota:			
Fargo	1	1	0
Nebraska:			
Omaha	1	0	0
Maryland:			
Baltimore	10	2	0
District of Columbia:			
Washington	7	5	0
Virginia:			
Norfolk	2	0	0
Roanoke	0	1	0
North Carolina:			
Raleigh	1	0	0
Wilmington	2	1	0
South Carolina:			
Charleston	2	0	0
Georgia:			
Atlanta	0	1	0
Kentucky:			
Ashland	0	1	0
Tennessee:			
Knoxville	1	0	0
Memphis	0	1	0
Nashville	0	0	1
Louisiana:			
New Orleans	3	1	0
Oklahoma:			
Oklahoma City	1	1	0
Texas:			
Houston	0	1	0
Utah:			
Salt Lake City	1	0	0
California:			
Los Angeles	3	2	3
San Francisco	0	0	1

Epidemic encephalitis.—Cases: Milwaukee, 1; St. Louis, 1; Louisville, 1.
Pellagra.—Cases: Charleston, S. C., 2; Savannah, 3; Miami, 1; Memphis, 1; Birmingham, 1; Mobile, 1; Montgomery, 1; San Francisco, 1.
Rocky Mountain spotted fever.—Cases: Billings, 2.
Typhus fever.—Cases: Atlanta, 1; Miami, 1.

FOREIGN AND INSULAR

CUBA

Habana—Communicable diseases—4 weeks ended May 9, 1936.—During the 4 weeks ended May 9, 1936, cases of certain communicable diseases were reported in Habana, Cuba, as follows:

Disease	Cases	Disease	Cases
Diphtheria	13	Tuberculosis	45
Malaria	[1] 19	Typhoid fever	[1] 43
Poliomyelitis	[1] 4		

[1] Includes imported cases.

LATVIA

Communicable diseases—January–March 1936.—During the months of January, February, and March, 1936, cases of certain communicable diseases were reported in Latvia as follows:

Disease	January	February	March	Disease	January	February	March
Botulism	2	1	2	Puerperal septicemia	9	6	9
Cerebrospinal meningitis	14	19	16	Scarlet fever	295	322	386
Diphtheria	102	80	72	Tetanus	2	2	-------
Erysipelas	30	32	31	Trachoma	58	45	73
Influenza	195	319	216	Tuberculosis	423	361	340
Leprosy	4	3	3	Typhoid fever	64	35	31
Measles	129	263	399	Typhus fever	-------	-------	5
Mumps	7	8	17	Undulant fever	-------	-------	1
Paratyphoid fever	6	11	14	Whooping cough	133	76	84
Poliomyelitis	2	-------	1				

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

NOTE.—A table giving current information of the world prevalence of quarantinable diseases appeared in the PUBLIC HEALTH REPORTS for May 29, 1936, pages 718–730. A similar cumulative table will appear in the PUBLIC HEALTH REPORTS to be issued June 26, 1936, and thereafter, at least for the time being, in the issue published on the last Friday of each month.

Cholera

India—Bassein.—During the week ended May 16, 1936, 3 cases of cholera, with 2 deaths, were reported in Bassein, India.

Plague

Belgian Congo—Drodro.—On May 16, 1936, 1 case of plague was reported in Drodro, Belgian Congo, near Lake Albert.

Peru.—During the month of April 1936, plague was reported in Peru as follows: Libertad Department, 6 cases, 2 deaths; Lima Department, 3 cases, 3 deaths, Callao City, 1 case, 1 death; Piura Department, 2 cases, 1 death.

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