

Public Health Reports

Vol. 65 • SEPTEMBER 8, 1950 • No. 36

Relapse Following Apparent Arrest of Leprosy by Sulfone Therapy

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The tendency toward relapse following arrest of lepromatous leprosy by chaulmoogra oil therapy has been disappointingly high (1, 2). Although the sulfone drugs, promin and diasone, are generally considered superior to chaulmoogra oil for producing regression of specific leprosy lesions and for arresting the disease, sufficient time has not elapsed for a comparative determination of the trend toward relapse (3). At least, up to the present, there have been no specific reports dealing with this subject in medical literature.

Of special interest, therefore, is the recent discovery at Carville of reactivation of the disease in six patients in whom the disease was supposedly arrested by sulfone treatment. Three of these patients showed a reappearance of leprosy bacilli in the skin without any other manifestations of the disease. Thus, they are termed subclinical relapses. The remainder presented, in addition, unquestionable leprosy skin lesions or a true clinical relapse of the disease.

This paper reports these first cases of reactivation of leprosy following sulfone therapy and reviews the status of the sulfone-treated patients whom it has been possible to follow after apparent arrest of the disease. The criteria utilized for determination of arrest are described. The type, amount, and duration of treatment given to those patients in whom relapse occurred is compared to the average given to the entire group of patients who were followed. Finally, from the conclusions drawn, recommendations for the management of arrested cases of leprosy are discussed.

Criteria for Arrest

The criteria by which the reactivated cases reported here were at one time classified as arrested cases are those routinely employed at Carville. Briefly, they are as follows for lepromatous cases:

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1. Skin smears performed at monthly intervals must be negative for *Mycobacterium lepra* consecutively for a period of 1 year.

2. There must not be any evidence of clinical activity of the disease during the 1-year period of negativity.

The monthly skin smears, performed by scraping the edges of a small incision into the skin about 2 millimeters deep and staining the scrapings with an acid-fast stain, are taken by the bacteriologist from areas found positive for leprosy bacilli at the original examination. When the patient has shown negative skin scrapings from these areas for a period of 3 months, he is given a special examination by a board of physicians. A thorough inspection of the entire skin surface is made. Skin smears are taken at this examination from lesions which from their appearance suggest activity. Routine scrapings from the ear lobes, forehead, elbows, and nasal mucosa are also examined for acid-fast bacilli. If all the smears are negative, monthly smears are continued on the originally positive skin areas, and the special examination is repeated every 3 months. Whenever leprosy bacilli are found in any of the smears taken, even if the patient has had a long series of negative skin smears, he is required to begin anew on another series of tests when the first negative smear is obtained following a positive result. When, under this regime, a patient has been negative for a period of 1 year, a final examination is performed by the board of physicians. If all the smears are then negative and no evidence of activity has been present for 1 year, the disease is considered to be arrested.

The concentration of bacilli found in the skin and nasal smears are classified according to number as follows:

0 or negative.....	No bacilli found.
1+ or rare.....	Less than 1 bacillus per microscopic field.*
2+ or few.....	1-10 bacilli per microscopic field.
3+ or moderate.....	10-50 bacilli per microscopic field.
4+ or numerous.....	More than 50 bacilli per microscopic field.

* Oil immersion 960X.

Although these criteria for arrest are not as rigid as those observed by most leprologists in other countries, it is felt that they give a fairly good indication of inactivity of the disease.

Follow-Up

Sulfone therapy was first begun at Carville in March 1941. Three years later, in April 1944, the first sulfone-treated patients fulfilled the criteria for arrest of the disease. Since that date a total of 77 patients who had active disease when treatment was begun have had the disease arrested by sulfone drugs. Up to July 1, 1949, it has been possible, unfortunately, to keep only 33 of these patients under observation

with routine clinical and laboratory examinations. These patients, all of the lepromatous type, form the basis for this report. The duration of follow-up varied from 6 months to 5 years.

It has been the practice at Carville to continue sulfone therapy for those patients who desire to continue treatment after apparent arrest of the disease. Thus, among the patients followed, 22 patients received promin or diasone either continuously or interruptedly after arrest. The majority of these received the drugs in smaller doses than that given during active treatment. Eleven patients received no anti-leprotic remedy after arrest of the disease.

The type of treatment and the average amount and duration of treatment given before the disease was arrested are summarized in table 1. Twenty-one patients each received an average of 2,840.5 gm. of promin for an average duration of 45 months; eight patients each received an average of 602.5 gm. of diasone for an average duration of 39 months; and four patients received, alternatingly, promin and diasone, an average of 393 gms. diasone and 1,262 gms. promin for an average duration of 49 months.

Table 1. *Relapses found according to amount, duration, and type of sulfone treatment received by 33 patients prior to arrest of disease*

Type of treatment	Number patients followed	Number and per cent relapses found	Average amt. of treatment (gms.)	Average duration of treatment (months)
Promin.....	21	4 (19%)	2,840.5	45
Diasone.....	8	2 (25%)	602.5	39
Alternating.....	4	0	-----	49
Promin.....			1,262.0	
Diasone.....			393.0	

Among the patients who received promin, four cases of relapse occurred—two clinical and two subclinical. One clinical and one subclinical relapse occurred among the patients who received diasone. Thus, a total of six relapses occurred among the 33 patients followed. The percentage of patients experiencing relapse was approximately the same in the promin-treated group (19 percent) as in the diasone-treated group (25 percent). There were no instances of relapse among the four patients receiving promin and diasone, alternatingly, but the number of patients followed is so small as to make this observation insignificant.

REPORT OF CASES

CASE 1. The patient, a white male, aged 27, began promin treatment June 3, 1942. At that time, he had had recognizable lesions of leprosy for 3 years, which consisted of infiltrated, circinate macules of the torso and upper extremities, diffuse thickening of the face, and scattered nodules over the face and extremities. The ulnar nerves were palpable and tender. There was loss of pain sensation

over the ulnar side of the forearms, lower part of the legs, feet, and hands as well as over the specific skin lesions. Bacterioscopic examinations of skin and nasal mucous membrane were positive (3+). The lepromin test was negative.

During the course of treatment there occurred several febrile episodes associated with erythema nodosum and neuritis. At one time (1944) a left iridocyclitis complicated the usual type of reaction. The specific skin and mucous membrane lesions underwent resolution in the usual time. The criteria for arrest of the disease were fulfilled on July 18, 1945, after the patient had received 3,402.5 gm. promin intravenously for a period of 3 years, 2 months.

The patient was discharged from the hospital after arrest of the disease and treatment was discontinued. He was well until December 1947 when red spots began to appear over the body. This was 29 months following arrest of the disease. He was readmitted to Carville April 20, 1948. Scattered plaques and macules, varying in color from coral to tan, were found over the torso and extremities. An ulcerated area was found on the right side of the nasal septum. Bacterioscopic examinations of skin and nasal mucous membrane were positive (2+ and 1+, respectively). Regression of lesions occurred with the resumption of promin treatment.

CASE 2. The patient, a white male, aged 35, began promin treatment in July 1942. At that time he had had recognizable lesions of leprosy for 7 years, consisting of diffuse thickening of the face, brow, and ears; medium-sized, copper-colored, infiltrated macules scattered over the face, extremities, and torso; thickened ulnar, peroneal, and great auricular nerves; moderate interosseous atrophy of hands, extensive anesthesia of extremities, and a weak right ankle. Bacterioscopic examinations of skin and mucous membrane were positive (3+). The lepromin test was negative.

During the course of treatment, erythema nodosum, neuritis, and fever occurred at infrequent intervals. Otherwise, response to treatment was that usually experienced. The criteria for arrest of the disease were fulfilled on October 9, 1946, after the patient had received 3,685.5 gm. of promin intravenously for a period of 4 years 3 months.

The patient was discharged from the hospital after arrest of the disease; treatment was discontinued. He had his first bacteriologic check-up 17 months later (February 1948) and acid-fast bacilli were found in the skin. In September 1948 he developed chills, fever, general weakness, and skin lesions on the chest. In January 1949 he returned to Carville for further treatment. There were present at that time a rather marked infiltration of the face, brow, and ears; many copper-colored, infiltrated macules scattered over the chest, back, buttocks, and extremities; extensive anesthesia of extremities; marked atrophy of the intrinsic muscles of the left hand with contracture; and thickening of the ulnar, peroneal, and great auricular nerves. Regression of skin and mucous membrane lesions occurred on promacetin treatment.

CASE 3. The patient, a white male, aged 60, began promin treatment on October 1, 1943. At that time he had had recognizable leprosy lesions for 5 years, consisting of a generalized eruption of large, infiltrated, red, raised macules on the extremities and body; diffuse thickening of the face, brow, ears, hands, lower portion of legs, and feet; enlarged, tender ulnar nerves; slight atrophy of the intrinsic muscles of hands; extensive anesthesia, stocking and glove-like, including knees and elbows; and generalized adenopathy. Bacterioscopic examinations of skin and mucous membranes were positive (4+). The lepromin test was negative.

During the course of treatment a number of febrile episodes with erythema nodosum occurred between August 30, 1944 and December 1, 1944. Otherwise, response to treatment was uneventful and skin lesions resolved in due time. The

criteria for arrest were fulfilled on February 3, 1948, after the patient had received 3,285.5 gm. of promin intravenously for a period of 4 years 4 months.

The patient was discharged from the hospital after arrest of the disease; treatment was discontinued. He returned to Carville on July 29, 1948, for treatment of infected trophic ulcers of the feet. Bacterioscopic examinations were positive (skin 1+ and nasal mucosa 1+), although there were no visible or palpable skin lesions.

CASE 4. The patient, a white male, aged 53, began promin treatment in July 1942. At that time he had had recognizable leprous lesions for 5 years, consisting of multiple, pea-sized nodules over the cheeks and forehead, both arms, and both legs; diffuse thickening of the skin of the face and extremities; thickened ulnar and peroneal nerves; loss of pain sensation of entire left upper extremity, dorsum of right hand, and both legs; moderate injection of both eyes from leprous iridocyclitis; and ulceration of the nasal mucous membrane. Bacterioscopic examinations of the skin and nasal mucous membrane were positive (4+). The lepromin test was negative.

Improvement on promin therapy was slow but definite. There were occasional episodes of erythema nodosum with fever. The criteria for arrest were fulfilled on March 31, 1947, after the patient had received 1,441 gm. of promin intravenously for a period of 4 years 9 months.

The patient was discharged from the hospital after arrest of the disease and treatment was discontinued. A personal communication from a leprosarium in Mexico City, Mexico, during April 1948 gave information that the patient had recently been examined there and found to show positive skin smears.

CASE 5. The patient, a white male, aged 60, began diasone treatment August 9, 1943. At that time he had had recognizable lesions of leprosy for an unknown duration, consisting of diffuse thickening of the face, brow, and ears; enlargement of the ulnar nerves; and scattered areas of anesthesia of the upper part of both arms. Bacterioscopic examinations of skin and nasal mucous membrane were positive (3+). The lepromin test was negative.

During the course of treatment there were occasional febrile episodes associated with erythema nodosum. Neuritis occurred frequently. Clinical improvement was gradual and the criteria for arrest of the disease were fulfilled November 15, 1946, after the patient had received 575 gm. of diasone orally for a period of 3 years 3 months.

The patient was discharged from the hospital after arrest of the disease; treatment was discontinued. He had his first follow-up examination approximately 3 years later. Skin smears from the right ear and right brow were positive (2+) for leprosy bacilli and both ear lobes presented slight infiltration and erythema.

CASE 6. The patient, a Negro male, aged 35, began diasone treatment on November 11, 1944. At that time he had had recognizable leprous lesions for 4 years, consisting of pea-sized nodules of the face and ears; patches of infiltrated skin over the back; thickened ulnar and peroneal nerves; impairment of pain sensation over the legs, feet, and hands; enlarged femoral and inguinal glands; and ulceration of the nasal mucous membrane. Bacterioscopic examinations of the skin and nasal mucous membrane were positive (4+). The lepromin test was not made.

Response to diasone treatment was rapid. Slight febrile reactions with erythema nodosum occurred occasionally. The criteria for arrest of the disease were fulfilled May 31, 1946, after the patient had received 376.5 gm. of diasone for a period of 18 months.

After arrest of the disease, the patient remained in the hospital and was continued on 1.0 gm. of diasone daily. In December 1947 (18 months after arrest

and after an additional 474 gm. of diasone had been administered) at the regular 6-month check-up examination performed on all arrested cases remaining in the hospital, leprosy bacilli (1+) were found in the skin smear from the ear lobes. There were no evidences of infiltration, thickening, nor of other clinical activity. The nasal smear was negative as were skin smears from other areas of the body. Bacilli (1+) continued to be present in the ear lobes despite treatment (488 gm. diasone) until August 1949. No other evidences of activity of the disease were found subsequent to fulfillment of the criteria for arrest nor after reactivation had occurred.

Figure 1 shows the relationship between the average amount and duration of treatment received by the group of patients treated with promin before arrest of the disease was accomplished and that received individually by the relapsed cases in the promin-treated group. Figure 2 shows the same data for the diasone-treated group. The

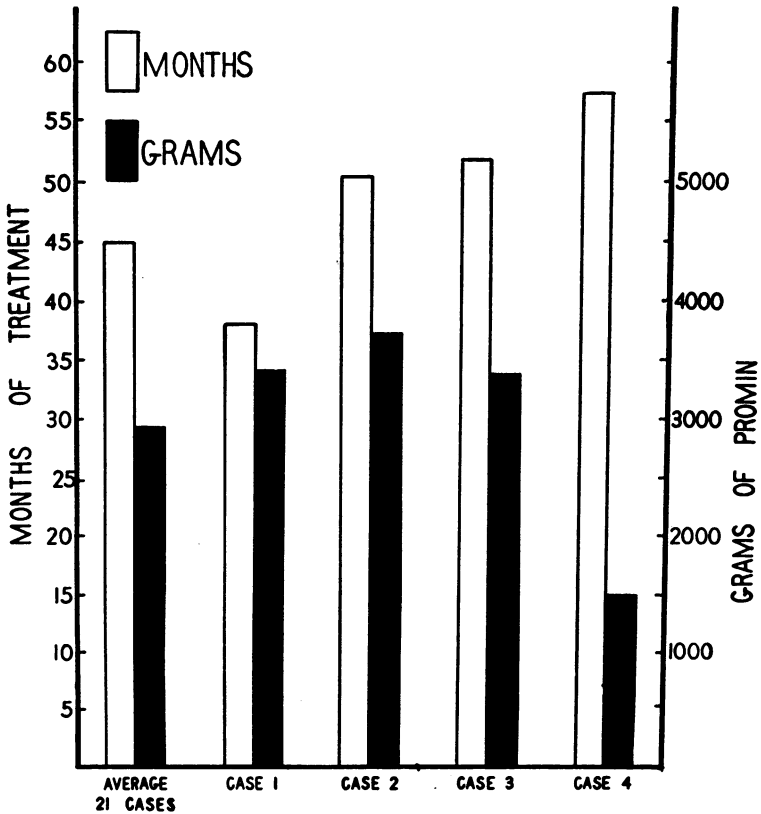


Figure 1. Comparison of the average amount of promin and duration of treatment received by the nonrelapsed promin-treated patients with that received individually by the relapsed promin-treated patients. Black column represents amount of promin received in grams. White column represents duration of treatment in months.

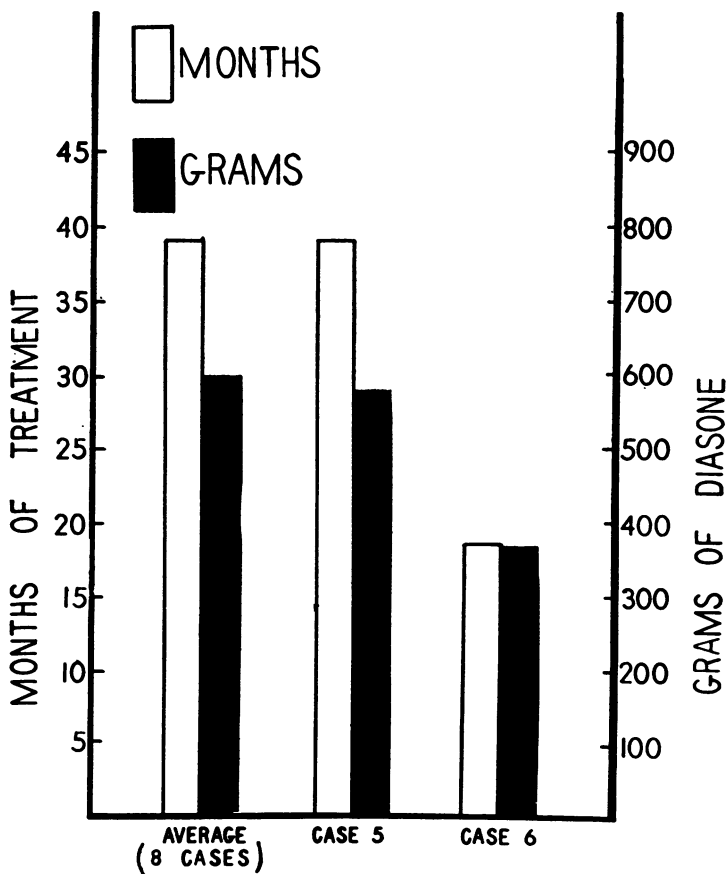


Figure 2. Comparison of the average amount of diasonone and duration of treatment received by the nonrelapsed diasonone-treated patients with that received individually by the relapsed diasonone-treated patients. Black column represents amount of diasonone received in grams. White column represents duration of treatment in months.

amount and duration of treatment received by the relapsed cases in both groups compares favorably with the average amount of treatment received by the nonrelapsed cases in each group except in the instances of cases 4 and 6. It would appear from this analysis that relapse of the disease did not occur from insufficient treatment except possibly in cases 4 and 6. Case 4 received a relatively small amount of promin over a relatively long period of time before arrest of the disease was accomplished. Case 6 received a relatively small amount of diasonone over a relatively short period of time.

A most important factor influencing the probability of relapse appeared to be the discontinuation of treatment after apparent arrest of the disease had occurred. Patients who did not receive sulfone

therapy following arrest are designated group A and those who received such therapy, group B. Table 2 lists the frequency of relapse as it occurred in these two groups during yearly periods of observation. True clinical relapses, of which there were three, occurred only in group A, the group that received no treatment after arrest. These

Table 2. *Relapses found in the 33 group A and group B arrested patients observed, by period of follow-up in years*

Period of follow-up (years)	Number arrested patients followed		Number and percent relapsed patients	
	A ¹	B ²	A ¹	B ²
½-1.....	4	4	3 ²	0
1-2.....	1	3	0	1 ³
2-3.....	5	3	4 ³	0
3-4.....	1	10	0	0
4-5.....	0	2	0	0
Total.....	11	22	5 (45%)	1 (4.5%)

¹ Patients not receiving sulfones after arrest.

² Patients receiving sulfones after arrest.

³ Subclinical relapse.

⁴ Clinical relapse.

relapses did not occur until after 2 to 3 years following arrest of the disease. Subclinical relapses occurred in both groups. Two occurred in group A within the first year following arrest and one in group B 18 months following arrest. The latter is case 6 who received a relatively small amount of diasone before fulfillment of the criteria for arrest.

Thus, the trend of group A patients indicates that the probability of relapse is markedly increased if sulfone therapy is discontinued after an apparent arrest of the disease. Relapse that has so far occurred among 11 arrested patients (group A) who received no sulfone therapy and were followed from 6 months to 4 years is 45 percent. This percentage of relapse is tenfold greater than that of the 4.5 percent experienced among 22 arrested patients (group B) continued on sulfone therapy and followed from 6 months to 5 years.

Table 2 shows that on an average a larger proportion of group B patients were followed for longer periods of time than were group A patients. Thus, group B patients were afforded a greater opportunity to relapse. Calculating the risk of relapse on a patient-years experience basis as set forth in table 3, however, accentuates even more the divergence of the probability of relapse between the two groups. On this basis, which has greater accuracy for it takes into consideration the time interval, the risk of relapse for group A was 24.4 relapses per 100 patient-years experience, while for group B it was only 1.7 relapses per 100 patient-years experience, or a trend fourteenfold greater for group A to relapse than group B.

Table 3. Relapses found in 33 group A and group B arrested patients observed on the basis of patient-years experience

Period of follow-up (years)	Average duration of follow-up (years)	Number patients observed		Number patient-years experience		Number and percent of relapses	
		A	B	A	B	A	B
1/4-1	0.75	4	4	3	3	2	0
1-2	1.50	1	3	1.5	4.5	0	1
2-3	2.50	5	3	12.5	7.5	3	0
3-4	3.50	1	10	3.5	35.0	0	0
4-5	4.50	0	2	0.0	9.0	0	0
Total		11	22	20.5	59.0	5 (24.4%)	1 (1.7%)

Discussion

The occurrence of relapse following apparent arrest of lepromatous leprosy under treatment with sulfones, undoubtedly, has been anticipated even by the most enthusiastic supporters of sulfone therapy. The fact that relapses have occurred does not brand the sulfones as failures in the therapy of leprosy. In fact, it detracts very little, if any, from the reported value of these drugs in this relentless disease. Their ability to produce regression of leprosy lesions and to keep the ravages of the disease in check cannot be discounted.

Since the problem of finding leprosy bacilli in resolving surface lesions becomes a matter of progressively decreasing chance, it is probable that some patients may be declared negative prematurely. From this, it can be argued, that if a negative patient is subsequently found to have a positive skin smear in the absence of clear clinical evidence of reactivation, such a finding is merely a chance interruption of a false negative period rather than a relapse of the disease. In this report the occurrence of a positive skin smear without other manifestations of the disease has been termed a "subclinical relapse" on evidence obtained from case 2. This case showed a positive skin smear 17 months after the disease was considered arrested. Eight months later skin lesions developed and a true clinical relapse occurred. It seems logical to consider the period prior to development of skin lesions and subsequent to the finding of a positive smear as a subclinical relapse of the disease rather than a chance interruption of a false negative period.

The slow disappearance of leprosy bacilli from the skin of most patients under active treatment and the inability to obtain consistent negative skin smears from some, although clinically the response has been excellent, have led to the belief that the sulfones are suppressive or bacteriostatic rather than bacteriocidal in their action. Now that relapses of the disease have been experienced, added support is given to this belief. Temporary partial or complete natural remissions of

the disease, undoubtedly, also play a role where the disappearance of clinical lesions and of bacilli from the skin are accelerated beyond expectation. Complete spontaneous remissions or arrests of far advanced nodular lepromatous cases of leprosy, such as those under consideration in this report, however, are rare occurrences.

Case 6 is, perhaps, the most interesting and illustrative of this suppressive action and the role of natural remission. The nodular and infiltrative lesions shown by this patient receded rapidly on diasone therapy. After 18 months of treatment, he fulfilled the criteria for arrest of the disease. Treatment was taken regularly following apparent arrest by the same dosage as during active treatment. After another 18 months of treatment, a 1+ concentration of organisms was recovered from the right ear lobe. There were no visible skin lesions and the nasal smear was negative. After continued regular treatment for another 2 years no skin or mucous membrane lesions developed. The right ear lobe continued to show leprosy bacilli (1+) on monthly examinations. This patient at present has had a total of 5 years' treatment. There has been no clinical evidence of the disease for 4 years and bacteriologic examinations are still positive. It is believed that the sulfones, aided by the forces of natural remission, accounted for the early improvement. The suppressive action of the sulfones has not been of sufficient intensity to prevent the return of organisms, but it has prevented the formation of clinical lesions. The question of "chance interruption" is ruled out by the failure to recover organisms on numerous repeated attempts during a period of 30 months, followed by an easy consistent demonstration of organisms after that period.

The figures given for the probability of relapse are tentative and, in the final analysis, may not be representative of what the true incidence of relapse eventually will be. Since the number of patients followed is small, a great deal of significance cannot be placed on the statistical results obtained. Also, the duration of follow-up has been short in some instances. A factor of selection may have entered into the calculations particularly with reference to the patients representing clinical relapse. Two of these patients had been discharged from the hospital and returned when skin lesions appeared. Since patients who develop visible evidences of the disease are, undoubtedly, more likely to return for examination than those who do not develop them, it may be that the three cases of clinical relapse here reported are the only ones that have developed among all of the patients so far having their disease arrested on the sulfones. Should this be the case the probability of clinical relapse would be much less at the present stage of follow-up than is indicated by this report. Whether or not the probability of relapse after remissions from sulfones will be as great

as that (a great majority in from 3 to 5 years) experienced for remissions from chaulmoogra oil remains to be seen.

Tables 2 and 3, although based on small figures, are clear expositions of evidence that relapses are not as likely to occur when sulfone therapy is continued indefinitely. Because of this evidence it is advocated that all cases of lepromatous leprosy following apparent arrest of the disease be continued on sulfone treatment. Also, experience has shown that if treatment is continued, relapses can be prevented even if the dosage of the drug employed is materially reduced. Toxic effects, therefore, need not be especially feared. In the group of patients here reported the dosage was generally reduced to about one-third of that employed during active treatment.

Conclusions and Recommendations

As has been anticipated, relapses may occur following the arrest of lepromatous leprosy after sulfone therapy.

Over a 5-year period in which the follow-up varied from 6 months to 5 years after arrest of lepromatous leprosy on sulfone therapy, relapse rates of 45 percent for patients not continued on sulfones and 4.5 percent for those continued on treatment were experienced. When the probability of relapse was based on patient-years experience, the respective risks of relapse were 24.4 and 1.7 per 100 patient-years experience. Because of obvious selection factors and the limited material available for study, these figures are not claimed to represent true incidences of relapse. They merely indicate a trend.

A comparison of the risk of relapse for the two groups of patients studied strongly indicates that the incidence of relapse can be markedly lowered if sulfone treatment is continued after arrest.

The occurrence of relapse following arrest of the disease when the sulfone drugs are discontinued indicates that the sulfones are suppressive or bacteriostatic, rather than bacteriocidal, in their action. The persistence of leprosy bacilli (1+) in the skin of patients under active treatment for long periods of time without the reappearance of clinically visible lesions gives added evidence to this belief.

Evidence that the incidence of relapse can be effectively lowered by continuation of sulfone therapy in reduced dosage calls for a recommendation that treatment be continued indefinitely in such a manner for arrested cases.

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Reported Incidence of Communicable Diseases in the United States, Second Quarter, 1950

This summary gives provisional figures on cases of communicable diseases reported by the health departments of each State and Alaska, Hawaii, Panama Canal Zone (March and April), Puerto Rico (preliminary), and the Virgin Islands (April) for the second quarter of 1950. The figures are subject to change when final annual figures are released by each State, but in most instances the changes will be small.

Usefulness of these data is limited greatly by wide variations in completeness and accuracy of reporting within and between States and for different diseases. Unconfirmed diagnoses, differing definitions of diseases for reporting purposes, and varying methods of tabulation also contribute to the difficulties of interpretation.

The table gives the numbers of reported cases of selected communicable diseases for each division and State in April, May, and June 1950. Data for diseases reported with low frequencies or by only a few States are given in the section "Additional Diseases."

Infectious Encephalitis

There were 195 cases of infectious encephalitis reported during the second quarter of 1950 compared with 175 cases reported for the corresponding quarter of 1949 and the 5-year (1945-49) median of 115. This is the highest total for any similar quarter during the past 5 years.

Influenza and Pneumonia

Reported cases of influenza for the quarter totaled 43,851 compared with 11,388 cases reported for the corresponding period in 1949. The 5-year median was 18,678. The highest corresponding quarter during the 5-year period was in 1947 when 97,318 cases were reported. The total number of pneumonia cases reported for the second quarter was 23,584, an increase over the 20,438 cases reported for the same quarter in 1949 and the highest total reported since 24,883 cases were reported in 1945. The 5-year median was 20,501.

Poliomyelitis

The incidence of acute poliomyelitis usually starts to increase during the second quarter of the year. For this period, there were fewer cases of acute poliomyelitis (1,745) reported in 1950 than for the same period

in 1949 (1,976) and in 1948 (1,790). The 5-year (1945-49) median was 1,339. Cases of acute poliomyelitis reported by month for the United States were: April 278, May 421, and June 1,046. For 1949, the totals were: April 216, May 423, and June 1,337. The percentage distribution of poliomyelitis cases for the second quarter 1950 by type was paralytic 15.4, nonparalytic 7.1, and unspecified 77.5. Monthly returns for the preceding quarter and for last year are now under revision and it is expected that the percentage distribution of paralytic, nonparalytic, and unspecified poliomyelitis cases published in the report for the first quarter 1950 will be changed. Since the monthly morbidity report form (PHS 849 US) was amended to include space for the total number of cases, several States have discontinued reporting this item in the space for paralytic poliomyelitis.

Whooping Cough

Reported cases of whooping cough for the current quarter numbered 36,422, the second highest total for the corresponding period during the past five years. The 5-year median was 28,148. The States reporting the largest total for the quarter were Texas (4,004), California (2,726), Ohio (2,449), and Michigan (2,192).

Other Diseases

The total number of cases of the following selected diseases reported for the quarter was above the 5-year median: anthrax, amebic dysentery, infectious encephalitis, influenza, meningococcal meningitis, poliomyelitis, pneumonia, septic sore throat, trachoma, paratyphoid fever, and whooping cough. Figures for these diseases are given in the table, and in the section "Additional Diseases" following the table.

**Reported Cases of Selected Communicable Diseases in the United States,
Each Division and State, Second Quarter 1950**

[Numbers under diseases are International List numbers, 1948 revision]

Area	Brucel- losis (044)	Chick- enpox (087)	Con- juncti- vitis ¹ (370)	Diph- theria (055)	Dysentery (045-048)		
					Amebic (046)	Bacillary (045)	Unspeci- fied (047, 048)
New England	19	8,804	12	50	6	18	
Maine	5	814					
New Hampshire	2	190					
Vermont	2	828		1			
Massachusetts	5	4,992		46	3	18	
Rhode Island	1	288		2			
Connecticut	4	1,683	12	1	3		
Middle Atlantic	70	23,953	2	90	311	81	
New York	43	7,785	2	27	297	79	
New Jersey	10	7,598		13	12	2	
Pennsylvania	17	8,570		50	2		
East North Central	211	22,884	195	120	200	80	1
Ohio	10	4,784		51	4		1
Indiana	9	755	19	39	2	1	
Illinois	124	4,719	22	3	161	31	
Michigan	17	4,044	154	23	33	48	
Wisconsin	51	8,562		4			
West North Central	174	4,774	139	61	16	12	5
Minnesota	68	468	1	17	12	11	
Iowa	27	944	63	5			
Missouri	16	708	8	11	2		5
North Dakota	17	105	6	2			
South Dakota	11	166		5	(²)	(²)	(²)
Nebraska	4	664		2			
Kansas	31	1,719	61	19	2	1	
South Atlantic	81	5,360	150	199	86	121	647
Delaware		61					
Maryland	9	1,408		16	1	5	
District of Columbia	1	239			2	3	
Virginia	18	1,139		25	4		
West Virginia		493	112	25	6	4	640
North Carolina	1			49	22	5	
South Carolina	5			34	1	8	
Georgia	38	1,084	25	27	18	75	7
Florida	9	936	13	23	32	21	
East South Central	50	2,072	14	158	79	55	2
Kentucky	7	374	11	27	22	30	
Tennessee	5	630	3	49	22	3	2
Alabama	12	1,068		42	19	(²)	(²)
Mississippi	26			40	16	22	
West South Central	148	1,174		234	303	4,127	1,570
Arkansas	11	376		17	48	24	68
Louisiana	10	178		23	115	1	
Oklahoma	27	620		10	8	3	11
Texas	100			184	132	4,099	1,491
Mountain	45	4,127	159	37	84	372	35
Montana	3	185	40	7	1		1
Idaho	8	330	74	2	1		13
Wyoming		112			1		
Colorado	21	935		14	4		
New Mexico	7	147	18	5	2	6	
Arizona	6	889		6	68	366	14
Utah	7	1,397		3	7		
Nevada		132	20				7
Pacific	37	12,555	31	90	109	96	61
Washington	11			5	13	8	6
Oregon	3		31	1	28	2	55
California	23	12,555		74	68	86	(²)
Second quarter 1950	835	85,683	702	1,029	1,194	4,962	2,321
Second quarter 1949	1,335	119,531	660	1,465	1,479	8,202	3,098
Median 1945-49	1,359	110,965	452	2,353	1,067	8,148	2,079
Alaska	1	213		1			
Hawaii	2	544	34	2	1	20	
Panama Canal Zone ³		140		2	5	26	
Puerto Rico ⁴		408		51			7
Virgin Islands ⁵		1					

¹ For reported cases of "Ophthalmia neonatorum" see the section following table. ² Reported not inflexible. ³ March and April only. ⁴ From weekly reports, April and May only. ⁵ April only.

Reported Cases of Selected Communicable Diseases in the United States, Each Division and State, Second Quarter 1950—Continued

[Numbers under diseases are International List numbers, 1948 revision]

Area	Encephalitis, acute infectious (082)	German measles (086)	Hook- worm disease (129)	Influenza (480-483)	Malaria (110-117)	Measles (085)	Mening- itis, menin- gococcal (057.0)
New England	12	4, 146	-----	444	1	12, 405	32
Maine.....	-----	1, 732	-----	349	-----	415	5
New Hampshire.....	-----	255	-----	26	-----	380	1
Vermont.....	-----	203	-----	15	-----	92	1
Massachusetts.....	12	1, 215	-----	(1) 15	-----	8, 397	13
Rhode Island.....	-----	20	-----	8	-----	159	4
Connecticut.....	-----	721	-----	46	1	2, 962	8
Middle Atlantic	56	7, 094	57	150	7	47, 893	128
New York.....	36	1, 970	57	41	2	19, 331	34
New Jersey.....	17	3, 955	-----	39	5	18, 227	27
Pennsylvania.....	3	1, 169	-----	70	-----	10, 335	67
East North Central	45	7, 296	7	1, 386	11	52, 104	226
Ohio.....	-----	1, 046	-----	69	1	7, 617	74
Indiana.....	8	180	-----	43	-----	5, 144	17
Illinois.....	14	1, 000	-----	77	8	13, 339	60
Michigan.....	22	4, 550	7	79	-----	15, 999	42
Wisconsin.....	1	520	-----	1, 118	2	10, 005	33
West North Central	14	111	1	912	2	11, 230	90
Minnesota.....	3	-----	-----	97	-----	2, 549	18
Iowa.....	-----	-----	-----	-----	1	4, 586	10
Missouri.....	1	84	-----	225	1	826	39
North Dakota.....	2	-----	-----	212	-----	65	5
South Dakota.....	5	-----	1	11	-----	394	4
Nebraska.....	1	-----	-----	232	-----	2, 069	2
Kansas.....	2	27	-----	135	-----	741	12
South Atlantic	11	215	2 891	17, 229	61	12, 250	171
Delaware.....	1	-----	-----	3	-----	136	7
Maryland.....	1	86	-----	243	1	909	28
District of Columbia.....	-----	-----	-----	15	-----	720	3
Virginia.....	-----	-----	-----	12, 670	2	1, 611	34
West Virginia.....	1	104	-----	2, 542	1	3, 136	21
North Carolina.....	-----	-----	-----	-----	16	2, 068	31
South Carolina.....	1	-----	-----	804	32	826	11
Georgia.....	6	-----	-----	864	8	1, 037	23
Florida.....	1	25	2, 891	88	1	1, 807	13
East South Central	13	473	663	5, 424	61	6, 894	112
Kentucky.....	1	148	-----	1, 183	1	3, 164	35
Tennessee.....	8	295	6	1, 310	5	2, 004	35
Alabama.....	-----	30	-----	2, 491	28	935	29
Mississippi.....	4	-----	657	440	27	791	13
West South Central	20	103	252	14, 338	542	10, 419	142
Arkansas.....	1	55	-----	5, 848	16	1, 006	18
Louisiana.....	1	4	240	57	2	237	22
Oklahoma.....	3	44	12	2, 697	16	228	16
Texas.....	15	-----	-----	5, 736	508	8, 948	86
Mountain	7	765	-----	3, 336	6	9, 033	14
Montana.....	-----	67	-----	658	-----	802	1
Idaho.....	1	183	-----	816	-----	916	1
Wyoming.....	-----	72	-----	4	3	334	1
Colorado.....	2	83	-----	235	-----	2, 139	8
New Mexico.....	-----	98	-----	18	-----	347	-----
Arizona.....	3	122	-----	1, 417	3	845	1
Utah.....	1	140	-----	66	-----	3, 526	2
Nevada.....	-----	-----	-----	122	-----	124	-----
Pacific	17	955	1	632	3	10, 198	83
Washington.....	-----	-----	-----	225	-----	1, 362	22
Oregon.....	-----	-----	1	296	1	165	8
California.....	17	955	-----	111	2	8, 671	53
Second quarter 1950.....	195	21, 158	3, 872	43, 851	694	172, 426	998
Second quarter 1949.....	175	55, 863	4, 547	11, 388	1, 324	298, 745	898
Median 1945-49.....	115	13, 623	4, 530	18, 678	4, 536	298, 745	984
Alaska.....	-----	16	-----	261	-----	105	-----
Hawaii.....	-----	21	-----	33	-----	20	1
Panama Canal Zone ³	-----	-----	-----	-----	114	402	1
Puerto Rico ⁴	-----	-----	-----	104	20	92	-----
Virgin Islands ⁴	-----	-----	-----	-----	-----	-----	-----

¹ Reported not notifiable. ² New York City only. ³ March and April only. ⁴ From weekly reports, April and May only. ⁵ April only.

**Reported Cases of Selected Communicable Diseases in the United States,
Each Division and State, Second Quarter 1950—Continued**

[Numbers under diseases are International List numbers, 1948 revision]

Area	Mumps (089)	Pneumonia (490-493)	Poliomyelitis				Rheumatic fever (400-402)
			Total (080.0-080.3)	Paralytic (080.0-080.1)	Non-paralytic (080.2)	Unspecified (080.3)	
New England	7,209	872	18	7	3	8	25
Maine.....	1,083	237	1	1			1
New Hampshire.....	253		1			1	
Vermont.....	1,220	11	1			1	
Massachusetts.....	2,727	(¹) 6	1	3	2	1	(¹)
Rhode Island.....	172	85	1			1	24
Connecticut.....	1,754	539	8	3	1	4	(¹)
Middle Atlantic	19,805	5,926	144			144	184
New York.....	5,907	3,186	84			84	(¹)
New Jersey.....	3,868	697	42				(¹)
Pennsylvania.....	10,030	1,143	18			18	184
East North Central	15,279	3,076	146	37	32	77	273
Ohio.....	3,876	904	27			27	35
Indiana.....	331	167	10		1	9	1
Illinois.....	3,195	1,229	37	20	13	4	71
Michigan.....	3,447	654	42	17	18	7	165
Wisconsin.....	4,430	122	30			30	1
West North Central	4,629	1,335	134	11	2	121	39
Minnesota.....	5	160	13	4	2	7	35
Iowa.....	1,268	25	40			40	1
Missouri.....	498	256	31			31	
North Dakota.....	8	653					
South Dakota.....	143	5	4			4	(¹)
Nebraska.....	540	59	30			30	
Kansas.....	2,167	177	16	7		9	2
South Atlantic	3,929	3,316	154	13	7	134	92
Delaware.....	43	10	2			2	1
Maryland.....	794	492	4	3	1		14
District of Columbia.....	120	379	6	3	3		
Virginia.....	1,394	959	9			9	50
West Virginia.....	568	190	17			17	8
North Carolina.....			27			27	
South Carolina.....		120	33			33	3
Georgia.....	479	1,000	10	6	2	2	16
Florida.....	531	166	46	1	1	44	(¹)
East South Central	1,665	2,196	120	40	3	77	98
Kentucky.....	441	364	34	26	3	5	9
Tennessee.....	623	703	14	14	(¹)	(¹)	21
Alabama.....	601	708	23			23	56
Mississippi.....		421	49			49	12
West South Central	2,052	5,970	691	42	23	626	26
Arkansas.....	823	418	32	8	11	13	2
Louisiana.....	123	409	41	32	9		14
Oklahoma.....	1,106	444	55	2	3	50	10
Texas.....		4,699	563			563	(¹)
Mountain	3,507	884	80	19	6	55	119
Montana.....	60	7					1
Idaho.....	170	86	14			14	17
Wyoming.....	80	19	8	2	4	2	19
Colorado.....	886	272	16	11	2	3	26
New Mexico.....	248	171	9	6		3	14
Arizona.....	1,058	264	26			26	36
Utah.....	936	49	4			4	6
Nevada.....	69	16	3			3	
Pacific	13,749	909	258	99	48	111	211
Washington.....		152	4			4	69
Oregon.....		319	22	13	6	3	16
California.....	13,749	438	232	86	42	104	126
Second quarter 1950.....	71,824	23,584	1,745	268	124	1,353	1,067
Second quarter 1949.....	80,004	20,438	1,976	(²)	(²)	(²)	1,487
Median 1945-49.....	76,337	20,501	1,339	(²)	(²)	(²)	1,410
Alaska.....	144	26					7
Hawaii.....	46	4	6	6			7
Panama Canal Zone ³	152	431					
Puerto Rico ⁴			7			7	
Virgin Islands ⁵							

¹ Reported not notifiable. ² Not available. ³ March and April only. ⁴ For canal Zone only. ⁵ From weekly reports, April and May only. ⁶ April only.

**Reported Cases of Selected Communicable Diseases in the United States,
Each Division and State, Second Quarter 1950—Continued**

[Numbers under diseases are International List numbers, 1948 revision]

Area	Rocky Mountain spotted fever (104)	Scarlet fever (050)	Septic sore throat (051)	Smallpox (084)	Tetanus (061)	Trachoma (095)	Trichiniasis (128)
New England		2,324	135		3		14
Maine.....		85	4				3
New Hampshire.....		1 69	(1)		1		
Vermont.....		18	1				
Massachusetts.....		1,747	30		2		4
Rhode Island.....		65	4				
Connecticut.....		340	96				7
Middle Atlantic	8	3,568	29		5	1	42
New York.....	2	1,761	(1)		3	1	35
New Jersey.....	4	465	29		1		6
Pennsylvania.....	2	1,342			1		1
East North Central	7	4,604	245		14	7	12
Ohio.....		1,679	5		3		9
Indiana.....	4	485	1		3		
Illinois.....	2	516	31		5	2	1
Michigan.....	1	1,359	146		3		2
Wisconsin.....		565	62			5	
West North Central	1	828	47	5	4	346	3
Minnesota.....		183	38		2	6	2
Iowa.....		52		2	1		
Missouri.....		178	8	1	1	182	
North Dakota.....		37				16	
South Dakota.....		31				120	
Nebraska.....	1	1 189	(1)	1		22	1
Kansas.....		158	1	1			
South Atlantic	73	850	707		26	2	1
Delaware.....	1	33					
Maryland.....	24	220	13		5	1	
District of Columbia.....	1	48					1
Virginia.....	17	190	546				
West Virginia.....	8	72	61				
North Carolina.....	15	155	9				
South Carolina.....	4	32	10				
Georgia.....	3	64	42		8		
Florida.....		36	26		13	1	(1)
East South Central	19	513	59	1	30	10	
Kentucky.....	4	161	34		2	8	
Tennessee.....	10	216	25		10	2	
Alabama.....	3	96	(1)		14		(1)
Mississippi.....	2	40	(1)	1	4		(2)
West South Central	6	524	2,394	4	15	54	1
Arkansas.....	1	36	329		8	18	
Louisiana.....	2	48	10		3		1
Oklahoma.....	3	111	136	4	4	14	
Texas.....		329	1,919		(1)	22	(1)
Mountain	29	541	896	4	3	85	4
Montana.....	8	122	29		1		
Idaho.....	4	45	65				4
Wyoming.....	1	15	1			7	
Colorado.....	11	131	63	1			
New Mexico.....	1	35		1	1	12	
Arizona.....		155	640		1	65	
Utah.....	3	31	1				
Nevada.....	1	7	97	2		1	
Pacific	11	1,812	298		9	11	6
Washington.....		328	12				
Oregon.....	9	132	95				
California.....	2	1,352	191		9	11	6
Second quarter 1950.....	154	15,564	4,810	14	109	516	83
Second quarter 1949.....	207	19,748	5,410	27	128	533	91
Median 1945-49.....	176	22,993	3,532	73	113	352	91
Alaska.....		13	21				
Hawaii.....		3	2		1		
Panama Canal Zone ⁴					2		
Puerto Rico ⁵					27		
Virgin Islands ⁶							

¹ Cases reported as septic sore throat included with scarlet fever. ² New York City only. ³ Reported not notifiable. ⁴ March and April only. ⁵ From weekly reports, April and May only. ⁶ April only.

Reported Cases of Selected Communicable Diseases in the United States, Each Division and State, Second Quarter 1950—Continued

[Numbers under diseases are International List numbers, 1948 revision]

Area	Tuberculosis		Tular- remia	Typhoid fever	Para- typhoid fever ¹	Typhus fever, endemic	Whoop- ing cough
	All forms	Respira- tory					
	(001-019)	(001-008)					
	(059)	(040)	(041)	(101)	(056)		
New England	1,311	1,193		11	20		4,569
Maine	123	116					461
New Hampshire	46						95
Vermont	62	62					311
Massachusetts	616	574		3	20		1,701
Rhode Island	108	98		2			722
Connecticut	356	343		6			1,279
Middle Atlantic	5,663	3,128	2	52	35		4,945
New York	3,418	3,128		22	20		1,646
New Jersey	832			6	4		1,560
Pennsylvania	1,413		2	24	11		1,739
East North Central	4,220	2,545	15	49	38		7,554
Ohio	(1)	(1)		13	3		2,449
Indiana	727	668		6			501
Illinois	2,017	1,877	3	12	1		951
Michigan	1,203		1	12	32		2,192
Wisconsin	273			6	2		1,461
West North Central	2,323	171	11	37	6		1,921
Minnesota	665			3	6		512
Iowa	222			1	6		297
Missouri	1,073		10	25			477
North Dakota	79	57		1			60
South Dakota	62						64
Nebraska	99			3			58
Kansas	123	114	1	4			453
South Atlantic	5,096	4,263	33	94	26	51	4,236
Delaware	68	68		2			97
Maryland	763	731	2	12	2		646
District of Columbia				1	1		32
Virginia	977	962	2	5	4		1,100
West Virginia	598	593		20			780
North Carolina	1,117	1,080	4	18	3	2	1,025
South Carolina				2		4	167
Georgia	849	829	20	14	8	33	270
Florida	724		3	5	7	12	119
East South Central	3,296	1,390	25	55	15	42	2,088
Kentucky	1,074	1,042	2	21	1		990
Tennessee	1,146		3	13	8		599
Alabama	712		5	8	5	40	417
Mississippi	364	348	15	13	1	2	82
West South Central	2,686	1,424	130	137	18	79	5,165
Arkansas	450	440	69	19	1		822
Louisiana	504	480	5	28	3	6	42
Oklahoma	510	504	17	12	6		295
Texas	1,222	(1)	39	78	8	73	4,004
Mountain	1,698	1,152	27	13	6		1,955
Montana	131	115	13	1			131
Idaho	48		1	2			311
Wyoming	41	40	3	1			24
Colorado	388			3			320
New Mexico	249	236		1	3		287
Arizona	648	618	2	4	3		568
Utah	153	143	8	1			234
Nevada	40						80
Pacific	3,060	2,404	1	32	206		3,991
Washington	494			9	7		721
Oregon	203	187		4	4		544
California	2,363	2,217	1	19	195		2,726
Second quarter 1950	29,353	17,670	244	480	370	172	36,422
Second quarter 1949	31,311	18,951	290	568	260	229	14,423
Median 1945-49	31,311	18,951	285	725	207	409	28,148
Alaska				13			32
Hawaii	113					5	8
Panama Canal Zone ²	4			7		1	33
Puerto Rico ³	865			11		4	554
Virgin Islands ⁴	3						

¹ Reported not notifiable.

² Includes salmonellosis.

³ March and April only.

⁴ Canal Zone only.

⁵ From weekly reports, April and May only.

⁶ April only.

Additional Diseases

Figures for additional diseases reported by State health departments in the second quarter of 1950 and not shown in the table are given below. Also included are diseases reported by Territories and possessions. Figures for the Panama Canal Zone are for March and April; Puerto Rico (from weekly reports) for April and May; and Virgin Islands for April. The numbers in parentheses are from the Manual of the International Statistical Classification of Diseases, Injuries, and Causes of Death, World Health Organization, 1948.

- Actinomycosis (132): Ohio 1.
- Anthrax (062): Colorado 1, Connecticut 1, Georgia 1, Massachusetts 2, New Hampshire 2, New Jersey 4, New York 1, Pennsylvania 6.
- Botulism (049.1): Colorado 3, Minnesota 2.
- Cancer (140-205): Alabama 1,154, Arkansas 142, Colorado 766, Florida 1,506, Georgia 90, Idaho 313, Kansas 978, Kentucky 4, Louisiana 758, Montana 394, Nevada 12, New Mexico 216, North Dakota 171, Pennsylvania 2,261, South Carolina 76, Tennessee 826, Utah 105, Wyoming 112, Alaska 5, Virgin Islands 1.
- Coccidioidomycosis (133): Arizona 36, California 29, Oklahoma 1.
- Colorado tick fever (096.9): Colorado 78, Oregon 3.
- Dengue (090): Georgia 1, Texas 12, Virginia 3.
- Diarrhea of the newborn (764): California 36, Connecticut 1, Florida 28, Illinois 22, Kansas 1, Minnesota 1, New Mexico 2, New York 1, Ohio 15, Oklahoma 1, Pennsylvania 1, West Virginia 4, South Carolina 31, Washington 1.
- Diarrhea, unspecified (571): Florida 6, Kentucky 19, Maryland 13, Michigan 26, Minnesota 10, New Mexico 11, New York 27, Ohio 155 including enteritis, South Carolina 3, Texas 326, Alaska 48.
- Encephalitis, myelitis, and encephalomyelitis, except acute infections (343): Colorado 2, Maryland 4, North Carolina 4, Ohio 15, Washington 3.
- Erysipelas (052): Arkansas 2, Connecticut 7, Florida 3, Idaho 2, Illinois 50, Indiana 1, Kansas 4, Maryland 1, Michigan 34, Minnesota 1, Missouri 3, Montana 1, Nebraska 1, North Dakota 3, Ohio 12, Oregon 10, Pennsylvania 17, Tennessee 10, Wisconsin 14, Wyoming 2.
- Favus (131 part): Missouri 2.
- Food poisoning (049.2): California 217, Connecticut 14, Florida 18, Idaho 27, Illinois 67, Indiana 12, Kansas 1, Kentucky 104, Louisiana 5, Minnesota 43, Nevada 11, New Mexico 10, New York 166, Ohio 12, Oklahoma 5, Oregon 6, Pennsylvania 178, Washington 8, Panama Canal Zone 3.
- Glandular fever (infectious mononucleosis) (093): Arizona 3, Connecticut 60, Idaho 5, Kentucky 14, Maryland 4, Michigan 38, Minnesota 99, Ohio 1, Oklahoma 1, Tennessee 16, Washington 6.
- Hepatitis, infectious (092): California 104, Connecticut 3, Florida 2, Illinois 9, Indiana 6, Maine 1, Maryland 22, Michigan 6, Minnesota 1, Montana 3, Nevada 2, New York 138, Oklahoma 1, Oregon 45, Pennsylvania 145, Tennessee 21, Washington 86, West Virginia 1, Hawaii 1, Panama Canal Zone 2.
- Impetigo (695,766): Colorado 6, Connecticut 7, Idaho 11, Illinois 1, Indiana 3, Kansas 2, Kentucky 4, Michigan 257, Missouri 1, Montana 4, Nevada 29, New York 38, North Dakota 2, Ohio 40, Wyoming 1.

Leprosy (060): California 1, Florida 2, Illinois 1, Louisiana 1, Texas 8, Hawaii 10, Panama Canal Zone 3.

Meningitis, except meningococcal and tuberculous (340): Colorado 3, Illinois 79, Indiana 14, Kentucky 11, Maryland 6, Massachusetts 62, Michigan 10, Minnesota 13, Mississippi 21, Missouri 2, Montana 2, New Mexico 8, New York 91, North Dakota 5, Ohio 37, Rhode Island 16, Utah 3, Washington 13, West Virginia 1, Wyoming 1.

Ophthalmia neonatorum (033, 765) (for reported cases of "Conjunctivitis" see table): Arizona 1, California 2, Connecticut 1, Florida 7, Illinois 31, Louisiana 1, Maryland 1, Massachusetts 38, Michigan 3, Mississippi 10, New Mexico 1, New York 6, Ohio 162, Pennsylvania 1, Tennessee 2, Texas 30, Wisconsin 1.

Pellagra (281): Alabama 5, Arizona 2, Arkansas 7, Georgia 16, Oklahoma 4, Tennessee 7, Virginia 2, Virgin Islands 1.

Plague (050): United States, 0.

Psittacosis (096.2): California, 4, Indiana 1, Michigan 4.

Rabies (094): Arkansas 1, Indiana 1, Tennessee 1.

Relapsing fever (071): Nevada 3, Texas 2.

Rickettsialpox (108): New York City 26.

Ringworm of the scalp (131, part): Arkansas 1, Connecticut 24, Florida 2, Georgia 8, Illinois 343, Indiana 24, Iowa 4, Kansas 21, Kentucky 20, Minnesota 2, Missouri 4, Montana 1, Nevada 9, Ohio 63, Oklahoma 9, Oregon 34, South Carolina 56, Utah 10, Virginia 38, Washington 159.

Scabies (135): Idaho 12, Indiana 2, Kansas 2, Kentucky 38, Maryland 1, Michigan 163, Montana 1, Nevada 8, North Dakota 1, Ohio 22, Pennsylvania 43.

Schistosomiasis (123): New York 23.

Vincent's infection (070): Colorado 56, Florida 32, Georgia 4, Idaho 2, Illinois 21, Indiana 3, Kansas 10, Kentucky 3, Maryland 6, Nevada 17, New Hampshire 3, Ohio 5, Oklahoma 26, South Dakota 2, Tennessee 13, Wyoming 1.

Weil's disease (072): California 1, Michigan 4, New York 1, Ohio 2, Pennsylvania 1, Tennessee 1.

* * * * *

Rabies in animals: Alabama 117, Arizona 4, Arkansas 41, California 37, Colorado 32, Florida 5, Georgia 120, Illinois 35, Indiana 184, Iowa 140, Kansas 24, Kentucky 171, Louisiana 3, Michigan 62, Minnesota 1, New York 256, Ohio 89, Oklahoma 44, Pennsylvania 23, South Carolina 77, Tennessee 66, Texas 271, Virginia 47, West Virginia 83, Wisconsin 5.

Incidence of Disease

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

UNITED STATES

Reports From States for Week Ended August 19, 1950

For the current week, new cases of acute poliomyelitis reported in the Nation numbered 1,489, a 3 percent increase over the 1,442 cases reported last week. This is the lowest percentage increase over the preceding week since the week ended May 27, the beginning of the upward weekly trend in reported cases of poliomyelitis. The total for the current week is less than the 3,416 cases reported for the corresponding week in 1949.

The cumulative total (9,097) for the current "disease" year was below the corresponding total (16,375) for last year, the highest on record. The "disease" year for acute poliomyelitis begins with the twelfth week of the calendar year.

The cumulative total for the calendar year was 10,231, compared with the total of 17,290 for the corresponding period last year.

Comparative Data for Cases of Specified Reportable Diseases: United States

[Numbers after diseases are International List numbers, 1948 revision]

Disease	Total for week ended—		5-year median 1945-49	Seasonal low week	Cumulative total since seasonal low week—		5-year median 1944-45 through 1948-49	Cumulative total for calendar year—		5-year median 1945-49
	Aug. 19, 1950	Aug. 20, 1949			1949-50	1948-49		1950	1949	
Anthrax (062).....			(¹)	(¹)	(¹)	(¹)	(¹)	29	38	(¹)
Diphtheria (055).....	65	104	128	27th	387	568	791	3,515	4,336	7,088
Acute infectious encephalitis (082).....	21	14	19	(¹)	(¹)	(¹)	(¹)	516	379	328
Influenza (480-483).....	781	627	605	30th	2,349	1,673	1,673	248,608	77,540	140,912
Measles (085).....	979	854	854	35th	305,774	639,727	584,297	286,644	587,334	549,351
Meningococcal meningitis (057.0).....	58	44	55	37th	3,555	3,186	3,454	2,642	2,342	2,482
Pneumonia (490-493).....	708	781	-----	(¹)	(¹)	(¹)	-----	60,689	55,724	-----
Acute poliomyelitis (080).....	1,489	3,416	1,313	11th	² 9,097	16,375	8,374	² 10,231	17,290	8,841
Rocky Mountain spotted fever (104).....	26	28	27	(¹)	(¹)	(¹)	(¹)	348	441	410
Scarlet fever (050).....	239	218	377	32d	239	218	377	40,409	57,884	62,480
Smallpox (084).....	1	1	1	35th	45	51	199	25	41	145
Tularemia (059).....	11	18	18	(¹)	(¹)	(¹)	(¹)	642	799	672
Typhoid and paratyphoid fever ³ (040, 041).....	102	135	131	11th	1,604	1,948	1,948	2,114	2,436	2,436
Whooping cough (056).....	2,353	1,478	2,045	39th	107,941	48,221	90,561	86,405	38,188	64,543

¹ Not computed.

² Deduction: Georgia, week ended August 12, 2 cases.

³ Including cases reported as salmonellosis.

For the current week, total reported incidence of poliomyelitis in 5 of the 9 geographic divisions decreased over the preceding week. These decreases ranged from 45 (215 to 170) cases reported in the West South Central States to 9 (126 to 117) cases in the Pacific States. The 4 divisions increasing over the preceding week ranged from 118 cases (202 to 320) in the East North Central States to 4 (23 to 27) in the Mountain States.

For the current week, the States reporting the largest numbers of cases were: New York (191), Texas (113), Illinois (104), Ohio and Michigan (83 each), Pennsylvania (69), Virginia (68), and California (63).

The total number of cases of infectious encephalitis reported for the week was 21, compared with 14 reported for the corresponding period last year. For the calendar year, a total of 516 cases was reported, the highest total in the past 5 years.

The reported incidence of whooping cough was 2,353 cases for the current week compared with 1,478 reported for the corresponding week last year. The 5-year median was 2,045. The cumulative total for the calendar year was 86,405 cases, the next highest number during the past 5 years.

Of 41 States and the District of Columbia reporting on rabies in animals, 24 States and the District of Columbia reported no cases. The remaining 17 States reported 80 cases. States reporting the largest numbers were: New York (23), and Texas (14).

One case of smallpox was reported in Kansas. The New Mexico State Health Department confirmed by laboratory test, the positive report for bubonic plague from a 14-year-old girl, presumably an Arizona patient. The case report has not yet been received.

Deaths During Week Ended August 19, 1950

	<i>Week ended Aug. 19, 1950</i>	<i>Corresponding week, 1949</i>
Data for 94 large cities of the United States:		
Total deaths.....	8, 242	8, 529
Median for 3 prior years.....	8, 385	-----
Total deaths, first 33 weeks of year.....	307, 192	307, 814
Deaths under 1 year of age.....	635	725
Median for 3 prior years.....	686	-----
Deaths under 1 year of age, first 33 weeks of year.....	20, 502	21, 635
Data from industrial insurance companies:		
Policies in force.....	69, 656, 418	70, 242, 785
Number of death claims.....	10, 794	11, 877
Death claims per 1,000 policies in force, annual rate.....	8. 1	8. 8
Death claims per 1,000 policies, first 33 weeks of year, annual rate.....	9. 5	9. 4

Reported Cases of Selective Communicable Diseases: United States, Week Ended August 19, 1950

[Numbers under diseases are International List numbers, 1948 revision]

Area	Diphtheria (055)	Encephalitis, infectious (082)	Influenza (480-483)	Measles (085)	Meningitis, meningococcal (057.0)	Pneumonia (490-493)	Polio-myelitis (080)
United States	65	21	781	979	58	708	1,489
New England	5			71	2	23	36
Maine.....	5			4	2	4	3
New Hampshire.....							
Vermont.....				1			2
Massachusetts.....				58			17
Rhode Island.....						3	2
Connecticut.....				8		16	12
Middle Atlantic	6	4		251	14	163	302
New York.....	3	1	(1)	100	6	97	191
New Jersey.....	2	3		83	1	34	42
Pennsylvania.....	1			68	7	32	69
East North Central	2	3	4	304	8	101	320
Ohio.....				69	3		83
Indiana.....	2			2		7	29
Illinois.....				58	3	69	104
Michigan.....		1		58	1	22	83
Wisconsin.....		2	4	117	1	3	21
West North Central	1		5	34	3	37	154
Minnesota.....			2	7		14	22
Iowa.....			2	2	1		46
Missouri.....			3	16	1	7	32
North Dakota.....				4		11	5
South Dakota.....				1	1		11
Nebraska.....				3			20
Kansas.....	1			1		5	18
South Atlantic	25	2	215	53	11	82	243
Delaware.....				2			3
Maryland.....	1		1	2	1	15	27
District of Columbia.....			1		2	6	10
Virginia.....			189	23	3	33	68
West Virginia.....	5	1	4	5	1	1	17
North Carolina.....	11		3	3	2	1	59
South Carolina.....	5	1	17	3	1	7	21
Georgia.....	2		2	9		10	19
Florida.....	1		1	6	1	10	19
East South Central	11		17	6	5	49	120
Kentucky.....	1			2	1	1	42
Tennessee.....	2		6	2	4		36
Alabama.....	4		8	1		31	27
Mississippi.....	4		3	1		17	15
West South Central	10	1	479	70	11	172	170
Arkansas.....			20	5		16	17
Louisiana.....	3			3		8	17
Oklahoma.....	1		15	2		2	23
Texas.....	6	1	444	60	11	146	113
Mountain	2	1	57	96	1	37	27
Montana.....			11	4		1	1
Idaho.....			1	2			2
Wyoming.....				5			4
Colorado.....	1	1	3	52		8	13
New Mexico.....				3		19	2
Arizona.....	1		40	13	1	5	1
Utah.....			2	7		1	4
Nevada.....							
Pacific	3	10	4	104	3	44	117
Washington.....				18			25
Oregon.....	1	1	3	13	1	9	29
California.....	2	9	1	73	2	35	63
Alaska.....							
Hawaii.....			5	2			

¹ New York City only.

**Reported Cases of Selected Communicable Diseases: United States, Week
Ended August 19, 1950—Continued**

[Numbers under diseases are International List numbers, 1948 revision]

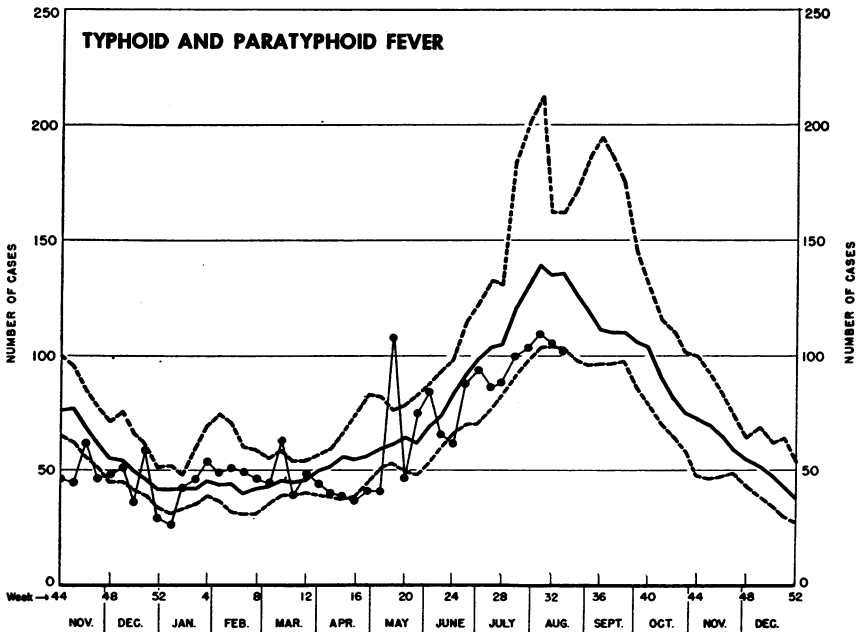
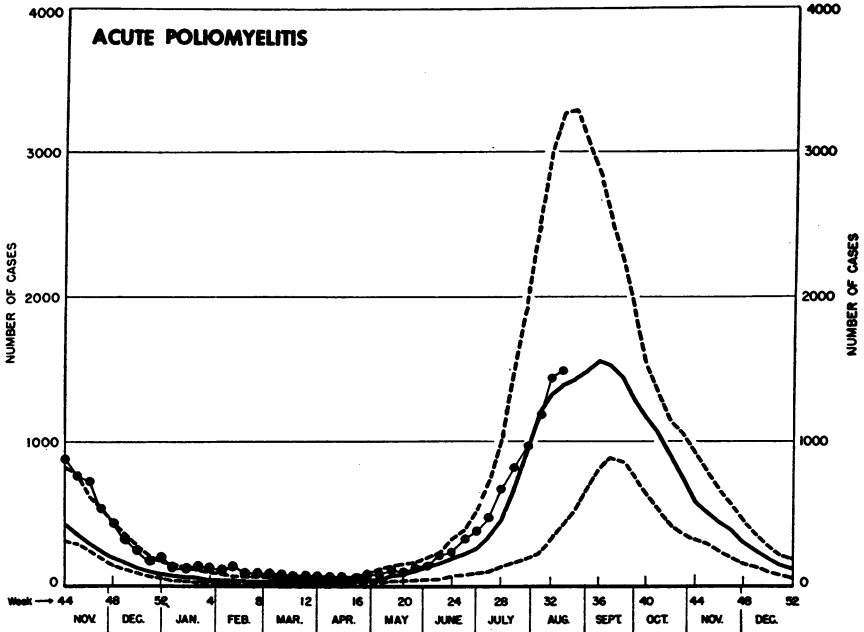
Area	Rocky Mountain spotted fever (104)	Scarlet fever (050)	Small-pox (084)	Tularemia (059)	Typhoid and paratyphoid fever ¹ (040, 041)	Whooping cough (056)	Rabies in animals
United States.....	28	239	1	11	102	2,353	89
New England.....		16			3	245	
Maine.....						44	
New Hampshire.....						4	
Vermont.....						26	
Massachusetts.....		15			3	79	
Rhode Island.....						33	
Connecticut.....		1				59	
Middle Atlantic.....	2	37			18	325	23
New York.....	2	21			3	134	23
New Jersey.....		4				105	
Pennsylvania.....		12			15	86	
East North Central.....	4	59			13	633	10
Ohio.....	4	28			4	188	2
Indiana.....		4			4	29	
Illinois.....		6			3	52	1
Michigan.....		9			1	214	6
Wisconsin.....		12			1	150	1
West North Central.....		17	1		4	137	1
Minnesota.....		3				13	
Iowa.....		4			1	37	1
Missouri.....		6			2	46	
North Dakota.....						7	
South Dakota.....		1				4	
Nebraska.....		3				6	
Kansas.....			1		1	24	
South Atlantic.....	15	45			3	19	301
Delaware.....							7
Maryland.....	2	1				1	54
District of Columbia.....		1					8
Virginia.....	3	13		2	3	33	2
West Virginia.....		2			4	38	4
North Carolina.....	7	16		1	3	105	
South Carolina.....	1	3			1	17	7
Georgia.....	2	6			3	29	4
Florida.....		3			4	10	
East South Central.....	3	22				8	102
Kentucky.....		1				2	62
Tennessee.....	1	12				4	12
Alabama.....	2	3				2	25
Mississippi.....		6					3
West South Central.....		15		7	20	231	16
Arkansas.....		1		6	4	25	1
Louisiana.....					5		
Oklahoma.....		4			2	13	1
Texas.....		10		1	9	243	14
Mountain.....	2	4		1	9	128	
Montana.....	2					24	
Idaho.....					3	8	
Wyoming.....							
Colorado.....		1			4	31	
New Mexico.....		2			1	28	
Arizona.....		1			1	32	
Utah.....				1		4	
Nevada.....						1	
Pacific.....		24			8	291	3
Washington.....		4				56	
Oregon.....		1				37	
California.....		19			8	108	3
Alaska.....							
Hawaii.....		1				1	

¹ Including cases reported as salmonellosis.

² Including cases reported as streptococcal sore throat.

Communicable Disease Charts

All reporting States, November 1949 through August 19, 1950



The upper and lower broken lines represent the highest and lowest figures recorded for the corresponding weeks in the 5 preceding years. The solid line is a median figure for the 5 preceding years. All three lines have been smoothed by a 3-week moving average. The dots represent numbers of cases reported for the weeks, 1949-50.

FOREIGN REPORTS

CANADA

Reported Cases of Certain Diseases—Week Ended July 29, 1950

Disease	Newfoundland	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia	Total
Brucellosis						2	2			3	7
Chickenpox			20	2	26	124	21	10	34	35	272
Diphtheria					1						1
Dysentery, bacillary					8	3				1	12
German measles	1		5	1	1	77		3	5	18	111
Influenza			6			1	1				8
Measles			7		135	200	3	9	6	66	426
Meningitis, meningococcal								2			2
Mumps			5	1	18	123	4	19	39	11	220
Poliomyelitis				1	7	4		5	4	5	26
Scarlet fever				1	18	9	2	1	11	4	46
Tuberculosis (all forms)	16		19	3	57	38	29	10	48	37	257
Typhoid and paratyphoid fever					1			1			2
Venereal diseases:											
Gonorrhea	8		11	7	84	52	38	20	34	92	346
Syphilis	8		18	4	58	19	8	5	2	13	135
Whooping cough	1			1	56	53	4	3	1	36	155

JAPAN

Reported Cases and Cumulative Totals of Certain Diseases and Deaths—4 Weeks Ended June 24, 1950

Disease	4 weeks ended June 24, 1950		Total reported for the year to date	
	Cases	Deaths	Cases	Deaths
Diarrhea, infectious	24		46	
Diphtheria	724	48	6,319	602
Dysentery, unspecified	3,462	678	7,125	1,354
Encephalitis, Japanese "B"	2	2	2	2
Filariasis	9		47	
Gonorrhea	14,664		82,142	
Influenza	46		18,604	
Leprosy	59		303	
Malaria	137	2	401	21
Measles	8,186		38,506	
Meningitis, meningococcal	70	25	545	151
Paratyphoid fever	183	11	615	36
Pneumonia	8,882		99,815	
Poliomyelitis			906	
Puerperal infection	69		429	
Rabies	7		30	
Scarlet fever	868	1	2,947	13
Schistosomiasis	61		230	
Smallpox			3	
Syphilis	10,239		63,524	
Tetanus	204		854	
Trachoma	23,285		82,715	
Tuberculosis	41,603		214,640	
Typhoid fever	572	64	2,033	263
Typhus fever	34	1	888	52
Whooping cough	12,172		66,219	

NOTE.—The above figures have been adjusted to include delayed and corrected reports.

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

The following reports include only items of unusual incidence or of special interest and the occurrence of these diseases, except yellow fever, in localities which had not recently reported cases. All reports of yellow fever are published currently. A table showing the accumulated figures for these diseases for the year to date is published in the PUBLIC HEALTH REPORTS for the last Friday in each month.

Cholera

Burma. During the week ended July 29, 1950, 31 cases of cholera, with 19 deaths, were reported in Burma.

India (French). During the week ended July 22, 1950, 231 cases of cholera were reported in Pondicherry, French India.

Indochina. During the week ended August 5, 1950, two cases of cholera were reported in the rural area of Cantho, Viet Nam.

Pakistan. Cholera has been reported in East Bengal Province as follows: Weeks ended—July 8, 371 cases, 196 deaths; July 15, 290 cases, 180 deaths; July 22, 321 cases, 199 deaths.

Plague

Belgian Congo. During the week ended August 5, 1950, one fatal case of plague was reported at Malali, south of Blukwa, Stanleyville Province.

Indochina. During the week ended August 5, 1950, one case of plague was reported in Phanthiet, and on August 7, one fatal case was reported in the Thudaumot area, Viet Nam.

Union of South Africa. In Orange Free State, five cases of plague were reported during the month of April 1950. During the week ended July 22, one fatal case was reported in the municipal area of Johannesburg, Transvaal Province.

Smallpox

India (French). During the week ended July 22, 1950, 99 cases of smallpox were reported in Pondicherry, French India.

Indonesia. During the week ended July 29, 1950, smallpox was reported in Indonesia as follows: In Surabaya, Java, 234 cases; in Medan, Sumatra, 41 cases.

Mexico. During the period April 30–June 24, 1950, 85 cases of smallpox were reported in Mexico, including 35 cases in Michoacan State, 19 in Nayarit State, and 17 in Jalisco State.

Union of South Africa. Smallpox has been reported in Transvaal Province as follows: March 1–31, 1950, 83 cases; April 1–30, 133 cases; May 1–31, 26 cases. For the period August 3–9, 9 cases were reported in Cape Province, and 9 cases in Transvaal Province.

Typhus Fever

Algeria. Reports of typhus fever in Algeria have been received as follows: For the period July 11–20, 1950, four cases (including one case in the port of Bone); July 21–31, three cases.

Ecuador. Forty cases of typhus fever were reported in Ecuador during the month of June 1950.

Guatemala. During the month of May 1950, six cases of typhus fever, with two deaths, were reported in Guatemala.

Union of South Africa. Cases of typhus fever have been reported in Union of South Africa as follows: March 1–31, 1950, 13; April 1–30, 10; May 1–31, 9; June 4–24, 15.

Plague Infection in San Miguel County, N. Mex.

Under date of August 17, 1950, plague infection was reported proved in a specimen of 46 fleas as follows: *Hystrichopsylla gigas*, *Malareus telchinum*, *Monopsyllus wagneri*, and *Epitidea wenmanni*. This specimen was taken from 24 deer mice, *Peromyscus maniculatus*, trapped August 4, 1950, 1 mile northeast of Cowles in San Miguel County, N. Mex. This is the first time that rodent plague has been proved to exist in this county.