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Mental Health Clinic Services for Children in the United States, 1950

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More than 1,200 mental health clinics are now in operation in the United States, three-quarters of them partly or entirely devoted to serving children. During 1950, these clinics saw at least 150,000 child patients.

A survey of these clinics was undertaken in the spring and summer of 1950 to obtain information on psychiatric clinic services for children for use by the Mid-Century White House Conference on Children and Youth held in December 1950. The State committees established in connection with the conference performed an important service as focal points for the collection of data from clinics in each State, by distributing, following up, and collecting the completed questionnaires. With the exception of one final query sent from Washington, all data in this study were obtained in this way.

The list of clinics to which questionnaires were addressed was obtained from the following sources: the 1948 Directory of Psychiatric Clinics in the United States (*1*); the National Institute of Mental Health list of clinics receiving assistance from Federal grant-in-aid funds; the directory of the American Hospital Association (*2*), and additional names suggested at the State level.

Although children may receive psychiatric service from private practitioners, in well-child conferences, and in general pediatric clinics, as well as in children's mental hygiene clinics and in general psychiatric clinics, only the last two types of clinic service are included in this study. No attempt was made to determine the number of children receiving service from psychiatrists in private practice, but it is presumed to be small. In well-child conferences, the service offered is largely preventive and takes the form of having a psychiatrist or psychologist available for consultation with the staff or with the parents. Such service is offered by relatively few agencies, those that

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provide less than one-fifth of the well-child sessions, according to the findings of the pediatrics study (*3*, *4*). Data are not available on the number of emotionally handicapped children seen in general pediatric clinics; often these children are referred to psychiatric clinics.

Number of Clinics

How to define and count clinics is one of the major problems of this type of survey. In the current study, a clinic is defined as any place where psychiatric out-patient service is offered to nonprivate ambulatory patients at regularly scheduled intervals. The counting of stationary clinics is simple; these, whether operating on a full- or part-time basis, are counted individually. The counting of traveling clinics is more complex since they may have regularly scheduled sessions at certain outlets (locations) where patients are seen by special arrangement only. The regularly scheduled outlets for which separate records are kept are counted as individual clinics; the outlets by appointment only, where the towns covered vary from year to year and no statistics are available for each location, are combined and considered to be one clinic.[1]

When the above definitions were applied to the data collected, 1,228 clinics were found to be operating in the continental United States in the summer of 1950. This is equivalent to 0.81 clinics per 100,000 population. Applying the same definitions to data collected in 1947 (*5*), we find about 850 clinics in operation in that year, almost 100 of which were discontinued by 1950.[2] The net increase of about 475 clinics is clearly a striking development.

Of the 1,228 clinics operating in 1950, 902, or 73 percent, reported that they served children. Among the rest, 256 specified that they did not serve children and 70 did not report on this point.

About one-third of the reporting clinics serve children only. A few of these clinics, in children's hospitals, specified that all of their patients were under 10 years of age. Less than 1 clinic in 10 stated that children as old as 16 years were not accepted. Half of the group specified 16–18 years or "through high school" as the upper age limit. Some of the clinics stated a lower as well as an upper age limit; for example, 6 through 16 or 12 through 17. The number of adolescents actually seen in the clinics, however, is thought to be considerably less than would be indicated by these reports on admission policy. It should be remembered that clinics for children only may or may not treat parents or other adults in connection with

[1] The latter type of traveling clinic is operated by the State mental health authorities in Delaware, Indiana, Maine, and New Hampshire to serve areas not covered by existing permanent clinics. Also, one traveling school clinic in Connecticut and eight in Massachusetts are operated to serve children in the public schools of the State.

[2] The 1947 report showed a total of 481 primary clinics, maintaining 1,116 outlets on a permanent or intermittent basis.

the child. However, for the purpose of this survey, only the child was counted as a patient.

In addition to the clinics for children only, children are seen in the 44 percent of the clinics that serve both children and adults. The remaining 22 percent of the total reported that they serve adults only. Included in this group, however, are the Veterans Administration clinics which serve some persons under 21 years of age.

Distribution

Despite the variations in clinic practice and patient-load, the number of clinics can be used to indicate the uneven distribution of services within the United States. More than half of the clinics are located in the Northeast, a region which contains only about one-quarter of the total population. The ratio of 1.67 clinics per 100,000 population for this region is more than four times that for the South, as shown below:

Region	Number of clinics	Percent of clinics	Clinics per 100,000 population
Northeast	659	53	1.67
North Central	267	22	.60
South	182	15	.39
West	120	10	.61
United States	1,228	100	.81

Further details of clinic distribution, including State-by-State figures, are given in table 1.

When the States are ranked according to the number of clinics in relation to population, as shown in figure 1, eight of the nine Northeastern States are in the top quartile. Delaware and the District of Columbia in the South Atlantic Division and Montana and Colorado in the Mountain Division are also in the high-ranking group. At the other end of the scale are the three States which have no operating clinics—Idaho, Nevada, and Wyoming, all in the Mountain Division.[3] The other low-ranking States, with the exceptions of North Dakota and South Dakota, are in the South.

Almost half of all clinics are located in the 106 cities having 100,000 or more inhabitants in 1950 (*6*). Many of these clinics draw patients from beyond the city in which they are located, but no measure of such service is available. For the United States as a whole, twice as many clinics in relation to population are located in large metro-

[3] In 1947, five States had no clinics in operation. South Dakota and Utah have subsequently developed some service.

Table 1. *Mental health clinics, according to provision of service for children and number of child patients served, by geographic division and State, 1950*

Division and State	All clinics in operation [1]		Number of clinics			Child patients seen during survey year	
	Number	Number per 100,000 population [2]	Reporting they—		No reports submitted	Number	Number per 1,000 children [3]
			Do not serve children	Serve children			
United States [4]	1,228	0.81	256	902	70	149,002	3.29
New England	153	1.64	22	118	13	19,894	7.73
Maine	12	1.31	0	10	2	355	1.24
New Hampshire	22	4.13	5	16	1	1,570	10.40
Vermont	10	2.65	0	10	0	782	6.74
Massachusetts	60	1.28	9	45	6	12,314	9.70
Rhode Island	14	1.77	3	11	0	906	4.40
Connecticut	35	1.74	5	26	4	3,967	7.25
Middle Atlantic	506	1.68	90	390	26	52,144	6.55
New York	361	2.43	73	266	22	36,680	9.90
New Jersey	64	1.32	7	56	1	8,494	6.81
Pennsylvania	81	.77	10	68	3	6,970	2.31
East North Central	191	.63	58	123	10	27,749	3.19
Ohio	34	.43	6	27	1	8,181	3.59
Indiana	13	.33	6	6	1	1,169	.99
Illinois [5]	69	.79	32	33	4	5,568	2.43
Michigan	53	.83	11	39	3	9,100	4.69
Wisconsin	22	.64	3	18	1	3,731	3.69
West North Central	76	.54	21	49	6	8,747	2.11
Minnesota	18	.60	6	10	2	3,452	3.84
Iowa	14	.53	4	10	0	1,285	1.69
Missouri	21	.53	6	13	2	2,012	1.77
North Dakota	1	.16	0	1	0	156	.75
South Dakota	1	.15	0	1	0	34	.17
Nebraska	11	.83	1	8	2	318	.83
Kansas	10	.52	4	6	0	1,490	2.68
South Atlantic	114	.54	24	87	3	12,657	1.82
Delaware	7	2.20	0	7	0	614	6.82
Maryland	21	.90	4	17	0	2,970	4.56
District of Columbia	16	2.00	5	11	0	1,904	8.73
Virginia	18	.54	3	15	0	2,152	2.05
West Virginia	9	.45	1	8	0	511	.73
North Carolina	19	.47	5	13	1	1,484	1.02
South Carolina	4	.19	1	2	1	386	.47
Georgia	9	.26	3	5	1	880	.73
Florida	11	.40	2	9	0	1,756	2.25
East South Central	37	.32	7	30	0	2,749	.66
Kentucky	12	.41	3	9	0	1,381	1.33
Tennessee	8	.24	3	5	0	766	.67
Alabama	3	.10	1	2	0	167	.15
Mississippi	14	.64	0	14	0	435	.51
West South Central	31	.21	8	21	2	5,004	1.00
Arkansas	2	.10	1	1	0	150	.21
Louisiana	10	.37	2	8	0	1,843	1.95
Oklahoma	6	.27	1	5	0	960	1.25
Texas	13	.17	4	7	2	2,051	.81
Mountain	29	.57	9	20	0	3,699	2.24
Montana	7	1.18	0	7	0	1,775	10.26
Idaho	0	0	0	0	0	0	0
Wyoming	0	0	0	0	0	0	0
Colorado	14	1.06	4	10	0	1,485	3.83
New Mexico	2	.29	1	1	0	230	.97
Arizona	2	.27	1	1	0	130	.50
Utah	4	.58	3	1	0	79	.31
Nevada	0	0	0	0	0	0	0
Pacific	91	.63	17	64	10	16,359	3.96
Washington	7	.30	1	6	0	2,467	3.37
Oregon	14	.92	1	13	0	900	1.96
California	70	.66	15	45	10	12,992	4.42

[1] Outlets of primary clinics and regularly scheduled outlets of traveling clinics for which separate records are kept are counted as clinics. Traveling clinics and their outlets by appointment are counted as one clinic.

[2] Rates based on population reported in the 1950 census.

[3] Rates based on population under 18 years of age, estimated as of July 1, 1948, by the Bureau of the Census.

[4] Exclusive of the Territories which reported as follows: Alaska—no clinic service; Hawaii—5 clinics cared for about 375 child patients during the past year; Puerto Rico—7 clinics were reported as providing psychiatric service. Only 5 served children, with about 700 child patients during the past year. Two of these clinics saw private patients only; a third had no psychiatrists but referred cases for free treatment to private psychiatrists on a voluntary basis; Virgin Islands—no clinic service.

[5] Exclusive of the service of the Institute for Juvenile Research which is not always given through clinics. The Institute saw 725 children for diagnostic service during the 10-month period ending May 1950.

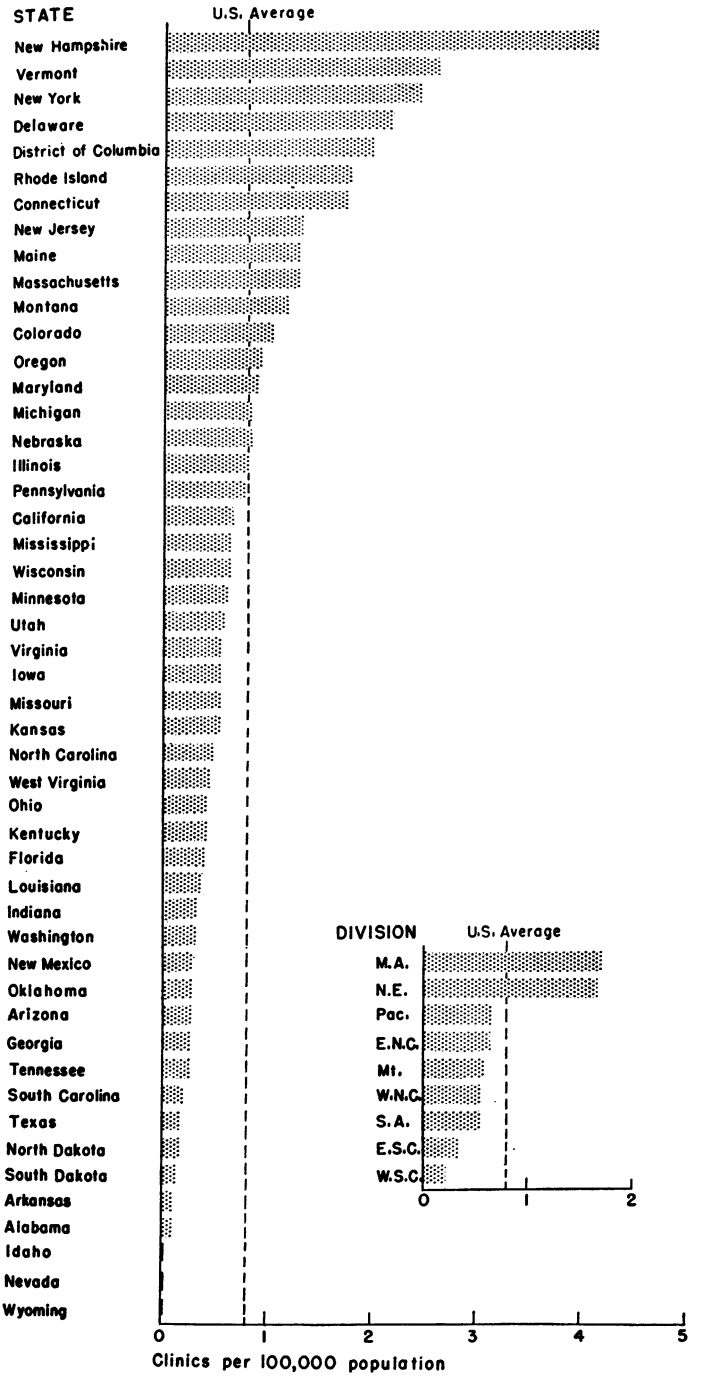

Figure 1. Number of mental health clinics per 100,000 population by division and State, 1950.

politan centers as in smaller cities and rural areas, as shown in the following tabulation:

Region	Clinics per 100,000 population		
	In cities of 100,000 or more population	In smaller cities and rural areas	Total
Northeast	1. 78	1. 59	1. 67
North Central	. 99	. 44	. 60
South	. 90	. 27	. 39
West	1. 20	. 36	. 61
United States	1. 29	. 62	. 81

In the Northeast region, both the metropolitan and nonmetropolitan rates are high. In the other three regions the concentration of clinics in large cities shows marked contrast to service available in nonmetropolitan areas.

Sponsorship

About 60 percent of all clinics are the responsibility of State, county, or city health and welfare agencies. Together with other officially sponsored clinics, including those connected with courts (2 percent), school systems (5 percent), and the Veterans Administration (6 percent), these make up three-quarters of all clinics. The remaining 27 percent of the clinics are under sponsorship of voluntary welfare agencies, mental hygiene societies, and other nonofficial organizations.

Location

It is assumed that the services of a mental health clinic ideally should be integrated with other health services—preventive, diagnostic, and therapeutic. The present study does not tell how many clinics provide such integrated service. The location of the clinic gives only limited insight into this question. If the clinic is located in a health center, general hospital, or mental hospital, integration with other health services provided at that location can be accomplished with relative ease. In fact, educational contact of psychiatric workers with other health and medical personnel is often almost inevitable where there is joint housing of mental health and other health services.

About two-thirds (63 percent) of the mental health clinics are operated primarily outside of hospital settings. Less than one-fourth (23 percent) of the clinics are located in general hospitals, and 14

percent are in mental hospitals. This tabulation does not include the Veterans Administration clinics which do not provide community service.

This information does not indicate, of course, whether the non-hospital clinics are affiliated with psychiatric departments of hospitals. We must also note that the clinics in general hospitals are not necessarily operated by that hospital's staff. They may be operated by an official or nonofficial agency which runs the clinic as a separate entity in space provided by the hospital.

Although only 14 percent of the clinics are located in mental hospitals, a much larger proportion—one-third—are operated by the same State department that is responsible for the operation of the mental hospitals. These clinics often use the mental hospital staff to operate a clinic outside that hospital, with or without supplementary staff furnished locally. In certain instances, such a clinic is set up for the care of patients furloughed or discharged from mental hospitals. Sometimes the clinic offers diagnostic service only; treatment is given in the parent institution. In many instances, these clinics provide diagnostic and therapeutic services on a broad community basis without special reference to mental hospital patients or facilities. This is true of all the State mental health clinics in Illinois, Michigan, and Montana, and most of those in New York, New Jersey, and Pennsylvania.

Number of Children Served

For a more adequate estimate of clinic services for children, information is needed on the actual number of patients under age 21 (or 18) that are seen over a period of time. Ideally, this information should be available by age groups, but few clinics are able to furnish such statistics. For many clinics serving both children and adults, it was necessary to compute the number of children served from the estimated proportion of children among the total number of patients. Many of these mixed clinics specify a lower age limit, for example, 16 years of age, and could only approximate the number of patients aged 16 to 21. As an additional source of error, it may be pointed out that in the urban areas some duplication of children seen in several clinics may occur.[4]

The 902 clinics reporting services to children served a total of 149,002 child patients during a 1-year period in 1949–50, or 3.3 child patients per 1,000 population under the age of 18 (table 1). As an additional 70 clinics did not report whether or not they served children, it may be assumed that the actual number was somewhat higher, perhaps as high as 155,000 child patients seen annually.

[4] It was impossible to obtain a reasonable estimate of number of visits by child patients. Few clinics keep records which permit computation of the gross number of patient-visits per year, even without breakdown into age groups.

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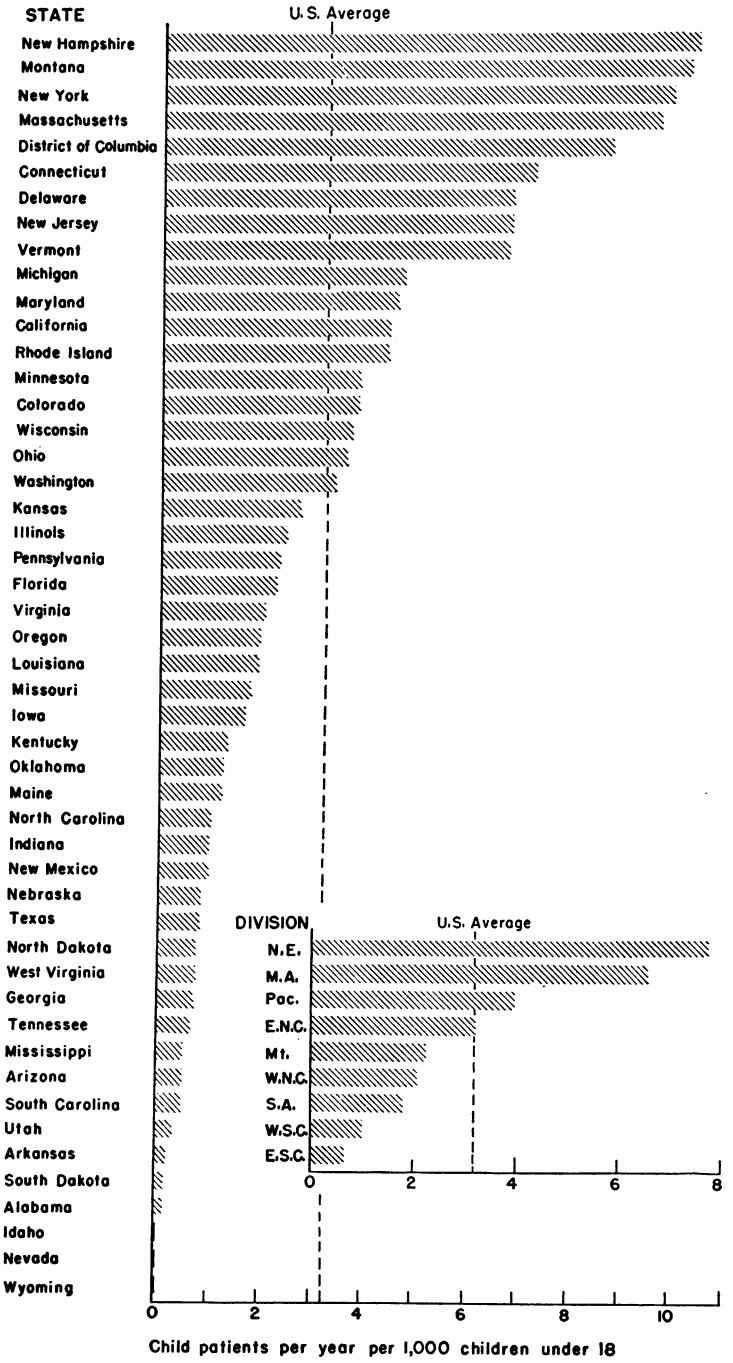

Figure 2. Number of child patients in mental health clinics during one year (1949-50) per 1,000 children under 18, by division and State.

States having the highest ratio of clinics to total population also tend to serve the largest number of children in relation to the child population. (Compare figures 1 and 2.) Seven of the nine Northeastern States are in the top quartile of child patients seen during the survey year. New Hampshire and Montana, with more than 10 patients per 1,000 children, are the highest ranking States.

Some States still have little or no psychiatric service for children. Five of the Mountain States are in the lowest quartile, along with South Dakota and several Southern States. Idaho, Wyoming, and Nevada reported no service to children.

Regional comparisons indicate that five times as many children per 1,000 are seen annually in clinics in the Northeast as in the South, the other regions falling in between, as shown in the following summary:

Region	*Child patients per 1,000 children*
Northeast	6.8
North Central	2.8
South	1.3
West	3.5
United States	3.3

We may note from figure 2 that, within the Western region, almost twice as many children per 1,000 were seen in the Pacific States (4.0) as in the Mountain States (2.2).

Nonofficially sponsored clinics provide almost one-third of the child clinic care in the United States. In the two South Central divisions they provide half the service; in the Mountain division, only about one-tenth. Official judiciary and educational agencies account for one-fourth of the total served; official health and welfare agencies, for somewhat less than half. One-third of the States reported service by the official health-welfare agency only; in the Mountain division three-fourths of the child patients are so served, in contrast to about one-fourth in the Middle Atlantic and Pacific sections.

Characteristics of Clinics Serving Children

More detailed information on clinic hours, staff, and type of service was reported by 762 clinics, which served about 129,000 child patients during the survey year. It is recognized that the better-staffed full-time clinics would be more likely to complete the one-page questionnaire. How representative these data are for all clinics cannot be stated, but at least they describe clinics that serve almost 9 out of every 10 child patients.

Clinic Hours. An attempt was made through two questions to find out how many clinics operated full time. One question asked

for the schedule of clinic activities current during the 4-week period from May 7 to June 3, 1950. The other asked for the number of man-hours devoted to all clinic activities by each type of professional worker during the same period. As might be expected, the replies were not always consistent. For example, where there is a social worker on a full-time basis, one clinic would indicate that the clinic is on a full-time basis, whereas another clinic might consider the clinic to be open only when a psychiatrist or psychologist was available. When the only full-time person is a social worker or nurse, quite a bit of her time may be spent outside of the clinic on types of work other than direct service to clinic patients. Yet it seems fair to define a full-time clinic as any clinic with at least one professional staff member on duty for 35 hours or more per week.

Forty-one percent—316 of the 762 clinics—meet this definition of full-time operation. These clinics served 79 percent of the child patients during the survey year. Approximately two-thirds of the full-time clinics have the equivalent of at least one psychiatrist on duty for 35 hours or more per week. Among the States listed in table 2, California and Ohio lead in the proportion of clinics that are full-time.

Staff. It is generally accepted that for most effective services, the mental health clinic must utilize the skills of a multidiscipline team consisting basically of a psychiatrist, a clinical psychologist, and a psychiatric social worker. The questionnaire, therefore, attempted to find out how many clinics serving children had such a basic staff during May 1950.

As shown in table 3, over two-thirds of the clinics have a complete basic staff.[5] These clinics served 83 percent of the child patients seen during the survey year. It may be noted that 87 percent of the full-time clinics, as defined above, have a basic staff, as compared to 56 percent of the part-time clinics.

The questionnaire also sought to determine whether a basic staff was available on a full-time basis, that is, all members present for as many hours a week as the clinic operated, or sufficient part-time staff present to furnish the equivalent number of man-hours per team member. For example, a full-time clinic open 40 hours per week would have a full-time basic team if there were at least 40 man-hours of service per week in each of the three basic disciplines. A part-time clinic open 20 hours a week would have a full-time basic team if the equivalent of 20 man-hours were provided in each basic discipline.

Nearly one-third of the clinics report full-time basic staffing. Another third have basic staff only part time, usually with the psychologist employed for fewest hours.

[5] In a few cases, clinics were considered to have basic staffs even if no psychiatrist was on the staff but if a psychiatrist was available for consultation. This was done only when the clinic was really a branch of a primary clinic.

Table 2. *Full-time mental health clinics serving children and child patients seen in such clinics, by State: 1950* [1]

State	Clinics			Child patients during year		
	Total number	Full-time		Total number	In full-time clinics	
		Number	Percent		Number	Percent
All clinics serving children						
United States	762	316	41	128,897	101,474	79
California	35	28	80	10,611	10,018	94
Connecticut	23	11	48	3,751	2,209	59
Illinois	33	15	45	5,568	4,179	75
Maryland	16	5	31	2,955	1,494	51
Massachusetts	40	21	52	11,528	9,692	84
Michigan	27	15	56	8,453	8,216	97
New Jersey	56	9	16	8,494	4,328	51
New York	207	58	28	28,959	23,479	81
Ohio	22	20	91	7,105	7,102	100
Pennsylvania	52	15	29	5,589	4,077	73
Wisconsin	16	6	38	3,660	2,491	68
Other States and D. C.[2]	235	113	48	32,224	24,189	75
Children's clinics						
United States	338	142	42	75,446	65,448	87
California	20	14	70	8,371	7,784	93
Connecticut	13	5	38	2,427	1,336	55
Illinois	6	4	67	1,525	1,411	93
Maryland	1	1	100	736	736	100
Massachusetts	25	16	64	8,406	7,609	91
Michigan	10	10	100	7,672	7,672	100
New Jersey	7	4	57	4,293	3,953	92
New York	168	44	26	25,372	20,590	81
Ohio	9	9	100	4,404	4,404	100
Pennsylvania	15	6	40	3,178	2,548	80
Wisconsin	4	1	25	913	329	36
Other States and D. C.[2]	60	28	47	8,149	7,076	87
Child-adult clinics						
United States	424	174	41	53,451	36,026	67
California	15	14	93	2,240	2,234	100
Connecticut	10	6	60	1,324	873	66
Illinois	27	11	41	4,043	2,768	68
Maryland	15	4	27	2,219	758	34
Massachusetts	15	5	33	3,122	2,083	67
Michigan	17	5	29	781	544	70
New Jersey	49	5	10	4,201	375	9
New York	39	14	36	3,587	2,889	81
Ohio	13	11	85	2,701	2,698	100
Pennsylvania	37	9	24	2,411	1,529	63
Wisconsin	12	5	42	2,747	2,162	79
Other States and D. C.[2]	175	85	49	24,075	17,113	71

[1] Based on returns from the 762 (out of 902) clinics serving children that completed the questionnaire.
[2] States for which the detailed questionnaires cover fewer than 2,500 child patients.

Type of Service. Most of the 762 clinics reported that they offer full diagnostic and treatment service. About 11 percent of the clinics, serving about 9 percent of the children, reported that they provide diagnosis only. The largest proportion of diagnostic clinics, more than half, was found in New Jersey. In Massachusetts, one-quarter of the clinics reported only diagnostic service; in other States, the proportion is much smaller. A much larger proportion of the diagnostic clinics do not have a basic staff, as defined above, than the clinics providing both diagnosis and treatment.

Another important type of service is nonclinical community activity, primarily directed toward preventive measures. This may

Table 3. *Staffing of mental health clinics serving children and child patients seen in such clinics during survey year, United States: 1950*

Staffing pattern [1]	All clinics			Children's clinics			Child-adult clinics		
	Total	Full time	Part time	Total	Full time	Part time	Total	Full time	Part time
Clinics									
Number	762	316	446	338	142	196	424	174	250
Percent:	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
With basic staff full time	31.5	35.4	28.7	37.6	38.0	37.2	26.6	33.3	22.0
With basic staff part time	37.1	51.3	27.1	35.2	49.3	25.0	38.7	52.9	28.8
Without basic staff	31.4	13.3	44.2	27.2	12.7	37.8	34.7	13.8	49.2
Child Patients									
Number	128,897	101,474	27,423	75,446	65,448	9,998	53,451	36,026	17,425
Percent in clinics:	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
With basic staff full time	42.2	47.5	22.6	47.9	50.0	33.9	34.1	42.8	16.1
With basic staff part time	40.4	42.2	33.5	38.9	40.7	27.6	42.5	45.2	36.9
Without basic staff	17.4	10.3	43.9	13.2	9.3	38.5	23.4	12.0	47.0

[1] Basic staff is defined as a psychiatrist, a psychologist, and a social worker. Basic staff full time means at least one representative of each profession is on duty at all times that the clinic is in operation.

include staff service to schools, hospitals, welfare organizations, and juvenile courts, usually involving educational work for both professional and lay groups. Only a few clinics indicated that they provide such services, and many of them have no records upon which they could base an estimate of staff time devoted to these activities. A few clinics reported that they do not provide such service, while the majority apparently misunderstood the question. However, those clinics known by the authors to be providing such services answered the question clearly, evidently indicating that the wording was not too ambiguous.

Summary and Conclusions

This study was designed primarily to find out what clinical psychiatric service is available for children in the United States. Necessarily restricted to a limited description of services, it included only facts for which relatively reliable data could be obtained through a one-page questionnaire.

The amount of service provided at this time is evidently a reflection of personnel available to give such service, rather than of need or demand. For future planning, we will want to know the actual extent of such need or demand. To obtain this information, however, we must learn more about the prevalence and incidence of psychiatric disorders by age, sex, type of disorder, socioeconomic factors, and geographical distribution. Information is also needed on the kind and amount of service required by individuals in the various classifications and areas.

Several estimates have been made as to desirable clinic-population ratios. A standard quoted in the report of the National Health

Assembly in 1948 is at least one full-time clinic for psychiatric treatment for each 100,000 of the population.[6] Subsequent experience in the operation of community mental health clinics indicates that a more realistic estimate of minimum need may be one full-time clinic for each 50,000 of the population.

Since the 1,228 clinics reporting in this survey vary in staffing, hours, type of service offered, and patient load, we have not been able to use such ratios for comparing the volume and quality of service in various geographic areas. However, we can point out that the ratio for the entire United States of 0.8 clinics (of all types) per 100,000 population is inadequate to meet current demands. Furthermore, regional variations in clinic-population ratios indicate great differences in service which, to the best of our knowledge, do not reflect corresponding variations in need.

Additional information on adequacy of service in terms of quantity and quality may be deduced from such data as number of children served, clinic hours, staffing, and types of service offered.

The quantity of clinical services provided to child patients is indicated by the number of patients seen—more than 150,000 during the survey year, or 3.3 per 1,000 children in the United States. So few clinics were able to report on the number of patient-visits that the figures were not worth tabulating. The amount of time that clinics are open and the number of man-hours of service provided are also indices of the quantity of service. Only 41 percent of the clinics serving children are "full-time", but 79 percent of the children seen attend such clinics.

The only index obtained as to the quality of service has to do with the nature of the staff. It is assumed that clinics providing the integrated services of a psychiatrist, a clinical psychologist, and a psychiatric social worker are in a position to offer a better quality of service than those without such a basic staff. More than two-thirds of the clinics serving children provide such a staff. Very few have the additional benefit of the service of a pediatrician or nurse.

It has been stated that a psychiatric clinic should provide integrated preventive, diagnostic, and therapeutic services (*8, 9*). Accordingly, an attempt was made to determine how many of the clinics provide these services. One out of nine clinics serving children provides diagnostic service only. The other 89 percent furnish treatment and it is assumed that all these provide diagnostic service, at least for the patients under treatment. No attempt was made to gather data on the kind of treatment given. Only a few clinics indicated

[6] This ratio was based on the minimum standard of 152 mental health clinic hours per month per 100,000 population, the staff for each clinic for each 100,000 population to consist of the following full-time personnel: psychiatrist, psychologist, chief psychiatric social worker, assistant psychiatric social worker, record analyst, clerk-stenographer, clerk-typist, and file clerk. These data were furnished by Dr. George S. Stevenson to Dr. Robert H. Felix in connection with the hearings on the National Neuropsychiatric Institute Act. (*7*).

that they provide nonclinical preventive services such as educational programs, discussion groups, school health, and related community activities. Granted that the question relative to such services may have been poorly formulated, the fact that those clinics known to be providing preventive service did answer seems to indicate that the majority are relatively unfamiliar with such activities. If familiarity with these activities is limited, it may be assumed that relatively little service of this kind is being provided by the clinics questioned.

One method of fostering nonclinical preventive services for communities is the joint housing of mental health clinics and general public health centers. This also fosters integration with diagnostic and treatment services, as does joint housing with other health centers, general hospitals, and some mental hospitals. However, data do not show that nonhospital clinics offer narrower or less prevention-conscious service than those in a hospital setting.

This study shows a striking increase in number of clinics over the 1947 study. However, once again it points out clearly that if we are to obtain any meaningful data on the quantity of service offered as well as its quality, a uniform record and reporting system for mental health clinics is essential. Better records are also essential to the more important study of prevalence, incidence, and causes of various psychiatric disorders.

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The Influence of Modern Treatment on Syphilis Control

By Evan W. Thomas, M.D.*

Two years ago in discussing the future of syphilis control I would have spent most of my time attempting to prove the efficacy of rapid therapy with penicillin. Today there would be little point in such an effort. The lethal effect of penicillin on the spirochetes of syphilis is now generally accepted, and it is beginning to appear that we have not one but several magic bullets against syphilis among the antibiotics. The problem today in syphilis control is no longer primarily one of case holding for treatment, but one of finding the *Treponema pallidum* before its potential victims become public charges. This problem is not yet solved, and before we congratulate ourselves on the demise of an old enemy it is well to reflect for a moment on the history of this notorious infection.

So far as we know, the organism which causes syphilis is found naturally only in man, and the origin of the infection is still controversial. We know that a disease which came to be called syphilis swept over Europe at the beginning of the sixteenth century in a peculiarly virulent form. We also know that since the sixteenth century the virulence of this infection has been slowly tamed by natural processes of increased resistance within the host. In modern times it is easy to forget the prevalence of syphilis in previous centuries and the ravages which it caused. The horrors of the disease which were supposed to be visited on the children unto the third and fourth generations have unquestionably been exaggerated because it is probable that most of us would find syphilis in our ancestry if we went back far enough. Also the story of syphilis has its light as well as dark touches. It has been suggested, for example, that in previous centuries syphilis promoted genius because so many individuals of genius were supposed to have had the infection. Such an inference has no scientific validity but it serves to impress on us the fact that syphilis was no respecter of persons and that it was extraordinarily prevalent in all classes of society. That it caused untold suffering to millions of people and imposed a heavy drain on society through the incapacitation of many individuals is well known.

Because of its prevalence, chronicity, and protean manifestations, up to the present century, syphilis was one of the major concerns of

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medicine, and it attracted the interest of the best brains in the profession. Within modern times, however, it has increasingly been relegated to the outskirts of medicine. Osler's famous epigram that to know syphilis is to know medicine is still quoted but most physicians and even some medical schools have preferred to know medicine without paying much attention to syphilis. This statement is not made in a spirit of criticism because there are readily understandable reasons for the failure of most modern physicians to maintain great interest in syphilis. The infection is now confined largely to individuals in the lowest socioeconomic groups. Few physicians, including those who specialize in dermatology, see much syphilis among their paying patients, and they have little occasion to study the disease as a whole unless they attend a syphilis clinic. Also the rapid advances in modern scientific medicine have so increased the number of subjects which must be taught in medical schools that little time can be devoted to any single disease, especially one that is now popularly believed to be on its way out because of modern therapy. Unquestionably rapid treatment of syphilis is preventing many of the late manifestations of the disease so commonly found after irregular prolonged metal therapy, but it provides no assurance that the infection is on its way out. Syphilis is still a complex disease which continues to impose numerous unsolved problems. In spite of the ease with which it can now usually be treated, I venture to predict that the infection will not be eradicated until we know more about it than at present. The war with the *T. pallidum* is not over, and we still need trained personnel if possible future set-backs are to be prevented.

If, as I have stated, the medical profession as a whole is inevitably losing interest in syphilis, where are we to look for such trained personnel? The answer, in my opinion, must be supplied by the public health departments, as it has been to a great extent for the past 10 years. Wide-spread measures for syphilis control in this country do not date back much farther than 15 years. They began with Dr. Thomas Parran while he was still Commissioner of Health in New York State. Largely through his efforts and those of his followers in the venereal disease sections of public health departments, the old taboo, which had made it impossible to print the word syphilis in the public press, was destroyed. Continuing his interest in syphilis as Surgeon General of the Public Health Service, Dr. Parran inaugurated a Nation-wide educational program about syphilis which came at a particularly fortunate time because it alerted public health workers to look for sorely needed measures in the control of the infection.

By far the most important of these needs was rapid treatment. Actually such a treatment for early syphilis was waiting to be used when Dr. Parran started his campaign. In 1933, Hyman, Chargin, and Leifer at Mt. Sinai Hospital in New York City gave massive

arsenotherapy by intravenous drip to 25 patients with early syphilis. No serious reactions occurred and the results of the treatment were satisfactory. But nothing further was done about this most important innovation until 1937 when Commissioner John L. Rice of the New York City Health Department headed a committee to investigate it. The results of this committee's investigation inaugurated advances in the control of syphilis which are only now beginning to be fully appreciated. Even though the safety of massive arsenotherapy left much to be desired, it is to the credit of the Public Health Service that the potentialities of the treatment for syphilis control were immediately realized and exploited.

Rapid treatment centers were established at strategic points throughout the country. These centers served as nuclei for educational and case-finding programs which were necessary complements to the actual treatment of early syphilis. A great variety of control measures were tried and evaluated so that now the most effective and economical programs for the future should be known. Of even greater importance, the establishment of these centers during the days of massive arsenotherapy prepared the way for prompt exploitation of the second great innovation in the treatment of syphilis. I refer, of course, to the discovery in 1943 by Dr. John Mahoney, who was then Senior Surgeon in the Public Health Service, that penicillin was an effective antisyphilitic agent. The prompt evaluation of this discovery and its effects on syphilis control are now beginning to be appreciated the world over.

A third innovation in the management of syphilis, which originally failed to receive the attention it deserved, was the introduction of quantitative serologic tests for syphilis. Like the other two innovations, this important aid to the diagnosis and treatment of syphilis had its beginnings in New York State. When Dr. Augustus Wadsworth first introduced the Maltaner-Maltaner quantitative complement fixation test for syphilis, it fell on strangely deaf ears. Only after the advent of rapid treatment was the importance of quantitative tests generally realized. Yet even with the older methods of prolonged therapy, routine determinations of the amount of reagin in patients' serum would have provided the clinician with valuable information and increased our understanding of the effects of treatment.

The pioneer efforts of Dr. Wadsworth in trying to learn more about the production of reagin by means of quantitative tests should not be forgotten and, in my opinion, the part played by the New York State serologic laboratory in initiating improved laboratory techniques should have received more attention and also more imitation than have been accorded to it as yet. As a clinician treating syphilis, I have found the Maltaner-Maltaner complement fixation test for syphilis in both blood and spinal fluid to be the best of all available tests.

Other valuable contributions to serology by the New York State laboratory are the introduction of cardiolipin antigen and the new Lange colloidal gold curve. This laboratory also has persisted in its efforts to improve existing techniques and to find new ones. At the Rapid Treatment Center in Bellevue Hospital, where much work has been done in evaluating new methods of antisyphilitic therapy, we have received invaluable assistance from the New York State laboratories. Without this aid our work would have been greatly handicapped because we, like the New York State laboratory, want only the best.

Returning now to the over-all accomplishments in syphilis control during the past 10 years, it is a fair statement that this Nation, partly through good fortune and even more by good planning, has led the world in the inauguration and evaluation of advances in the treatment of syphilis and in techniques for its control. When we recall that this country covers an area of more than 48 States, which are populated with many different races and social groups, and has large numbers of migratory workers and a political set-up designed to prevent overcentralization and to preserve the greatest possible individual freedom, the accomplishments in syphilis control over the past 10 years are indeed impressive. Such achievement would have been impossible without the antibiotics, but we also owe much to the leadership, intelligent planning, and financial aid of the public health services. Of great importance, the antisyphilitic programs sponsored by the public health services were conducted with a minimum of friction between departments at various levels and without interference with the existing type of political organization. The active cooperation of influential groups, including organized medicine, was won. Large sums of money were spent with no hint of scandal and with a minimum of that kind of ambition which seeks personal or departmental acclaim and credit rather than the public good. In these troublesome times such a record is heartening, and it renews faith in the possibilities of cooperation for the public good in a relatively free society.

No greater mistake could be made, however, than to conclude that the job of syphilis control will now be easy because of what has already been accomplished or because we now have good rapid treatment. No common infection has been eradicated by treatment alone. In fact, only those infections susceptible to attack by sanitary measures or by immunization have been successfully controlled. In the control of syphilis, prophylaxis has never been very successful and try as we may, it is improbable that we can appreciably alter the sexual habits of large numbers of people who are most likely to acquire syphilis. As for immunization, the prospect of developing practical techniques of immunizing individuals against syphilis is at present very poor.

As long as a single case of early syphilis continues to be found we can be certain that a reservoir of infectious syphilis still exists.

Therefore, the first problem in the future control of syphilis, as in the past, will be to find individuals with infectious syphilis who would not otherwise report for treatment. This involves continued education of the public, intelligent interviewing of patients for contacts, and bringing the contacts to examination.

The second problem is that of providing expert consultation service for the diagnosis and treatment of unusual or difficult cases of syphilis. In spite of modern therapy, numerous cases of syphilis are still being mistreated or poorly treated. In late syphilis it is frequently extraordinarily difficult, if not impossible, to differentiate between active and inactive infections. Fortunately in neurosyphilis, the spinal fluid examination provides us with a reasonably accurate guide to the activity of the infection, and treatment which has proved satisfactory for active neurosyphilis in a high percentage of cases should be adequate for most other types of late syphilis. It is true, however, that late syphilis continues to provide the physician with numerous problems which require the advice of those who have had much experience in the treatment of the infection. We still need trained syphilologists and, for reasons which were previously mentioned, the Public Health Service must provide them.

The third problem in the future control of syphilis is in the field of experimental research. Our ignorance of the life history of the *T. pallidum* and of immune mechanisms in the host is still very great. In view of this fact, it would be expecting far too much to predict the imminent absolute surrender of so cunning and treacherous an organism as the *T. pallidum*. We must continue to have scientific research in syphilis and, in this country, most of such research is now possible only through the Public Health Service.

Thus, for the future control of syphilis, we must look to the public health departments for three important services: case finding, trained consultants, and scientific research. The expense of such services will be large but much less than in previous years, especially when the cost of caring for the casualties of late syphilis is considered. Obviously, economies can now be made which would have been ill-advised in previous years. Rapid-treatment centers for the hospitalization of patients with syphilis are no longer needed in most parts of the country. This will save money but it means that the management of most cases of syphilis must be returned to out-patient clinics and physicians' offices which, in turn, means a dispersal of control measures and trained personnel. Obviously, the more our work can be concentrated the more effective and less costly it will be. One well-staffed, busy, and interested clinic is certain to do better work at less expense than several small clinics. In any case all clinics

and physicians treating syphilis at public expense should be in close touch with their local health departments.

At the risk of proposing ideas which may be superfluous and in some cases impossible to implement, I would suggest that the control of syphilis in the immediate future be planned along the following lines:

1. All syphilis cases treated at public expense should be referred as far as possible to clinics or physicians that are working in close cooperation with the public health services. The number of these clinics and physicians should be kept as small as possible with due consideration for the area and population involved.

2. Techniques for the control of syphilis, apart from treatment, should be centered as much as possible around the special clinics and physicians treating the disease so that all patients can be properly interviewed, names of contacts be obtained, and the patients be given some information about the disease and necessity for follow-up.

3. Funds and personnel should be made as flexible as possible so that they can be used where they are needed most. In other words, the greatest expenditure of effort should be made where the reservoir of infectious syphilis is highest. In all probability, areas with a relatively high incidence of syphilis will change from time to time and local epidemics may arise suddenly. These danger points should be discovered and attacked as promptly and as vigorously as possible.

4. Research in experimental syphilis and in human syphilis should be supported to achieve a better understanding of the disease.

Provisional *Shigella boydii* 9

By W. H. Ewing, M. C. Hucks, and M. W. Taylor*

The purpose of this paper is to report the results of studies on the biochemical and antigenic relationships between an unusual serotype, type 1296/7, and some other enterobacteria, and to propose the addition of this serotype to the *Shigella* group as provisional *Shigella boydii* 9.

Five cultures of type 1296/7 were examined. Three of these cultures, labeled provisional Boyd IX, were received in 1945 from Dr. A. E. Francis who in turn obtained them from the Central Pathological Laboratory, Middle East Forces (British). The fourth culture was isolated by Dr. A. H. Stock from a normal Arab foodhandler in North Africa during 1943. In 1945 Stock sent this culture to one of the writers for comparison with other unclassified serotypes. The fifth culture was isolated in Finland by Gildmeister in 1944 (see *13* or *10*) and was sent to the writers by Seeliger in 1949. Boyd (*1*) mentioned the isolation of six cultures of type 1296/7 in the Middle East Theater. Three of these cultures were examined by Francis (*8*) and by the writers. Francis classified the type 1296/7 cultures as provisional Flexner VIII on the basis of relationships to *Shigella flexneri* X and Y variants and to the group form of *Shigella flexneri* 4 (103B). Seeliger (*10*) and Madsen (*9*) included cultures of type 1296/7 in their studies on shigellae. Seeliger found that the Gildmeister culture, type P in German nomenclature, was the same as type 1296/7. This observation was confirmed in this laboratory. Madsen (*9*) concluded that type 1296/7 should not be placed in the *S. flexneri* group. Three other cultures included in the present study were isolated in Belgian Congo during 1949 by Courtois and Vandepitte (*4*) and were received at the writers' request. Courtois and Vandepitte stated that these cultures were antigenically identical with type 1296/7 cultures but differed markedly in their action upon lactose. These observations were confirmed in this laboratory.

The biochemical reactions of the eight cultures mentioned above are as follows: Acid was produced without gas formation from glucose and mannitol within 24 hours' incubation at 37° C. The cultures did not utilize sucrose, dulcitol, inositol, xylose, raffinose, salicin, adonitol, cellobiose, or alphamethylglucoside in 30 days; growth did not occur on Simmons' citrate agar, and citrate was not utilized in the citrate medium of Christensen (*3*). Urea was not hydrolysed and acetyl-

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methylcarbinol was not produced. The cultures varied in their utilization of several carbohydrates including lactose. These reactions are given in table 1. The cultures were composed of gram negative, nonmotile bacteria. The biochemical reactions given above are essentially the same as those recorded by other workers except that Madsen (*9*) reported that sucrose was fermented after 8 days by four cultures (German P, 1296/7, 1320, 356).

Antiserums were produced with formalinized broth cultures of 1296/7, 1320, and 901 (N. Africa) and with broth cultures of 1320 and 3076/50 that were heated for 2½ hours at 100° C. Subsequent tests showed that the titers of these antiserums were 1:5,120 to 1:20,480 and that all of the cultures were agglutinated to the titers of the antiserums.

Table 1. *Biochemical reactions of type 1296/7 (provisional* **S. boydii** *9) and related cultures*

Culture No.	Lactose	Maltose	Rhamnose	Sorbitol	Arabinose
1296/7	—	(A)	—	A	—
73 (1320)	—	(A)	(A)	A	(A)
901 (N. Africa)	—	(A)	(A)	A	—
1468 (NEF 356)	—	(A)	(A)	(A)	(A)
1692 (German P)	—	(A)	(A)	A	—
3074/50 (Di 6)	A	A	(A)	A	(A)
3075/50 (Di 7)	A	A	(A)	A	(A)
3076/50 (Di 11)	A	A	(A)	A	(A)

A = Acid production within 24 hours incubation.
(A) = More than 24 hours required for acid production.
— = No fermentation, 30 days.

Heated suspensions of type 1296/7 cultures were tested in slide agglutination tests with serums prepared with cultures of all the known *Shigella* types and with antiserums produced against several unclassified *Shigella* and *Shigella*-like cultures. Those antiserums which agglutinated the microorganisms then were diluted serially and tested with broth cultures of the five type 1296/7 cultures. Both formalinized broth cultures and broth cultures that were heated for 1 hour at 100° C. were employed in these tests. Only the results of O antigen determinations, using heated cultures, are recorded in the tables. Reciprocal agglutination tests were made in the same manner. Similar tests were also made with antiserums produced with the eight O groups of the Alkalescens-Dispar (A-D) group and with antiserums prepared against cultures of *Escherichia coli* belonging to O groups 1 to 113. Preliminary tests with these antiserums were made at a dilution of 1:100, using heated broth antigens. The extent of relationships found was determined by titration and reciprocal agglutinin absorption tests. All agglutination tests for O antigen determination were read after 16 to 18 hours' incubation in a water bath at 50° C. Tests with formalinized antigens were placed in an incubator at 37° C. for 2 hours, removed to a refrigerator

(about 5° C.) for overnight incubation, and then read. All serums employed in the study were tested for the presence of alpha aglutinin (*11*) and the cultures of type 1296/7 were tested for alpha antigens with negative results.

The results of reciprocal absorption tests, using antiserums prepared with four type 1296/7 cultures, indicate that the type 1296/7 strains all contain identical heat stable somatic antigens. Courtois and Vandepitte (*4*) stated that the three lactose positive cultures isolated in Belgian Congo have O antigens identical with those of type 1296/7 strains. The results of our reciprocal agglutinin absorption tests, using O antiserums prepared with cultures 1296/7 and 3076/50 (Di 11, Belgian Congo), confirm the findings of Courtois and Vandepitte. Further, in tests made with antiserums prepared from recognized *Shigella* types, from members of the A-D group, and from known *Escherichia* O groups, the lactose positive strains react in the same manner as 1296/7 cultures.

Agglutination tests made with both formalinized and heated broth antigens in O antiserums indicate that type 1296/7 cultures contain a heat labile antigen that inhibits O agglutination. Formalinized broth antigens reacted weakly in dilutions of 1:80 to 1:320 in O antiserums that agglutinated heated antigens of the same cultures in a dilution of 1:10,240. Further studies on the heat labile antigens of these cultures are in progress.

Relationships to the *Shigella flexneri* and *Shigella boydii* Groups

Preliminary slide agglutination tests with heated suspensions of type 1296/7 cultures showed that they were agglutinated by polyvalent antiserums for the *S. flexneri* and *S. boydii* groups. Slide agglutination tests in unabsorbed antiserums prepared with the various *S. flexneri* and *S. boydii* types indicated that type 1296/7 cultures were agglutinated by antiserums for *S. flexneri* 4a, a nonspecific group variant of *S. flexneri* 4 (Rio variety), *S. flexneri* X and Y variants, and for *S. boydii* 5 (P143). The extent of these relationships was determined by titration of heated suspensions in unabsorbed antiserums (tables 2 and 3). The relationships of Alkalescens-Dispar O group 3 and 4 cultures to type 1296/7, *S. flexneri* and *S. boydii* cultures are also given in tables 2 and 3. Reciprocal agglutinin absorption tests were made in each of the instances where cross agglutination was noted. In each instance all agglutinin was removed for the absorbing cultures, but in no instance was there any significant reduction in the titers of the absorbed antiserums for their homologous cultures. The Rio antiserum, in which 1296/7 cultures reacted in a dilution of 1:2,560, is a Y-like antiserum very high in minor group agglutinin content. The reaction of type 1296/7 strains in this anti-

serum, as compared with the reaction in *S. flexneri* X and Y antiserums, is probably a reflection of the higher content of minor group agglutinin.

The type 1296/7 cultures were tested in absorbed group factor antiserums to determine whether they contained any of the *S. flexneri* group factors of diagnostic importance. Type 1296/7 strain did not react in these group factors antiserums.

Although cultures of type 1296/7 reacted slightly in antiserum prepared with *S. boydii* 5, the converse did not occur, indicating a minor unilateral relationship. Absorption of *S. boydii* 5 antiserum with suspensions of type 1296/7 strains did not result in the removal of agglutinin for A-D 03 and A-D 04 cultures from that antiserum. The relationship between *S. boydii* 5 and A-D 03 cultures, shown in table 3, is well known (for example, see *2*).

Table 2. *The relationship of type 1296/7 (provisional* S. boydii *9) and* S. flexneri *cultures*

O antigen [1] suspensions	Unabsorbed antiserums						
	Type 1296/7	*S. flexneri*				Alkalescens-Dispar (A-D)	
		4a	4 [2] Non-specific var.	X var.	Y var.	03	04
Type 1296/7	[3] 10,240	320	2,560	640	320	2,560	320
S. flexneri 4a	160	10,240				320	640
S. flexneri 4 [2] (nonspecific var.)	320		20,480			320	640
S. flexneri (X var.)	160			20,480	1,280	80	320
S. flexneri (Y var.)	320			20,480	20,480	160	320
A-D 03 (*S. dispar* II)	640	320	320	80	160	20,480	640
A-D 02 (*S. tieté*)			2,560				
A-D 04 (*S. dispar* I)	40	640	640	320	1,280	160	20,480

[1] Broth cultures heated at 100° C. for 1 hour.
[2] Nonspecific of *S. flexneri* 4, variety Rio.
[3] Figures indicate reciprocal of highest dilution that gave agglutination. O=Negative in a dilution of 1:40 and higher.

Relationships to the Alkalescens-Dispar (A-D) Group

Heated broth cultures of type 1296/7 strains and A-D group cultures were tested for cross agglutination in type 1296/7 antiserum and antiserums prepared with the eight members of the A-D group. The results of these tests are summarized in table 4. Cultures of A-D 02 (*Shigella tieté*) reacted weakly in a dilution of 1:80 in type 1296/7 antiserum while type 1296/7 cultures agglutinated in a dilution of 1:1,280 in A-D 02 antiserum. The results of reciprocal agglutinin absorption tests (table 4) showed that this unilateral relationship is of a minor nature. Similar minor antigenic relationships were noted between type 1296/7 cultures and members of A-D O groups 3 and 4. Weil and Slafkovsky (*12*) reported that heated cultures of *S. tieté* (A-D 02) reacted to about 10 percent of the homologous titer of antiserums for *Shigella rio* (a variety of *S. flexneri* 4) and type 1296/7. It should be

Table 3. *The relationship of type 1296/7 (provisional* S. boydii *9), S. boydii 5, and Alkalescens-Dispar 02 and 04 cultures*

O antigen suspensions	Antiserums						
	Type 1296/7 (Prov. *S. boydii* 9)	*S. boydii 5*				Alkalescens-Dispar	
		Unabsorbed	Absorbed by			03	04
			Type 1296/7	A-D 03	A-D 04		
Type 1296/7	20,480	320	0	320	320	2,560	320
S. boydii 5	0	20,480	10,240	10,240	10,240	1,280	40
A-D 03	640	1,280	640	0	160	20,480	640
A-D 04	40	320	80	80	0	160	20,480

noted that antiserum for type 1296/7 must be absorbed with a suspension of A-D 02 when the antiserum is to be used for slide tests in diagnostic work.

Relationships to the *Escherichia coli* Group

O antigen suspensions of type 1296/7 cultures were tested in O antiserum prepared with the 113 known *E. coli* O groups. The relationships noted in these tests are summarized in tables 5 and 6.

Type 1296/7 cultures reacted in antiserums for *E. coli* O groups 4, 25, and 26, but the reciprocal reaction did not occur, i. e., the *E. coli* cultures did not react in antiserums prepared with type 1296/7 cultures. The results of reciprocal agglutinin absorption tests (table 5) showed the homologous titers of the *E. coli* and type 1296/7 antiserums were not reduced. Type 1296/7 strains also were found to be related to *E. coli* O groups 68 and 102 (table 6). The relationship to O group 68 is unilateral, but type 1296/7 and *E. coli* 0102 cultures share a major antigenic fraction. However, both 1296/7 and *E. coli* 0102 contain specific antigenic fractions that are not shared (table 6). The unilateral relationships noted above are not important insofar as the classification of type 1296/7 cultures is concerned, but the relationship to *E. coli* 0102 does aid in the classification of the lactose positive cultures of Courtois and Vandepitte (*4*).

Discussion

It is clear from the studies recorded here that type 1296/7 cultures serologically are related somewhat to a variety of enteric bacteria. However, none of the relationships is sufficiently extensive to warrant classification of these microorganisms with existing types. While the type 1296/7 cultures are related slightly to certain *S. flexneri* types, the relationships are no more extensive than those of certain A-D group cultures (table 2). Furthermore, the 1296/7 cultures do not

Table 4. *The relationship of type 1296/7 (provisional* S. boydii *9) cultures and members of the Alkalescens-Dispar group*

O antigen suspensions	O antiserums									
	1296/7 (provisional *S. boydii* 9)				A-D 02		A-D 03		A-D 04	
	Unabsorbed	Absorbed by—			Unabsorbed	Absorbed by 1296/7	Unabsorbed	Absorbed by 1296/7	Unabsorbed	Absorbed by 1296/7
		A-D 02	A-D 03	A-D 04						
1296/7 (provisional *S. boydii* 9)	10, 240	5, 120	10, 240	10, 240	1, 280	0	640	0	320	0
A-D 02	80	0	0	0	20, 480	20, 480	0	--------	0	0
A-D 03	320	--------	0	0	2, 560	--------	20, 480	20, 480	640	0
A-D 04	640	--------	0	0	320	--------	160	0	20, 480	20, 480

Table 5. *The relationship of type 1296/7 (provisional* S. boydii *9) cultures to* E. coli *O groups 4, 25, and 26*

O antigen suspensions	O antiserums									
	Type 1296/7				*E. coli* 04		*E. coli* 025		*E. coli* 026	
	Unabsorbed	Absorbed by *E. coli*			Unabsorbed	Absorbed by—	Unabsorbed	Absorbed by—	Unabsorbed	Absorbed by—
		04	025	026		1296/7		1296/7		1296/7
Type 1296/7	10, 240	10, 240	10, 240	10, 240	2, 560	0	10, 240	0	2, 560	0
E. coli 04	0	0	0	0	10, 240	10, 240	640	--------	--------	--------
E. coli 025	0	--------	0	--------	--------	--------	20, 480	20, 480	640	--------
E. coli 026	0	--------	--------	0	--------	--------	--------	--------	10, 240	10, 240

Table 6. *The relationship of type 1296/7 (provisional* S. boydii *9) cultures and* E. coli *O groups 68 and 102*

O antigen suspensions	O antiserums								
	Type 1296/7			*E. coli* 068			*E. coli* 0102		
	Unabsorbed	Absorbed by *E. coli*		Unabsorbed	Absorbed by—		Unabsorbed	Absorbed by—	
		068	0102		1296/7	*E. coli* 0102		1296/7	*E. coli* 068
Type 1296/7	20, 480	20, 480	20, 480	20, 480	0	1, 280	20, 480	0	640
E. coli 068	40	0	0	20, 480	1, 280	1, 280	320	0	0
E. coli 0102	20, 480	2, 560	0	10, 240	80	0	20, 480	20, 480	10, 240

contain any of the more important *S. flexneri* group factors that are used in diagnostic work for the separation of subtypes of *S. flexneri*. Similarly, type 1296/7 cultures are not related in a significant way to members of the A-D group. The relationships noted (table 4) are unilateral and are not sufficiently extensive to warrant inclusion in that group. The same may be said for the relationships noted between

type 1296/7 strains and certain *E. coli* O groups (tables 5 and 6), except for the strong antigenic relationship between type 1296/7 and *E. coli* 0102 cultures (table 6). These lactose positive cultures may be regarded as anaerogenic members of *E. coli* O group 102, or they may be regarded for the present simply as aberrant coliform cultures without reference to their taxonomic position. The fact that the type 1296/7 cultures are related to *E. coli* O group 102 does not mean that they should be classified as *E. coli* O group 102. The biochemical reactions of type 1296/7 cultures are like those of typical shigellae as defined by Ewing (*6*) and by the Shigella Commission of the International Congress of Microbiologists. It is known that the O antigens of many *Shigella* types are related to, and in some cases identical with, those of certain *E. coli* O groups. Thus, serological relationship to the *E. coli* group cannot, by itself, be used as a means for the exclusion of *Shigella*-like microorganisms from the *Shigella* group.

Such relationships serve to emphasize the fact that the family Enterobacteriaceae is a large interrelated group of bacteria and, further, that a study of the biochemical reactions of unknown cultures must never be omitted as a part of diagnostic work with enteric bacteria. For a review of known *Shigella-Escherichia* relationships, see Ewing, Hucks, and Taylor (*7*).

Since the biochemical reactions of type 1296/7 cultures are similar to those given by members of the *Shigella* group, and since the cultures ferment mannitol but are not related in any significant way to members of the *S. flexneri* group, it is proposed that type 1296/7 be added to *S. boydii* group as provisional *Shigella boydii* 9. Group C of the *Shigella* schema, the *S. boydii* group, now is composed of seven types (*6*). The Shigella Commission accepted type 112 of Cox and Wallace (*5*) as provisional *Shigella boydi* 8. These provisional *S. boydii* types will be added to the *Shigella* schema after confirmation and acceptance by other investigators.

Summary

Studies are reported on the biochemical and serological relationships of type 1296/7 cultures. It is proposed that this type should be called provisional *Shigella boydii* 9.

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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

Announcement

The new monthly PUBLIC HEALTH REPORTS (see back cover) will publish from time to time, as appropriate, reports, tabulations, and articles dealing with morbidity statistics, both domestic and foreign. The present weekly "Incidence of Disease" section, however, will be discontinued as of December 31, 1951.

Current provisional morbidity data on notifiable diseases for the United States will continue to appear in summary form and in tabulations by States and cities in the *Weekly Morbidity Report* issued by the National Office of Vital Statistics of the Public Health Service.

Libraries and agencies that have depended upon PUBLIC HEALTH REPORTS for current morbidity statistics for the United States may continue to receive the same data by writing to the National Office of Vital Statistics, Washington 25, D. C., requesting that they be placed on the mailing list for the *Weekly Morbidity Report.* Individuals who wish to be placed on the mailing list should indicate how and to what extent they will make use of this publication.

Since the *Weekly Epidemiological Record* and other publications of the World Health Organization, Geneva, Switzerland, contain morbidity data for foreign countries, tabulations of notifiable diseases occurring outside the United States and its Territories will not appear regularly in National Office of Vital Statistics publications.

UNITED STATES

Reports From States for Week Ended November 10, 1951

Although the incidence of diphtheria was less for the current week than the previous week in the country as a whole, there was a small increase reported in the southern States (South Atlantic, East South Central, and West South Central States). In these groups the States that reported 10 or more cases were Virginia (13), North Carolina (10), Georgia (13), Alabama (13), and Texas (13). Since July 1, the seasonal low point of incidence, North Carolina has reported 202 cases, Texas 165, Alabama 145, South Carolina 97, Georgia 91, Virginia 80, and Tennessee 76 cases.

Only 19 cases of malaria in civilians were reported for the current week. One reported by California was a *Plasmodium falciparum* type of infection in a Mexican national. The patient has been returned to Mexico by the Agricultural Labor Bureau and the Mexican consul.

The number of cases of poliomyelitis for the current week was

approximately 20 percent less than that for the previous week. Only 3 States reported more than 30 cases—California (106), Texas (49), and Michigan (36).

There was a 10 percent increase in the number of measles cases reported. Nearly one-third of the total cases were reported in the Middle Atlantic States.

Fewer cases of meningococcal meningitis were reported for the current week than for either of the previous 2 weeks.

One case of smallpox was reported from Ohio. The case reported last week was in an individual who had never been vaccinated.

The above data exclude Florida from which no report was received for the current week.

Epidemiological Reports

Human Rabies

The case of human rabies previously reported in Iowa was a 6-year-old boy. It was the first case since 1944 in the State. The diagnosis was made post mortem. No history of contact with a rabid animal could be obtained except that 1 year previously the boy had visited a home where a dog was chained because it was under observation for rabies. This animal was proved to have the disease, and special care was taken to see that no one had any exposure.

Anthrax

Dr. L. L. Parks, Florida Board of Health, has supplied additional information on anthrax in Florida. One case of anthrax was reported the third week in October in Broward County, Fla. It occurred in a cowboy who had skinned a cow that had died and subsequently was found to have anthrax. Approximately 150 cows have died in this area within the last 6 weeks. Two veterinarians have since developed skin anthrax. They had been vaccinating the cows in this area. One laboratory technician has since developed skin anthrax, and she had been working in the laboratory handling anthrax organisms in this area. A child of the nurse who waited on the veterinarians that had anthrax has been reported to have developed skin anthrax. This makes a total of five cases that have been reported in Florida within the last 6 weeks. The cattle have been immunized, and apparently the disease among the cattle is now under control, but undoubtedly additional cases will occur among the cattle as this area has not been reported to have had anthrax for many years prior to this outbreak.

Gastroenteritis

Dr. M. B. Goodman, New York State Health Department, has reported an outbreak of gastroenteritis involving an unknown number of 1,800 visitors and 9 of approximately 76 persons living in an institution. The source of the outbreak was considered to be ham from which

Staphylococcus aureus was isolated. The ham was kept at room temperature for a considerable period of time after it was baked.

Dr. Goodman also reported a family outbreak in which roast chicken was considered to be the vehicle of infection. When eaten on the day following preparation, gastroenteritis developed in all members who ate it. No food was available for laboratory examination. The roast chicken was left on the stove overnight without refrigeration.

Dr. H. T. Fuerst, New York City Department of Health, has reported an outbreak of bacillary dysentery in 12 inmates of a State mental institution located in Brooklyn, New York. The outbreak has been limited to a single floor in one wing of one of the hospital buildings. The total number of persons at risk in this limited area is 66. The 12 cases had their onsets rather uniformly staggered, from October 29 to November 7, 1951. The usual symptoms were fever, vomiting, and diarrhea of some 3 to 4 days duration. Melena occurred in two cases. One death, attributed to diabetes and hypoglycemia, occurred after cessation of acute gastrointestinal symptoms. An organism resembling *Shigella* has been cultured from stools of some patients in the hospital laboratory, and awaits further identification. There is no evidence that a food or other common source was responsible for this outbreak. Transmission of infection is presumed to have occurred through personal contact. There have been no cases among hospital employees in the involved area or elsewhere.

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 1946–50	Seasonal low week	Cumulative total since seasonal low week		5-year median 1945–46 through 1949–50	Cumulative total for calendar year—		5-year median 1946–50
	Nov. 10, 1951	Nov. 11, 1950			1950–51	1949–50		1951	1950	
Anthrax (062)	------	------	1	(1)	(1)	(1)	(1)	50	40	45
Diphtheria (055)	120	126	241	27th	[2] 1,470	2,003	3,610	[2] 3,478	5,131	8,221
Encephalitis, acute infectious (082)	12	16	12	(1)	(1)	(1)	(1)	915	857	576
Influenza (480–483)	444	678	792	30th	4,889	7,590	7,590	120,944	146,354	134,668
Measles (085)	2,262	1,661	1,544	35th	13,646	8,811	8,562	482,557	296,982	565,154
Meningitis, meningococcal (057.0)	59	74	58	37th	493	482	451	3,554	3,281	3,021
Pneumonia (490–493)	801	1,037	(3)	(1)	(1)	(1)	(1)	52,554	70,958	(3)
Poliomyelitis, acute (080)	619	890	669	11th	24,972	28,667	24,690	26,184	29,798	25,040
Rocky Mountain spotted fever (104)	3	1	2	(1)	(1)	(1)	(1)	323	446	541
Scarlet fever (050) [4]	895	996	1,165	32d	6,614	7,203	9,285	60,000	47,373	65,292
Smallpox (084)	1	------	1	35th	3	3	4	14	29	51
Tularemia (059)	8	6	8	(1)	(1)	(1)	(1)	567	784	831
Typhoid and paratyphoid fever (040, 041) [5]	59	50	61	11th	2,335	2,591	2,999	2,770	3,100	3,484
Whooping cough (056)	1,129	1,780	1,780	39th	[6] 6,135	9,374	9,374	[6] 59,910	106,569	85,663

[1] Not computed. [2] Addition: North Carolina, week ended Oct. 13, one case. [3] Data not available. [4] Including cases reported as streptococcal sore throat. [5] Including cases reported as salmonellosis. [6] Additions: Rhode Island, weeks ended Oct. 27 and Nov. 3, four and three cases, respectively.

NOTE.—Data exclude figures from Florida for week ended Nov. 10, 1951, from which no report was received.

Plague Infection in Douglas and Lincoln Counties, Washington

R. P. Lonergan, Western CDC Laboratory, reports that the following specimens have been proved positive for plague: A specimen consisting of 126 fleas, *Megabothris clantoni, Meringis shannoni, Thrassis gladiolis johnsoni,* from 148 sagebrush voles, *Lagurus curtatus,* trapped October 10, 1951, 9 miles north of Farmer on County Road in Douglas County. A specimen consisting of 394 fleas, *Megabothris clantoni, Thrassis gladiolis johnsoni, Meringis shannoni, Catallagis charlottensis, Meringis walderi,* from 180 sagebrush voles, *Lagurus curtatus,* trapped October 19, 1951, 5 miles northeast of Leahy in Douglas County. A specimen consisting of 429 fleas, *Megabothris clantoni, Thrassis gladiolis johnsoni, Monopsyllus wagneri, Meringis shannoni, Catallagia charlottensis, Micropsyllus sectilis,* from 114 sagebrush voles, *Lagurus curtatus,* trapped October 20, 1951, 4 miles southwest of Davenport in Lincoln County.

Reported Cases of Selected Communicable Diseases: United States, Week Ended Nov. 10, 1951

[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)	Poliomyelitis (080)
United States	**120**	**12**	**444**	**2262**	**59**	**801**	**619**
New England				**262**	**5**	**27**	**13**
Maine				17		5	1
New Hamsphire				6			
Vermont				1			
Massachusetts				97	2		4
Rhode Island				59	2	1	1
Connecticut				82	1	21	7
Middle Atlantic	**4**	**1**	**3**	**814**	**12**	**75**	**52**
New York	3		(1)	342	7		27
New Jersey			3	130		45	4
Pennsylvania	1	1		342	5	30	21
East North Central	**13**	**4**	**32**	**407**	**10**	**60**	**114**
Ohio	1			69	5		12
Indiana	8	1	26	24		5	10
Illinois		2	1	121	2	39	27
Michigan	3	1	5	147	1	16	36
Wisconsin	1			46	2		29
West North Central	**9**	**1**	**1**	**50**	**3**	**138**	**71**
Minnesota	3	1		22		24	13
Iowa	1			1	1		10
Missouri	5			6	1		20
North Dakota				5		105	1
South Dakota				2			1
Nebraska				5	1		8
Kansas			1	9		9	18
South Atlantic	**46**	**1**	**32**	**254**	**7**	**93**	**24**
Delaware							1
Maryland	2	1	3	117	1	20	
District of Columbia				8		19	1
Virginia	13			64	2	27	4
West Virginia	2			41	1		7
North Carolina	10			8	2		4
South Carolina	6		3	3		3	
Georgia	13		26	13	1	24	7
Florida [2]							
East South Central	**28**	**1**	**6**	**55**	**3**	**32**	**57**
Kentucky	5		2	29	1	2	15
Tennessee	9			5	1		13
Alabama	13			10		11	11
Mississippi	1	1	4	11	1	19	18
West South Central	**16**	**3**	**102**	**61**	**9**	**241**	**84**
Arkansas			68	1	3	29	6
Louisiana			1	1	1	13	22
Oklahoma	3		33	1		10	7
Texas	13	3		58	5	189	49
Mountain	**3**		**206**	**116**	**2**	**73**	**60**
Montana				24			1
Idaho				3			7
Wyoming				6		2	12
Colorado	1		8	23	1	17	11
New Mexico	1		2	6		25	8
Arizona	1		196	8		29	8
Utah				45	1		13
Nevada				1			
Pacific	**1**	**1**	**62**	**243**	**8**	**62**	**144**
Washington			40	56	2	2	21
Oregon			6	42		21	17
California	1	1	16	145	6	39	106
Alaska							
Hawaii			135	611		2	1

[1] New York City only.

[2] Report not received.

Reported Cases of Selected Communicable Diseases: United States, Week Ended Nov. 10, 1951—Continued

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

Area	Rocky Mountain spotted fever (104)	Scarlet fever [1] (050)	Smallpox (084)	Tularemia (059)	Typhoid and paratyphoid fever [2] (040, 041)	Whooping cough (056)	Rabies in animals
United States	**3**	**895**	**1**	**8**	**59**	**1,129**	**132**
New England		**38**			**5**	**110**	
Maine		3				2	
New Hampshire		2				9	
Vermont						19	
Massachusetts		29			4	64	
Rhode Island		1				3	
Connecticut		3			1	13	
Middle Atlantic		**160**		**1**	**6**	**234**	**37**
New York		72			2	77	20
New Jersey		10				80	
Pennsylvania		78		1	4	77	17
East North Central		**209**	**1**	**1**	**3**	**190**	**25**
Ohio		48	1			27	7
Indiana		37			1	23	4
Illinois		31		1		23	7
Michigan		67			2	64	6
Wisconsin		26				53	1
West North Central		**61**			**8**	**39**	**13**
Minnesota		7					12
Iowa		12			2	7	
Missouri		22			6	17	1
North Dakota		1				1	
South Dakota							
Nebraska							
Kansas		19				14	
South Atlantic	**1**	**126**		**3**	**7**	**74**	**25**
Delaware		3					
Maryland	1	15			3	13	
District of Columbia		14				1	
Virginia		26			1	10	2
West Virginia		10				11	3
North Carolina		41				18	4
South Carolina		4				2	4
Georgia		13		3	3	19	12
Florida [3]							
East South Central		**82**			**5**	**78**	**9**
Kentucky		26			2	33	1
Tennessee		37			2	19	2
Alabama		16				23	4
Mississippi		3			1	3	2
West South Central	**1**	**22**		**3**	**7**	**265**	**23**
Arkansas		3			1	14	4
Louisiana		1		1	2		
Oklahoma	1	1			2	16	2
Texas		17		2	2	235	17
Mountain	**1**	**27**			**5**	**68**	
Montana		7			1	5	
Idaho		3				3	
Wyoming		2					
Colorado		4				10	
New Mexico		2				27	
Arizona					4	19	
Utah	1	8				4	
Nevada		1					
Pacific		**170**			**13**	**71**	
Washington		20				2	
Oregon		27				3	
California		123			13	66	
Alaska							
Hawaii		1					

[1] Including cases reported as streptococcal sore throat.
[2] Including cases reported as salmonellosis.
[3] Report not received.

FOREIGN REPORTS

CANADA

Reported Cases of Certain Diseases—Week Ended October 27, 1951

Disease	Total	Newfoundland	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia
Brucellosis	1						1				
Chickenpox	640	12		8	5	42	308	36	27	103	99
Diphtheria	10					10					
Dysentery:											
Amebic	5					4			1		
Bacillary	4							1			3
Encephalitis, infectious	1								1		
German measles	89	1		2		13	23	2	4	18	26
Influenza	35			22			3				10
Measles	416	15		24	2	80	31	5	17	110	132
Meningitis, meningococcal	5	1		1			2				1
Mumps	284	11		2	3	45	146	29	10	19	19
Poliomyelitis	47			7	4	2	26	2	4		2
Scarlet fever	283	3		1	2	27	31	21	19	39	140
Tuberculosis (all forms)	158	16			4	65	23	13	8		29
Typhoid and paratyphoid fever	15	1				12			2		
Venereal diseases:											
Gonorrhea	238	6		4	6	52	50	26	24		70
Syphilis	65	3		4	2	26	11	2	2		15
Primary	6	1		1		1	2				1
Secondary	3					2					1
Other	56	2		3	2	23	9	2	2		13
Other forms	1										1
Whooping cough	182					39	61	25	19	34	4

JAMAICA

Reported Cases of Certain Diseases—4 Weeks Ended Sept. 22, 1951

Disease	Total	Kingston	Other localities
Chickenpox	11	5	6
Diphtheria	8	3	5
Leprosy	2		2
Puerperal sepsis	1		1
Scarlet fever	1		1
Tuberculosis, pulmonary	65	28	37
Typhoid fever	47	4	43

NOTE.—No report for week ended Sept. 29 was received from Jamaica.

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 reeently reported cases. All reports of yellow fever are published currently.

Cholera

Burma. During the week ended October 27, one case of cholera was reported in Tavoy as compared with seven for the previous week.

India. For the week ended November 3, cholera was reported in seaports of India as follows: Calcutta, 57 cases and Madras, 28. During the previous week Calcutta reported 63 cases and Madras reported 25.

India (French). During the period October 11–20, 21 cases of cholera were reported as compared with 31 for the previous 10-day period.

Pakistan. During the week ended November 3, 16 cases of cholera were reported in Dacca and for the week ended October 27, 5 cases were reported in the seaport of Chalna.

Plague

Brazil. During October, three cases (one death) of plague were reported in Jiquie County, Bahia State.

Ecuador. During October, one case of plague was reported in Durazno, Loja Province.

Indochina. One case of plague was reported in Phanthiet, Viet Nam, for the week ended November 3.

Smallpox

Burma. An outbreak of smallpox has occurred in Mergui; 18 cases were reported for the week ended November 3 as compared with 8 for the previous week. There were no cases reported between August 18 and October 21. For the week ended November 3, Rangoon and Moulmein reported two and one cases, respectively.

Indochina. During the week ended October 27, 20 cases of smallpox were reported in Cambodia.

Togo (French). For the period October 11–20, 25 cases of smallpox were reported as compared with 9 for the previous 10-day period.

Typhus Fever

Chile. For the week ended October 27, three cases of typhus fever were reported in Santiago.

Eritrea. During the week ended October 27, three cases of typhus fever were reported as compared with one for the previous week.

India. During the week ended October 27, one case of typhus fever was reported in the seaport of Bombay.

Yellow Fever

Costa Rica. During the period October 18–29, jungle yellow fever was reported as follows: San Carlos Zone, Alajuela Province, two cases; Potrero Grande Zone, Puntarenas Province, two cases.