PUBLIC HEALTH REPORTS

VOL. 42 OCTOBER 7, 1927 NO. 40

POLIOMYELITIS IN THE UNITED STATES

The weekly telegraphic reports received from the State health officers for the 13 weeks from July 3 to October 1, 1927, show 4,570 cases of poliomyelitis, as compared with 1,228 cases for the corresponding period of 1926 and with 3,537 cases for the similar period in 1925. These current telegraphic reports may be incomplete in some instances. Approximately the same number of States are included in the comparisons. Forty-four States reported 635 cases of poliomyelitis for the week ended October 1, 1927, as compared with 681 cases for the preceding week reported by 45 States. A table showing the prevalence of poliomyelitis by States from January 1 to October 1, 1927, is printed on page 2452.

THE DIAGNOSIS OF POLIOMYELITIS [1]

By J. P. LEAKE, *Surgeon, United States Public Health Service*

Acute poliomyelitis is a name given to a specific infectious disease which sometimes, but not usually, results in paralysis. The ability to diagnose the disease in the absence of paralysis has only comparatively recently come to us, although Caverly, of Vermont, in 1894, and Wickman, of Sweden, in 1907, described such cases. If paralysis occurs, it is usually after the disease itself is well on its way, so that diagnosis of the nonparalytic stages and the nonparalytic cases is doubly important for the protection of contacts and for the institution of measures of treatment. Though preeminently a disease of children, it is by no means rare in adults; and the less urban the community the higher the average age of those affected. Thus for two reasons the frequently used term "infantile paralysis" is hardly a correct name for the disease.

Draper and Haynes have emphasized two stages in the progress of the disease—first, that of general, or systemic, symptoms, and, second, that of invasion of the central nervous system, by way of the meninges. They mention the interval of apparent recovery or improvement, which frequently occurs between these two stages, but that is

[1] Revision of a paper read before the Augusta County Medical Society at Staunton, Va., August 17, 1917, printed in the Public Health Reports, vol. 32, No. 44, Nov. 2, 1917, pp. 1831-1842, and issued as Reprint No. 431.

not the whole story; the disease is very commonly one of remissions at every stage. Though we can not speak with such assurance about the systemic stage, it is probable that here, also, as is repeatedly observed in the meningitic and in the paralytic stages, there are remissions and regressions.

The pathologic picture which will best convey the progress of the disease is first that of a general infection in a sick child or an indisposed adult; second, a meningitic invasion, from a very mild to a severe meningitis; and, third, in some cases an extension of the infection into the anterior horns of gray matter in the spinal cord and to a less extent into other parts of the central nervous system, with weakness, paralysis, and definite localized nervous symptoms. The stages may be clinically simultaneous, though usually meningeal signs precede an evident paralysis. Any two of these three stages may be absent, or at least so slight or transient as to pass undiscovered.

Systemic Symptoms

It must be admitted that the diagnosis in the general or systemic stage can be made only rarely, usually only in the presence of an epidemic. The symptoms may simulate any of the indefinite illnesses of childhood, and in the presence of an epidemic it is well for parents and physicians to treat sick children having fever without a definite proved diagnosis as possible cases of poliomyelitis. Still, there are groupings of symptoms which are very suggestive. Fever is the most common single symptom and may be of any grade. It is usually of short duration, and frequently accompanied by headache, sometimes by flushing. During the acute stage a moderate leukocytosis is usually present, though outbreaks with leukopenia have been described in Germany. The proportion of polynuclear cells varies with the age of the patient, but is not increased as a rule. It is remarkable that in this acute febrile disease, which occurs predominantly in the earlier years of life and which attacks the nervous system, convulsions should be so infrequent; though by no means unheard of, a history of convulsions in most epidemics inclines one against, rather than toward, the diagnosis of poliomyelitis.

The onset of this systemic stage is frequently insidious, but in many cases very acute and often accompanied with vomiting, as in scarlet fever. The vomiting, if it occurs, is not usually prolonged, and by many parents is attributed to an evident indiscretion in diet, and not to the disease. Occasionally there are pains in the stomach. Intestinal symptoms are very frequent, constipation more so than diarrhea. In reports of some epidemics, but none in which I have had personal experience, cases with diarrhea exceed those with constipation. This brings out the fact that in different epidemics, in different localities of the same epidemic, and in different periods in

the same locality, there may be minor differences in symptomology, fatality, and other characteristics of the disease, just as there are evidently differences in virulence and infectivity. Thus, in the Hessian epidemic of 1909, respiratory symptoms predominated, while in the neighboring Westphalian cases of the same year, and in the Stokes River, Devonshire, outbreak of 1911, diarrhea was prominent; the Vermont epidemic of 1894 and the Austrian of 1908 included a considerable proportion of onsets with convulsions. But the general picture throughout the world is so nearly uniform and so different from any other known morbid condition that even without our laboratory evidence we could not help regarding poliomyelitis as a distinct clinical entity, a specific infectious disease, just as different from other diseases as is diphtheria or tuberculosis.

One of the common symptoms which frequently aids in diagnosis at this stage is drowsiness; the child falls asleep repeatedly in the daytime. The opposite symptom, that of restlessness or irritability, is also encountered, even in the same patient; a naturally cheerful, playful child becomes cross and resents interference, objecting sometimes to being petted by its own mother. This change in disposition and the stupor are referable to the sensorium; but even though there may be absolute delirium or coma these do not constitute certain evidence of localized cerebral infection. Two other symptoms, which are very frequent and which when present tend to confirm the diagnosis, are the retention of urine and sweating to a degree out of proportion to the air temperature.

Sore throat is not uncommon, but other symptoms referable to the upper respiratory tract are rather rare, considering the fact that according to a widely accepted theory the virus enters the body by this route. The same peculiarity is observed in epidemic cerebrospinal meningitis.

This description covers the most common symptoms of this stage. Other symptoms, such as chills, cough, dizziness, or rashes, may occur but are not particularly suggestive of the disease. Herpes labialis is rare, an important point in differentiation from epidemic meningitis. It may be argued that there is nothing distinctive about this clinical picture, and that the symptoms enumerated are merely those which may occur in any sick child, and which may pass off without a definite diagnosis being made. But the combination of fever, vomiting, constipation, drowsiness, and irritability, especially when combined with headache, a transient flushing of the face, abnormal sweating, or retention of urine, is enough to make a tentative diagnosis of poliomyelitis if frank cases are occurring in the vicinity.

Cases with gradual onset, malaise, and indefinite symptoms can not be diagnosed before the appearance of meningeal or paralytic

signs, if such signs do appear; but an onset with one or more remissions is very suggestive of poliomyelitis. The more careful the inquiry into the histories, the more frequently will such onsets be found. The remissions are of varying length, and may be as long as one or more weeks.

Meningeal Symptoms

The greater part of the symptoms which I have described as systemic might also be included as evidence of involvement of the central nervous system. But the chief definite symptoms of the slight degree of meningitis commonly met with in poliomyelitis are pain on spinal flexion, hyperesthesia, and increased reflexes. Of these, pain on anterior flexion of the spine as described by Wickman and by Peabody, Draper, and Dochez, is perhaps the most frequent and characteristic. Enough meningeal involvement to cause real opisthotonos or retraction of the head is not the rule in poliomyelitis; but pain on forward nodding of the head, and especially pain on forward bending of the lower spine, is very frequent and characteristic. This latter sign is elicited by placing one of the examiner's arms under the flexed knees and the other under the patient's neck. On attempting to lift the patient in this way a voluntary stiffness and a pain in the back are elicited. In testing for this sign, as in examining the reflexes and motor functions to be mentioned later, it is of great importance to deal with the utmost gentleness. The patient is usually a child, and unless one can obtain his good will and confidence much of the examination is useless. It is well, therefore, to proceed first with the examination of the strength of various muscles and the reflexes before attempting manipulations which may cause pain. The degree of meningitis may or may not be sufficient to give a positive Kernig's sign—inability to extend the knee fully when the thigh is flexed at right angles to the body. One of the most persistent signs of the disease, often remaining after all acute symptoms have subsided, is popliteal pain, which, when investigated, is found to be due to hypertonicity of the hamstrings. Other signs of meningitis and consequent increased pressure of the cerebrospinal fluid, such as MacEwen's and DeLepinay's, also more complex signs, such as Brudjinski's, may be elicited. Even Babinski's sign, indicating involvement of the upper motor neurone, may rarely be present.

Definite evidence of meningeal inflammation may be obtained by lumbar puncture and examination of the spinal fluid. It goes without saying that this procedure should be followed if the meningeal symptoms are at all pronounced, in order to relieve the pressure and in order to rule out other forms of meningitis. The increased pressure with a clear or nearly clear fluid containing no organisms, a cell count over 10 per cubic millimeter, and increased albumin and globu-

lin; when found, are of great diagnostic value. But unless the puncture is made by one with some skill in the technique, and under proper aseptic precautions, more harm than good may be done. Flexner and Amoss have shown that even slight hemorrhage into the subarachnoid space may possibly determine an infection which would otherwise be warded off. A thorough examination of the patient and consideration of the history will, in the usual case, enable a diagnosis to be made as positively without as with a lumbar puncture.

One symptom attributed in part to meningeal involvement is pain, or rather hyperesthesia. The tenderness may be of the skin, on deep pressure of the muscles, or on motion of the joints. It is a most characteristic symptom of the disease, yet has frequently misled physicians into the diagnosis of rheumatism or of neuritis. The hypersensitiveness may be general, or of one part of the body only. This is very suggestive of peripheral inflammation, and one would hardly look to the spinal cord for an explanation unless on the watch for poliomyelitis. But no swelling accompanies the pain of poliomyelitis. The distribution of the tenderness, moreover, is not confined to certain joints or certain nerves, but involves areas corresponding rather to segments of the spinal cord.

One other word regarding sensory disturbance deserves to be emphasized for the sake of diagnosis. While the microscopic histology of the disease shows some involvement of the sensory tracts along with the predominant motor disturbance, and while at the beginning we have this clinical evidence of sensory irritation just as we have of motor irritation to be described later, in the case of the sensory system these changes only rarely go on to a degree of degeneration which is easily demonstrable in life. The "root fields" of the skin, corresponding to different segments of the spinal cord, overlap so much that it takes a considerable cord injury to produce loss of sensation in any area. To put it more plainly, anesthesia, if prominent, inclines one against the diagnosis of poliomyelitis. Local loss of sensation is found in some cases of the disease, but it is a minor feature. This is of especial help in the diagnosis of paralysis in adults; if the anesthesia approximates the motor paralysis in degree and extent, with a history dissimilar to that above outlined, the disease may indeed be anatomically poliomyelitis, that is, an inflammation of the gray matter of the spinal cord, but it is not the specific infectious disease which we call "acute poliomyelitis."

The motor phenomena of the meningitic stage may, like the sensory phenomena, be attributed to irritative lesions of the nerve cells rather than simply to a meningitis. One of the most noticeable of these phenomena is a tremor, brought out especially if the limbs are extended unsupported, or if muscular effort is attempted. The parents may also at times notice twitchings, but the tremor is more

characteristic of the disease. Unsteadiness in action, in gait, or in standing, may amount to a pronounced ataxia and has abundant explanation in the pathological anatomy of the disease.

In these examinations in the acute stage it is to be remembered that the chief therapeutic need is rest in bed, and a sick child should not be made to walk across the room, or to undergo muscular exercises more than are necessary to establish the diagnosis and to ascertain indications for local treatment. Usually the examination can be more successfully made by prolonging it over several visits, different portions of the body being examined each time. Physiologic rest in the proper posture often enhanced by supports or removable plaster casts to prevent the stretching of weakened or painful muscles, is indicated for the first month or two, any other treatment being subsidiary to this. Later, passive movements, massage, and especially muscle training, are to be begun; but for both these phases of treatment accurate anatomical diagnosis is essential, in addition to the mere knowledge of the existence and general distribution of the disease.

Hardly any part of the examination of the patient gives more valuable information in poliomyelitis than an examination of the reflexes, combined with which are tests of voluntary movement and tonicity of the muscles; electricity has not proved of much value in either diagnosis or treatment. In the irritative stage we are likely to find irregular increases in the reflex response, with perhaps some spasticity, and as a rule the earliest definitive sign of degenerative changes in the peripheral motor neurone is a diminution in one or more of the reflexes. This is especially important in young children; for in the age group most commonly attacked by poliomyelitis it is difficult to secure voluntary muscular effort at command, and one may be in doubt of anything short of an absolute flaccid paralysis, unless the break in the nerve conduction is revealed by definite absence of reflex. Fortunately, in young children, over one year of age, the reflexes are more regular and more easily elicited than in adults; adults seem to have more inhibitory paths. But even here care must be taken, by repeated trials and by testing under the most favorable conditions, before a reflex is put down as absent. A unilateral increase or decrease in reflexes, present on different examinations, is, of course, more significant than a symmetrical change. In this disease the deep reflexes, obtained by striking tendons, muscles, or bones, are supposedly more important than the superficial reflexes; but much valuable information can be obtained from the latter.

To obtain the deep reflexes, it is worth while to provide oneself with a proper percussion hammer. The percussion hammers sold at present are all unsuitable for this work. The rubber is usually too

hard and the weight in some cases insufficient for older children and adults. The hammer which I use may be improvised from stout wire and two rubber erasers. The rubber should above all be very soft, so that one can demonstrate its pliability to the patient, and so that a sharp blow really gives no pain. Into a slot at one end of the twisted or soldered wire handle is inserted the smaller eraser, a common red or green desk eraser with beveled ends about 2½ inches by ⅝ by ⅜ inch, for percussing the tendons of very small infants. For larger children a larger eraser has been found to be more satisfactory. This may be purchased at draftsmen's or artists' supply shops and is about 2⅜ inches by 1¾ inches by ½ inch and very soft. To aid the precise percussion of a tendon one end and one side of the eraser may be beveled with a sharp knife. It is convenient to carry this heavier eraser separate in the pocket and to insert it in the broader end of the handle of the hammer, which is then reversed for use when needed.

Of the deep reflexes one of the most important is the patellar, or knee jerk. This is best elicited, not as is described in some textbooks by supporting the leg under the knee with the examiner's arm or the edge of the bed or chair, but by allowing the quadriceps muscle to relax as completely as possible, the patient being recumbent, the heel resting on the bed, and the knee semiextended at an angle of about 120°. The knee should be hit repeatedly just above the tibial tuberosity and the response of the muscle ascertained by the examiner's hand on the thigh; true contractions are thus distinguished from mere jarring. Sometimes part of the muscle may respond more actively than the remainder. The reflexes in the knees should be accurately compared, one side with the other. Significant differences in response, short of total abolition, may be obtained.

In many adults and some young children there is need to reinforce the reflexes, as it is called, by diminishing the inhibition and tonicity. A method usually successful is to distract attention and cause muscular effort to be made in another part of the body; thus if the knee jerks are being tested the patient is directed to try to pull his clasped hands apart, while looking in another direction.

The Achilles tendon reflex, or ankle jerk, is no less important than the knee jerk in this disease. Other deep reflexes which may be obtained with greater or less regularity in young children are the biceps, elicited by a blow on the arm 1 inch above the fold of the elbow; the triceps, obtained by hitting the back of the arm 1 inch above the olecranon; the scapulo-humeral, giving adduction of the arm on striking the inner side of the scapula with the hammer; the radial, giving supination of the forearm in response to a blow on the styloid process; the hamstring, giving flexion of the leg on percussion of the tendons back of the knee; the tibialis anterior, a blow on

the tendon external to the lower third of the tibia causing flexion and inversion of the ankle; and the peroneal, a blow on the tendon above and behind the external malleolus. It may be remarked that some of these reflexes are not always obtainable in health, but we have the two sides of the body for comparison, and even with the lesser reflexes a constant discrepancy between the two sides is significant. Increase of reflexes in the irritative stage is as important as decrease in the paralytic stage.

Of the superficial reflexes, those of the trunk are of the greatest importance in this disease, for they may give a hint of oncoming paralyses in muscles of the back and abdomen. These paralyses are often overlooked, but are of serious moment on account of resultant disability and deformity. The lumbar reflex is a contraction of the lumbar muscles in response to stroking the skin of the back below the twelfth rib. Half of a wooden tongue depressor which has been broken diagonally is a good instrument for eliciting the superficial reflexes; a pin point is somewhat too sharp. The epigastric reflex is a drawing in of the epigastrium caused by stroking from either nipple downward. The upper, middle, and lower abdominal reflexes consist similarly in localized contractions of the anterior abdominal wall on local irritation of the overlying skin surface. The gluteal reflex, a contraction of the gluteal muscles when the fold of the nates is stroked, is also of considerable importance in this disease. Other useful superficial reflexes are the scapular, elicited by stimulating the skin internal or external to the scapula; the pectoral, an adduction of the arm when the anterior axillary fold is stroked; the cremasteric in the male obtained by stroking the inner thigh; and particularly the plantar, the normal response being a flexion of the toes when the sole is stroked, usually accompanied by a drawing up of the foot, thus demonstrating activity on the part of the anterior tibial, hamstring, and hip flexor muscles.

Some of these reflexes may be found to be exaggerated in the irritative stage, and later diminished or abolished. Diminution of reflexes is probably a step in the direction of paralysis; it is likely, in fact, that if the muscular strength could be tested accurately, some weakness would be made out in those cases where a reflex is definitely decreased. One may be in doubt as to whether a reflex not obtained may be due to natural inhibition or to the disease, but we always have the corresponding reflex on the other side of the body for comparison and with this considerable list some asymmetry is likely to be made out if there is any real motor disturbance.

Even in the absence of an epidemic, a clinical picture such as that described in the preceding section under the heading Systemic Symptoms, combined with pain or resistance on spinal flexion, local hyperesthesia, and tremor, would be sufficient for a presumptive

diagnosis of poliomyelitis in the absence of signs more indicative of some other disease. An asymmetrical reflex disturbance would make this diagnosis more certain, though if the meningeal signs were at all pronounced, other forms of meningitis should first be ruled out by lumbar puncture. No one of these signs or symptoms is necessary, however, and in the presence of an epidemic diagnoses can be made on much less. The more characteristic some of the symptoms are, the less is required in confirmation. Pneumonia and some other severe acute illnesses of childhood may cause meningeal symptoms; the physical examination of the patient should be thorough enough to discover these diseases if present. From findings at lumbar puncture and at necropsy and from most clinical histories it may be doubted whether the paralysis of poliomyelitis ever occurs without some degree of meningitis; but the physician is frequently called to cases where history and evidence of definite meningeal symptoms are both lacking.

Paralytic Symptoms

As the diminution in reflex responses is, strictly speaking, a part of the paralytic phenomena, so also is a general weakness which is often encountered. This weakness is out of proportion to the febrile disturbance and may keep the patient from his usual activities for some time without even being definitely localizable to certain muscle groups. This is one of the reasons for the confusion, which once arose, of poliomyelitis with influenza. It is needless to say that poliomyelitis is a perfectly definite disease, proved by the occurrence of typical paralytic cases with characteristic pathology, while under the name of influenza, in the absence of an epidemic, we tend to hide many illnesses the causation of which we do not know. It might well be that some of our cases called influenza are really unrecognized poliomyelitis, but we can hardly say that influenza is responsible for infantile paralysis when we do not know the cause of influenza. We do not know the cause of poliomyelitis; that is, we know that it is a filterable virus with certain definite properties.

In regard to the paralysis in poliomyelitis, I desire to emphasize four points:

1. A great proportion of the cases, probably the majority, are not recognized as paralytic. These nonparalytic cases have, in the past, been reported in considerable numbers only where epidemics have been very carefully studied. In many instances, in fact, paralysis has been the criterion for diagnosis, and it is right that only paralytic cases should be counted officially for recording the prevalence of the disease and for such legal restrictions as are imposed.

2. Even in the paralytic cases, weakness is the rule, absolute paralysis occurring in less than 20 per cent of the muscle groups affected. If at the bedside we could apply to the transitory cases delicate tests,

such as Lovett's spring-balance test for muscle function and Martin's electrical sensory test, it is likely that we should find slight degrees of impairment of motion and of sensation much more common than at present.

3. The paralysis, when it occurs, is typically flaccid. There may be increased tonicity in the early stages, but in poliomyelitis permanent spastic paralysis is rarer than anesthesia.

4. Though examples are on record of involvement of the nucleus of every cranial and spinal nerve, the distribution of the paralysis is to some extent typical. Certain muscles are much more commonly affected than others, and at times a slight impairment of a single muscle determines the diagnosis.

The legs are more often paralyzed than any other region, the occurrence of toe drop testifying to the frequent involvement of the lower leg muscles. The toe muscles themselves are usually spared. Weight bearing appears to have a deleterious influence on recovery, so that in the old cases, especially, leg paralyses are greatly in excess. Arm paralyses follow next in frequency, particularly those involving the deltoid muscle. In regard to paralyses in other parts of the body, statistics vary in different epidemics and with different observers, not only on account of variations in the degree of delicacy in tests for muscle function, but also because in some series the observations are made early in the acute stage and in others later, when muscle training or other orthopedic treatment is begun; the paralyses of some muscles tend to be very transient and to clear up before the period of isolation is past.

The most common head muscle to be affected is the external rectus of the eye, giving convergent squint. This paralysis of the abducens muscle is often incomplete, and the attempt to obviate double vision may cause enough eye strain to produce ocular congestion. Slight degrees of facial palsies are very frequent, more so than the records would indicate, because recovery is usually prompt in bulbar cases of this sort, and because the palsies are often so slight as to be unnoticed even by the child's parents. The paralysis may be detected only in certain positions of the face; one eyelid or one side of the mouth may droop. Forced movements, such as grinning, or whistling, or raising the eyebrows, will at times bring out the asymmetry, at other times mask it. Throat paralysis, causing difficult swallowing, aphonia, or regurgitation through the nose, is a very serious symptom. Many such cases prove fatal, whether the fatality be due to paralysis of the bulbar centers of respiration, to extension of the paralysis to the neighboring centers of the phrenic nerve in the cervical cord, or to local paralysis in the throat and consequent pulmonary infection. Poliomyelitis typically affects the ganglion cell of the lower motor neurone, and not the higher centers; certainly the great

majority of fatalities from poliomyelitis are due to paralysis of the muscles of respiration directly; that is, the spinal nuclei of the phrenic and intercostal nerves.

Slight pareses of the neck muscles may be detected in an asymmetrical position of the child's head when upright or in an inability to raise or turn the head against pressure when recumbent. Affection of the abdominal and back muscles may be revealed by the skin reflexes previously mentioned, or by lack of strength in certain trunk movements and postures, or even by local bulging of the abdominal wall.

As with the facial and abdominal paralyses, slight degrees of intercostal paralysis are frequently overlooked. A child's breathing is chiefly abdominal, though slightly intercostal, also; but in poliomyelitis wards, cases of entire intercostal inactivity in ordinary respiration are very common. Diaphragmatic paralysis is the most serious phase of poliomyelitis, particularly when combined with intercostal paralysis. It is easily detected in severe cases, the abdomen moving inward in inspiration instead of outward. Severe intercostal paralysis, on the other hand, causes a sinking of the chest wall in inspiration. A piece of cotton may be held near the child's mouth to get the respiratory rhythm in these reversed cases. With such severe paralysis the prognosis is very bad. This respiratory paralysis usually forms a part of the picture in the cases called Landry's paralysis, an ascending or descending paralysis involving other muscles as well. The respiratory difficulty, as a rule, is not like that in laryngeal diphtheria or croup; there is little stridor, or evident muscular exertion in breathing, the patient being too weak. Lesser degrees of intercostal or diaphragmatic palsy may be detected by compressing the abdomen or the chest to watch for consequent respiratory difficulty.

In some of the fatal cases death is so sudden that the cause is not apparent. Indefinite symptoms may have preceded for one or more days without the paralysis being evident to either parents or physican, especially in infants and younger children. Yawning has been frequently observed as a very serious symptom. During the prevalence or suspected prevalence of poliomyelitis it is wise to require necropsies with histological examination of the spinal cord and brain in all the acutely fatal illnesses in children, unless the cause of death can be clearly established to be other than poliomyelitis. Many histories obtainable after death are not at all suggestive of the disease, though microscopic examination demonstrates poliomyelitis in the cervical cord.

In the upper extremity the deltoid is the muscle most typically involved. Tests for the function of this muscle may be made in the upright position by allowing the baby to reach for the percussion hammer or some other object held above his head, first with one

hand and then with the other, or by playing up and down with the arms until the tonicity and muscular strength in each may be estimated. Except the opponens pollicis, which orthopedic tests have shown to be very commonly attacked, the muscles most often impaired in this extremity are those of the shoulder and upper arm.

In the lower extremity, the gastrocnemius and the anterior tibial and lower leg muscles bear the brunt of the attack, though here no part is spared. It has long been recognized that the virus of the disease appears to have an affinity for the lumbar enlargement of the spinal cord. Trivial paralysis or paresis of leg muscles is to be searched for by stimulating the action of each group; with older children the different movements can be asked for systematically, but in infants such reflexes as the plantar must be used. Besides testing the strength of the flexors and extensors of the hip, knee, ankle, and toes, one should not neglect the abductors and adductors of the hip. Comparison of the strength of the two sides is easily made by having the patient recumbent, the knees flexed, with the heels resting on the bed; slight degrees of weakness in ability to bring the knees together or to separate them against the pressure of the examiner's hands may thus be detected. One peculiarity is that paralysis of the rectal and urinary sphincters is unusual except in completely paralyzed, fatal cases.

All motions of the limbs should be made by the examiner repeatedly, to detect lack of tonus and of resistive efforts which may be very definite in the youngest baby, and even in an unruly child. Gait, going up and down stairs and on the level, should be observed in ambulatory cases; also the steadiness with which the patient can stand with eyes closed. The older the patient, the more complete is the examination and the less obscured are the slight degrees of muscular impairment. It is not to be expected that all these tests and reflexes will be made on every patient at the first visit, but enough should be completed to establish the diagnosis; and the more data one has, the more certain will the conclusions be. The patient should in any case be stripped and given an examination thorough enough to exclude other diseases. A complete account of the differential diagnosis would involve a long treatise. Two of the diseases which must always be considered, in addition to those already mentioned, are epidemic or lethargic encephalitis and tuberculous meningitis.

It is evident that the diagnosis of poliomyelitis is not a simple matter, depending on a single factor or sign, but that the whole history and physical examination must be taken into consideration; and, when that is done, there are enough idiosyncrasies and predilections of the disease to enable a diagnosis to be made with as great certainty as is usual in the diagnosis of other diseases, even without what was formerly considered the essential feature of the malady—permanent paralysis.

DIPHTHERIA IN THE UNITED STATES

By JASON WATERMAN, LL. B., *Division of Sanitary Reports and Statistics, United States Public Health Service*

The reports received by the Public Health Service showed that the incidence of diphtheria for the year 1926 was the lowest ever recorded in the United States; but during the early months of 1927 a decided increase in the numbers of cases and deaths was noted.

Since 1900, when annual publication of death statistics was begun by the Bureau of the Census, there has been a general decrease in the diphtheria death rate. There is no doubt that the rates prevailing at the beginning of the present century were lower than those of a few decades earlier, but comparable general statistics are not available for years before 1900.

The Bureau of the Census has reported the diphtheria death rates since 1900 in the death registration area of the United States as follows:

Year	Diphtheria deaths per 100,000 population	Year	Diphtheria deaths per 100,000 population
1900	43.3	1913	18.9
1901	34.0	1914	17.9
1902	30.8	1915	15.7
1903	31.7	1916	14.5
1904	28.3	1917	16.6
1905	23.6	1918	13.9
1906	25.7	1919	14.7
1907	23.6	1920	15.3
1908	21.5	1921	17.7
1909	20.4	1922	14.6
1910	21.4	1923	12.1
1911	18.9	1924	9.4
1912	18.2	1925	7.8

The death registration area included 40.5 per cent of the population of the United States in 1900 and 89.4 per cent in 1925.

A similar decline in the death rate from diphtheria is shown by the experience of the Metropolitan Life Insurance Co., which covers part of Canada in addition to the United States. The following figures are taken from the Bulletin, issued by that company for the month of January, 1927:

Death rates from diphtheria per 100,000 population in the industrial department, Metropolitan Life Insurance Co.

Year	Rate	Year	Rate
1911	27.3	1921	23.8
1916	21.0	1922	18.0
1917	24.6	1923	15.5
1918	19.3	1924	12.7
1919	20.9	1925	10.2
1920	22.1	1926	9.5

The following table gives a summary of the diphtheria case and death rates computed from reports of State health officers to the Public Health Service from 1916 to 1926, inclusive:

Year	Number of States included	Cases per 100,000 population	Deaths per 100,000 population	Deaths per 100 cases
1916	24	131.7	12.3	9.4
1917	35	136.1	14.2	10.5
1918	33	107.4	12.6	11.7
1919	32	139.7	12.9	9.2
1920	35	156.7	14.4	9.2
1921	43	204.0	16.5	8.1
1922	44	164.1	14.2	8.7
1923	46	133.3	11.5	8.6
1924	46	107.3	8.8	8.2
1925	46	85.2	7.6	8.9
1926	41	80.5	7.1	8.8

The above figures show that there was a general increase in diphtheria cases and deaths for several years prior to 1921, with a steady decrease from 1921 to 1926.

These wavelike movements, covering a period of several years, are characteristic of the history of the disease, but the later waves are generally lower than those preceding, as the general trend has been downward.

The following table shows the number of cases of diphtheria reported for the first six months of the years 1920 to 1927, inclusive, by the health officers of 35 States. These States include all for which data for the full eight-year period are available at the time of writing.

1920	54,928
1921	74,560
1922	60,820
1923	55,603
1924	54,960
1925	41,020
1926	33,684
1927	45,165
Total	420,740

The incidence of diphtheria was greater during the first half of 1927 than during the corresponding period 1925 or 1926, but less than that for the similar period of any preceding year.

The case rate for the first half of 1927, figured on an annual basis, is 97.04 cases per annum per 100,000 population. This rate, however, does not appear to be fairly comparable with rates for the full year, as diphtheria has a marked seasonal prevalence, being usually most prevalent during October, November, and December.

The reports for the earlier months of 1927 were relatively more favorable than the reports for the later months of the half year, as

shown by the following table, which gives a comparison, by months, of the cases of diphtheria reported during the first six months of 1927 with the average number for the corresponding months of the seven-year period 1920 to 1926.

Diphtheria cases reported for first six months of 1927, compared with the averages for the first six months of the years 1920 to 1926, inclusive

Month	Average number of cases reported, 1920-1926	Cases reported, 1927	Per cent decrease
January	12,901	8,808	31.7
February	9,715	7,739	20.3
March	9,176	8,081	11.9
April	7,781	7,311	6.0
May	7,462	6,828	8.5
June	6,618	6,398	3.3
Total	53,653	45,165	15.8

A comparison of the reports arranged according to sections of the country shows that all of the general divisions except the West North Central and the Mountain States had higher rates for the first six months of 1927 than for the corresponding period of 1926.

The following table gives a comparison of the numbers of cases of diphtheria reports in different sections of the country during the first half of 1927 with the average number reported during the corresponding period of the years 1920 to 1926, inclusive.

Average number of cases of diphtheria reported in 35 States [1] during the first six months of the years 1920 to 1926, compared with the first six months of 1927

	Average number of cases reported first six months, 1920-1926	Number of cases reported in first six months of 1927	Per cent increase (+) or decrease (−) in 1927
35 States [1]	53,653	45,165	−15.8
New England States	5,746	3,630	−36.8
Middle Atlantic States	19,844	18,372	−7.4
East North Central States	13,317	9,977	−25.1
West North Central States	3,831	2,215	−42.2
South Atlantic States	4,250	4,687	+10.3
East South Central States	727	1,112	+53.0
West South Central States	384	536	+39.6
Mountain States	388	286	−26.3
Pacific States	5,166	4,350	−15.8

[1] The States included are: *New England States*—Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, and Connecticut; *Middle Atlantic States*—New York, New Jersey, and Pennsylvania; *East North Central States*—Ohio, Illinois, Michigan, Wisconsin; *West North Central States*—Minnesota, Iowa, North Dakota, South Dakota, Nebraska and Kansas; *South Atlantic States*—Maryland, District of Columbia, Virginia, West Virginia, North Carolina, Georgia, Florida; *East South Central States*—Alabama and Mississippi; *West South Central States*—Louisiana; *Mountain States*—Montana, Idaho, Wyoming, and Arizona; *Pacific States*—Washington, Oregon, and California.

Data as to deaths from diphtheria during 1927 are not available for most of the States, but reports from cities include the number of deaths as well as of cases.

The following table gives the number of cases of diphtheria, with the number of deaths from this disease, and the fatality rate, in 16 large cities of the United States during the first 28 weeks of the years 1920 to 1927, inclusive. The cities included are Baltimore, Boston, Buffalo, Chicago, Cincinnati, Cleveland, Detroit, Los Angeles, Milwaukee, New York, Newark, Philadelphia, Pittsburgh, St. Louis, San Francisco, and Washington. These are the cities having 400,000 population or over in 1920.

Diphtheria cases, deaths, and fatality rates in cities having more than 400,000 population, for the first 28 weeks of the years 1920 to 1927, inclusive

Year	Cases	Deaths	Deaths per 100 cases	Year	Cases	Deaths	Deaths per 100 cases
1920	26,086	2,210	8.5	1924	21,804	1,466	6.7
1921	32,724	2,165	6.6	1925	17,864	1,208	6.8
1922	22,668	1,786	7.9	1926	15,556	1,184	7.6
1923	20,458	1,480	7.3	1927	22,949	1,475	6.4

Rates would give a better basis for comparison than the number of cases and deaths, as all of these cities are increasing in population, but, unfortunately, authoritative population estimates are not available for the later years for some of the cities.

The Statistical Bulletin of the Metropolitan Life Insurance Co. for July, 1927, gives the following comparison of the diphtheria death rates per 100,000 persons exposed in the company's industrial department for the first six months of the years 1925, 1926, and 1927:

	Death rate
White:	
January–June, 1925	12.7
January–June, 1926	10.1
January–June, 1927	11.8
Colored:	
January–June, 1925	5.3
January–June, 1926	6.2
January–June, 1927	6.7

It is evident that the remarkable decline in the prevalence of diphtheria which has been noted since the year 1921 was checked during the early months of 1927. The reaction is similar to the beginning of the upward movement of one of the waves which have been frequent in the history of diphtheria since records have been kept. If the disease follows the usual course, an increase in the number of cases may be expected. This statement should not be taken as a prediction, however, since the expectation of an increase due to natural causes may be offset by the more general employment of artificial immunization.

THE DIPHTHERIA SITUATION IN CHICAGO

By HERMAN N. BUNDESEN, M. D., Sc. D., *Commissioner of Health, Chicago, Ill.*

Health administrators in most large cities of this country, and, according to recent reports from Germany, in that country also, have noticed a marked increase in diphtheria mortality since the beginning of 1927. There has also been a perceptible increase in the morbidity rates from diphtheria, but this has been less notable than the increase in mortality.

In Chicago this increase first became noticeable in January, when the number of deaths from diphtheria rose to more than double the number recorded in January, 1926. For the first seven months of this year the number of diphtheria deaths has been nearly double the number for the corresponding period in 1926 and the number of cases recorded has been 50 per cent greater than for the same period last year.

At the same time, reports from practicing physicians and from the Municipal Contagious Disease Hospital called the attention of the health department to the unusually malignant type of diphtheria prevalent in the city. Patients seen on the second or third day of the disease, most of whom receiving an adequate dosage of antitoxin usually recover, often fail to respond to the regular treatment, and some cases given antitoxin within 24 hours of onset have died in spite of what is ordinarily considered adequate dosage. The septic, or so-called "bull-necked," type of diphtheria has been unusually prevalent and highly fatal.

Laryngeal diphtheria has not prevailed to any unusual extent. For the first seven months of this year 16 per cent of the cases admitted to the Municipal Contagious Disease Hospital were recorded as laryngeal, as compared with 16.6 per cent of all cases for the corresponding period in 1926.

That the type of diphtheria occurring in Chicago is actually more malignant than that experienced recently is further indicated by the fatality rates among patients in the Municipal Contagious Disease Hospital. During the first seven months of 1926 there occurred 30 deaths out of 259 admissions, a case fatality rate of 11.6, while up to August 1, this year, 71 deaths in a total of 467 admissions were recorded, making a case fatality of 15.2.

Analysis of the age distribution of cases of and deaths from diphtheria in Chicago shows no significant changes during the recent increase of the disease. There has been a slight relative change in the proportion of deaths in children under 5, especially since 1924, as shown by Table 1.

Diphtheria in Chicago, 1916–1927—Percentage of deaths under 5 years of age

	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927
Per cent under 5 years.....	65.3	60.6	62.3	62.7	58.0	60.5	63.1	58.1	57.0	43.0	52.2	52.7

There have been no selective geographical grouping of cases and no undue prevalence in any special racial or economic groups in the past year. Three or four moderate school outbreaks have been recorded, and two or three neighborhood foci of infection have been detected, but there has been no evidence that any common factors, such as milk or food, have in any way contributed to the spread of infection.

The occurrence of diphtheria in Chicago since 1915, by morbidity, mortality, and case fatality, is presented in Table 2.

TABLE 2.—*Diphtheria in Chicago—Morbidity, mortality, and case fatality rates 1916–1927*

Year	Rates per 100,000		Case fatality	Year	Rates per 100,000		Case fatality
	Morbidity	Mortality			Morbidity	Mortality	
1916	277.3	31.5	11.3	1922	260.0	19.8	7.6
1917	400.4	48.2	12.0	1923	202.1	12.6	6.2
1918	217.7	27.7	12.6	1924	124.9	7.3	5.9
1919	237.8	22.1	9.3	1925	97.7	8.0	8.2
1920	284.5	23.1	8.1	1926	83.4	7.4	8.8
1921	334.9	24.3	7.2	1927 [1]	126.6	12.8	10.1

[1] 7 months, on annual basis.

From inspection of the data and the accompanying chart several facts are apparent—

1. That no significant reduction in the morbidity rate occurred from 1916 until 1923.

2. That the morbidity declined rapidly from that time until 1927.

3. That the mortality rate had declined fairly steadily from 1917 up to 1927 and that it declined more rapidly than the morbidity rate from diphtheria.

4. That the case fatality had fallen consistently from 1918 to 1925, and during that time was an important factor in the decline of the mortality rate.

5. That although the morbidity rate continued to fall up to the beginning of 1927, the case fatality has been rising sharply since 1924 and at present is higher than at any time since 1918.

SUMMARY

(1) During the first seven months of this year, 50 per cent more cases of and nearly 100 per cent more deaths from diphtheria have occurred in Chicago than were recorded for the corresponding months of 1926.

(2) This increase in the death rate from diphtheria has been due in part to a corresponding increase in morbidity, but the major factor has been a marked rise in the case fatality rate of the disease.

(3) Clinically, the type of diphtheria in Chicago this year is more malignant than that for several years past. The severe toxic and septic cases often fail to respond to treatment, even when antitoxin is given early and in usually adequate doses.

(4) The greater prevalence of diphtheria in Chicago during 1927 has not been due to infection by milk, food, or epidemic foci, but represents a generalized increase in the endemic rate.

DIPHTHERIA IMMUNIZATION IN CHICAGO

In a recent communication Dr. Herman N. Bundesen, Commissioner of Health of Chicago, has the following to say regarding diphtheria immunization in that city:

Immunization with toxin-antitoxin was begun in Chicago in 1918, since which time a total of 211,500 toxin-antitoxin injections have been given.

For the past four years the greater part of diphtheria immunization in Chicago has been performed on the younger groups of school children. Toxin-antitoxin has been offered to all children for whom parental consents could be obtained in the kindergarten and first grade of all schools. Free immunization has also been offered on Saturday mornings at 10 infant welfare stations, for the purpose of reaching children of preschool age.

In view of the increased prevalence and fatality of diphtheria this year in Chicago, the city health department has started an intensive campaign to secure the immunization of a majority of children in the more susceptible age groups.

Every physician in the city has been advised of the diphtheria situation and urged to immunize as many children as possible in his private practice. Toxin-antitoxin for this purpose is supplied free by the department of health.

A health department bulletin on diphtheria and toxin-antitoxin has been sent to the mother of every child in Chicago under 2 years of age.

To give further publicity to the campaign, numerous talks on the use of toxin-antitoxin are being broadcast by members of the health department, articles are being published in the leading newspapers, and translations of these articles appear in the foreign-language papers.

Since all children immunized are under 7 years of age, the requirement of a preliminary Schick test has been omitted and all children for whom parental consents are obtained are given the three injections of toxin-antitoxin.

To facilitate the immunization of preschool children, parents are allowed to bring younger brothers and sisters of children in the kindergarten or first grade to the school clinics for the prophylactic treatments. Also the number of preschool clinics at infant welfare stations has been tripled and sufficient staff has been provided to handle the extra work.

The Infant Welfare Society, the Visiting Nurse Association, and other child health organizations are cooperating with the health department in every possible way to speed up the work of immunization.

Immunization of nurses on the staff of the Municipal Contagious Disease Hospital has been a routine procedure since 1918. All nurses are Schick-tested on admission, and those found to be susceptible to diphtheria are immunized with toxin-antitoxin. Since 1918 no cases of diphtheria have developed among nurses so immunized.

DIPHTHERIA IN NEW YORK CITY

According to the Weekly Bulletin for September 10, 1927, published by the Department of Health of New York City, the first six months of 1927 have recorded an increase in diphtheria morbidity and mortality in that city which emphasizes "the need of immunizing all young children with toxin-antitoxin." Although this rise causes some surprise and apprehension, the decline in the morbidity and mortality rate for diphtheria in New York City for the first seven years has been irregular, as shown by the following figures:

Year	Cases	Deaths	Year	Cases	Deaths
1919	14,014	1,239	1923	8,050	547
1920	14,166	1,045	1924	9,687	714
1921	15,110	891	1925	9,051	663
1922	10,427	874	1926	7,531	477

The Bulletin states:

This marked though irregular decrease has been attributed partly to the general campaign against diphtheria, and partly to the immunization with toxin-antitoxin.

Those who have been studying the diphtheria situation know that there are several factors which influence the incidence of this disease, as a result of which there is an increase over a period of two or three years, and then a decrease. There is every reason to believe that the slight increase during the first half of 1927 is simply due to one of those unknown factors which, in the course of every year or two, cease to exist. Then those influences which are steadily resulting in an improvement will make for a rate lower than the previous record. For this reason the full value of toxin-antitoxin can not be determined in New York City simply by the number of cases of diphtheria and by the number of deaths occurring in any one year. This is doubly true, for in spite of the large number of children who have been immunized, only a small percentage of the younger children have received this protection. It is well known that most of the cases and practically all of the deaths occur among preschool children. The immunization of this group by the private physician and by the health department inspectors has only begun.

The Bulletin also gives some interesting data regarding the administration of toxin-antitoxin, based on 150 cases of diphtheria reported by physicians. The information was furnished by the Research Laboratory of the department of health. Only three, or 2 per cent, of the patients had received toxin-antitoxin. In none of the cases had the three months elapsed which is usually required to develop immunity, and one of the patients had received only two injections. In one of the three patients receiving the toxin-antitoxin the diagnosis was doubtful. The figures are given below:

Report of an investigation of 150[1] diphtheria cases to determine the percentage having had toxin-antitoxin previous to present illness (July 9, 1927)

Age	Mild	Moderate	Severe	Total
Up to 5 years	36	23	[2] 16	75
6 to 10 years	[3] 32	[4] 11	9	52
11 to 15 years	8	1	2	11
16 years and over	4	7	1	12
Total	80	42	28	150
Number of cases having received toxin-antitoxin	1	1	1	3

[1] In all, 155 cases were investigated, 5 of these proving to be simply bacillus carriers, 2 of which had received toxin-antitoxin. These are excluded.
[2] In 1 case series of injections complete, but insufficient lapse of time. (Received 3 injections of toxin-antitoxin 2 months previous to present illness.)
[3] 1 case of doubtful diagnosis. Possibly only an influenzal pharyngitis.
[4] In 1 case immunization incomplete; insufficient lapse of time. (Received 2 injections of toxin-antitoxin 4 weeks previous to present illness.)

INCREASE OF DIPHTHERIA IN BERLIN

According to the correspondent of the Journal of the American Medical Association in Berlin, there was an increase in both the prevalence and case mortality of diphtheria in that city in 1926. The correspondent states:[1]

Since the introduction of diphtheria antitoxin in 1894, the morbidity and the mortality of diphtheria have decreased. In Berlin, since the beginning of 1926, the number and the character of diphtheria cases have undergone a change, and cases of malignant diphtheria have been observed, together with a rather high mortality. The special characteristics are foul smelling discharge from nose and mouth, marked glandular swellings, and all the symptoms of vascular disturbances, including numerous hemorrhages. In the majority of these cases, after a relatively short illness, death ensues from cardiac paralysis, supplemented by a grave kidney involvement. Last year two members of the department of infectious diseases of the Rudolf-Virchow Municipal Hospital published a report on the cases occurring in that hospital. The percentage of fatal cases increased from 6 in 1923 to 17 in 1926, and in Old-Berlin the total number of diphtheria cases increased from 1,068 in 1923 to 1,421 in 1926, and the percentage of mortality rose from 7.58 to 11.1 per cent. The statement was made that, in these cases of grave diphtheria, diphtheria antitoxin often fails to protect. Only by beginning the treatment at the earliest possible moment and employing the maximum doses was there any prospect of preserving life. * * * In the Deutsche Medizinische Wochenschrift, the observations made in the Rudolf-Virchow Hospital have been confirmed by Professor Finkelstein and his assistants in the municipal children's hospital. They also saw many severe cases of diphtheria, and they, too, are of the opinion that in most of the cases there was a streptococcus infection. They could not accomplish much with diphtheria antitoxin.

It is stated that considerable success attended the use of the streptococcus antitoxin of Prof. Fritz Meyer, of Berlin, an antitoxic serum obtained by immunizing horses with highly virulent streptococci and also with a highly potent streptococcus toxin. A marked advantage of this serum as compared with other streptococcus serums is stated to be in the fact that its potency is assured not only by so-called polyvalence but also because it contains demonstrable antitoxins against the poisons common to all streptococci. In the treatment of 18

[1] J. A. M. A., Sept. 17, 1927, p. 982.

patients between January and June, 9 patients were given only diphtheria antitoxin and 9 diphtheria antitoxin and the streptococcus serum, with results decidedly in favor of the latter. It is noted, however, that the series of cases is too small to furnish an adequate basis for conclusive judgment.

CASES OF POLIOMYELITIS REPORTED BY STATES, JANUARY 1 TO OCTOBER 1, 1927

The table below shows the prevalence of poliomyelitis in the United States from January 1 to October 1, 1927, as reported to the United States Public Health Service by the State health officers. These reports are preliminary and the figures may be incomplete in some instances.

Cases of poliomyelitis reported by State health officers, January 1–October 1, 1927

State	January	February	March	April	May	June	July	Week ended— Aug. 6	Aug. 13	Aug. 20	Aug. 27	Sept. 3	Sept. 10	Sept. 17	Sept. 24	Oct. 1
Alabama	1	1	2	2	0	5	2	0	1	2	1	0	0	1	2	0
Arizona	1	0	0	3	6	12	14	0	1	4	0	0	2	7	2	1
Arkansas	0	0	1	0	1	9	5	1	0	1	2	1	0	3	1	4
California	13	9	7	7	20	75	215	56	63	44	48	58	49	66	43	46
Colorado	1	3	0	0	0	1	2	0	1	1	2	1	2	2	4	9
Connecticut	2	1	1	2	1	1	4	11	8	17	12	19	11	19	12	13
Delaware	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
District of Columbia	0	0	0	1	0	0	0	0	2	0	1	0	0	0	0	---
Florida	5	0	1	3	1	3	4	0	2	0	2	1	4	1	1	1
Georgia	1	2	0	0	1	1	6	1	0	1	0	3	0	0	0	0
Idaho	0	1	0	0	0	0	0	0	0	0	0	---	0	0	0	1
Illinois	2	5	5	4	5	5	26	6	7	16	24	25	35	36	42	50
Indiana	1	0	0	0	0	1	1	2	3	2	4	7	6	4	0	18
Iowa	2	1	0	0	1	0	1	0	1	3	---	3	7	5	5	6
Kansas	3	4	5	2	1	5	15	4	4	10	3	9	9	10	19	19
Louisiana	1	1	1	2	7	10	20	3	1	2	2	1	0	1	1	3
Maine	1	1	1	0	0	1	0	0	0	1	7	6	6	10	15	5
Maryland	0	1	0	0	0	1	1	0	0	1	0	0	0	0	2	3
Massachusetts	6	2	3	4	7	11	23	10	28	38	55	60	92	106	97	79
Michigan	8	1	4	0	0	3	7	3	2	9	10	15	19	18	24	21
Minnesota	1	2	1	0	3	2	7	1	1	1	3	9	2	11	8	15
Mississippi	1	0	4	3	4	6	2	0	1	1	2	1	1	0	0	0
Missouri	2	3	1	4	2	0	4	15	8	2	6	6	16	17	23	20
Montana	0	1	0	0	0	0	3	1	0	0	0	0	0	0	0	0
Nebraska	1	0	1	0	1	1	0	0	1	1	4	3	5	4	8	7
New Hampshire	1	1	0	0	0	0	1	---	---	---	---	---	---	---	---	---
New Jersey	1	2	1	2	2	7	12	17	13	22	20	23	34	39	37	38
New Mexico	1	1	0	0	1	3	59	9	9	8	6	5	3	11	19	9
New York	15	6	4	12	8	10	38	25	46	68	58	85	71	92	55	20
North Carolina	2	3	1	0	0	0	1	0	1	0	0	3	0	2	0	1
North Dakota	1	0	9	4	3	1	1	0	0	0	2	2	3	1	3	---
Ohio	6	7	2	1	0	2	32	(1)	(1)	65	128	73	85	89	96	87
Oklahoma	3	2	1	1	1	4	16	8	11	8	12	6	10	10	10	7
Oregon	0	0	0	2	0	0	2	2	1	12	3	7	11	21	21	30
Pennsylvania	4	1	3	1	2	2	8	5	4	7	8	49	41	48	42	35
Rhode Island	1	0	1	1	1	1	0	0	0	1	4	2	3	4	4	1
South Carolina	11	10	3	6	7	7	8	2	2	1	0	2	6	2	4	2
South Dakota	2	1	1	2	0	0	0	0	0	0	0	0	0	5	2	7
Tennessee	1	2	1	0	0	5	7	1	5	1	4	0	5	2	4	3
Texas	0	0	0	0	1	0	20	10	19	15	12	28	20	16	25	12
Utah	0	0	0	0	0	0	4	1	0	1	0	1	0	6	4	2
Vermont	0	0	0	0	0	0	2	0	0	0	0	0	1	0	1	2
Virginia	1	6	3	1	4	6	1	2	0	0	1	0	0	0	1	0
Washington	1	1	3	2	1	1	1	0	6	1	3	7	7	15	11	16
West Virginia	0	0	1	0	0	2	2	0	0	8	11	16	17	13	18	22
Wisconsin	3	3	3	2	4	3	5	2	2	7	2	4	10	15	14	19
Wyoming	0	0	1	0	0	0	1	1	0	0	1	0	0	0	1	1
Total	197	85	76	74	96	207	583	199	248	382	463	542	598	712	681	635

1 No weekly report received; 271 cases reported for month of August.

COURT DECISIONS RELATING TO PUBLIC HEALTH

Keeping of swine in town enjoined.—(Massachusetts Supreme Judicial Court; Town of Lexington *v.* Miskell, 157 N. E. 598; decided July 5, 1927.) The board of selectmen of the town of Lexington, acting as a board of health, adopted regulations governing the keeping of swine. The defendant kept from 400 to 600 swine on his premises within the town without obtaining a permit as required by the regulations. The board of health determined that the keeping of swine by the defendant was a menace and harmful to the inhabitants of the town, and issued an order prohibiting the defendant from keeping swine on his premises. The order was not complied with and the town brought a suit to enjoin the defendant from continuing to exercise the trade or employment of keeping swine in the town. The decree of the lower court enjoined the defendant from keeping swine in the town in violation of the regulations of the board of health, and this decree was affirmed by the supreme court.

Conviction for violation of smallpox quarantine affirmed.—(Washington Supreme Court; City of Seattle *v.* Cottin, 258 P. 520; decided August 9, 1927.) An ordinance of the city of Seattle provided in part as follows:

SEC. 8. It shall be unlawful for any person to visit a person sick with * * * smallpox * * * and afterwards appear upon the streets, alleys, or other public places in the city of Seattle, or go into any house, building, or other place in said city where they would be likely to aid in spreading said disease until they shall procure from the health officer of the city of Seattle a certificate that they are free from danger of communicating the disease to which they have been exposed: *Provided, however*, That this section shall not apply to physicians, quarantine inspectors, or the health officer when in the exercise of their duties as such physician or officers.

SEC. 14. It shall be unlawful for any person to violate or refuse to obey any lawful order or regulation of the board of health, the health officer, or any quarantine officer made within the powers conferred by the charter or ordinances of the city of Seattle upon the officer making such order, or to in any manner obstruct or interfere with the board of health, health officer, or any appointee of the board of health in the performance of duties imposed by the charter or ordinances of the city of Seattle.

A regulation of the State board of health relating to smallpox provided as follows:

(*e*) Persons not living on the premises who are susceptible (not vaccinated nor having had previous infection), and who have been exposed, shall be isolated or kept under the observation of the health officer or physician for a period of 18 days. Exposed immunized persons are exempt from isolation if successfully vaccinated within seven years or if they have had the disease. Submission to vaccination exempts the individual from isolation.

The defendant, a drugless healer having a certificate to practice mechanotherapy, visited, in his professional capacity, a person in Seattle infected with smallpox. The chief quarantine officer of the

city requested the defendant to submit to vaccination or go into quarantine. The defendant at first agreed to go into quarantine, but afterwards refused to remain in quarantine and left the city for about 18 days. In a prosecution for an alleged violation of the city ordinance it was admitted that at the time of being exposed to smallpox the defendant had not been vaccinated for a period of 15 or 20 years and had had no previous infection from smallpox. The defendant contended that he was entitled to be included within the class known as physicians and within the exception under section 8 of the ordinance. In affirming the conviction of the defendant, the supreme court declared that it was unnecessary to pass on the defendant's contention and disposed of the case in the following language:

> In so far as the ordinance of Seattle exempts physicians of any kind or school, it must yield to the superior authority of the State board of health which has adopted the rule (subdivision [e], section 25) above quoted. Under those provisions no one is exempted except exposed immunized persons, those who have been successfully vaccinated within seven years, or those who submit to vaccination—under none of which classes can appellant claim exemption.
>
> We consider further discussion of the questions raised in this case unnecessary.

PUBLIC HEALTH ENGINEERING ABSTRACTS

The water supplies of Quebec Province. T. J. Lafreniere. *Canadian Engineer*, vol. 52, No. 10, March 8, 1927, pp. 97 and 100–101. (Abstract by R. E. Thompson.)

Data are given on the water supplies in the Province of Quebec. There are 550 water-supply systems, serving a population of 1,400,000. As there is no underground water supply in the Province, except very small springs, most of the supplies have their source in rivers, all of which are polluted. There are 46 municipalities, having an aggregate population of 850,000, which are supplied with filtered water from 31 plants, and there are 19 chlorinating plants supplying 25 municipalities, with a population of 150,000. There are, however, 300 small villages using river water that is polluted. Largely as a result of water purification, the typhoid death rate in the Province has been reduced from 26 per 100,000 prior to 1916 to 8.9 in 1925, but it is still too high. In Montreal, where the filtration plants are operated under technical supervision, the rate in 1926 was 5 per 100,000. Every plant in the Province is visited by a representative of the provincial bureau of health from three to six times each year, and a system has been devised whereby plants can send daily samples for examination. At the present time 34 municipalities are availing themselves of this system. It has been found that many small-plant operators are not sufficiently interested to maintain chlorinating equipment in proper repair, and in some cases even to operate it continuously, and it is suggested that filter operators be required to pass a test and secure a certificate of proficiency which could be withdrawn if plant or equipment should be neglected.

Résumé of progress in chlorination. Norman J. Howard. *Canadian Engineer*, vol. 52, No. 10, March 8, 1927, pp. 116–118. (Abstract by R. E. Thompson.)

The early history of chlorination is reviewed briefly, and recent developments are discussed in some detail with special reference to Toronto. The employment of prechlorination is extending. In Toronto the cost of operation of the

drifting sand plant has been reduced by $150,000 over a period of four years by applying chlorine to the raw water instead of alum at such times as the water is physically good. With moderately turbid water considerable economy can be effected by applying small doses of chlorine and reducing the alum to an amount just sufficient for clarification. The observation that chlorination aids coagulation has been confirmed at Toronto. Other advantages of prechlorination are the reduction of filter load in heavily polluted water, increased rates of filtration, and an additional safeguard in the treatment of water subject to rapid changes in quality. Chlorine is being increasingly employed for destruction and prevention of algal growths in filter underdrains and sedimentation basins. Applications of excess chlorine and, subsequently, copper sulfate were ineffective for reducing the loss of head which rapidly increases in slow sand filters at Toronto during a two-month period each spring. The recently inaugurated supersand dechlorination treatment for prevention of taste at Toronto is outlined and discussed.

Treatment of water in coagulating basin and handling of basin. George D. Norcom. *Journal North Carolina Section American Water Works Association*, vol. 4, No. 1, 1926, pp. 112–122. (Abstract by J. K. Hoskins.)

This article comprises a round-table discussion of the subject of coagulating basins. The following topics are treated: Need for cleaning is generally indicated by the passage of large amounts of dead floc causing short filter runs as well as decreased coagulation efficiency resulting in higher bacterial counts of the effluent; hopper-bottomed basins afford easy cleaning—squeegees may be used in flat basins if they are not too deep; diffusion walls are most effective when no openings are provided near the bottom to allow sweeping up of the bottom floc; larger holes are more efficient than small ones, though care must be taken to prevent short circuiting; milky water from the coagulating basin can be relieved by using a larger amount of alum; change in brand of alum has been observed to result in efficiency of coagulation with certain waters.

Efficiency of coagulation can be increased by close observation of the pH of the water. For North Carolina the optimum pH ranges from 4.5 in the eastern to 5.6 in the central and 6.2 to 6.4 in the western part of the State. Sudden changes, lasting usually for short periods, have required considerable adjustment of the normal optimum pH value at various plants.

Deforestation: Its result and the remedy. Warren E. Hall. *Journal North Carolina Section American Water Works Association*, vol. 4, No. 1, 1926, pp. 26–37. (Abstract by J. K. Hoskins.)

The author contends that deforestation is largely responsible for floods, high turbidity of streams, silting of reservoirs, and lower minimum stream flows, resulting in increased costs of surface water storage. The remedy is reforestation. An address of Governor McLean advocating the inauguration of a comprehensive program of stream gauging throughout the State is appended.

Sodium aluminate and its application to North Carolina waters. H. A. Lilly. *Journal North Carolina Section American Water Works Association*, vol. 4, No. 1, 1926, pp. 141–144. (Abstract by J. K. Hoskins.)

The composition and reactions of sodium aluminate are explained in this paper and the advantages of its use enumerated, such as low CO_2 content of the treated water, with consequent reduction of corrosion, reduced sulphate hardness, and increased coagulating value over alum.

Water supply in the Borough of Chichester. Anon. *Surveyor*, vol. 71, June 3, 1927, pp. 547–548. (Abstract by J. K. Hoskins.)

A brief description, illustrated, of the improved water works of Chichester is given in this article. The plant consists of a new 12-inch pumping and supply main, triple ram pump, 140-horsepower gas engine, and 2 m. g. reinforced concrete, covered reservoir, 160 feet square, divided into two compartments.

Water supply and purification. Report of committee on water supply and purification presented to public health engineering section of the A. P. H. A., 55th annual meeting, October, 1926. *American Journal of Public Health*, vol. 17, No. 7, July, 1927, pp. 683–687. (Abstract by H. B. Hommon.)

The report of the committee contains brief discussions on: (1) Typhoid fever increase in 1925; (2) constructive efforts to control stream pollution; (3) improvements in water purification practices; (4) iodine treatment of water; (5) outstanding recent construction; and (6) a proposed filtration-plant census in 1927.

Studies of double coagulation at Cincinnati, Ohio. C. Bahlman and E. B. Evans. *Engineering News-Record*, vol. 98, No. 25, June 23, 1927, p. 1028. (Abstract by A. S. Bedell.)

The system for purifying the Ohio River water at Cincinnati is preliminary sedimentation for 72 hours; coagulation with lime and iron sulphate, followed by five to eight hours of sedimentation; mechanical filtration at the rate of 125 m. g. d.; chlorination. During double coagulation experiments, alum, which gave better results than iron sulphate at equal cost, was added at the rate of 0.76 grain per gallon to primary settling tanks, and this reduced the dosage of secondary coagulant 30 per cent. Average cost of chemicals increased from $2.38 with single coagulation to $3.24 with double coagulation. Filter service increased 31 per cent with a saving of 18 per cent in wash water. *B. coli* in filter effluent was reduced from 8.30 per 100 c. c. to 1.54 per 100 c. c., while chlorinated water shows reduction from 0.70 per 100 c. c. to 0.12 per 100 c. c. The author believes that for plants using alum as coagulant, the splitting of this into primary and secondary application should entail no additional expense and should result in many benefits. A table is given of the summarized comparison of single and double coagulation.

New 12-m. g. d. water-purification plant for Oakland. Anon. *Engineering News-Record*, vol. 98, No. 21, May 26, 1927, pp. 857–860. (Abstract by A. S. Bedell.)

Special features of the additional 12 m. g. d. water purification plant for Oakland, Calif., are the 105-nozzle aerator, mechanical alum mixers, flexibility in operating basins, large filter units, single filter operating stand, and reclamation of wash water. Mixing is by variable speed motor-operated, stirring mechanisms in four cylindrical tanks 21 feet in diameter and 21 feet deep. Filters operate under 8 to 15 feet head at rate of 110 m. g. d. Air agitation preliminary to water wash of filters is provided largely because of sticky hydrate formed by manganese in raw water. Filters have perforated red brass tube underdrains. Most of the valves are hydraulically operated. Water will be prechlorinated as well as receive final chlorination. The article is well illustrated.

Results of using sodium aluminate with alum in filtration work. Sheppard T. Powell. *Engineering News-Record*, vol. 98, No. 21, May 26, 1927, pp. 871–872. (Abstract by A. S. Bedell.)

Tests have shown that the alum-aluminate process has marked advantage over straight alum treatment with many waters, especially with soft, highly colored waters.

The following comparison of results is made in treating a highly colored soft water:

	Alum	Alum plus 0.25 gr. sodium aluminate
Grains per gallon	3.2	1.6
CO_2	16.0	5.0
pH	6.0	7.1
Residual alumina	0.4	0.0

Aeration in water purification. W. S. Mahlie. *Water Works*, vol. 66, No. 8, August, 1927, pp. 320–331. (Abstract by W. R. Schreiner.)

A résumé of aeration practice and results as found in the technical literature, together with some experimental data on bacterial removal. At Fort Worth, Tex., 127 daily tests from August, 1922, to January, 1923, showed 35.6 per cent reduction in 37° C. agar counts. Sunlight regarded as most important factor in this reduction.

The decolorization of soft waters. Robert Spurr Weston. *Water Works*, vol. 66 No. 8, August, 1927, pp. 308–311. (Abstract by W. R. Schreiner.)

Various methods of declorizing and their effects are discussed. Storage is effective, but new reservoirs require 6 to 10 years to become stabilized and most effective in color reduction. Lakes having large storage ratios (according to the formula: Storage ratio equals the capacity divided by mean annual run-off) may effect a practically complete color removal. Silver Lake, Mass., storage ratio over 4, receives water from 100 to 196 p. p. m. color, yields water of 9 p. p. m. average. Color reduction for iron-bearing waters is materially increased where at least one semiannual overturn is included in the storage period. Slow sand filtration rarely removes more than 25 per cent unless the method of Clark is used, in which the filters are charged with aluminum hydrate. This method deserves more attention.

For more complete color reduction, coagulation is recommended, with control of pH values, with or without prechlorination, aeration, and storage, as each situation and condition may require. Data are given covering range in chemical dosage, methods, and rates of mixing. Slow stirring is advised. Coagulating basins need frequent sludge removal to prevent resolution of color. No economical methods have been developed for decolorizing waters containing large amounts of sulphite pulp wastes or tarry or saccharine coloring matter. For such waters it is suggested that some sort of biological process is required preliminary to coagulation.

New ideas in filter plant-construction. John L. Porter. *Water Works*, vol. 66, No. 8, August, 1927, pp. 311–313. (Abstract by W. R. Schreiner.)

General description of old plant, softening, coagulating, filtering, and chlorinating 40 m. g. d. of Mississippi River water. Detailed description of new 72 m. g. d. extension begun in 1924. Alluvial soil of New Orleans territory requires careful construction to prevent both vertical and lateral movements of structures. New coagulating basin with baffle two-thirds of length toward outgoing end; chemicals handled by bucket elevators and screw conveyors; chemical dosage to be regulated by Venturi meter and proportional flow diaphragm-controlled apparatus designed by Earl; new baffles to be of wood, because of continual settling of all structures; wash-water pumps in place of elevated tanks; new type of filter underdrain designed by Delery, requiring less headroom and less cost and giving much more uniform wash-water distribution. Attempts to develop a cheap local bank sand by repeated washing showed that a more expensive sand of correct characteristics gave more economical operating conditions. Two new pumps designed by Wood, motor-driven centrifugal type, 30 m. g. d. at 100 pounds pressure or 40 m. g. d. at 75 pounds pressure, to assist original installation of steam-driven pumps.

Iron removal at Champaign, Ill. Frank C. Amsbury, jr. *Water Works*, vol. 66, No. 8, August, 1927, p. 330. (Abstract by W. R. Schreiner.)

The article reports the experiences of the Champaign and Urbana Water Co. with iron removal, beginning in 1911. Aeration followed by filtration failed, because of excessive matting of crenothrix in filter beds. Water jets failed to tear up the growths; steam jets killed the growths but caused complaints of bad tastes and odors. Finally, prechlorination was tried, ending all crenothrix troubles. In 1924 two new filters with newest proved ideas in specifications were built, but it was found necessary to put in air wash to prevent the packing of the beds.

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 Week Ended October 1, 1927

DIPHTHERIA	Cases
Alabama	77
Arizona	1
Arkansas	9
California	88
Colorado	34
Connecticut	19
Delaware	2
Florida	6
Georgia	48
Idaho	1
Illinois	100
Indiana	29
Iowa [1]	14
Kansas	51
Louisiana	37
Maine	3
Maryland [1]	29
Massachusetts	74
Michigan	79
Minnesota	39
Mississippi	39
Missouri	40
Montana	5
Nebraska	9
New Jersey	106
New Mexico	2
New York [2]	47
North Carolina	176
Oklahoma [3]	63
Oregon	6
Pennsylvania	124
Rhode Island	5
South Carolina	72
Tennessee	26
Texas	44
Utah [1]	9
Vermont	2
Washington	18
West Virginia	19
Wisconsin	26
Wyoming	2

INFLUENZA	Cases
Alabama	7
Arkansas	43
California	12
Connecticut	1
Delaware	1
Florida	2
Georgia	33
Illinois	7
Indiana	3
Kansas	1
Louisiana	13
Maryland [1]	2
Massachusetts	6
Michigan	2
New Jersey	2
Oklahoma [3]	6
Oregon	25
South Carolina	216
Tennessee	6
Texas	30
Utah [1]	3
Wisconsin	36

MEASLES	
Alabama	11
Arizona	1
Arkansas	6
California	25
Colorado	4
Connecticut	9
Delaware	1
Florida	1
Georgia	8
Illinois	18
Indiana	7
Iowa [1]	3
Kansas	24
Louisiana	10
Maine	9
Maryland [1]	9
Massachusetts	41

[1] Week ended Friday. [2] Exclusive of New York City. [3] Exclusive of Oklahoma City and Tulsa.

MEASLES—continued	Cases
Michigan	17
Minnesota	4
Missouri	3
Montana	2
Nebraska	1
New Jersey	8
New Mexico	14
New York [2]	50
North Carolina	106
Oklahoma [3]	13
Oregon	2
Pennsylvania	96
South Carolina	97
Tennessee	26
Texas	2
Utah [1]	1
Washington	19
West Virginia	6
Wisconsin	62
Wyoming	2

MENINGOCOCCUS MENINGITIS	
Arkansas	1
California	1
Colorado	1
Connecticut	3
Florida	2
Illinois	10
Iowa [1]	1
Kansas	1
Louisiana	1
Maryland [1]	1
Michigan	2
Minnesota	2
Mississippi	1
Missouri	1
Montana	1
New Jersey	1
New York [2]	2
North Carolina	2
Oklahoma [3]	1
Oregon	4
Pennsylvania	2
Rhode Island	1
Texas	1
Washington	4
Wisconsin	2

POLIOMYELITIS	
Arizona	1
Arkansas	4
California	46
Colorado	9
Connecticut	13
Florida	1
Idaho	1
Illinois	50
Indiana	18
Iowa [1]	6
Kansas	19
Louisiana	3
Maine	5
Maryland [1]	3
Massachusetts	79
Michigan	21

POLIOMYELITIS—continued	Cases
Minnesota	15
Missouri	20
Nebraska	7
New Jersey	38
New Mexico	9
New York [2]	20
North Carolina	1
Ohio	87
Oklahoma [3]	7
Oregon	30
Pennsylvania	35
Rhode Island	1
South Carolina	2
South Dakota	7
Tennessee	3
Texas	12
Utah [1]	2
Vermont	2
Washington	16
West Virginia	22
Wisconsin	19
Wyoming	1

SCARLET FEVER	
Alabama	25
Arizona	1
Arkansas	7
California	73
Colorado	31
Connecticut	22
Florida	7
Georgia	20
Idaho	4
Illinois	123
Indiana	59
Iowa [1]	20
Kansas	64
Louisiana	7
Maine	16
Maryland [1]	16
Massachusetts	129
Michigan	100
Minnesota	61
Mississippi	29
Missouri	41
Montana	9
Nebraska	23
New Jersey	51
New Mexico	4
New York [2]	89
North Carolina	76
Oklahoma [3]	21
Oregon	25
Pennsylvania	149
Rhode Island	10
South Carolina	26
South Dakota	18
Tennessee	35
Texas	19
Utah [1]	2
Vermont	6
Washington	17
West Virginia	50
Wisconsin	41
Wyoming	9

[1] Week ended Friday. [2] Exclusive of New York City. [3] Exclusive of Oklahoma City and Tulsa.

SMALLPOX	Cases
California	8
Colorado	1
Florida	1
Illinois	5
Indiana	5
Iowa [1]	5
Kansas	2
Louisiana	9
Michigan	7
Minnesota	1
Mississippi	1
Missouri	5
Montana	6
New Jersey	4
New Mexico	2
New York [2]	6
North Carolina	9
Oklahoma [3]	6
Oregon	24
South Carolina	2
Texas	4
Utah [1]	6
Washington	12
West Virginia	8
Wisconsin	7

TYPHOID FEVER	Cases
Alabama	36
Arkansas	15
California	16
Colorado	9
Connecticut	5
Florida	3

TYPHOID FEVER—continued	Cases
Georgia	27
Idaho	1
Illinois	49
Indiana	21
Iowa [1]	5
Kansas	28
Louisiana	13
Maine	6
Maryland [1]	24
Massachusetts	19
Michigan	15
Minnesota	9
Mississippi	9
Missouri	9
Montana	6
Nebraska	1
New Jersey	10
New Mexico	15
New York [2]	26
North Carolina	60
Oklahoma [3]	85
Oregon	5
Pennsylvania	65
Rhode Island	2
South Carolina	69
South Dakota	3
Tennessee	59
Texas	22
Utah [1]	4
Washington	16
West Virginia	31
Wisconsin	17

Reports for Week Ended September 24, 1927

DIPHTHERIA	Cases
District of Columbia	10
Massachusetts	74
North Dakota	12

INFLUENZA	
Massachusetts	4
North Dakota	2

MEASLES	
District of Columbia	2
Massachusetts	25
North Dakota	4

POLIOMYELITIS	Cases
Massachusetts	97
North Dakota	3
Ohio	96

SCARLET FEVER	
District of Columbia	8
Massachusetts	130
North Dakota	22

TYPHOID FEVER	
District of Columbia	2
Massachusetts	19
North Dakota	2

[1] Week ended Friday.
[2] Exclusive of New York City.
[3] Exclusive of Oklahoma City and Tulsa.

SUMMARY OF MONTHLY REPORTS FROM STATES

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

State	Meningococcus meningitis	Diphtheria	Influenza	Malaria	Measles	Pellagra	Poliomyelitis	Scarlet fever	Smallpox	Typhoid fever
August, 1927										
Alabama	7	105	48	737	138	64	4	71	10	356
Idaho	2	7			17		1	16	25	4
Illinois	22	325	42	25	128	2	66	314	31	223
Indiana	0	74	37		24		11	104	94	70
Maine	0	31			13		10	56	0	30
Maryland	2	108	21	3	40		1	46	0	209
Mississippi		105	881	15,090	471	1,813	8	47	7	280
Missouri	6	87	6	15	38		36	93	22	104
Montana	3	21	1		10	1	0	159	1	44
New York	17	680		23	380		237	382	11	188
North Carolina	3	232			705		3	108	34	313
Oklahoma [1]	4	79	34	743	114	65	36	29	48	410
Oregon	15	23	22	6	45		31	28	37	21
Pennsylvania	6	447			247	3	70	343	1	214
Rhode Island	0	34		1	5		8	37	0	19
South Dakota	0	13			26		7	28	31	7
Tennessee	4	69	21	679	49	122	13	71	25	633
Virginia	4	134	692	215	48	47	7	91	16	301
Washington	9	71	16		154		10	55	25	35
Wisconsin	23	80	42		293		18	199	35	40

[1] Exclusive of Oklahoma City and Tulsa.

August, 1927

	Cases
Anthrax:	
Maine	1
Missouri	1
Chicken pox:	
Alabama	7
Idaho	7
Illinois	188
Indiana	15
Maine	16
Maryland	18
Mississippi	310
Missouri	10
Montana	9
New York	322
North Carolina	30
Oklahoma [1]	8
Oregon	26
Pennsylvania	210
Rhode Island	4
South Dakota	3
Tennessee	6
Virginia	43
Washington	77
Wisconsin	78
Dengue:	
Alabama	3
Mississippi	44
Dysentery:	
Illinois	52
Maryland	46
Mississippi (amebic)	48
Mississippi (bacillary)	863
New York	10
Oklahoma [1]	56

[1] Exclusive of Oklahoma City and Tulsa.

August, 1927—Continued

	Cases
Dysentery—Continued	
Oregon	1
Tennessee	20
Virginia	532
German measles:	
Illinois	4
Maine	3
Maryland	3
New York	60
North Carolina	26
Pennsylvania	20
Rhode Island	1
Washington	22
Hookworm disease:	
Mississippi	326
Oklahoma [1]	1
Virginia	26
Impetigo contagiosa:	
Maryland	5
Oregon	12
Pennsylvania	7
Lead poisoning:	
Illinois	15
Leprosy:	
Wisconsin	1
Lethargic encephalitis:	
Alabama	1
Illinois	9
Maryland	1
Montana	1
New York	18
Pennsylvania	3
Washington	2
Wisconsin	1

August, 1927—Continued

Mumps:	Cases
Alabama	25
Idaho	26
Illinois	212
Indiana	9
Maine	17
Maryland	17
Mississippi	165
Missouri	47
Montana	1
New York	389
Oklahoma [1]	8
Oregon [2]	18
Pennsylvania	208
Rhode Island	9
South Dakota	4
Tennessee	14
Washington	50
Wisconsin	104
Ophthalmia neonatorum:	
Illinois	64
Maryland	2
Mississippi	15
Missouri	1
New York	1
North Carolina	1
Oklahoma [1]	1
Pennsylvania	5
Rhode Island	2
Paratyphoid fever:	
Illinois	4
Maine	1
New York	5
Oregon	1
Tennessee	2
Puerperal fever:	
Illinois	2
Mississippi	47
New York	6
Pennsylvania	2
Rabies in animals:	
Maryland	5
Mississippi	12
Missouri	2
New York	9
Oregon	1
Wisconsin	2
Rabies in man:	
Illinois	1
Maryland	1
Pennsylvania	1
Tennessee	7
Wisconsin	1
Rocky Mountain spotted or tick fever:	
Montana	1
Scabies:	
Oregon	1
Pennsylvania	2
Septic sore throat:	
Idaho	6
Illinois	3

[1] Exclusive of Oklahoma City and Tulsa.

August, 1927—Continued

Septic sore throat—Continued	Cases
Maryland	8
Missouri	5
Montana	3
New York	5
North Carolina	2
Oregon	6
Rhode Island	3
Tennessee	2
Tetanus:	
Illinois	7
Maine	1
Maryland	3
Montana	1
New York	12
Oklahoma [1]	5
Oregon	1
Pennsylvania	7
Trachoma:	
Illinois	2
Mississippi	9
Missouri	38
New York	1
North Carolina	1
Oklahoma [1]	8
Pennsylvania	2
Rhode Island	1
South Dakota	5
Wisconsin	1
Trichinosis:	
Montana	1
Tularaemia:	
Idaho	2
Typhus fever:	
Alabama	7
Vincent's angina:	
Illinois	1
Maine	6
Maryland	12
New York	64
Whooping cough:	
Alabama	114
Idaho	56
Illinois	1,218
Indiana	121
Maine	48
Maryland	218
Mississippi	870
Missouri	183
Montana	20
New York	1,210
North Carolina	915
Oklahoma [1]	34
Oregon	48
Pennsylvania	730
Rhode Island	21
South Dakota	58
Tennessee	69
Virginia	558
Washington	126
Wisconsin	450

GENERAL CURRENT SUMMARY AND WEEKLY REPORTS FROM CITIES

The 97 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 30,050,000. The estimated population of the 91 cities reporting deaths is more than 29,250,000. The estimated expectancy is based on the experience of the last nine years, excluding epidemics.

Weeks ended September 17, 1927, and September 18, 1926

	1927	1926	Estimated expectancy
Cases reported			
Diphtheria:			
43 States	1,393	1,186	
97 cities	579	469	608
Measles:			
42 States	627	762	
97 cities	114	159	
Poliomyelitis:			
43 States	623	123	
Scarlet fever:			
43 States	1,286	1,190	
97 cities	400	365	359
Smallpox:			
43 States	220	98	
97 cities	30	13	14
Typhoid fever:			
43 States	1,084	1,591	
97 cities	194	307	222
Deaths reported			
Influenza and pneumonia:			
91 cities	355	311	
Smallpox:			
91 cities	0	0	

City reports for week ended September 17, 1927

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 week 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 non-epidemic years.

If reports have not been received for the full nine years, data are used for as many years as possible, but no year earlier than 1918 is included. In obtaining the estimated expectancy, the figures are smoothed when necessary to avoid abrupt deviations 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, 1925, 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			
NEW ENGLAND									
Maine:									
Portland	75,333	0	0	0	0	0	0	0	1
New Hampshire:									
Concord	22,546	0	0	0	0	0	1	0	0
Manchester	83,097	0	3	0	0	0	0	0	1
Vermont:									
Barre	10,008	0	0	0	0	0	0	0	0
Burlington	24,039	0	1	0	0	0	0	0	1

City reports for week ended September 17, 1927—Continued

Division, State, and city	Population July 1, 1925, 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			
NEW ENGLAND—con.									
Massachusetts:									
Boston	779,620	3	28	15	2	0	11	6	9
Fall River	128,993	0	2	1	1	0	0	1	0
Springfield	142,065	1	2	1	0	0	1	1	0
Worcester	190,757	0	4	0	0	0	0	2	1
Rhode Island:									
Pawtucket	69,760	0	0	0	0	0	0	0	0
Providence	267,918	0	3	2	0	0	0	0	0
Connecticut:									
Bridgeport	(1)	0	5	2	0	0	0	0	1
Hartford	160,197	0	4	1	1	0	0	2	3
New Haven	178,927	0	2	1	0	0	0	5	2
MIDDLE ATLANTIC									
New York:									
Buffalo	538,016	5	13	12	----	0	4	3	7
New York	5,873,356	29	85	107	3	5	9	0	59
Rochester	316,786	0	4	6	----	0	0	1	1
Syracuse	182,003	3	4	0	----	0	0	0	2
New Jersey:									
Camden	123,642	0	2	8	0	0	0	0	2
Newark	452,513	3	6	11	1	1	0	5	8
Trenton	132,020	0	3	1	1	0	0	1	4
Pennsylvania:									
Philadelphia	1,979,364	18	37	41	----	1	0	13	26
Pittsburgh	631,563	7	15	26	----	2	14	9	10
Reading	112,707	0	2	2	----	0	1	0	2
EAST NORTH CENTRAL									
Ohio:									
Cincinnati	409,333	2	8	5	0	0	2	0	2
Cleveland	936,485	5	24	38	2	0	5	21	7
Columbus	279,836	1	4	2	0	1	0	0	1
Toledo	287,380	2	9	5	2	2	1	0	4
Indiana:									
Fort Wayne	97,846	0	2	1	0	0	0	0	0
Indianapolis	358,819	4	6	2	0	0	0	5	15
South Bend	80,091	0	1	0	0	0	2	0	1
Terre Haute	71,071	0	0	1	0	0	0	0	3
Illinois:									
Chicago	2,995,239	37	55	38	4	0	7	11	27
Springfield	53,923	0	1	0	0	0	1	1	0
Michigan:									
Detroit	1,245,824	19	44	27	0	2	2	14	10
Flint	130,316	0	6	1	0	0	0	1	2
Grand Rapids	153,698	2	3	0	0	0	1	0	3
Wisconsin:									
Kenosha	50,891	1	1	0	0	0	0	3	0
Madison	46,385	2	1	1	0	0	1	0	0
Milwaukee	509,192	10	9	5	0	0	6	7	4
Racine	67,707	2	1	3	0	0	1	0	1
Superior	39,671	0	1	0	0	0	0	0	3
WEST NORTH CENTRAL									
Minnesota:									
Duluth	116,502	0	1	0	0	0	0	0	0
Minneapolis	425,435	10	19	17	0	0	3	2	3
St. Paul	246,001	1	13	3	0	2	1	6	3
Iowa:									
Davenport	52,469	0	0	0	0	----	0	0	----
Sioux City	76,411	----	1	----	----	----	----	----	----
Waterloo	36,771	0	0	1	0	----	1	0	----
Missouri:									
Kansas City	367,481	0	4	4	0	0	2	2	7
St. Joseph	78,342	0	1	0	0	0	1	0	4
St. Louis	821,543	1	23	22	0	0	2	3	----
North Dakota:									
Fargo	26,403	0	1	0	0	0	0	1	1
Grand Forks	14,811	0	1	0	0	----	0	0	----

[1] No estimate made.

City reports for week ended September 17, 1927—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			
WEST NORTH CENTRAL—continued									
South Dakota:									
Aberdeen	15,036	0	0	0	0	-------	1	0	-------
Sioux Falls	30,127	0	0	0	0	-------	0	0	-------
Nebraska:									
Lincoln	60,941	2	1	0	0	0	1	2	0
Omaha	211,768	2	12	3	0	0	0	1	4
Kansas:									
Topeka	55,411	1	1	11	0	0	3	0	0
Wichita	88,367	0	2	2	0	0	0	1	0
SOUTH ATLANTIC									
Delaware:									
Wilmington	122,049	0	1	1	0	0	0	0	2
Maryland:									
Baltimore	796,296	8	17	19	0	1	1	4	15
Cumberland	33,741	1	1	0	0	0	0	0	0
Frederick	12,035	0	0	0	0	0	0	0	0
District of Columbia:									
Washington	497,906	0	6	15	0	0	1	0	6
Virginia:									
Lynchburg	30,395	0	1	1	0	0	0	0	0
Norfolk	(1)	0	2	0	0	0	0	0	3
Richmond	186,403	0	13	1	0	2	1	0	0
Roanoke	58,208	0	4	2	0	0	0	0	0
West Virginia:									
Charleston	49,019	0	2	0	0	1	0	0	0
Wheeling	56,208	3	1	1	0	0	1	1	1
North Carolina:									
Raleigh	30,371	9	3	0	0	0	0	0	2
Wilmington	37,061	0	2	0	0	0	0	0	1
Winston-Salem	69,031	1	2	4	0	0	2	30	0
South Carolina:									
Charleston	73,125	0	1	2	13	0	0	0	1
Columbia	41,225	0	1	2	0	-------	1	0	1
Greenville	27,311	0	2	0	0	0	0	0	0
Georgia:									
Atlanta	(1)	0	6	11	8	1	0	1	7
Brunswick	16,809	-------	0	-------	-------	-------	-------	-------	-------
Savannah	93,134	0	1	2	1	0	1	0	3
Florida:									
Miami	69,754	0	-------	1	0	0	0	0	1
St. Petersburg	26,847	-------	0	-------	-------	0	-------	-------	0
Tampa	94,743	0	0	1	0	0	0	0	1
EAST SOUTH CENTRAL									
Kentucky:									
Covington	58,309	-------	0	-------	-------	-------	-------	-------	-------
Lexington	46,895	0	-------	0	0	0	1	0	1
Louisville	305,985	0	5	3	1	0	1	1	8
Tennessee:									
Memphis	174,533	0	4	1	0	0	0	0	6
Nashville	136,220	3	3	4	0	0	1	0	3
Alabama:									
Birmingham	205,670	2	5	11	2	0	0	0	1
Mobile	65,955	0	1	1	0	0	0	0	0
Montgomery	46,481	1	2	3	0	0	0	1	0
WEST SOUTH CENTRAL									
Arkansas:									
Fort Smith	31,643	0	0	0	0	-------	0	0	-------
Little Rock	74,216	0	1	0	0	0	2	0	0
Louisiana:									
New Orleans	414,493	0	6	6	2	1	0	0	6
Shreveport	57,857	1	1	2	0	0	0	0	1
Oklahoma:									
Oklahoma City	(1)	0	2	3	0	0	0	0	1
Texas:									
Dallas	194,450	0	4	14	1	-------	2	0	-------
Galveston	48,375	0	0	1	0	0	0	0	2
Houston	164,954	0	2	2	0	0	0	0	2
San Antonio	198,069	0	1	8	0	1	0	0	3

[1] No estimate made.

City reports for week ended September 17, 1927—Continued

Division, State, and city	Population July 1, 1926, estimated	Chicken pox, cases reported	Diphtheria: Cases, estimated expectancy	Diphtheria: Cases reported	Influenza: Cases reported	Influenza: Deaths reported	Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
MOUNTAIN									
Montana:									
Billings	17,971	1	0	0	0	0	0	0	0
Great Falls	28,383	0	0	0	0	0	1	0	0
Helena	12,037	0	0	0	0	0	1	0	1
Missoula	12,668	0	0	0	0	0	0	0	0
Idaho:									
Boise	23,042	0	0	0	0	0	0	2	0
Colorado:									
Denver	280,911	1	12	21	----	1	2	1	5
Pueblo	43,787	0	3	0	0	0	1	0	1
New Mexico:									
Albuquerque	21,000	0	0	0	0	0	0	0	0
Utah:									
Salt Lake City	130,948	10	3	4	0	0	0	1	4
Nevada:									
Reno	12,665	0	0	0	0	0	0	0	0
PACIFIC									
Washington:									
Seattle	(1)	2	4	6	0	----	5	3	----
Spokane	106,897	3	2	0	0	----	0	0	----
Tacoma	104,455	0	3	3	0	0	0	0	3
Oregon:									
Portland	282,383	1	5	2	0	0	1	0	3
California:									
Los Angeles	(1)	----	27	----	----	----	----	----	----
Sacramento	72,260	1	2	0	0	0	0	0	0
San Francisco	557,530	33	14	4	1	1	9	6	5

Division, State, and city	Scarlet fever: Cases, estimated expectancy	Scarlet fever: Cases reported	Smallpox: Cases, estimated expectancy	Smallpox: Cases reported	Smallpox: Deaths reported	Tuberculosis, deaths reported	Typhoid fever: Cases, estimated expectancy	Typhoid fever: Cases reported	Typhoid fever: Deaths reported	Whooping cough, cases reported	Deaths, all causes
NEW ENGLAND											
Maine:											
Portland	1	0	0	0	0	0	1	1	0	1	16
New Hampshire:											
Concord	0	0	0	0	0	0	0	0	0	0	3
Manchester	0	0	0	0	0	1	0	0	0	0	15
Vermont:											
Barre	0	1	0	0	0	1	0	0	0	1	1
Burlington	0	0	0	0	0	0	0	0	0	0	6
Massachusetts:											
Boston	16	25	0	0	0	10	4	8	0	22	175
Fall River	1	1	0	0	0	2	2	3	0	2	----
Springfield	2	0	0	0	0	0	1	0	0	5	27
Worcester	3	3	0	0	0	3	1	0	0	4	32
Rhode Island:											
Pawtucket	0	0	0	0	0	0	0	0	0	0	5
Providence	2	11	0	0	0	3	2	4	0	3	53
Connecticut:											
Bridgeport	2	1	0	0	0	0	0	1	1	0	29
Hartford	2	1	0	0	0	6	2	1	0	15	37
New Haven	2	1	0	0	0	0	3	2	0	8	29
MIDDLE ATLANTIC											
New York:											
Buffalo	6	11	0	0	0	7	2	3	0	12	101
New York	34	35	0	0	0	[2] 83	45	54	4	143	1,200
Rochester	2	1	0	0	0	3	1	0	0	3	66
Syracuse	3	5	0	0	0	1	2	0	0	2	34

[1] No estimate made.

[2] Pulmonary tuberculosis only.

City reports for week ended September 17, 1927—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuberculosis, deaths reported	Typhoid fever			Whooping cough, cases reported	Deaths, all causes
	Cases, estimated expectancy	Cases reported	Cases, estimated expectancy	Cases reported	Deaths reported		Cases, estimated expectancy	Cases reported	Deaths reported		
MIDDLE ATLANTIC—continued											
New Jersey:											
Camden	2	0	0	0	0	1	1	1	0	1	29
Newark	5	4	0	0	0	8	2	1	0	53	91
Trenton	0	2	0	0	0	4	1	1	0	0	45
Pennsylvania:											
Philadelphia	23	26	0	0	0	25	14	10	0	31	372
Pittsburgh	15	10	0	0	0	10	4	4	0	31	134
Reading	1	0	0	0	0	1	1	1	0	1	25
EAST NORTH CENTRAL											
Ohio:											
Cincinnati	5	4	0	0	0	13	2	5	1	3	118
Cleveland	12	14	0	0	0	14	5	4	0	37	160
Columbus	4	5	0	0	0	4	1	0	0	3	83
Toledo	5	6	0	0	0	8	3	0	0	8	80
Indiana:											
Fort Wayne	1	0	0	0	0	0	1	0	0	0	13
Indianapolis	3	8	0	0	0	4	3	1	0	16	101
South Bend	2	0	0	0	0	2	0	2	0	1	19
Terre Haute	1	1	0	0	0	0	0	0	0	0	17
Illinois:											
Chicago	34	29	1	0	0	42	9	5	0	163	645
Springfield	1	0	0	0	0	0	1	2	0	0	15
Michigan:											
Detroit	30	38	1	0	0	15	6	4	1	87	239
Flint	5	15	0	0	0	3	1	0	0	2	31
Grand Rapids	3	1	0	0	0	0	0	1	0	2	35
Wisconsin:											
Kenosha	0	3	0	0	0	1	0	0	0	1	5
Madison	1	9	0	0	0	0	0	0	0	7	----
Milwaukee	12	10	0	0	0	9	0	0	0	34	100
Racine	2	5	0	0	0	1	0	0	0	43	11
Superior	1	1	1	0	0	0	0	0	0	0	9
WEST NORTH CENTRAL											
Minnesota:											
Duluth	4	1	0	0	0	0	1	0	0	4	21
Minneapolis	19	15	0	0	0	3	2	2	0	0	78
St. Paul	7	6	1	0	0	4	2	1	0	11	61
Iowa:											
Davenport	0	0	0	0	----	----	0	0	----	4	----
Sioux City	1	----	0	----	----	----	0	----	----	----	----
Waterloo	1	0	0	0	----	----	0	0	----	0	----
Missouri:											
Kansas City	3	1	0	0	0	3	2	1	0	7	101
St. Joseph	0	0	0	11	0	0	0	0	0	1	35
St. Louis	11	10	0	0	0	11	7	7	0	22	214
North Dakota:											
Fargo	1	2	0	0	0	0	0	1	0	0	4
Grand Forks	1	0	0	0	----	----	0	0	----	0	----
South Dakota:											
Aberdeen	2	0	0	0	----	----	0	0	----	1	----
Sioux Falls	0	1	0	0	----	----	0	0	----	0	----
Nebraska:											
Lincoln	1	2	0	0	0	0	0	6	0	0	14
Omaha	2	2	0	0	0	1	1	0	0	0	60
Kansas:											
Topeka	1	1	0	0	0	0	1	0	0	13	8
Wichita	1	6	0	0	0	0	2	0	0	0	25
SOUTH ATLANTIC											
Delaware											
Wilmington	1	1	0	0	0	4	0	1	0	0	21
Maryland:											
Baltimore	6	8	0	0	0	7	12	4	1	26	213
Cumberland	0	0	0	0	0	0	1	0	0	2	8
Frederick	0	0	0	0	0	0	0	0	0	0	3

City reports for week ended September 17, 1927—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuberculosis, deaths reported	Typhoid fever			Whooping cough, cases reported	Deaths, all causes
	Cases, estimated expectancy	Cases reported	Cases, estimated expectancy	Cases reported	Deaths reported		Cases, estimated expectancy	Cases reported	Deaths reported		
SOUTH ATLANTIC—continued											
District of Columbia:											
Washington	5	7	1	0	0	11	4	1	0	3	119
Virginia:											
Lynchburg	0	0	0	0	0	0	1	0	1	0	10
Norfolk	1	2	0	0	0	2	1	0	0	5	
Richmond	5	4	0	0	0	2	2	0	0	0	43
Roanoke	1	2	0	0	0	1	2	0	0	0	19
West Virginia:											
Charleston	1	1	0	0	0	2	2	2	0	0	24
Wheeling	2	1	0	0	0	1	1	2	0	2	17
North Carolina:											
Raleigh	0	0	0	0	0	0	1	0	0	0	8
Wilmington	0	0	0	0	0	2	1	0	0	0	16
Winston-Salem	1	5	1	0	0	1	2	0	0	4	18
South Carolina											
Charleston	0	0	0	1	0	4	3	6	1	0	19
Columbia	0	0	0	0			1	0		1	13
Greenville	0	0	0	0	0	0	1	0	0	0	7
Georgia:											
Atlanta	4	10	0	1	0	2	4	0	0	1	76
Brunswick	0		0				0				
Savannah	0	0	0	0	0	1	1	1	0	0	26
Florida:											
Miami		0		0	0	1		1	1	0	24
St. Petersburg	0		0		0	0	0		0		7
Tampa	0	2	0	0	0	3	0	0	0	2	30
EAST SOUTH CENTRAL											
Kentucky:											
Covington	0		0				1				
Lexington		1		0	0	1		0	0	5	17
Louisville	2	2	0	0	0	5	5	4	0	0	65
Tennessee:											
Memphis	1	3	0	0	0	3	5	8	0	0	78
Nashville	3	0	1	0	0	2	5	13	1	2	42
Alabama:											
Birmingham	4	4	0	0	0	4	5	3	1	1	63
Mobile	0	0	0	0	0	1	0	0	0	0	19
Montgomery	0	0	0	0	0	0	1	2	0	0	
WEST SOUTH CENTRAL											
Arkansas:											
Fort Smith	1	0	0	0			0	2		0	
Little Rock	1	3	0	0	0	2	2	0	0	0	
Louisiana:											
New Orleans	2	0	0	0	0	16	4	4	0	5	154
Shreveport	1	1	0	0	0	1	2	0	0	1	26
Oklahoma:											
Oklahoma City	2	2	0	1	0	1	2	0	1	0	31
Texas:											
Dallas	2	3	1	1			2	2		9	
Galveston	0	0	0	0	0	0	0	0	0	0	16
Houston	0	2	0	0	0	3	1	1	1	0	47
San Antonio	0	1	0	0	0	2	0	0	0	0	35
MOUNTAIN											
Montana:											
Billings	1	0	0	0	0	0	1	0	0	7	4
Great Falls	1	0	1	1	0	0	1	0	0	0	4
Helena	0	0	0	0	0	0	0	0	0	0	3
Missoula	0	0	0	0	0	0	0	1	0	0	6
Idaho:											
Boise	0	0	0	0	0	0	1	0	0	0	3
Colorado:											
Denver	4	5	1	1	0	6	3	0	1	1	71
Pueblo	1	0	0	0	0	0	1	1	0	0	9

City reports for week ended September 17, 1927—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuberculosis, deaths reported	Typhoid fever			Whooping cough, cases reported	Deaths, all causes
	Cases, estimated expectancy	Cases reported	Cases, estimated expectancy	Cases reported	Deaths reported		Cases, estimated expectancy	Cases reported	Deaths reported		
MOUNTAIN—con.											
New Mexico:											
Albuquerque	0	0	0	0	0	5	2	1	0	0	14
Utah:											
Salt Lake City	1	6	0	1	0	1	2	2	0	2	25
Nevada:											
Reno	0	0	0	0	0	0	0	0	0	0	2
PACIFIC											
Washington:											
Seattle	6	0	1	0			2	0		3	
Spokane	4	2	1	9			1	0		2	
Tacoma	2	0	1	2	0	1	0	2	0	0	18
Oregon:											
Portland	4	3	2	8	0	3	3	0	0	0	47
California:											
Los Angeles	8		2				5				
Sacramento	1	0	0	2	0	1	1	0	0	0	12
San Francisco	6	9	1	0	0	7	1	1	0	6	128

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									
Maine:									
Portland	0	0	0	1	0	0	0	5	0
Massachusetts:									
Boston	1	3	2	1	1	0	2	36	5
Fall River	0	0	0	0	0	0	0	1	0
Springfield	0	0	1	1	0	0	0	1	0
Worcester	0	0	0	0	0	0	0	2	1
Rhode Island:									
Providence	0	0	0	0	0	0	0	1	0
Connecticut:									
Bridgeport	0	0	0	0	0	0	0	1	0
Hartford	0	0	0	0	0	0	0	2	0
New Haven	0	0	0	0	0	0	1	2	0
MIDDLE ATLANTIC									
New York:									
Buffalo	0	0	0	0	0	0	1	0	1
New York [1]	5	2	2	2	0	0	11	53	8
New Jersey:									
Newark	1	0	1	0	0	0	0	6	0
Trenton	0	0	0	0	0	0	0	1	0
Pennsylvania:									
Philadelphia	1	0	0	1	0	0	1	0	0
Pittsburgh	0	0	0	0	0	0	1	2	0
EAST NORTH CENTRAL									
Ohio:									
Cincinnati	0	0	0	0	0	0	1	1	0
Cleveland	1	0	0	0	0	0	1	8	0
Columbus	0	0	0	0	0	0	0	1	0
Toledo	0	0	0	0	0	0	0	1	0
Illinois:									
Chicago	2	0	0	0	1	1	4	13	1
Michigan:									
Detroit	0	0	0	0	0	0	1	4	0
Flint	0	0	0	0	0	0	1	3	0
Wisconsin:									
Madison	0	0	0	0	0	0	0	4	0
Milwaukee	1	0	1	0	0	0	0	4	1

[1] Rabies (human): 1 death at New York, N. Y.

City reports for week ended September 17, 1927—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 NORTH CENTRAL									
Minnesota:									
Minneapolis	1	0	1	1	0	0	1	1	0
St. Paul	0	0	0	0	0	0	1	1	0
Missouri:									
Kansas City	0	0	0	0	0	0	1	6	0
St. Louis	1	1	0	0	0	0	1	1	0
Nebraska:									
Lincoln	0	0	0	0	0	0	0	1	0
Omaha	0	0	0	0	0	0	0	2	1
Kansas:									
Topeka	0	0	0	0	0	0	0	1	0
SOUTH ATLANTIC [2]									
Maryland:									
Baltimore	1	0	0	1	0	0	2	0	0
West Virginia:									
Charleston	0	1	0	0	0	0	0	1	1
Wheeling	0	0	1	1	0	0	0	2	0
South Carolina:									
Charleston [3]	0	0	0	1	4	0	0	0	0
Columbia	0	0	0	0	0	1	0	0	0
Georgia:									
Savannah [2]	0	0	0	0	1	0	0	0	0
Florida:									
Miami	0	0	0	0	1	0	-------	0	0
EAST SOUTH CENTRAL									
Kentucky:									
Lexington	0	0	0	0	0	0	0	1	1
Louisville	0	0	0	0	0	0	0	1	0
Tennessee:									
Memphis	0	0	0	0	1	1	0	0	0
Nashville	0	0	0	0	0	0	0	2	0
Alabama:									
Birmingham	0	0	0	0	1	0	0	1	0
Mobile [2]	0	0	0	0	0	2	0	0	0
WEST SOUTH CENTRAL									
Arkansas:									
Little Rock	0	0	0	0	0	7	0	0	0
Louisiana:									
New Orleans	0	0	1	0	0	0	0	1	0
Shreveport	0	0	0	0	0	1	0	0	0
Oklahoma:									
Oklahoma City	0	0	0	0	0	0	0	2	1
Texas: [2]									
Dallas	0	-------	0	-------	2	-------	0	5	-------
MOUNTAIN									
Montana:									
Missoula	3	1	0	0	0	0	0	0	0
New Mexico:									
Albuquerque	0	0	0	0	0	0	0	4	0
Utah:									
Salt Lake City	0	0	0	0	0	0	1	4	0
Nevada:									
Reno	0	0	0	0	0	0	0	2	0
PACIFIC									
Washington:									
Seattle	1	-------	0	-------	0	-------	0	2	-------
Spokane	1	-------	0	-------	0	-------	1	0	-------
Tacoma	0	0	0	0	0	0	0	7	0
Oregon:									
Portland	1	0	0	0	0	0	0	1	0
California:									
Sacramento	1	0	0	0	0	0	0	3	0
San Francisco	0	0	1	0	0	0	0	8	1

[2] Typhus fever; 1 death at Lynchburg, Va., 1 case at Savannah, Ga., 2 cases and 1 death at Mobile, Ala., and 1 case at Houston, Tex.

[3] Dengue: 1 case at Charleston, S. C.

The following table gives the rates per 100,000 population for 101 cities for the five-week period ended September 17, 1927, compared with those for a like period ended September 18, 1926. The population figures used in computing the rates are approximate estimates as of July 1, 1926 and 1927, respectively, authoritative figures for many of the cities not being available. The 101 cities reporting cases had estimated aggregate populations of approximately 30,445,000 in 1926 and 30,966,000 in 1927. The 95 cities reporting deaths had nearly 29,785,000 estimated population in 1926 and nearly 30,296,000 in 1927. 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, August 14 to September 17, 1927—Annual rates per 100,000 population, compared with rates for the corresponding period of 1926 [1]

DIPHTHERIA CASE RATES

	Week ended—									
	Aug. 21, 1926	Aug. 20, 1927	Aug. 28, 1926	Aug. 27, 1927	Sept. 4, 1926	Sept. 3, 1927	Sept. 11, 1926	Sept. 10, 1927	Sept. 18, 1926	Sept. 17, 1927
101 cities	68	80	65	81	73	[2] 84	75	[3] 92	84	[4] 100
New England	47	111	50	86	26	88	38	93	35	53
Middle Atlantic	59	94	56	78	59	77	53	90	63	106
East North Central	87	85	76	81	99	87	78	90	95	82
West North Central	83	44	81	54	67	69	75	64	95	[5] 129
South Atlantic	60	62	61	89	69	[2] 89	136	109	110	[6] 113
East South Central	21	51	57	61	41	51	103	107	109	[7] 124
West South Central	64	75	34	96	60	164	86	[8] 91	77	138
Mountain	146	54	73	135	91	117	173	153	237	225
Pacific	62	60	91	94	134	73	91	[9] 89	99	[10] 55

MEASLES CASE RATES

101 cities	44	32	30	25	25	[2] 21	27	[3] 19	28	[4] 20
New England	52	84	38	58	33	58	35	63	19	30
Middle Atlantic	27	35	15	24	17	18	11	16	10	14
East North Central	72	13	43	13	31	11	20	15	23	18
West North Central	28	22	20	16	10	16	10	10	12	[5] 27
South Atlantic	35	27	15	31	9	[2] 18	19	14	9	[6] 15
East South Central	36	5	36	25	31	10	16	10	16	[7] 11
West South Central	9	42	4	17	0	42	4	[8] 10	4	17
Mountain	18	18	27	27	36	9	100	36	73	45
Pacific	78	71	94	52	91	42	158	[9] 33	212	[10] 59

SCARLET FEVER CASE RATES

101 cities	48	50	55	54	51	[2] 57	58	[3] 52	65	[4] 69
New England	73	51	54	81	59	60	80	53	75	102
Middle Atlantic	29	31	32	38	25	38	32	30	44	46
East North Central	46	78	55	61	58	80	61	65	60	89
West North Central	119	64	133	62	131	69	93	91	129	[5] 90
South Atlantic	39	42	58	63	37	[2] 60	56	60	48	[6] 78
East South Central	36	20	62	87	57	76	109	97	119	[7] 49
West South Central	17	59	26	59	26	59	47	[8] 40	30	42
Mountain	36	81	64	63	82	63	73	54	82	99
Pacific	78	42	75	37	70	34	88	[9] 33	118	[10] 46

[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, 1926 and 1927, respectively.
[2] Greenville, S. C., not included.
[3] Dallas, Tex., and Tacoma, Wash., not included.
[4] Sioux City, Iowa, Brunswick, Ga., Covington, Ky., and Los Angeles, Calif., not included.
[5] Sioux City, Iowa, not included.
[6] Brunswick, Ga., not included.
[7] Covington, Ky., not included.
[8] Dallas, Tex., not included.
[9] Tacoma, Wash., not included.
[10] Los Angeles, Calif., not included.

Summary of weekly reports from cities, August 14 to September 17, 1927—Annual rates per 100,000 population, compared with rates for the corresponding period of 1926—Continued

SMALLPOX CASE RATES

	Week ended—									
	Aug. 21, 1926	Aug. 20, 1927	Aug. 28, 1926	Aug. 27, 1927	Sept. 4, 1926	Sept. 3, 1927	Sept. 11, 1926	Sept. 10, 1927	Sept. 18, 1926	Sept. 17, 1927
101 cities	2	5	4	5	2	[2] 4	2	[3] 3	2	[4] 5
New England	0	0	0	0	0	0	0	0	0	0
Middle Atlantic	1	0	0	0	0	0	0	0	0	0
East North Central	2	7	7	6	0	7	2	3	0	0
West North Central	4	10	0	4	0	2	2	12	0	[5] 23
South Atlantic	6	4	9	0	9	[6] 0	2	2	9	[6] 4
East South Central	5	25	0	25	10	0	0	10	0	[7] 0
West South Central	0	4	9	0	4	0	0	[8] 0	4	4
Mountain	0	18	0	27	0	36	0	9	0	27
Pacific	5	13	13	31	13	18	16	[9] 14	19	[10] 55

TYPHOID FEVER CASE RATES

101 cities	41	37	40	31	40	[2] 32	45	[3] 29	53	[4] 34
New England	17	30	19	33	12	21	17	39	33	46
Middle Atlantic	34	20	39	21	34	28	34	27	55	37
East North Central	17	19	20	11	20	15	20	7	29	16
West North Central	48	38	42	20	42	10	50	32	26	[5] 25
South Atlantic	93	82	56	58	91	[2] 71	104	58	80	[6] 31
East South Central	186	219	233	204	176	183	284	112	248	[7] 162
West South Central	43	80	39	75	43	55	39	[8] 56	69	38
Mountain	73	27	18	45	9	54	18	63	82	36
Pacific	24	31	38	21	46	8	27	[9] 8	35	[10] 13

INFLUENZA DEATH RATES

95 cities	3	4	3	5	3	[2] 4	4	[3] 5	4	[11] 4
New England	0	2	0	2	0	2	0	5	0	0
Middle Atlantic	1	2	3	2	2	3	4	3	3	4
East North Central	3	2	3	3	4	5	4	4	3	2
West North Central	2	0	8	2	4	4	0	0	4	4
South Atlantic	2	6	2	11	0	[2] 7	0	6	6	[6] 9
East South Central	0	10	0	15	16	5	0	10	5	[7] 0
West South Central	26	30	4	22	9	13	18	[8] 16	22	[8] 10
Mountain	0	0	18	9	9	18	36	9	0	9
Pacific	7	0	0	7	0	0	0	[9] 7	7	[10] 7

PNEUMONIA DEATH RATES

95 cities	54	45	47	46	51	[2] 56	51	[3] 62	53	[11] 59
New England	40	49	33	51	50	49	40	65	54	39
Middle Atlantic	56	47	56	55	59	72	65	67	51	60
East North Central	35	35	37	34	34	51	37	59	40	53
West North Central	49	25	42	31	36	23	30	44	51	46
South Atlantic	87	53	59	37	64	[2] 42	44	50	55	[6] 78
East South Central	36	66	47	66	52	46	41	112	52	[7] 97
West South Central	66	69	71	65	49	82	97	[8] 63	115	[8] 73
Mountain	82	36	73	36	64	54	64	90	118	99
Pacific	78	72	21	62	78	55	57	[9] 48	53	[10] 55

[2] Greenville, S. C., not included.
[3] Dallas, Tex., and Tacoma, Wash., not included.
[4] Sioux City, Iowa, Brunswick, Ga., Covington, Ky., and Los Angeles, Calif., not included.
[5] Sioux City, Iowa, not included.
[6] Brunswick, Ga., not included.
[7] Covington, Ky., not included.
[8] Dallas, Tex., not included.
[9] Tacoma, Wash., not included.
[10] Los Angeles, Calif., not included.
[11] Brunswick, Ga., Covington, Ky., Dallas, Tex., and Los Angeles, Calif., not included.

Number of cities included in summary of weekly reports, and aggregate population of cities in each group, approximated as of July 1, 1926 and 1927, 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	
			1926	1927	1926	1927
Total	101	95	30,443,800	30,966,700	29,783,700	30,295,900
New England	12	12	2,211,000	2,245,900	2,211,000	2,245,900
Middle Atlantic	10	10	10,457,000	10,567,000	10,457,000	10,567,000
East North Central	16	16	7,650,200	7,810,600	7,650,200	7,810,600
West North Central	12	10	2,585,500	2,626,600	2,470,600	2,510,000
South Atlantic	21	20	2,799,500	2,878,100	2,757,700	2,835,700
East South Central	7	7	1,008,300	1,023,500	1,008,300	1,023,500
West South Central	8	7	1,213,800	1,243,300	1,181,500	1,210,400
Mountain	9	9	572,100	580,000	572,100	580,000
Pacific	6	4	1,946,400	1,991,700	1,475,300	1,512,800

FOREIGN AND INSULAR

THE FAR EAST

Report for week ended September 10, 1927.—The following report for the week ended September 10, 1927, was transmitted by the Eastern Bureau of the Health Section of the Secretariat of the League of Nations, located at Singapore, to the headquarters at Geneva:

Maritime towns	Plague		Cholera		Smallpox		Maritime towns	Plague		Cholera		Smallpox	
	Cases	Deaths	Cases	Deaths	Cases	Deaths		Cases	Deaths	Cases	Deaths	Cases	Deaths
Madagascar: Tamatave	0	0	0	0	5	----	French Indo-China:						
Iraq: Basra	0	0	13	11	3	3	Turane	0	0	10	4	0	0
British India:							Macao	0	0	----	1	0	0
Bombay	----	1	----	1	3	2	China:						
Madras	----	0	----	11	0	0	Amoy	0	0	21	----	0	0
Calcutta	----	0	----	13	6	5	Shanghai	0	0	----	20	0	0
Bassein	----	2	----	0	0	0	Canton	0	0	17	10	0	0
Rangoon	----	2	----	0	0	0	Kwantung:						
Siam: Bangkok	0	0	1	0	0	0	Dairen	0	0	1	0	0	0
Dutch East Indies:													
Banjermasin	0	0	0	0	25	3							
Surabaya	0	0	0	0	3	0							

Telegraphic reports from the following maritime towns indicated that no case of plague, cholera, or smallpox was reported during the week:

ASIA

Aden Protectorate.—Aden, Perim.

Arabia.—Bahrein.

Persia.—Bender-Abbas, Bushire, Lingah.

India.—Karachi, Chittagong, Cochin, Tuticorin, Negapatam, Vizagapatam, Moulmein.

Ceylon.—Colombo.

Portuguese India.—Nova Goa.

Federated Malay States.—Port Swettenham.

Straits Settlements.—Penang, Singapore.

Dutch East Indies.—Batavia, Pontianak, Semarang, Cheribon, Balikpapan, Padang, Belawan-Deli, Tarakan, Palembang, Samarinda, Menado, Makassar, Sabang.

Sarawak.—Kuching.

British North Borneo.—Sandakan, Jesselton, Kudat, Tawao.

Portuguese Timor.—Dilly.

Philippine Islands.—Iloilo, Jolo, Cebu, Zamboanga, Manila.

French Indo-China.—Saigon and Cholon, Haiphong.

China.—Tientsin, Tsingtao.

Hong Kong.

Wei-hai-wei.

Formosa.—Keelung, Takao.

Chosen.—Chemulpo, Fusan.

Manchuria.—Yingkow, Antung, Harbin, Mukden, Changchun.

Kwantung.—Port Arthur.

Japan.—Nagasaki, Yokohama, Niigata, Shimonoseki, Moji, Tsuruga, Kobe, Osaka, Hakodate.

AUSTRALASIA AND OCEANIA

Australia.—Adelaide, Melbourne, Sydney, Brisbane, Rockhampton, Townsville, Port Darwin, Broome, Fremantle, Carnarvon, Thursday Island, Cairns, Port Moresby.

New Guinea.—Port Moresby.

New Britain Mandated Territory.—Rabaul and Kokopo.

New Zealand.—Auckland, Wellington, Christchurch, Invercargill, Dunedin.

Western Samoa.—Apia.

New Caledonia.—Noumea.

Fiji.—Suva.

Hawaii.—Honolulu.

Society Islands.—Papeete.

AFRICA

Egypt.—Alexandria, Port Said, Suez.
Anglo-Egyptian Sudan.—Port Sudan, Suakin.
Eritrea.—Massaua.
French Somaliland.—Djibuti.
British Somaliland.—Berbera.
Italian Somaliland.—Mogadiscio.
Kenya.—Mombasa.
Zanzibar.—Zanzibar.
Tanganyika.—Dar-es-Salaam.
Seychelles.—Victoria.
Portuguese East Africa.—Mozambique, Beira, Lourenço-Marques.
Union of South Africa.—East London, Port Elizabeth, Cape Town, Durban.
Reunion.—St. Denis.
Mauritius.—Port Louis.
Madagascar.—Majunga, Diego-Suarez.

AMERICA

Panama.—Colon, Panama.

Reports had not been received in time for publication from:

Aden Protectorate.—Kamaran.
Persia.—Mohammera.
Union of Socialist Soviet Republics.—Vladivostok.

Belated information:

Week ended August 23: *Pondicherry* and *Karikal*, nil.
Week ended September 3: *Pondicherry* and *Karikal*, nil.

Movement of infected ships

Singapore.—The pilgrim ship *Tangistan* arrived September 13 from Jeddah infected with smallpox.

ANGOLA

Communicable diseases—June, 1927.—During the month of June, 1927, communicable diseases were reported in Angola, according to regional divisions, as follows:

Disease	Coast districts	Interior	Land frontier	Total
Ancylostomiasis	7	1	56	64
Beriberi	10			10
Dysentery	24	10	5	39
Filariasis	3			3
Influenza	327	204	97	628
Leprosy	1		2	3
Malaria	473	135	216	824
Measles	1			1
Mumps	14			14
Pneumonia	35	16	10	61
Puerperal fever	1			1
Recurrent fever			1	1
Smallpox	4		9	13
Tetanus		1		1
Trypanosomiasis	45	15	27	87
Tuberculosis	16	5	4	25
Typhoid fever	2			2
Whooping cough	5			5
Yaws	84	16	62	162

CANADA

Communicable diseases—Week ended September 17, 1927.—The Canadian ministry of health reports cases of certain communicable diseases from seven Provinces of Canada for the week ended September 17, 1927, as follows:

Disease	Nova Scotia	New Brunswick	Quebec	Ontario [1]	Manitoba	Saskatchewan	Alberta	Total
Influenza	8			1		11		20
Poliomyelitis				5		1	46	52
Smallpox	1			12	7		5	25
Typhoid fever	1	2	20	29	2	2	6	62

[1] Late reports for week ended September 3, 1927: Cerebrospinal fever, 2; smallpox, 11; typhoid fever, 14. For week ended September 10: Poliomyelitis, 3; smallpox, 17; typhoid fever, 6.

Communicable diseases—Quebec—Week ended September 17, 1927.—The Bureau of Health of the Province of Quebec reports cases of certain communicable diseases for the week ended September 17, 1927, as follows:

Disease	Cases	Disease	Cases
Chicken pox	2	Scarlet fever	37
Diphtheria	40	Tuberculosis	33
Influenza	1	Typhoid fever	20
Measles	9	Whooping cough	32

Further relative to poliomyelitis—British Columbia.—Information received under date of September 16, 1927, shows poliomyelitis present in epidemic form in the Okanogan Valley, the city of Kelowna reporting several cases of mild type. It was stated that schools and theaters had been closed. In the Kootenay district, where the disease first appeared, September 15, there were reported four cases at Rossland, one case at Slocan City, and one case at Trail, where a total of 16 cases with three deaths had been reported. At Vancouver two cases with one fatality were reported during the month of September, 1927.

Typhoid fever—Montreal—January 2-September 24, 1927.—The following table gives the cases of typhoid fever and deaths from this disease reported at Montreal, Quebec, Canada, since January 1, 1927:

Week ended—	Cases	Deaths	Week ended—	Cases	Deaths
Jan. 8, 1927	3	1	May 21, 1927	770	26
Jan. 15, 1927	4	3	May 28, 1927	353	38
Jan. 22, 1927	1	2	June 4, 1927	239	37
Jan. 29, 1927	3	1	June 11, 1927	128	36
Feb. 5, 1927	1	0	June 18, 1927	86	----
Feb. 12, 1927	0	0	June 25, 1927	75	23
Feb. 19, 1927	1	2	July 2, 1927	66	21
Feb. 26, 1927	1	1	July 9, 1927	52	10
Mar. 5, 1927	9	1	July 16, 1927	39	4
Mar. 12, 1927	203	4	July 23, 1927	22	9
Mar. 19, 1927	383	14	July 30, 1927	23	10
Mar. 26, 1927	568	22	Aug. 6, 1927	16	5
Apr. 2, 1927	649	48	Aug. 13, 1927	20	5
Apr 9, 1927	386	40	Aug. 20, 1927	14	4
Apr. 16, 1927	175	38	Aug. 27, 1927	8	3
Apr. 23, 1927	125	43	Sept. 3, 1927	27	----
Apr. 30, 1927	105	23	Sept. 10, 1927	17	----
May 7, 1927	106	19	Sept. 17, 1927	13	2
May 14, 1927	367	16	Sept. 24, 1927	6	3

ESTONIA

Communicable diseases—July, 1927.—During the month of July, 1927, communicable diseases were reported in the Republic of Estonia as follows:

Disease	Cases	Disease	Cases
Cerebrospinal meningitis	1	Scarlet fever	250
Diphtheria	31	Tuberculosis	97
Measles	98	Typhoid fever	33

Population, 1,114, 630.

LATVIA

Communicable diseases—July, 1927.—Communicable diseases were reported in the Republic of Latvia during the month of July, 1927, as follows:

Disease	Cases	Disease	Cases
Anthrax	1	Poliomyelitis	1
Cerebrospinal meningitis	6	Puerperal fever	2
Diphtheria	18	Rabies	1
Dysentery	3	Scarlet fever	86
Erysipelas	13	Tetanus	2
Influenza	2	Trachoma	12
Leprosy	1	Typhoid fever	74
Measles	334	Typhus fever	6
Paratyphoid fever	2	Whooping cough	82

Population, estimated, 1,950,000.

MEXICO

Typhoid fever—Nogales—August 22–September 23, 1927.—During the period August 22 to September 23, 1927, typhoid fever was reported prevalent at Nogales, State of Sonora, Mexico, with an unreported number of cases and with several fatalities. The outbreak was attributed to the water supply.

SENEGAL

Plague—Yellow fever—August 29–September 11, 1927.—During the two weeks ended September 11, 1927, plague was reported in Senegal as follows: Dakar—cases 14, deaths, 8; Rufisque and suburbs—cases 13, deaths, 10. In the interior of the country, in the district of Baol, plague was reported during the two weeks with 32 cases and 11 deaths, and in the district of Cayor 184 cases with 85 deaths. At the interior town of Thies, two fatal cases were reported.

Yellow fever.—During the same two-week period 2 fatal cases of yellow fever were reported on the Island of Goree, vicinity of Dakar. During the week ended September 4, 1 fatal case (European) was reported at Tiaroye, and at Thies 2 suspect deaths were reported. During the week ended September 11, 1 case (European) at Tivaouane and 1 suspect death (Syrian) at Thieppe were reported.

VIRGIN ISLANDS

Communicable diseases—August, 1927.—During the month of August, 1927, communicable diseases were notified in the Virgin Islands of the United States as follows:

Island and disease	Cases	Remarks	Island and disease	Cases	Remarks
St. Thomas and St. John:			St. Croix:		
Gonorrhea	5		Gonococcus infection	1	
Syphilis	5	1 imported; 3 secondary.	Pellagra	1	
Tuberculosis	1	Chronic pulmonary.	Syphilis	9	Secondary.
			Uncinariasis	13	

YUGOSLAVIA

Communicable diseases—August, 1927.—During the month of August, 1927, communicable diseases were reported in Yugoslavia as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Anthrax	208	32	Scarlet fever	522	77
Cerebrospinal meningitis	7	5	Tetanus	29	13
Diphtheria	189	30	Typhoid fever	697	59
Dysentery	571	65	Typhus fever	9	1
Measles	159	1	Whooping cough [1]	130	2

[1] Reports from Aug. 1 to 14 only.

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

The reports contained in the following tables must not be considered as complete or final as regards either the list of countries included or the figures for the particular countries for which reports are given.

Reports Received During Week Ended October 7, 1927 [1]

CHOLERA

Place	Date	Cases	Deaths	Remarks
India:				
Bombay	Aug. 7–13	12	11	
Calcutta	Aug. 7–20	53	25	
Madras	Aug. 21–27	82	53	
Rangoon	Aug. 7–13	1	1	
Siam				July 31–Aug. 13, 1927: Cases, 17; deaths, 15. Apr. 1–Aug. 13, 1927: Cases, 656; deaths, 456.
Bangkok	Aug. 7–13	1		District.

PLAGUE

Algeria:				
Oran	Sept. 1–10	1	1	Old case. Entered hospital Aug. 21–31, 1927; died Sept. 5, 1927.
India:				
Bombay	Aug. 7–13	3	3	
Madras Presidency	July 31–Aug. 6	149	58	
Rangoon	Aug. 7–20	6	6	
Java:				
Batavia	do	46	45	Province.
East Java and Madura—				
Surabaya	July 24–Aug. 6	22	22	
Senegal				Aug. 29–Sept. 11, 1927: Cases, 245; deaths, 116.
Cities—				
Dakar	Aug. 29–Sept. 11	14	8	
Rufisque	do	13	10	Including suburbs.
Interior—				
Baol district	do	32	11	
Cayor	do	184	85	
Thies	do	2	2	Town in interior.
Siam	Apr. 1–Aug. 13			Cases, 10; deaths, 7.

SMALLPOX

Algeria:			
Oran	Sept. 1–10	4	
Angola	June 1–30	13	
Do	July 1–15	5	
Brazil:			
Rio de Janeiro	Aug. 21–27	3	4

[1] From medical officers of the Public Health Service, American consuls, and other sources.

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

Reports Received During Week Ended October 7, 1927—Continued

SMALLPOX—Continued

Place	Date	Cases	Deaths	Remarks
Canada:				
Alberta	Sept. 11-17	5		
Manitoba	do	7		
Winnipeg	Sept. 10-16	4		From outside localities.
Nova Scotia	Sept. 11-17	1		
Ontario	do	12		
Ottawa	Sept. 18-24	6		
Toronto	Sept. 4-10	1		
Great Britain:				
England and Wales	do	146		
India:				
Bombay	Aug. 7-13	5	3	
Calcutta	Aug. 7-20	9	8	
Madras	Aug. 21-27	2		
Rangoon	Aug. 7-20	8	2	
Iraq:				
Basra	Aug. 14-20	1	1	
Italy:				
Rome	July 4-10	1		Consular district.
Java:				
Batavia	Aug. 14-20	4		
East Java and Madura—				
Surabaya	July 24-30	1		
Persia:				
Teheran	May 23-June 22		6	
Portugal:				
Oporto	Sept. 3-9	1		
Siam				July 31-Aug. 13, 1927: Cases, 20; deaths, 7. Apr. 1-Aug. 13, 1927: Cases, 192; deaths, 49.
Sumatra:				
Medan	Aug. 14-20	1		
Syria:				
Damascus	Aug. 20-31	2		
Union of South Africa:				
Orange Free State	Aug. 7-13			Outbreaks in one district.

TYPHUS FEVER

Chile:				
Valparaiso	Aug. 21-27		1	
Latvia				July, 1927: Cases, 6.
Mexico:				
Mexico City	Sept. 4-10	4		Including municipalities in Federal District.
Palestine				Aug. 30-Sept. 5, 1927: Cases, 3.
Haifa	Aug. 23-29	2		In three localities.
Poland				Aug. 7-13, 1927: Cases, 11; deaths, 2.
Union of South Africa:				
Cape Province—				
Port Elizabeth	Aug. 7-13	1		In native. Outbreaks in four districts.
Yugoslavia	Aug. 1-31	9	1	

YELLOW FEVER

Senegal:				
Island of Goree	Aug. 22-Sept. 4	2	2	Vicinity of Dakar.
Tiaroye	do	1	1	
Tivaouane	Sept. 5-11	1		

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

Reports Received from June 25 to September 30, 1927 [1]

CHOLERA

Place	Date	Cases	Deaths	Remarks
China:				
Amoy	May 22–Aug. 13	11	3	
Canton	May 1–July 23	16	7	
Foochow	July 24–30			Present.
Hong Kong	July 17–23	2	2	
Kulangsu	June 21	1		
Shanghai	June 19–25	2		
Do	July 31–Aug. 20		16	In international settlement and French concession.
Swatow	May 15–Aug. 6	138	13	
India	Apr. 17–July 30			Cases, 125,674; deaths, 71,156.
Bombay	May 8–Aug. 6	103	50	
Calcutta	do	580	355	
Karachi	May 29–June 4	1	1	
Madras	June 19–Aug. 20	678	333	
Rangoon	May 8–July 30	17	13	
India, French settlements in	Mar. 30–June 30	15	8	
Indo-China (French)	Apr. 1–July 10			Cases, 11,145.
Annam	do	1,467		
Cambodge	do	235		
Cochin-China	do	1,354		
Saigon	June 4–July 21	10	4	
Tonkin	Apr. 1–June 30	8,089		
Iraq:				
Baghdad	July 24–30	29	18	
Basra	July 17–Aug. 27	353	264	
Japan:				
Yokohama	July 31–Aug. 6	1	1	
Persia:				
Abadan	July 24–Aug. 13	215	183	
Ahwaz	July 31–Aug. 13	20	13	
Minab	Aug. 7–13		23	
Mohammerah	July 17–Aug. 27	194	155	
Nasseri	July 19–31		10	
Philippine Islands:				
Manila	July 17–23	1		
Bulacan Province	June 7–July 8	3	2	
Leyte Province—				
Barugo	June 29	1	1	
Carigara	June 23	1	1	Final diagnosis not received.
Palo	May 18	1		
Siam	May 1–July 30			Cases, 252; deaths, 150.
Bangkok	do	43	13	
On vessel:				
S. S. Adrastus	Reported Aug. 6	1	1	At Yokohama, Japan.
S. S. War Mehtar (oil tanker).	Aug. 4	1	1	At Saffagha, Egypt.

PLAGUE

Algeria:				
Algiers	Aug. 21–31	1		
Oran	do	4	3	
Argentina	Jan. 1–Aug. 2			Cases, 80; deaths, 44.
Buenos Aires	Apr. 10–May 7	4	3	
Cordoba	Jan. 11–Aug. 6	52	29	
Corrientes	June 1	1	1	
Entre Rios	Mar. 29–Aug. 13	8	1	
Santa Fe	Apr. 28–May 16	4	3	
Territory—				
Chaco—				
Barranqueras	May 29	2	2	
Formosa	June 25	3	2	
Pampa	July 27–Aug. 2	4		
Rio Negro	Aug. 6	1		
City—				
Merou	Reported July 14			Present.
Rosario	May 7	1	1	
Santa Fe	May 16	4	2	
Azores:				
Ribeira Grande	June 12–18			9 miles from port.
St. Michaels Island	May 15–July 30	3		

[1] From medical officers of the Public Health Service, American consuls, and other sources.

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

Reports Received from June 25 to September 30, 1927—Continued

PLAGUE—Continued

Place	Date	Cases	Deaths	Remarks
British East Africa:				
Kenya	Apr. 24–July 2	60	14	
Mombassa	July 24–30	1	1	
Nairobi	May 22–28	6		
Tanganyika	Mar. 29–May 28		37	
Do	July 24–Aug. 6		10	
Uganda	Jan. 1–Feb. 28	138	121	
Do	Mar. 27–June 18	366	300	
Canary Islands:				
Laguna district—				
Tejina	June 17	1		
Ceylon:				
Colombo	May 1–July 2	17	11	Plague rats, 4.
China:				
Amoy	July 3–23			Present in surrounding country.
Tientsin	Aug. 14–20	2		
Ecuador:				
Guayaquil	June 1–July 31			Rats taken, 48,290; found infected, 34.
Egypt	May 1–July 8			Cases, 7; deaths, 2.
	Aug. 6–12			Cases, 5.
Alexandria	June 4–10	1		
Beni-Souef	June 4–July 13	5	2	
Biba	do	1		At Nama.
Dakhalia	June 24–July 9	6	1	
Minia	Aug. 8–9	4		
Port Said	June 24–July 21	4	1	
Tanta district	June 4–10	1		
Greece	May 1–June 30	4	3	
Athens	June 1–Aug. 29	3		Including Piraeus.
Mytilene	Aug. 9	1		
Patras	May 30–Sept. 4	8	1	
Hawaii Territory:				
Hamakua	July 15			1 plague rodent.
Honokaa	May 17–23	2	2	
Kukuihaele	Aug. 12–17	1	1	1 plague rodent.
Paauilo	July 26–Aug. 1		4	
India	Apr. 17–July 16			Cases, 21,814; deaths, 8,324.
Bombay	May 8–Aug. 3	87	74	
Madras	May 1–July 30	403	194	
Rangoon	May 8–Aug. 6	53	49	
Indo-China (French)	Apr. 1–July 10	32		
Kwang-Chow-Wan	May 21–July 10	68		
Iraq:				
Baghdad	Apr. 8–May 28	12	1	
Java:				
Batavia	May 1–July 23	182	183	Province.
East Java and Madura	May 22–July 16	28	27	
Pasoeroean Residency	May 9			Outbreak reported at Nagdiwano.
Surabaya	Apr. 17–July 23	34	33	
Madagascar				Mar. 16–Apr. 30, 1927: Cases, 256; deaths, 135.
Province—				
Ambositra	Mar. 16–July 15	94	87	
Antisrabe	Mar. 16–May 15	8	8	
Miarinarivo (Itasy)	Mar. 16–July 15	65	59	
Moramanga	May 16–July 15	24	23	
Tananarive	Mar. 16–July 15	221	194	
Tananarive Town	Mar. 16–June 30	22	20	
Nigeria	Mar. 1–May 31	228	177	
Peru	Apr.–May 31			Cases, 22; deaths, 8.
Departments—				
Ica	Apr. 1–30	1		
Lambayeque	do	1		
Libertad	Apr. 1–May 31	7	4	
Lima	do	13	4	
Lima City	Apr. 1–30	5	1	
Senegal	May 23–Aug. 21			Cases, 656; deaths, 415.
Baol	June 2–Aug. 28	68	36	
Cayor Frontier	July 4–Aug. 23	353	240	
Dakar	June 20–Aug. 28	123	82	
Facel	July 6	17	8	
Guindel	June 20–25	11	2	
M'Bour	July 6–10	23	23	
Medina	June 13–19	2	2	
Pout	July 4–10	1		
Rufisque	May 23–Aug. 23	207	155	
Thies district	May 23–July 30	27	9	
Tivaouane	June 2–July 17	50	32	

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

Reports Received from June 25 to September 30, 1927—Continued

PLAGUE—Continued

Place	Date	Cases	Deaths	Remarks
Siam	Apr. 1-July 30			Cases, 10; deaths, 7.
Bangkok	May 8-June 11	2	1	
Syria:				
Beirut	June 11-July 10	3		
Tunisia	Apr. 21-July 10	144		
Tunis	July 25-Aug. 1	1		
Turkey:				
Constantinople	May 13-19	1		
Union of South Africa:				
Cape Province—				
Maraisburg district	May 1-14	2	2	Native.
Orange Free State—				
Edenburg district	July 17-26	3	3	Natives; on farm.
Rouxville district	July 24-Aug. 6	2	2	
On vessel:				
S. S. Avoroff	June 24-30	1		On Greek warship at port of Athens.
S. S. Capafric	Aug. 23	2	1	At Duala, French Cameroons, from Nigeria.
S. S. Eleane	Aug. 19	1		At Pirneus, Greece.
S. S. Madonna	Aug. 24	1		At Dakar, Senegal; from ports south.
S. S. Ransholm	Aug. 5	2		At Gefle, Sweden, from Rufisque, Senegal.

SMALLPOX

Algeria	Apr. 21-July 10			Cases, 648.
Algiers	May 11-June 30	8		
Oran	May 21-Aug. 10	47		
Arabia:				
Aden	July 17-Aug. 1	2	1	
Brazil:				
Porto Alegre	July 1-31	5		
Rio de Janeiro	May 22-Aug. 20	12	8	
British East Africa:				
Kenya	Apr. 24-May 14	7	14	
Tanganyika	Mar. 29-June 18	2	22	
Zanzibar	Apr. 1-May 31	19	7	
British South Africa:				
Northern Rhodesia	Apr. 30-Aug. 12	111	2	
Canada	June 5-Sept. 10			Cases, 447.
Alberta	June 12-Sept. 10			Cases, 97.
Calgary	June 12-Aug. 27	9		
British Columbia—				
Vancouver	May 23-Sept. 4	4		
Manitoba	June 5-Sept. 3			Cases, 31.
Winnipeg	June 12-Aug. 27	17		
Ontario	June 5-Aug. 27			Cases, 177.
Ottawa	June 12-Sept. 17	132		
Sarnia	Aug. 7-13	1		
Toronto	June 19-July 23	9		
Quebec	June 19-Aug. 27	15		
Saskatchewan	June 12-Sept. 10			Cases, 104.
Moose Jaw	Aug. 14-Sept. 10	14		
Regina	July 17-Aug. 27	10		
Ceylon	May 1-7			Cases, 3; deaths, 1.
Colombo	July 31-Aug. 6	1	1	
China:				
Amoy	May 8-28	1		
Do	July 3-16			Present in surrounding country.
Antung	July 4-31	3		
Cheefoo	May 8-14			Present.
Foochow	May 8-Aug. 13			Do.
Hong Kong	do	20	19	
Manchuria—				
Anshan	May 22-28	1		
Changchun	May 15-July 30	8		
Dairen	May 2-July 3	10	5	
Fushun	May 15-July 30	10		
Harbin	June 13-July 10	4		
Kai-Yuan	July 3-9	2		
Mukden	May 22-July 30	6		
Pensihu	July 3-9	1		
Ssupingkai	May 8-July 9	3		
Tientsin	May 8-July 30	18		

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

Reports Received from June 25 to September 30, 1927—Continued

SMALLPOX—Continued

Place	Date	Cases	Deaths	Remarks
Chosen	Feb. 1–May 31			Cases, 451; deaths, 195.
Chinnampo	Apr. 1–May 31	2		
Fusan	Apr. 1–30	1		
Gensan	May 1–31	1		
Seishin	Apr. 1–30	1		
Curaçao	May 29–June 4	1		Alastrim
Ecuador:				
Guayaquil	June 1–30	2		
Egypt	May 7–July 29			Cases, 21; deaths, 3.
Alexandria	May 21–June 17	4	1	
Cairo	Jan. 22–Apr. 15	14	3	
France	Apr. 1–June 30			Cases, 178.
Lille	July 24–30	1		
Paris	May 21–July 31	14	2	
Gold Coast	Mar. 1–May 31	33	7	
Great Britain:				
England and Wales	May 22–Sept. 3			Cases, 2,818.
Birmingham	Aug. 14–20	1		
Bradford	May 29–June 11	2		
Cardiff	June 19–July 2	4		
Leeds	July 17–Sept. 3	13		
Liverpool	July 17–30	1		
London	May 15–June 18	2		
Newcastle upon Tyne	June 12–Aug. 13	5		
Sheffield	June 12–Aug. 6	25		
Stoke-on-Trent	Aug. 21–27	1		
Scotland—				
Dundee	May 29–Sept. 3	6		
Greece	June 1–30	14		
Salonika	July 12–Aug. 15		2	
Guatemala:				
Guatemala City	June 1–30		9	
Guinea (French)	June 4–10	9		
India	Apr. 17–July 30			Cases, 66,687; deaths, 18,006.
Bombay	May 28–Aug. 6	222	144	
Calcutta	May 8–Aug. 6	374	286	
Karachi	May 15–Aug. 6	10	5	
Madras	May 22–Aug. 13	22	6	
Rangoon	May 8–Aug. 6	174	53	
India, French Settlements in	Mar. 20–June 18	174	111	
Indo-China (French)	Mar. 21–July 20			Cases, 314.
Saigon	May 14–July 21	2	1	
Iraq:				
Baghdad	Apr. 10–16	2		
Basra	Apr. 10–July 16	2	1	
Italy	Apr. 10–May 21	13		
Rome	June 13–19	1		
Jamaica	May 29–Aug. 27	30		Reported as alastrim.
Japan	Apr. 3–May 7			Cases, 19.
Nagasaki City	June 26–Aug. 14	26	7	
Taiwan Island	May 21–31	1		
Java:				
Batavia	May 22–July 23	3		
East Java and Madura	Apr. 24–July 9	12		
Latvia	Apr. 1–30	1		
Mexico	Mar. 1–31			Deaths, 162.
Durango	June 1–30		1	
La Oroya	Apr. 1–June 30			Present.
Monterey	July 1–31	6	4	
San Luis Potosi	May 29–Aug. 13		11	
Tampico	June 1–July 31	1	2	
Torreon	Aug. 7–13		1	
Morocco	Apr. 1–June 30	154		
Netherlands India:				
Borneo—				
Holoe Soengei	Apr. 21			Epidemic in two localities.
Pasir Residency	Apr. 30–May 6			Epidemic outbreak.
Samarinda Residency	May 21–27			Do.
Nigeria	Mar. 1–May 31	2,077	512	
Paraguay:				
Asuncion	July 10–23		2	
Persia:				
Teheran	Feb. 21–May 22		8	
Poland	Apr. 10–Aug. 6	20	2	
Portugal:				
Lisbon	May 29–Aug. 6	17	1	

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

Reports Received from June 25 to September 30, 1927—Continued

SMALLPOX—Continued

Place	Date	Cases	Deaths	Remarks
Senegal:				
Medina	July 4–10	7		
Siam	Apr. 1–July 30			Cases, 172; deaths, 42.
Bangkok	May 1–July 23	13	7	
Spain:				
Valencia	May 29–June 4	2		
Straits Settlements	June 12–18			Cases, 3.
Singapore	Apr. 1–June 18	7	2	
Sumatra:				
Medan	June 5–11	2		
Switzerland:				
Berne	June 26–July 2	1		
Syria:				
Damascus	Aug. 11–20	1		
Tunisia	Apr. 1–June 10			Cases, 10.
Tunis	June 1–10	1		
Union of South Africa:				
Cape Province	July 17–23			Outbreaks.
Elliott district	May 11–June 10			Do.
Idutywa district	July 3–9			Do.
Kalanga district	May 11–June 10			Do.
Mount Ayliffe district	July 31–Aug. 6			Do.
Transvaal—				
Barberton district	May 1–7			Do.
Venezuela:				
Maracaibo	July 12–18		1	

TYPHUS FEVER

Algeria	Apr. 21–July 20			Cases, 399; deaths, 39.
Algiers	May 11–Aug. 31	26		
Oran	May 21–Aug. 31	34		
Bulgaria	Mar. 1–June 20			Cases, 206; deaths, 18.
Sofia	June 4–Aug. 5	2		
Chile:				
Antofagasta	Apr. 16–May 31	1		
Concepcion	May 29–June 4		1	
La Calera	Apr. 16–May 31	1		
Ligua	Mar. 16–31	2		
Puerto Montt	Apr. 16–May 31	1		
Santiago	do	5	1	
Talcahuano	July 10–16		1	
Valparaiso	Apr. 16–Aug. 6	4	1	
China:				
Manchuria—				
Harbin	July 25–31	3		
Mukden	May 29–June 4	1		
Tientsin	July 10–16	1		
Chosen	Feb. 1–May 31			Cases, 512; deaths, 42.
Chemulpo	May 1–July 31	1		
Gensan	do	4		
Seoul	Apr. 1–July 31	32	3	
Czechoslovakia	do			Cases, 55.
Egypt	May 28–July 29			Cases, 120; deaths, 18.
Alexandria	May 21–Aug. 5	13	5	
Cairo	Jan. 15–May 20	37	12	
Estonia	Apr. 1–June 30			Cases, 5.
Greece	June 1–30	2		
Athens	June 1–July 31	1	9	
Iraq:				
Baghdad	Apr. 24–30	1		
Irish Free State:				
Cork County	July 3–9	1		In urban district.
Latvia	Apr. 1–June 30	26		
Lithuania	Feb. 1–June 30	303	37	
Mexico	Feb. 2–Mar. 31			Deaths, 88.
Mexico City	May 29–Sept. 3	49		Including municipalities in Federal district.
San Luis Potosi	July 31–Aug. 6		1	
Morocco	Apr. 1–July 10	815		
Palestine	May 24–Aug. 8			Cases, 16.
Haifa	do	6		
Jaffa	Aug. 2–15	2		
Jerusalem	June 28–Aug. 15	3		
Mahneim	May 17–23	1		In Safad district.

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

Reports Received from June 25 to September 30, 1927—Continued

TYPHUS FEVER—Continued

Place	Date	Cases	Deaths	Remarks
Palestine—Continued.				
Nazareth	July 19–25	1		
Safad	May 17–Aug. 8	10		
Peru:				
Arequipa	Apr. 1–30		1	
Poland	Apr. 10–Aug. 6	1,045	96	
Portugal:				
Lisbon	May 29–June 4	1		
Oporto	Aug. 20–27	1		
Rumania	Apr. 3–June 25	923	61	
Spain:				
Seville	Aug. 19–25		2	
Tunisia	Apr. 22–July 20			Cases, 138.
Tunis	July 5–Aug. 21	2		
Turkey:				
Constantinople	May 13–19		2	
Union of South Africa	Apr. 1–30			Cases, 55; deaths, 8, native. In Europeans, cases, 2.
Cape Province	Apr. 1–Aug. 6	42	5	Outbreaks.
Albany district	June 5–11			Do.
East London	May 22–28	1		Do.
Glen Gray district	May 1–7			Do.
Kentani district	June 26–July 2			Do.
Qumbu district	May 1–7			Do.
Umzimkulu district	June 26–July 2			Do.
Natal	Apr. 1–Aug. 6	7	3	
Impendhle district	June 5–11			Do.
Orange Free State	Apr. 1–July 23	5		
Transvaal	Apr. 1–30	1		
Johannesburg	July 3–Aug. 20	19	5	
Yugoslavia	May 1–July 31			Cases, 15; deaths, 4.

YELLOW FEVER

Ashanti:				
Obuasi	Aug. 6	1	1	
Dahomey (West Africa):				
Porto Novo	July 1	1	1	In Syrian woman.
Gold Coast	Apr. 1–May 31	45	20	
Do	Aug. 4	2		
Ivory Coast	July 29	1	1	
Liberia:				
Monrovia	May 29–July 8	4	5	
Senegal	May 27–July 31			Cases, 5; deaths, 2.
Dakar	July 9	1		
Do	Aug. 8	2	2	
Do	Sept. 17			Present.
Khembole	Aug. 1–14	3		
M'Bour	May 27–June 19	5	5	
Ouakam	June 2–Aug. 14	4	2	
St. Louis	Aug. 1–14	2	2	
Thies	July 10	1	1	In European.
Tivaouane	May 27–June 8	5	5	
Togoland:				
Meiatza	Aug. 15–21	1	1	