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Hospital Beds in the United States, 1950

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At the beginning of 1950, according to the plans submitted by the States in order to qualify for Federal aid under the Hospital Survey and Construction program, the United States and Territories had a total of 1,118,535 hospital beds exclusive of those in hospitals owned by the Federal Government. Of these beds, 952,196 were appraised by the State agencies as "acceptable"; 166,339 were classified as "nonacceptable" because of fire and health hazards, obsolescence, unsuitable design, and similar factors. On the basis of the maximum allowances for Federal aid set forth in Title VI, Public Health Service Act, the States and Territories estimated that 897,856 additional beds, or 1,850,052 in all, would be needed to provide adequate hospital care to the Nation's population. Currently, therefore, the present supply of acceptable hospital beds meets only 51.5 percent of the Nation's estimated total bed need.

As prescribed by Title VI, Public Health Service Act, there are definite limits beyond which the Federal Government will not provide financial assistance for the construction of hospitals and health centers. These limits, used by each State in determining its total bed need in the individual hospital categories, are as follows: general, 4.5 to 5.5 beds per 1,000 population, depending on the State population density; mental, 5 beds per 1,000 population; tuberculosis, 2.5 beds per average annual death in the State from tuberculosis over the 5-year period, 1940–44 (averages for other 5-year periods may be used providing the average does not exceed that for the 1940–44 period); and chronic disease, 2 beds per 1,000 population. With respect to public health centers, the standard set forth in the act is one such health center per 30,000 population, except that in States having less than 12 persons per square mile the ratio is one per 20,000 population.

The State plans, which do not take account of beds in Federal hospitals, show that as of January 1, 1950, the United States and Terri-

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tories have 437,786 acceptable beds for general hospital care; an additional 244,815 beds are estimated to be needed. There are 399,138 acceptable beds for the care of mental patients, exclusive of beds in institutions for the feeble-minded and epileptics since such institutions are considered as providing primarily domiciliary care; an additional 326,065 beds are estimated to be required. For tuberculosis hospital care, the States and Territories have 81,511 acceptable beds and need an additional 67,425. There are 33,761 beds reported as acceptable for the care of the chronically ill, and it is estimated that 259,551 additional beds are needed. The State plans show a total of 524 public health centers now in existence and 677 auxiliary facilities, such as laboratories, clinics and health department headquarters. Of the 4,369 additional public health centers estimated to be needed in terms of the maximum allowable for Federal aid, the States have programmed the construction of 1,570. An additional 1,433 auxiliary facilities have also been programmed. (See tables 3 to 8 for the above data for the individual States.)

The above over-all figures are the results of a summary made as of January 1, 1950, of data presented in the then approved State plans for hospital construction. Revisions and amendments of plans are submitted from time to time by the State agencies. The majority of the plans, currently approved as of January 1, 1950, were prepared in 1949. A few plans were prepared in 1948 and a few at an earlier date.

Comparison of State Plan Statistics, 1950 and 1949

It is of interest to compare the situation regarding existing acceptable hospital beds and estimated additional beds needed, as shown by the State plans on January 1, 1950, with that for a year earlier, i. e., as summarized from the State plans on January 1, 1949 (*1*). During this interval, the State agencies of all but 11 States and the District of Columbia revised their plans for hospital construction. In virtually every case the revision took account of current construction and increased bed needs due to the growth in population.

As shown in table 1, the State plans showed a total of 1,025,179 beds in existence as of January 1, 1949, and 1,118,535 beds a year later—an increase of 93,356. This increase is partly due to the fact that the majority of the State plans as of January 1, 1950, had been revised and therefore included, as existing acceptable beds, most of the beds approved for construction under the program as well as the beds known to be under construction outside the program, i. e., without Federal aid.[1] The State plans as of January 1, 1949, however,

[1] No separate data are available on the number of beds constructed outside the Federal-State hospital construction program. However, an estimate of the dollar volume of this construction is available from reports by the Department of Commerce and the Department of Labor. In 1949, the total value of "work put in place" on hospital and institutional construction amounted to $654,000,000. (It is estimated that

Table 1. *Number of existing beds and estimated net additional and total hospital beds needed, by type of bed, United States and Territories, as shown by State plans, as of Jan. 1, 1950, and Jan. 1, 1949 (hospital survey and construction program)*

Type of bed	Existing beds			Estimated net additional beds needed	Estimated total beds needed [2]	Percent of total need met by existing acceptable beds
	Total	Acceptable	Nonacceptable [1]			
JAN. 1, 1950						
Total	1,118,535	952,196	166,339	897,856	1,850,052	51.5
General	513,814	437,786	76,028	244,815	682,601	64.1
Mental	462,859	399,138	63,721	326,065	725,203	55.0
Tuberculosis	94,024	81,511	12,513	67,425	148,936	54.7
Chronic disease	47,838	33,761	14,077	259,551	293,312	11.5
JAN. 1, 1949						
Total	1,025,179	879,872	145,307	896,801	[3] 1,776,673	49.5
General	474,532	397,168	77,364	255,443	652,611	60.9
Mental	428,931	381,627	47,304	310,523	692,150	55.1
Tuberculosis	85,466	72,560	12,906	82,541	155,101	46.8
Chronic disease	36,250	28,517	7,733	248,294	276,811	10.3

[1] Represents beds classified as "nonacceptable" by the State agencies on the basis of fire and health hazards, obsolescence, unsuitable design, etc.
[2] Needs estimated by each State on the basis of the maximum ratios permissible for Federal aid as prescribed by Title VI, Public Health Service Act.
[3] The figures shown in the Jan. 1, 1949, report have been adjusted to represent the total existing acceptable beds in those States where existing beds exceeded the ratios prescribed by the act.

were for the most part the first plans submitted by the States and did not include any beds under construction. During this 1-year period, the number of existing acceptable beds increased from 879,872 to 952,106 or a net increase of 72,324 beds. More nonacceptable beds were also reported—166,339 as contrasted with 145,307 for the previous year. This increase is due primarily to the reporting of certain beds as nonacceptable which had been previously classified as "acceptable."

The total beds estimated to be needed as shown by the State plans on the two dates increased from 1,776,673 to 1,850,052. This difference is essentially due to the fact that in the revised State plans the total bed need was calculated on the basis of more recent population estimates. The net additional beds estimated to be needed, i. e., the difference between total beds needed and existing acceptable beds, increased only slightly, from 896,801 to 897,856. In short, despite the new construction, with or without Federal aid, the net additional beds needed by the population was about the same in 1950 as a year earlier.

The situation with regard to bed needs and available facilities varies among the different types of hospitals. Over the 1-year period, the

institutional construction constitutes only a small percentage of the total.) Privately-financed construction amounted to $199,000,000 and public construction expenditures totaled $455,000,000. Of the total $654,000,000, the value of "work put in place" on projects constructed under the Hospital Survey and Construction program amounted to $113,000,000.

number of acceptable beds for general hospital care increased from 397,168 to 437,786—10.2 percent. Since this increase was greater than the increase in the population estimates used to determine total bed need, the estimated net additional beds needed decreased from 255,443 to 244,815. As a result, the percent of total needs met by existing acceptable beds rose from 60.9 to 64.1 percent.

Acceptable mental beds showed an increase of 17,511, while the increase in total beds needed amounted to 33,053 beds. Therefore, a smaller proportion of the total bed need was met on January 1, 1950, than in the previous year. In addition, the number of nonacceptable beds rose from 47,304 to 63,721.

The number of beds reported as acceptable for providing tuberculosis hospital care increased by 8,951 or about 12.3 percent. Since estimated total needs were revised downward by a considerable margin, the extent to which existing beds met total needs increased from 46.8 to 54.7 percent.

Within the chronic disease category, the State plans as of January 1, 1950, reported an additional 5,244 acceptable beds and 6,344 more nonacceptable beds than in the earlier year. The percent of need met by existing acceptable beds changed only slightly, i. e., from 10.3 to 11.5 percent.

Comparison of Statistics on Existing Beds as Shown by Annual Surveys

Since the American Hospital Association and the American Medical Association each make an annual canvass of the Nation's supply of hospital facilities and beds, it is interesting to compare their findings with those of the State plan hospital inventories. This comparison is shown in table 2.

The 1949 survey of the American Hospital Association found a total of 1,248,524 beds in non-Federal hospitals in the United States and 186,764 beds in Federally owned facilities. Most of these data, which appear in the latest directory of the Association (*2*), are reported by the hospitals as of September 30, 1949. The American Medical Association in its 1949 census, taken at the end of 1949 or the early months of 1950, reported 1,256,776 beds in non-Federal hospitals in the United States and 182,254 beds in Federal hospitals (*3*). As of January 1, 1950, the State plans, the majority of which were prepared in either 1949 or 1948, show that for the United States (exclusive of Territories) there was a total of 1,099,493 beds in non-Federal hospitals.

The over-all differences in bed count among the surveys are largely accounted for by the following factors: (1) the American Hospital Association and American Medical Association surveys include insti-

Table 2. *Comparison of number of existing beds in non-Federal hospitals, continental United States, as shown by the annual surveys of the American Hospital Association and American Medical Association and by the State plans submitted under the Hospital Survey and Construction program*

Service classification	American Hospital Association 1949 [1]	American Medical Association, 1949 [2]	State plans Jan. 1, 1950
Total	1,248,524	1,256,776	1,099,493
Total, exclusive of (a) institutions for feeble-minded and epileptics and (b) hospital departments of institutions	1,112,266	1,116,147	1,099,493
General and special (including chronic)	[3] 555,729	[3] 542,268	[4] 550,413
Hospital departments of institutions	[5] 18,895	18,261	
All others	536,834	524,007	550,413
Mental	[3] 614,465	[3] 641,251	[4] 459,516
Institutions for feeble-minded and epileptics	[5] 117,363	[6] 122,368	
All others	497,102	518,883	459,516
Tuberculosis	[3] 78,330	[3] 73,257	[4] 89,564

[1] Most of these data are reported as of Sept. 30, 1949. Source: Statistics and Directory Section. Hospitals, vol. 24, No. 6 (June 1950), pt. 2.

[2] Data relate to the end of 1949 or the early months of 1950. Source: Hospital Service in the United States by F. H. Arestad, M. D. and Mary A. McGovern. Journal of the American Medical Association, vol. 143, No. 1 (May 6, 1950).

[3] Includes some beds in other service categories since the American Hospital Association and the American Medical Association classify all beds in a facility according to the predominant type of service provided.

[4] The revised State plans report as existing acceptable beds most of the beds approved for construction under the Federal-State hospital program as well as those currently under construction without Federal aid.

[5] Not directly available from American Hospital Association data, but estimated on the assumption that beds in these facilities represent the same proportion of total beds reported by the American Hospital Association as those enumerated by the American Medical Association.

[6] Obtained from a count of all such institutions listed by the American Medical Association.

tutions for the feeble-minded and epileptics and hospital departments of institutions, both of which are excluded from the State plans; (2) the State plans include among the existing acceptable beds those beds which are being constructed or are to be constructed through approved project applications under the Hospital Survey and Construction program; (3) the American Hospital Association and American Medical Association surveys report beds actually set up to provide in-patient care, while the State plans report the normal bed capacity, i. e., the number of beds for which the hospital was designed; (4) variations in bed capacity resulting from differences in reporting dates for the three surveys; and (5) the inclusion of individual hospitals in one inventory for which reports were not submitted to one or both of the other inventories.

Another factor which must be considered in comparing these data is the fact that, in the State plans, when at least 10 hospital beds are assigned for the care of patients in categories other than the medical service classification of the hospital, the beds are reported according to the specific service for which the bed is used. For example, a unit of 10 or more mental beds in a general hospital is included in the tabulation of mental beds. Therefore, beds reported for a single hospital may fall into several classifications such as general, mental, and chronic. The American Medical Association and the American Hospital Association, on the other hand, classify all beds in a hospital according to the predominant type of care provided, e. g., all beds in

Table 3. *All hospital beds. Number of existing beds and estimated net additional and total beds needed, as shown by State plans as of Jan. 1, 1950 (hospital survey and construction program)*

State	Population [1]		Existing beds			Estimated net additional beds needed	Estimated total beds needed [3]
	Year	Total	Total	Acceptable	Nonacceptable [2]		
United States and Territories	------	146,618,837	1,118,535	952,196	166,339	897,856	1,850,052
United States	------	143,809,264	1,099,493	936,895	162,598	867,833	1,804,728
Alabama	1948	2,839,000	13,441	10,327	3,114	25,801	36,128
Arizona	1948	654,000	5,193	4,733	460	5,044	9,777
Arkansas	1946	1,877,409	10,592	6,847	3,745	17,109	23,956
California	1948	9,894,000	73,658	64,601	9,057	51,996	116,597
Colorado	1945	1,060,239	11,429	10,367	1,062	4,309	14,676
Connecticut	1948	2,011,000	16,880	16,718	162	8,205	24,923
Delaware	1948	297,000	2,796	2,334	462	1,447	3,781
District of Columbia	1946	815,195	10,765	5,900	4,865	4,965	10,865
Florida	1947	2,346,000	16,095	14,695	1,400	14,595	29,290
Georgia	1948	3,128,000	21,211	20,047	1,164	18,744	38,791
Idaho	1948	586,000	3,281	2,743	538	4,457	7,200
Illinois	1947	8,221,000	62,313	49,276	13,037	52,807	102,083
Indiana	1947	3,835,000	20,727	17,652	3,075	29,338	46,990
Iowa	1946	2,539,075	21,648	12,528	9,120	17,816	30,344
Kansas	1946	1,873,614	12,322	11,716	606	11,374	23,090
Kentucky	1946	2,745,590	16,729	15,965	764	19,756	35,721
Louisiana	1948	2,566,000	20,019	16,052	3,967	17,108	33,160
Maine	1946	874,038	7,587	6,208	1,379	4,580	10,788
Maryland	1948	2,118,000	18,645	16,188	2,457	11,218	27,406
Massachusetts	1947	4,634,500	44,603	39,585	5,018	19,813	59,398
Michigan	1947	6,069,000	43,660	30,749	12,911	43,900	74,649
Minnesota	1947	2,888,000	23,356	20,075	3,281	16,390	36,465
Mississippi	1948	2,112,000	12,071	9,644	2,427	17,228	26,872
Missouri	1946	3,776,250	29,090	28,113	977	20,682	48,795
Montana	1947	492,240	4,928	4,351	577	2,527	6,878
Nebraska	1946	1,275,713	11,867	10,496	1,371	5,448	15,944
Nevada	1948	141,000	1,145	1,108	37	916	2,024
New Hampshire	1946	513,448	4,576	4,300	276	1,975	6,275
New Jersey	1947	4,627,000	36,525	34,547	1,978	22,971	57,518
New Mexico	1948	571,000	3,275	3,152	123	5,002	8,154
New York	[4] 1949	14,749,128	153,272	125,180	28,092	59,521	184,701
North Carolina	1948	3,675,000	24,759	23,054	1,705	24,500	47,554
North Dakota	1947	541,000	5,383	5,316	67	2,504	7,820
Ohio	1947	7,667,600	50,249	45,279	4,970	50,109	95,388
Oklahoma	1947	2,275,004	15,380	14,918	462	14,593	29,511
Oregon	1948	1,625,000	9,206	8,607	599	10,828	19,435
Pennsylvania	1948	10,676,000	81,010	68,479	12,531	63,677	132,156
Rhode Island	1948	739,000	7,374	6,528	846	2,684	9,212
South Carolina	1948	1,960,000	10,693	9,783	910	14,639	24,422
South Dakota	1943	544,866	4,860	4,382	478	3,047	7,429
Tennessee	1948	3,140,000	19,436	19,300	136	21,535	40,835
Texas	1948	7,153,000	43,646	42,798	848	48,986	91,784
Utah	1947	638,000	3,722	3,475	247	4,346	7,821
Vermont	1947	364,000	3,272	2,333	939	2,153	4,486
Virginia	1948	2,975,000	20,369	15,068	5,301	22,430	37,498
Washington	1948	2,453,000	20,223	17,565	2,658	13,100	30,665
West Virginia	1943	1,732,355	10,902	7,893	3,009	14,100	21,993
Wisconsin	1947	3,246,000	33,434	24,232	9,202	15,703	39,935
Wyoming	1947	275,000	1,876	1,688	188	1,857	3,545
Territories	------	2,809,573	19,042	15,301	3,741	30,023	45,324
Alaska	[4] 1949	94,875	630	296	334	1,886	2,182
Hawaii	[4] 1940	536,540	4,955	3,196	1,759	4,111	7,307
Puerto Rico	1947	2,149,000	13,107	11,809	1,298	23,658	35,467
Virgin Islands	(4)	29,158	350	----------	350	368	368

[1] Bureau of the Census population estimates for July 1 of the year indicated as reported in the State plans for hospital construction.

[2] Represents beds classified as "nonacceptable" by the State agencies on the basis of fire and health hazards, obsolescence, unsuitable design, etc.

[3] Needs estimated by each State on the basis of the maximum ratios permissible for Federal aid as prescribed by Title VI, Public Health Service Act.

[4] Population as estimated by the State agency.

Table 4. *General hospital beds.*[1] *Number of existing beds and estimated net additional and total beds needed, as shown by State plans as of Jan. 1, 1950 (hospital survey and construction program)*

State	Existing beds				Estimated net additional beds needed	Estimated total beds needed [4]
	Total	Acceptable		Non-acceptable [3]		
		Number	Per 1,000 population [2]			
United States and Territories	513,814	437,786	3.0	76,028	244,815	682,601
United States	503,067	430,367	3.0	72,700	239,492	669,859
Alabama	7,377	5,980	2.1	1,397	6,817	12,797
Arizona	2,993	2,626	4.0	367	1,021	3,647
Arkansas	4,445	3,290	1.8	1,155	5,194	8,484
California	33,100	29,388	3.0	3,712	16,392	45,780
Colorado	4,860	4,082	3.9	778	1,470	5,552
Connecticut	6,637	6,475	3.2	162	2,650	9,125
Delaware	1,213	1,201	4.0	12	219	1,420
District of Columbia	4,112	2,111	2.6	2,001	1,557	3,668
Florida	7,907	7,295	3.1	612	3,393	10,688
Georgia	9,103	7,939	2.5	1,164	6,136	14,075
Idaho	2,097	1,559	2.7	538	1,371	2,930
Illinois	29,892	24,983	3.0	4,909	12,342	37,325
Indiana	9,901	7,482	2.0	2,419	9,843	17,325
Iowa	9,511	7,198	2.8	2,313	4,393	11,591
Kansas	7,388	6,782	3.6	606	2,180	8,962
Kentucky	7,394	6,976	2.5	418	5,511	12,487
Louisiana	10,040	8,708	3.4	1,332	3,215	11,923
Maine	3,035	1,656	1.9	1,379	2,277	3,933
Maryland	7,048	6,835	3.2	213	2,710	9,545
Massachusetts	17,996	13,006	2.8	4,990	9,977	22,983
Michigan	19,274	14,652	2.4	4,622	13,238	27,890
Minnesota	12,348	9,758	3.4	2,590	4,561	14,319
Mississippi	6,699	5,154	2.4	1,545	4,501	9,655
Missouri	14,319	13,342	3.5	977	4,934	18,276
Montana	2,893	2,316	4.7	577	727	3,043
Nebraska	5,457	4,086	3.2	1,371	2,426	6,512
Nevada	834	797	5.7	37	67	864
New Hampshire	2,204	1,928	3.8	276	446	2,374
New Jersey	15,995	14,543	3.1	1,452	6,914	21,457
New Mexico	1,794	1,671	2.9	123	1,549	3,220
New York	60,973	48,259	3.3	12,714	18,735	66,994
North Carolina	11,900	11,056	3.0	844	7,283	18,339
North Dakota	2,837	2,770	5.1	67	988	3,758
Ohio	24,782	23,120	3.0	1,662	11,492	34,612
Oklahoma	7,772	7,310	3.2	462	3,785	11,095
Oregon	4,623	4,106	2.5	517	3,261	7,367
Pennsylvania	38,164	33,084	3.1	5,080	15,620	48,704
Rhode Island	2,162	1,746	2.4	416	1,580	3,326
South Carolina	5,900	5,321	2.7	579	3,811	9,132
South Dakota	2,780	2,302	4.2	478	860	3,162
Tennessee	8,088	7,952	2.5	136	6,306	14,258
Texas	24,062	23,235	3.2	827	9,778	33,013
Utah	2,404	2,189	3.4	215	1,001	3,190
Vermont	1,350	1,021	2.8	329	617	1,638
Virginia	8,343	7,579	2.5	764	5,969	13,548
Washington	8,560	7,942	3.2	618	3,248	11,190
West Virginia	6,329	4,671	2.7	1,658	3,308	7,979
Wisconsin	13,084	11,985	3.7	1,099	3,209	15,194
Wyoming	1,088	900	3.3	188	610	1,510
Territories	10,747	7,419	2.6	3,328	5,323	12,742
Alaska	461	127	1.3	334	397	524
Hawaii	2,480	950	1.8	1,530	1,464	2,414
Puerto Rico	7,509	6,342	3.0	1,167	3,326	9,668
Virgin Islands	297			297	136	136

[1] Includes beds in hospitals planned for the care and treatment of acute conditions and specialized types of cases other than mental, tuberculosis and chronic disease.

[2] Calculated on the basis of the State population reported in the State plans as shown in table 3.

[3] Represents beds classified as "nonacceptable" by the State agencies on the basis of fire and health hazards, obsolescence, unsuitable design, etc.

[4] Needs estimated by each State on the basis of the maximum ratios permissible for Federal aid as prescribed by Title VI, Public Health Service Act, namely 4.5–5.5 beds per 1,000 population, depending on the State population density.

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Table 5. *Mental hospital beds.*[1] *Number of existing beds and estimated net additional and total beds needed, as shown by State plans as of Jan. 1, 1950 (hospital survey and construction program)*

State	Existing beds				Estimated net additional beds needed	Estimated total beds needed [4]
	Total	Acceptable		Non-acceptable [3]		
		Number	Per 1,000 population [2]			
United States and Territories	462,859	399,138	2.7	63,721	326,065	725,203
United States	459,516	395,846	2.8	63,670	315,321	711,167
Alabama	5,340	3,828	1.3	1,512	10,367	14,195
Arizona	1,510	1,510	2.3		1,760	3,270
Arkansas	4,796	2,206	1.2	2,590	7,181	9,387
California	29,408	28,310	2.9	1,098	13,386	41,696
Colorado	5,268	5,204	4.9	64	96	5,300
Connecticut	8,057	8,057	4.0		1,998	10,055
Delaware	1,154	704	2.4	450	781	1,485
District of Columbia	5,161	2,567	3.1	2,594	1,509	4,076
Florida	5,882	5,836	2.5	46	5,894	11,730
Georgia	9,327	9,327	3.0		6,313	15,640
Idaho	921	921	1.6		2,009	2,930
Illinois	23,979	16,102	2.0	7,877	25,003	41,105
Indiana	8,756	8,634	2.3	122	10,541	19,175
Iowa	7,114	4,305	1.7	2,809	8,390	12,695
Kansas	4,486	4,486	2.4		4,884	9,370
Kentucky	7,383	7,286	2.7	97	6,442	13,728
Louisiana	8,288	5,805	2.3	2,483	7,025	12,830
Maine	3,856	3,856	4.4		514	4,370
Maryland	6,101	5,908	2.8	193	4,682	10,590
Massachusetts	21,123	21,102	4.6	21	2,070	23,172
Michigan	18,489	11,351	1.9	7,138	18,994	30,345
Minnesota	8,246	7,789	2.7	457	6,651	14,440
Mississippi	4,696	3,879	1.8	817	6,681	10,560
Missouri	11,885	11,885	3.1		6,995	18,880
Montana	1,800	1,800	3.7		584	2,384
Nebraska	6,210	6,210	4.9		168	6,378
Nevada	290	290	2.1		415	705
New Hampshire	1,985	1,985	3.9		580	2,565
New Jersey	14,441	14,307	3.1	134	8,828	23,135
New Mexico	1,085	1,085	1.9		1,770	2,855
New York	74,108	61,599	4.2	12,509	12,147	73,746
North Carolina	10,610	9,933	2.7	677	8,442	18,375
North Dakota	2,160	2,160	4.0		545	2,705
Ohio	21,033	18,827	2.5	2,206	19,511	38,338
Oklahoma	6,059	6,059	2.7		5,316	11,375
Oregon	4,006	4,006	2.5		4,119	8,125
Pennsylvania	35,749	30,313	2.8	5,436	23,067	53,380
Rhode Island	3,418	2,988	4.0	430	707	3,695
South Carolina	3,631	3,496	1.8	135	6,304	9,800
South Dakota	1,888	1,888	3.5		836	2,724
Tennessee	7,432	7,432	2.4		8,321	15,753
Texas	14,004	14,004	2.0		21,761	35,765
Utah	1,120	1,120	1.8		2,070	3,190
Vermont	1,810	1,200	3.3	610	620	1,820
Virginia	10,134	5,888	2.0	4,246	8,987	14,875
Washington	6,545	6,065	2.5	480	6,200	12,265
West Virginia	3,252	2,201	1.3	1,051	6,384	8,585
Wisconsin	14,814	9,426	2.9	5,388	6,804	16,230
Wyoming	706	706	2.6		669	1,375
Territories	3,343	3,292	1.2	51	10,744	14,036
Alaska					474	474
Hawaii	934	934	1.7		1,749	2,683
Puerto Rico	2,378	2,358	1.1	20	8,387	10,745
Virgin Islands	31			31	134	134

[1] Includes beds in hospitals for the diagnosis and treatment of nervous and mental illness but excludes beds in institutions for the feeble-minded and epileptics.

[2] Calculated on the basis of the State population reported in the State plans as shown in table 3.

[3] Represents beds classified as "nonacceptable" by the State agencies on the basis of fire and health hazards, obsolescence, unsuitable design, etc.

[4] Needs estimated by each State on the basis of the maximum ratios permissible for Federal aid as prescribed by Title VI, Public Health Service Act, namely 5 beds per 1,000 population.

Table 6. *Tuberculosis hospital beds.*[1] *Number of existing beds and estimated net additional and total beds needed, as shown by State plans, as of Jan. 1, 1950 (hospital survey and construction program)*

State	Average annual T. B. deaths[2]		Existing beds				Estimated net additional beds needed	Estimated total beds needed[2]
			Total	Acceptable		Nonacceptable[3]		
	Years	Number of deaths		Number	Per T. B. death			
United States and Territories		58,754.4	94,024	81,511	1.39	12,513	67,425	[5] 148,936
United States		53,778.8	89,564	77,188	1.43	12,376	58,815	[5] 136,003
Alabama	1940–44	1,383.0	724	519	.38	205	2,939	3,458
Arizona	1940–44	621.0	526	526	.85		1,026	1,552
Arkansas	1940–44	932.0	1,351	1,351	1.45		979	2,330
California	1943–47	3,733.0	7,752	5,353	1.43	2,399	3,980	9,333
Colorado	1940–44	399.0	1,270	1,050	2.63	220	654	[4] 1,704
Connecticut	1940–44	597.0	1,721	1,721	2.88			[5] 1,721
Delaware	1945–47	113.0	193	193	1.71		89	282
District of Columbia	1940–44	596.0	1,177	1,052	1.77	125	439	1,491
Florida	1940–44	872.0	1,540	893	1.02	647	1,287	2,180
Georgia	1943–47	1,128.0	1,460	1,460	1.29		1,360	2,820
Idaho	1944–48	67.0	70	70	1.04		98	168
Illinois	1942–46	2,884.4	5,044	5,044	1.75		2,167	7,211
Indiana	1943–47	1,128.0	1,771	1,237	1.10	534	1,583	2,820
Iowa	1940–44	392.0	777	639	1.63	138	341	980
Kansas	1940–44	404.0	448	448	1.11		562	1,010
Kentucky	1943–47	1,606.0	1,640	1,614	1.00	26	2,401	4,015
Louisiana	1940–44	1,310.0	1,465	1,313	1.00	152	1,962	3,275
Maine	1940–44	295.0	526	526	1.78		211	737
Maryland	1943–47	1,214.0	1,969	1,829	1.51	140	1,206	3,035
Massachusetts	1940–44	1,590.0	3,695	3,688	2.32	7	287	3,975
Michigan	1944–48	1,710.4	4,676	3,659	2.14	1,017	617	4,276
Minnesota	1943–47	652.0	1,995	1,930	2.96	65		[5] 1,930
Mississippi	1940–44	973.0	676	611	.63	65	1,822	2,433
Missouri	1940–44	1,635.0	1,805	1,805	1.10		2,282	4,087
Montana	1940–44	199.0	235	235	1.18		262	497
Nebraska	1940–44	201.0	200	200	1.00		303	503
Nevada	1940–44	69.0	21	21	.30		152	173
New Hampshire	1940–44	124.0	189	189	1.53		121	310
New Jersey	1943–48	1,736.0	3,290	3,211	1.85	79	461	3,672
New Mexico	1940–44	374.8	353	353	.94		584	937
New York	1943–47	5,785.0	12,256	9,540	1.65	2,716	4,923	14,463
North Carolina	1940–44	1,396.0	2,014	1,830	1.31	184	1,660	3,490
North Dakota	1943–47	98.0	275	275	2.81			[5] 275
Ohio	1940–44	2,841.0	3,825	3,332	1.17	493	3,771	7,103
Oklahoma	1940–44	996.4	1,264	1,264	1.27		1,227	2,491
Oregon	1943–47	277.2	577	495	1.79	82	198	693
Pennsylvania	1943–47	3,488.0	5,671	3,772	1.08	1,899	4,948	8,720
Rhode Island	1940–44	285.0	622	622	2.18		91	713
South Carolina	1943–47	628.0	990	794	1.26	196	776	1,570
South Dakota	1940–44	181.0	192	192	1.06		261	453
Tennessee	1940–44	1,759.8	1,862	1,862	1.06		2,538	4,400
Texas	1940–44	3,480.0	3,434	3,413	.98	21	5,287	8,700
Utah	1940–44	66.0	96	96	1.45		69	165
Vermont	1940–44	120.0	112	112	.93		188	300
Virginia	1944–48	1,250.0	1,892	1,601	1.28	291	1,524	3,125
Washington	1940–44	586.4	2,394	2,126	3.63	268	177	[6] 2,303
West Virginia	1940–44	797.8	1,321	1,021	1.28	300	974	1,995
Wisconsin	1940–44	760.6	2,126	2,019	2.65	107		[5] 2,019
Wyoming	1940–44	44.0	82	82	1.86		28	110
Territories		4,975.6	4,460	4,323	.87	137	8,610	12,933
Alaska	1944–48	398.0	169	169	.42		826	995
Hawaii	1944–48	257.4	1,252	1,137	4.42	115		[5] 1,137
Puerto Rico	1943–47	4,302.2	3,017	3,017	.70		7,739	10,756
Virgin Islands	1940–44	18.0	22			22	45	45

[1] Includes beds for diagnosis and treatment, excluding preventoria.

[2] Most of the States estimated their total bed needs on the basis of the maximum ratios permissible for Federal aid as prescribed by Title VI, Public Health Service Act, namely 2.5 times the average annual deaths from tuberculosis in the State over the 5-year period, 1940–44. Regulations permit the use of averages for other 5-year periods not exceeding that for the 1940–44 period.

[3] Beds classified as "nonacceptable" by the State agencies on the basis of fire and health hazards, etc.

[4] Colorado has more than 2.5 beds per average annual death. Since two-thirds of its beds are for out-of-State residents, additional beds are required for the tuberculous in that State.

[5] In these States, the total beds needed, based on the prescribed ratio, are less than the total number of acceptable beds. However, the total number of acceptable beds has been used as the total needed since it is assumed that the States need all acceptable tuberculosis beds.

[6] On the basis of the prescribed ratio the State of Washington needs 1,466 beds; however, the State has determined that the bed need is greater than the ratio allowable.

Table 7. *Chronic disease hospital beds.*[1] *Number of existing beds and estimated net additional and total beds needed, as shown by State plans as of Jan. 1, 1950 (hospital survey and construction program)*

State	Existing beds				Estimated net additional beds needed	Estimated total beds needed [4]
	Total	Acceptable		Non-acceptable [3]		
		Number	Per 1,000 population [2]			
United States and Territories	47,838	33,761	0.23	14,077	259,551	293,312
United States	47,346	33,494	.23	13,852	254,205	287,699
Alabama					5,678	5,678
Arizona	164	71	.11	93	1,237	1,308
Arkansas					3,755	3,755
California	3,398	1,550	.16	1,848	18,238	19,788
Colorado	31	31	.03		2,089	2,120
Connecticut	465	465	.23		3,557	4,022
Delaware	236	236	.79		358	594
District of Columbia	315	170	.21	145	1,460	1,630
Florida	766	671	.29	95	4,021	4,692
Georgia	1,321	1,321	.42		4,935	6,256
Idaho	193	193	.33		979	1,172
Illinois	3,398	3,147	.38	251	13,295	16,442
Indiana	299	299	.08		7,371	7,670
Iowa	4,246	386	.15	3,860	4,692	5,078
Kansas					3,748	3,748
Kentucky	312	89	.03	223	5,402	5,491
Louisiana	226	226	.09		4,906	5,132
Maine	170	170	.19		1,578	1,748
Maryland	3,527	1,616	.76	1,911	2,620	4,236
Massachusetts	1,789	1,789	.39		7,479	9,268
Michigan	1,221	1,087	.18	134	11,051	12,138
Minnesota	767	598	.21	169	5,178	5,776
Mississippi					4,224	4,224
Missouri	1,081	1,081	.29		6,471	7,552
Montana					954	954
Nebraska					2,551	2,551
Nevada					282	282
New Hampshire	198	198	.39		828	1,026
New Jersey	2,799	2,486	.54	313	6,768	9,254
New Mexico	43	43	.08		1,099	1,142
New York	5,935	5,782	.39	153	23,716	29,498
North Carolina	235	235	.06		7,115	7,350
North Dakota	111	111	.21		971	1,082
Ohio	609			609	15,335	15,335
Oklahoma	285	285	.13		4,265	4,550
Oregon					3,250	3,250
Pennsylvania	1,426	1,310	.12	116	20,042	21,352
Rhode Island	1,172	1,172	1.59		306	1,478
South Carolina	172	172	.09		3,748	3,920
South Dakota					1,090	1,090
Tennessee	2,054	2,054	.65		4,370	6,424
Texas	2,146	2,146	.30		12,160	14,306
Utah	102	70	.11	32	1,206	1,276
Vermont					728	728
Virginia					5,950	5,950
Washington	2,724	1,432	.58	1,292	3,475	4,907
West Virginia					3,434	3,434
Wisconsin	3,410	802	.25	2,608	5,690	6,492
Wyoming					550	550
Territories	492	267	.10	225	5,346	5,613
Alaska					189	189
Hawaii	289	175	.33	114	898	1,073
Puerto Rico	203	92	.04	111	4,206	4,298
Virgin Islands					53	53

[1] Includes beds in hospitals, the primary purpose of which is medical treatment of chronic illness, including the degenerative diseases, and which furnish hospital treatment and care; excludes tuberculosis and mental hospitals, nursing homes, and institutions, the primary purpose of which is domiciliary care.

[2] Calculated on the basis of the State population reported in the State plans as shown in table 3.

[3] Represents beds classified as "nonacceptable" by the State agencies on the basis of fire and health hazards, obsolescence, unsuitable design, etc.

[4] Needs estimated by each State on the basis of the maximum ratios permissible for Federal aid as prescribed by Title VI, Public Health Service Act, namely 2 beds per 1,000 population.

a general hospital are counted as general beds even though a definite number of beds are assigned for care of mental patients.

As is shown in table 2, if the beds in institutions for the feeble-minded and epileptics and hospital departments of institutions are excluded from the bed count, a total of 1,112,266 non-Federal beds is obtained from the American Hospital Association survey [2] and 1,116,147 from the American Medical Association. The State plans report a total of 1,099,493 beds.

In the general and special hospital category, the American Hospital Association reported 555,729 beds and the American Medical Association 542,268; the State plan reports showed a total of 550,413. The American Hospital Association and American Medical Association, it will be recalled, included beds in hospital departments of institutions which are excluded from the State plan data. If beds in these institutions are deducted (a total of 18,261 as reported by the American Medical Association and 18,895 as estimated for the American Hospital Association) the State plan total for the general and special hospital category exceeds the American Hospital Association and American Medical Association estimates by 13,579 and 26,406 beds, respectively. Most of this difference is presumably due to the fact that in the revised State plans, beds programmed for construction and beds currently being constructed are counted as existing acceptable beds.

With respect to beds for the care of the mentally ill, the American Medical Association reported 518,883 beds exclusive of beds in institutions for the feeble-minded and epileptics; it is estimated that 497,102 such beds are reported in the American Hospital Association survey. The State plans show 37,586 less beds than the American Hospital Association inventory and 59,367 less than the American Medical Association. In seeking an explanation for these differences, the prevalence of over-crowding in many mental facilities must be considered. Throughout the country, occupancy rates in 1949 reached an average of 97 percent in mental disease hospitals. This indicates that many more beds are in use than the number for which most mental facilities were originally designed. The State plans, as stated previously, report only the beds for which hospitals were designed rather than those actually in use, as reported by the American Hospital Association and the American Medical Association.

The State plans, however, report 11,234 more tuberculosis beds than the American Hospital Association and 16,307 more than the American Medical Association. In addition to beds under construction being listed in the State plans as existing acceptable beds, this

[2] Since the American Hospital Association hospital classification code does not indicate those facilities which are institutions for the feeble-minded and epileptics or departments of institutions, it is assumed that beds in these non-Federal facilities represent the same proportion of total beds reported by the American Hospital Association as those enumerated by the American Medical Association.

Table 8. ***Public health centers. Number of existing, programmed, and needed public health centers*** [1] ***and auxiliary facilities,*** [2] ***as shown by State plans as of Jan. 1, 1950 (hospital survey and construction program)***

State	Public health centers				Auxiliary facilities		
	Total	Existing acceptable	Programmed	Total needed [3]	Total	Existing acceptable	Programmed
United States and Territories	2,094	524	1,570	4,893	2,110	677	1,433
United States	1,991	477	1,514	4,798	2,063	652	1,411
Alabama	67	34	33	95	27	7	20
Arizona	7	3	4	32	13	1	12
Arkansas	77	5	72	62			
California	80	16	64	330	152	23	129
Colorado	16	2	14	53	32		32
Connecticut	60	30	30	67			
Delaware	5		5	10			
District of Columbia	6	1	5	27			
Florida	39	3	36	75	164	16	148
Georgia	57	14	43	104	128	25	103
Idaho	6	2	4	29	17	3	14
Illinois	66	1	65	274			
Indiana	38	1	37	127			
Iowa	27	1	26	85			
Kansas	49	16	33	63			
Kentucky	22	8	14	91	98	12	86
Louisiana	52	16	36	85	55	5	50
Maine	25		25	29			
Maryland	33	20	13	71	113	113	
Massachusetts	41	11	30	152	2	1	1
Michigan	66	35	31	202	16	16	
Minnesota	11	3	8	96	2		2
Mississippi	70	38	32	70	174	19	155
Missouri	43	11	32	125			
Montana	13	1	12	28	1		1
Nebraska	23	2	21	42	6	4	2
Nevada	3	2	1	7			
New Hampshire							
New Jersey	42		42	139			
New Mexico	10	9	1	29	32	13	19
New York	188	30	158	462	288	288	
North Carolina	101	12	89	123	14		14
North Dakota	8	2	6	27			
Ohio	39	9	30	256	61	6	55
Oklahoma	75	9	66	75	18	2	16
Oregon	18	12	6	54	4	2	2
Pennsylvania	46	22	24	355			
Rhode Island	7	7		24			
South Carolina	46	22	24	64	237	38	199
South Dakota	11		11	27			
Tennessee	99	18	81	99	97	33	64
Texas	91	16	75	238	133	10	123
Utah	16	3	13	32	2	1	1
Vermont	5		5	12	13		13
Virginia	94	17	77	99			
Washington	20	8	12	73	54	13	41
West Virginia	22	3	19	57	60		60
Wisconsin	45	1	44	108	46	1	45
Wyoming	6	1	5	14	4		4
Territories	103	47	56	95	47	25	22
Alaska	19	15	4	5	3	3	
Hawaii	11	2	9	17	37	19	18
Puerto Rico	72	30	42	72	3	3	
Virgin Islands	1		1	1	4		4

[1] Represents publicly owned facilities utilized by a local health unit for the provision of public health services.

[2] Represents publicly owned auxiliary facilities such as laboratories or clinics physically separated from the administrative offices of the local health unit.

[3] Needs estimated by each State on the basis of the maximum ratios permissible for Federal aid as prescribed by Title VI, Public Health Service Act, namely, one public health center per 30,000 population in States having less than 12 persons per square mile and one per 20,000 population in States having 12 or more persons per square mile.

excess is due to the fact that many tuberculosis beds are in general hospitals and are therefore tabulated as general beds by the American Hospital Association and the American Medical Association.

Summary

The State plans, submitted under the Hospital Survey and Construction program, constitute a unique statement of the Nation's supply of hospital beds, since they include a classification of beds according to acceptability or nonacceptability and type of service for which the bed is utilized. The data presented show for the Nation as a whole and for the individual States the present supply of hospital beds and the additional beds estimated to be needed to provide adequate hospital care to the entire population.

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The Alkalescens-Dispar Group

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

Recently, Kauffmann (*26*) proposed a classification of the family Enterobacteriaceae in which the microorganisms known as *Shigella alkalescens* and *Shigella dispar* were removed from the genus *Shigella* and included in a special group termed the Alkalescens-Dispar group. The new group was placed in the tribe Eschericheae. Kauffmann's decision to make these changes was logical, and it was based upon the results of his investigations (cited below) on the relationships of *S. alkalescens* and *S. dispar* cultures to certain of the established O groups of *Escherichia coli* (*15, 23, 26, 27, 32*) and upon the biochemical behavior of *S. alkalescens* and *S. dispar* cultures. The work of other investigators on the relationships of these and other microorganisms to members of the genus *Escherichia* affords ancillary evidence for Kauffmann's conclusions (for example, see *16, 31*).

Frantzen (*18*), utilizing the methods recommended by Kauffmann (*23, 24, 25*), proposed an antigenic schema (table 1) for the Alkalescens-Dispar (A-D) group based upon an extensive study of the relationships of its members to each other and to *E. coli* O groups. Kauffmann (*26*) reported that certain types now included in the A-D group contain K antigens. Frantzen confirmed this fact and reported the presence of K antigens of the L and A types in certain A-D cultures. A detailed study of the K antigens of cultures of the A-D group is in progress (*19*).

The results of agglutination tests which reveal the O antigen relationships of members of the A-D group to each other and to known *E. coli* O groups are given in tables 2, 3, and 4. The results of reciprocal absorption tests with O antiserums prepared with members of the A-D and *E. coli* groups confirm the relationships between these groups that are described by Kauffmann and by Frantzen. The results of our tests indicate that A-D 08 and *E. coli* 081 are O-identical.

The Alkalescens-Dispar schema affords a practical means for the identification and reporting of its members. Since the members of the A-D group are related closely to, or are identical with, certain *E. coli* O groups, it would be feasible to classify these microorganisms as anaerogenic *E. coli* cultures of the several O groups. We are in accord with Kauffmann's view that such a change is not advisable at this time. However, if new types are found, they may be described as anaerogenic *Escherichia* cultures related to, or identical with, cer-

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Table 1. *The O antigenic schema for the Alkalescens-Dispar group* [1]

O groups	O antigen	Relationship to *Escherichia coli* O groups	Earlier designations
1	1a 1a, 1b	Identical with: 1a 1a, 1b	*B. Alkalescens* or *Alkalescens* type I.
2	2	Strong relationship with 25 and other groups.	*Alkalescens* type II or *S. tieté.*
3	3	Strong relationship with 25 and other groups.	*S. ceylonensis* B or *S. dispar* type II or *Alkalescens* type III (2-193).
4	4	Strong relationship with 4	*S. madampensis* or, *S. dispar* I.
5	5	Identical with 2a	None.
6	6	Identical with 9	*S. dispar* type III.
7	7	Identical with 7	None.
8	8	Identical with 81	None.

[1] From Frantzen (*18*), modified.

tain *E. coli* O groups. These views were adopted by Ewing and Kauffmann (*17*) in their discussion of the microorganism named *Shigella guanabara* by de Assis (*14*). This type was identified as an anaerogenic member of *E. coli* 0112.

This report reviews earlier work and presents a brief outline of our investigations which confirm the findings of Frantzen. We also propose the adoption and use of the Frantzen schema for the A-D group. The schema is a practical one which affords the laboratory worker an accurate and definite means of identifying and reporting these microorganisms. It is neither our purpose nor desire to enter into controversy concerning the taxonomy or the nomenclature of the microorganisms discussed here. On the contrary, we wish only to propose the use of the Alkalescens-Dispar schema as a practical aid in laboratory work.

The methods used in this investigation were those advised by Kauffmann (*25*) for the study of the coli group. Except for type cultures obtained from various investigators, to whom we are greatly indebted, the microorganisms employed in the study were isolated by us or sent to the laboratory for identification. A large number of cultures of the more common O groups, 1, 2, and 3, were studied. Only a limited number of cultures of the other O groups were available.

In 1918, Andrewes (*1*) described *Bacillus alkalescens* as well as *Bacillus dispar* and *Bacillus ambiguus* (*Shigella dysenteriae* 2). Studies on the antigenic structure and relationships of *Shigella alkalescens* (A-D 01) were made by Neter (*28*), de Assis (*12, 13*), Stuart et al. (*31*), and Wheeler et al. (*35*), and many others.

As pointed out by Stuart and co-workers (*31*) and Wheeler et al. (*35*), a large number of biochemical varieties of bacteria contain all, or a part, of the antigenic complex of A-D 01 (*S. Alkalescens*). These

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Table 2. *The O antigen relationships of members of the Alkalescens-Dispar group*

100 C cultures Alkalescens-Dispar	O serums (A-D group)							
	01	02	03	04	05	06	07	08
01	[1] 20,480	[2] O	O	O	1,280	O	O	O
02	O	10,240	O	O	O	O	O	O
03	O	2,560	40,960	640	O	320	O	O
04	O	320	160	20,480	O	O	O	O
05	640	O	O	O	20,480	O	O	O
06 (121 C)	O	O	O	O	O	5,120	O	O
07	O	O	O	O	O	O	20,480	O
08	O	O	O	O	O	O	O	20,480

[1] Titers are expressed as the reciprocal of the highest dilution which gave visible agglutination.
[2] O equals negative at lowest dilution tested (1–40).

Table 3. *Results of agglutination tests with Alkalescens-Dispar serums and* E. coli *cultures*

100 C cultures *E. coli*	O serums (A-D group)							
	01	02	03	04	05	06	07	08
01	10,240	O	O	O	2,560	O	O	O
02a	O	O	O	O	10,240	O	O	O
02a, 2b	1,280	O	O	O	5,120	O	160	O
04	O	160	1,280	5,120	O	O	O	O
07	O	1,280	O	O	O	O	20,480	O
09	O	O	O	160	O	5,120	O	O
025	O	20,480	1,280	O	80	O	320	O
081	O	O	O	O	O	O	O	10,240

Table 4. *Results of agglutination tests with* E. coli *serums and Alkalescens-Dispar cultures*

100 C cultures Alkalescens-Dispar	O serums (*E. coli*)						
	01	02	04	07	09	025	081
01	20,480	1,280	O	O	O	O	O
02	O	O	640	O	O	20,480	O
03	O	O	5,120	1,280	O	10,240	O
04	O	O	20,480	320	O	2,560	O
05	1,280	20,480	O	O	O	O	O
06 (121 C)	O	O	O	O	20,480	O	O
07	O	O	1,280	20,480	O	1,280	O
08	O	O	O	O	O	O	20,480

biotypes range from the typical anaerogenic, lactose negative, nonmotile bacterium through intermediates to typical *E. coli* cultures.

De Assis (*12*) described a bacterium that was similar to *S. alkalescens* as regards its biochemical reactivities but which contained different O antigens. This serotype was called *Shigella alkalescens* II but was later named *Shigella tieté* by de Assis and by Weil and Slafkovsky (*34*). Neter (*28*) proposed a classification which contained four serotypes of *S. alkalescens*. These were: type I, the original *B. alkalescens* of Andrewes; type II, *S. alkalescens* II of de Assis; type III, 2–193 (2372) isolated by Ewing in Italy; and type IV, previously undescribed. Culture 2–193 is discussed below. Available cultures of type IV are rough (Frantzen, *18*).

In his publications of 1907 and 1912, Castellani (*7*, *8*) described two bacterial types which were designated *B. ceylonensis* B and *B. madampensis*. Another type, first isolated in 1904, was described by Castellani (*7*) as *B. ceylonensis* A (*Shigella sonnei*). Later, Castellani (*9*, *10*) classified these lactose-fermenting bacteria as metadysentery bacilli. Andrewes (*1*) described a species called *B. dispar* which consisted of a mixed collection of bacterial types, including both indol positive and indol negative microorganisms. Levine (*22*) pointed out that the indol negative *B. dispar* cultures of Andrewes were the same as Sonne's bacterium.

Welch and Mickle (*33*), Carpenter (*3*), and Carpenter and Stuart (*4*) adopted the names *B. dispar* and *S. dispar* for use in connection with the anaerogenic, nonmotile, indol positive serotypes that require 48 hours or longer to produce acid from lactose. Carpenter and Stuart (*6*) employed the term *Proshigella dispar* (Borman et al.) in connection with these microorganisms.

Carpenter (*3*) and Carpenter and Stuart (*4*) studied the relationships of *S. dispar* I (*Shigella madampensis*), *S. dispar* II (*Shigella ceylonensis* B), and *S. dispar* III. *S. dispar* II was subdivided into three subtypes, IIa, IIb, and IIc. Later, Carpenter (*5*) added a fourth subtype, IId. Frantzen (*18*) reported cultures of *S. dispar* IIa, IIb, IIc all contain identical O antigens, as demonstrated by reciprocal absorption tests employing antiserums prepared with boiled cultures. We confirmed this finding after being informed of the fact by Frantzen. Subtype IId was found to be identical serologically with *S. alkalescens* II or *S. tieté* (*16*). During the study of a large number of cultures that contain O antigens identical with those A-D 02 (*S. alkalescens* II), we found a series of biotypes comparable to that described by Stuart et al. (*31*) for A-D 01 (*B. alkalescens*, of Andrewes).

Frantzen (*18*) reported that the O antigens of *S. dispar* III (see *6*) are identical with those of *E. coli* 09 and that it contains *K* antigen A26. *S. dispar* III was added to the A-D group as O group 6 (table 1).

Culture 2–193 and 14 others like it were isolated by Ewing in Italy during 1944 and 1945. Subcultures of type 2–193 were sent to Neter (*28*) who classified it as *Shigella alkalescens* III and to Wheeler et al. (*35*) who studied culture 2–193 (Wheeler's accession No. 23732) and others like it and confirmed a serological relationship to *Shigella boydii* 5 previously noted by Ewing (unpublished data). Wheeler et al. (*35*) also mentioned the relationship of type 2–193 cultures to microorganisms now included in A-D 03. Other investigators (for example, see *4*) reported that type 2–193 cultures were identical serologically with typical members of *S. dispar* II (A-D 03). Francis (*20*) proposed that type 2–193 cultures be designated provisionally as *Shigella flexneri* VIII.

Type 2–193 cultures are regarded now as lactose-negative variants of A-D 03. They are included in the Frantzen (*18*) schema (table 1) as members of O group 3.

Francis (*20*, *21*) reported that culture 2–193 was the same serologically and biochemically as culture 953 FA obtained from Dr. R. F. Bridges. Dr. Bridges sent Ewing a subculture of 953 FA in 1946 and supplied the following information about it: "As regards its origin, the original strain 953 FA was isolated by Lt. Col. D. T. M. Large, Royal Army Medical Corps, in Quetta about 1934 and sent to me at Kasauli for investigation. Subsequently I received several other strains of the same type, and I have notes of isolation in Rawal Pindi, and Kohat. So it seems that this type was widespread about the North-West Frontier of India, but certainly not common. I brought this strain 953 FA home with me from India in 1937." Bensted (*2*) 1939, also mentioned the isolation of type 953 cultures in a report from the Enteric Laboratory, Kasauli, India.

Ewing confirmed the findings of Francis as regards the identity of cultures 953 FA and 2–193. Therefore, available information indicates that these lactose-negative variants first were isolated in India about 1934. Cox and Wallace (*11*) reported the isolation of this type in India during World War II.

In 1942, Roelcke (*29*) recorded the isolation of a new type which was labeled *B. paradysenteriae palatinense*. Seeliger (*30*) studied this culture and found that it was identical to *S. madampensis* and *S. dispar* I. Roelcke's microorganism is not regarded as new but as a member of 04 of the A-D group.

All of the above-mentioned microorganisms now are included, along with several other serotypes, in the A-D group (table 1) of Frantzen (*18*).

New lots of antiserum for cultures S.171, S.167, S.205, and S.231 were prepared by injection of heated (100° C., 2½ hours) broth cultures into rabbits. These antiserums then were absorbed reciprocally with heated (100° C., 1 hour) suspensions of the four cultures. The results of absorption tests made with antiserums S.167, S.205, and S.231 (*S. dispar* IIa, IIb, and IIc, Carpenter) indicated that these microorganisms contain identical O antigens. This confirms the finding of Frantzen who reported that *S. dispar* IIa, IIb, and IIc do not differ from each other with respect to their O antigens, and that they all belong to A-D 03. The results of reciprocal absorption tests with antiserums S.171 (A-D 04, *S. dispar* I) and S.167 are essentially the same as those reported previously by various investigators. A-D 03 and A-D 04 are related slightly, but belong to separate O antigen groups.

Summary

A partial review of the literature on the subject of the Alkalescens-Dispar group (A-D group) is presented.

It is proposed that the antigenic schema of Frantzen should be adopted for use in the identification and reporting of these bacterial types. The A-D schema affords an accurate and practical method which laboratory personnel may utilize without reference to the problems of the taxonomic position of its members.

Data are presented which confirm the results of Frantzen as regards the O antigens of the members of the Alkalescens-Dispar group and their relationships to the coli group.

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Laboratory Tests On the Rapidity of Molluscacidal Action of Copper Sulfate in High Concentration

By M. O. Nolan*

The present short report is concerned with experiments which were carried out in the laboratory to ascertain if copper sulfate in concentrations of 20 parts per million (1:50,000) would kill nonoperculate snails within a few hours.

Three species of planorbid snails were used in the tests: *Australorbis glabratus*, *Biomphalaria boissyi*, and *Bulinus contortus*. The *Australorbis* snails were from our stock colony of Venezuelan strain reared in the laboratory for many generations. The *Biomphalaria* and *Bulinus* snails were also laboratory-reared from specimens received recently from Dr. Mahmoud Abdel Azim Bey of Egypt.

Experimental procedures in general complied with our standard pattern (*9*) for screening chemicals for molluscacidal activity. The chemical was diluted in volumetric flasks to 20 parts per million from an aqueous solution (1 gram copper sulfate crystals/99 milliliters water). Standing tap water (dechlorinated water), such as that used in the aquaria in which the snails were reared, was used throughout the experiments. According to an analysis of the water made in the chemistry laboratory,[1] the bicarbonate (HCO_3) content was 34.2 ppm; both carbonate (CO_3) and phosphate (PO_4) were 0.0 ppm. The pH of the water ranged from 7.8 to 8.0. After the addition of the copper sulfate in concentrations of 20 ppm, the pH ranged from 7.3 to 7.6. Average temperatures were 25° to 26° C.

Since our immediate objective in these experiments was to determine the killing efficiency of copper sulfate during the early hours of contact, the snails were immersed in water containing the chemical for periods of 1, 2, 3, 4, and 5 hours. A total of 40 snails of each species was used in each exposure period, 5 snails being immersed in 250 milliliters of the solution in a beaker (600 ml. capacity). Half of the beakers were aerated; the other half were unaerated. In addition, the effects of a 24-hour contact period were determined on 10 snails of each species. At the end of each contact period, the snails were removed from the chemically treated water and washed thoroughly in several changes of fresh water before being examined under a

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stereoscopic microscope. They were then transferred to fresh water, and thereafter examinations for viability and transfer to fresh water were made daily until the snails either died or revived. The number of snails determined as dead or revived in each group was recorded at each examination to gain some information on the rate of death or recovery following exposure. During the periods of observation following the contact period, aeration of the water was provided at all times and food (lettuce leaves) was made available to the snails.

Anyone who has observed the reactions of planorbid snails to toxic compounds knows that it is not always wise to state with finality that a snail is dead, particularly if the observation is based on a macroscopic examination. A prostrate snail far retracted within its shell and with every appearance of lifelessness has been observed to revive in fresh water. There is no problem of uncertainty with snails that have been dead for some time and rigor mortis has set in, or the early stages of decomposition of the fleshy parts and an opaque appearance have developed. In the short-term exposure tests reported upon here, the criteria for death (based on an examination under the microscope) were cessation of heartbeat and the absence of response to tactile stimuli. Snails that were far retracted within their shells were gently prodded with a curved blunt needle for signs of life. The determination of recovery was based on the ability of the snail to move about or cling to the bottom and sides of the glass container.

The observed initial responses of the snails to the copper sulfate were alike for all three species. Upon contact with the chemically treated water, the snails immediately retracted within their shells and slowly dropped to the bottom of the container. The snails remained prostrate with no apparent movement throughout the experiment, including the postcontact period in fresh water, until death or revival resulted. There was considerable variation in the amount of contraction among individuals regardless of species.

In the aerated beakers there was always a flocculent precipitate of the chemical that was absent in the unaerated beakers. However, aeration of the chemically treated water seems to have played no significant role in the activity of the chemical. The final percentages of snail mortality following the 1- and 2-hour contact periods were slightly higher in the aerated beakers than in the unaerated, but not consistently so, and for longer hours of exposure the snail mortality was the same under both aerated and unaerated conditions. Consequently, in reporting results, the tests have been consolidated.

Results and Discussion

The results obtained are shown in the table. Copper sulfate in concentrations of 20 ppm killed all snails within the 24-hour contact period. The chemical did not kill any *A. glabratus* or *B. boissyi* within

the actual contact periods ranging from 1 hour through 5 hours. The snails were obviously poisoned and subsequent death or revival in fresh water was slow, the postexposure period extending from 24 hours up to 4 days (*A. glabratus*) or 5 days (*B. boissyi*). After an immersion of 1 hour in the copper solution, 18 *A. glabratus* and 17 *B. boissyi*, almost half the number of each species exposed, were able to revive in fresh water; and after 5 hours of exposure to the copper both species showed some revival in fresh water. *B. boissyi* appeared to be more individually resistant than the other species of snails as shown by the variable numbers that finally succumbed or revived in fresh water after all hours (1 through 5) of exposure.

B. contortus was more susceptible to the copper than the other two species. These snails survived the 1- and 2-hour contact periods, but the majority of them died within 24 hours following their removal from the chemically treated water into fresh water. Dead snails were observed in increasing numbers at the end of each additional hour of exposure from 3 through 5 hours, and the snails that survived these exposures all died within the following 24 or 48 hours.

Comparative data on the toxicity of copper sulfate (20 parts per million) to three species of planorbid snails

Contact period (hours)	Dead snails	Post-contact period: Number of snails dead or revived at— 24 hours		48 hours		72 hours		96 hours		120 hours		Total snails		Mortality (percent)
		D	R	D	R	D	R	D	R	D	R	D	R	
Australorbis glabratus														
1	0	5	0	4	8	13	10	----	----	----	----	22	18	55
2	0	5	0	23	4	5	2	1	0	----	----	34	6	85
3	0	4	0	27	3	5	1	----	----	----	----	36	4	90
4	0	7	0	23	1	5	2	2	0	----	----	37	3	93
5	0	4	0	24	0	7	2	3	0	----	----	38	2	95
24	10	----	----	----	----	----	----	----	----	----	----	10	0	100
Biomphalaria boissyi														
1	0	7	12	5	2	11	2	0	1	----	----	23	17	58
2	0	4	4	12	3	14	1	----	----	1	1	31	9	78
3	0	0	0	13	8	10	5	0	1	0	3	23	17	58
4	0	2	0	16	4	12	6	----	----	----	----	30	10	75
5	0	0	1	20	4	6	6	0	1	0	2	26	14	65
24	10	----	----	----	----	----	----	----	----	----	----	10	0	100
Bulinus contortus														
1	0	28	0	3	2	2	3	0	2	----	----	33	7	83
2[1]	0	37	0	1	0	0	1	----	----	----	----	38	1	97
3	8	27	0	5	0	----	----	----	----	----	----	40	0	100
4	16	22	0	2	0	----	----	----	----	----	----	40	0	100
5	24	14	0	2	0	----	----	----	----	----	----	40	0	100
24	10	----	----	----	----	----	----	----	----	----	----	10	0	100

D=dead snails.
R=revived snails.
[1] In the 2-hour test, inadvertently only 39 snails were used.

It must be borne in mind that in these laboratory tests conditions were what might be termed ideal for the copper salt to exert its maximum effects on the snails. All the factors that combine in natural fresh waters to inhibit the availability of the copper to snails were practically nonexistent or at a minimum in these experiments. Reference is made to the numerous plant and animal organisms in natural waters, the bacteria, algae, higher plants, protozoa and other aquatic animals, as well as the soil or mud, that adsorb or absorb copper; the minerals that precipitate and bind it, and the fatty acids and proteins in polluted waters that combine with it. There is no doubt that under these optimal conditions copper sulfate is a potent poison to snails. However, information is lacking on the rapidity of binding of the inorganic salt by such materials in natural waters as are listed above. Since field experience with copper sulfate has not been entirely encouraging, consideration should be given to the use of a combination of the inorganic copper salts with organic compounds that are known to have molluscacidal properties (1–9) and are stable in water.

Within recent years several workers have reported upon laboratory toxicity studies of copper salts (*10*, *11*, *12*, *13*). Chandler (*14*) who was the first investigator to conduct systematic laboratory tests of copper sulfate for molluscacidal activity, pointed out that in the low concentrations of 2 ppm through 0.5 ppm, the salt killed snails within 48 hours. His criterion for death of the snails was failure to revive within 24 hours after being placed in fresh water. He made the interesting observation that a 2 ppm solution appeared to be no swifter in its action than was a solution of 0.5 ppm. In speculating that the poisoning effect of the copper salts might be due, at least in part, to inactivation of enzymes necessary to life, he commented that, if such is the case, the similarity in effect of such varying dilutions as 2 ppm and 0.5 ppm is more readily explained. Thirty years later, we know no more about the mechanism of the reaction responsible for the effect on snails of copper or other toxic agents. In accordance with established facts concerning the biological activity of inorganic copper salts, we can still only speculate that the sulfhydryl and/or other enzymes may be inactivated and this disruption of the intracellular metabolism leads to the death of the snail. Investigations of the physiological effects of toxic agents to snails are under way in the Laboratory of Tropical Diseases, and it is hoped these studies will lead to a more fundamental basis for snail control.

Summary

Tests were carried out in the laboratory to determine if copper sulfate in the high concentration of 20 parts per million would be quickly lethal to planorbid snails (*A. glabratus*, *B. boissyi*, and *B. contortus*).

Under conditions considered optimum for maximal toxic action, the copper salt did not kill *A. glabratus* or *B. boissyi* within contact periods of 1 through 5 hours. Based on subsequent death of the snails in fresh water, the percentages of mortality for each hour of exposure from 1 through 5 were: *A. glabratus*, 55, 85, 90, 93, 95; *B. boissyi*, 58, 78, 58, 75, 65. *B. contortus* snails were more susceptible to the copper than the other two species. They survived the 1- and 2-hour contact periods, but the majority of them died within 24 hours following their removal from the chemically treated water into fresh water. Dead snails were observed in increasing numbers at the end of each additional hour of exposure from 3 through 5 hours, and the snails that survived these exposures all died within the following 24 or 48 hours.

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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

UNITED STATES

Reports from States for Week Ended October 21, 1950

New cases of acute poliomyelitis reported in the United States during the current week numbered 1,551, a slight decrease from the 1,596 cases reported for the preceding week. This is the fourth consecutive week since May 20 that a decrease from the preceding week has been reported. The figure for this week is higher than the corresponding number (1,147) for 1949.

The cumulative total (25,384) for the current "disease" year was below the corresponding total (36,147) 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

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
	Oct. 21, 1950	Oct. 22, 1949			1949–50	1948–49		1950	1949	
Anthrax (062)	3	1	(1)	(1)	(1)	(1)	(1)	39	42	(1)
Diphtheria (055)	209	229	315	27th	1,556	2,197	2,822	4,684	5,965	9,119
Acute infectious encephalitis (082)	21	15	15	(1)	(1)	(1)	(1)	784	647	529
Influenza (480–483)	1,845	1,285	1,688	30th	12,922	9,357	10,219	259,181	85,224	152,057
Measles (085)	998	674	922	35th	4,604	3,806	4,647	292,775	592,324	558,200
Meningococcal meningitis (057.0)	72	70	62	37th	298	259	259	3,097	2,775	2,870
Pneumonia (490–493)	923	990	------	(1)	(1)	(1)	(1)	[2] 67,741	63,755	------
Acute poliomyelitis (080)	1,551	1,147	976	11th	[3] 25,384	36,147	21,195	[3] 26,516	37,060	21,662
Rocky Mountain spotted fever (104)	3	6	5	(1)	(1)	(1)	(1)	444	547	532
Scarlet fever (050)	778	795	1,066	32d	4,354	4,673	5,844	44,524	62,339	67,801
Smallpox (084)	------	------	1	35th	1	3	5	27	44	152
Tularemia (059)	8	16	15	(1)	(1)	(1)	(1)	753	951	799
Typhoid and paratyphoid fever (040, 041)[4]	56	84	84	11th	2,388	2,878	2,878	2,898	3,366	3,366
Whooping cough (056)	1,473	1,369	1,539	39th	[5] 4,366	4,178	4,563	[5] 101,561	50,780	80,438

[1] Not computed.
[2] Addition: Tennessee, week ended Oct. 14, 38 cases.
[3] Addition: Iowa, delayed report, 20 cases. Deductions, Maryland and Michigan, week ended Oct. 14, 1 case each.
[4] Including cases reported as salmonellosis.
[5] Deductions: Iowa, weeks ended Sept. 2 and 9, 2 and 10 cases, respectively.

calendar year was 26,516, compared with the total of 37,060 for the corresponding period last year.

For the current week, five of the total of nine geographic divisions decreased in reported cases of acute poliomyelitis from the preceding week. These decreases ranged from 37 (458 to 421) cases reported in the East North Central States to 9 (60 to 51) in the New England States. Increases were noted as follows: West South Central States, 35 (94 to 129) cases; Middle Atlantic States, 21 (326 to 347); Pacific States, 8 (119 to 127); and the West North Central States, 2 (163 to 165).

For the current week, the States reporting the largest numbers of cases were: New York (235), Michigan (125), Illinois (116), Texas (87), Ohio (78), and California (72).

Alaska reported 5 cases compared with 9 last week. The cumulative total for the calendar year was 45. Hawaii reported 2 cases for the week.

The total number of cases of diphtheria reported for the week was 209 compared with 171 last week and 229 for the corresponding period last year. For the calendar year, a total of 4,684 cases was reported, the lowest total number reported for corresponding periods in the past 5 years.

The total number of reported cases of meningococcal meningitis for the current week was 72 compared with a total of 70 cases for the corresponding week last year, and the 5-year (1945–49) median of 62 cases.

Deaths During Week Ended October 21, 1950

	Week ended Oct. 21, 1950	*Corresponding week, 1949*
Data for 93 large cities of the United States:		
Total deaths	9, 232	8, 859
Median for 3 prior years	8, 859	----------
Total deaths, first 42 weeks of year	383, 379	382, 993
Deaths under 1 year of age	532	643
Median for 3 prior years	698	----------
Deaths under 1 year of age, first 42 weeks of year	25, 920	27, 400
Data from industrial insurance companies:		
Policies in force	69, 591, 544	70, 103, 695
Number of death claims	12, 667	12, 220
Death claims per 1,000 policies in force, annual rate	9. 5	9. 1
Death claims per 1,000 policies, first 42 weeks of year, annual rate	9. 2	9. 1

Reported Cases of Selected Communicable Diseases: United States, Week Ended Oct. 21, 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)	Poliomyelitis (080)
United States	**209**	**21**	**1,845**	**998**	**72**	**923**	**1,551**
New England	**1**	**3**	**4**	**37**	**3**	**39**	**51**
Maine				1	2	3	3
New Hampshire			4		1		
Vermont				2			3
Massachusetts		3		15			23
Rhode Island	1			3		2	1
Connecticut				16		34	21
Middle Atlantic	**6**	**3**	**4**	**254**	**27**	**277**	**347**
New York	6	3	[1] 1	86	17	166	235
New Jersey			3	52	2	60	47
Pennsylvania				116	8	51	65
East North Central	**8**	**4**	**25**	**208**	**12**	**103**	**421**
Ohio	3		3	27	6		78
Indiana	4		18	5		11	35
Illinois	1		1	51	5	56	116
Michigan		3	2	21	1	30	125
Wisconsin		1	1	104		6	67
West North Central	**9**	**2**	**2**	**43**	**4**	**52**	**165**
Minnesota	3		1	8	1	18	26
Iowa	1			11		7	59
Missouri	4	1	1	7	2	3	23
North Dakota		1		7		17	1
South Dakota				2			1
Nebraska							21
Kansas	1			8	1	7	34
South Atlantic	**75**		**339**	**99**	**11**	**106**	**203**
Delaware				2			4
Maryland	1			4		18	52
District of Columbia			2			14	
Virginia			266	11	1	43	48
West Virginia	4		52	65	1	2	25
North Carolina	26			10	5		32
South Carolina	9		13	1	2	12	12
Georgia	28		2	2	1	8	19
Florida	7		4	4	1	9	11
East South Central	**52**	**1**	**29**	**22**	**4**	**48**	**70**
Kentucky	10			2		8	34
Tennessee	11	1	16	10	3		30
Alabama	16		11	5		16	2
Mississippi	15		2	5	1	24	4
West South Central	**46**		**1,311**	**85**	**4**	**212**	**129**
Arkansas	10		143	8		11	10
Louisiana	4			1		12	14
Oklahoma	5		56	4		9	18
Texas	27		1,112	72	4	180	87
Mountain	**7**	**1**	**114**	**100**		**45**	**38**
Montana	2		8	2		1	
Idaho			23	1		7	6
Wyoming				1		2	1
Colorado			13	52		16	4
New Mexico	1	1		1		2	9
Arizona	3		69	9		16	10
Utah	1		1	34		1	8
Nevada							
Pacific	**5**	**7**	**17**	**150**	**7**	**41**	**127**
Washington				47	4		25
Oregon	2		8	10	2	12	30
California	3	7	9	93	1	29	72
Alaska						5	5
Hawaii			3	7			2

[1] New York City only.

Anthrax: Pennsylvania, 3 cases.

Reported Cases of Selected Communicable Diseases: United States, Week Ended Oct. 21, 1950—Continued

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

Area	Rocky Mountain spotted fever (104)	Scarlet fever (050)	Smallpox (084)	Tularemia (059)	Typhoid and paratyphoid fever [1] (040,041)	Whooping cough (056)	Rabies in animals
United States	**3**	**778**		**8**	**56**	**1,473**	**108**
New England		**48**			**1**	**195**	
Maine		5				45	
New Hampshire							
Vermont		5				36	
Massachusetts		28			1	60	
Rhode Island						27	
Connecticut		10				27	
Middle Atlantic		**102**			**12**	**246**	**23**
New York		[2] 55			4	96	22
New Jersey		9			2	93	
Pennsylvania		38			6	57	1
East North Central		**185**		**2**	**7**	**378**	**14**
Ohio		48			3	62	2
Indiana		19			2	45	
Illinois		35		2	1	74	1
Michigan		61			1	121	10
Wisconsin		22				76	1
West North Central		**21**				**144**	**10**
Minnesota		6				18	
Iowa		1				40	10
Missouri		8				12	
North Dakota		1				26	
South Dakota		1				7	
Nebraska							
Kansas		4				41	
South Atlantic	**3**	**145**		**2**	**10**	**120**	**14**
Delaware		1				3	
Maryland		8			2	20	
District of Columbia		6				3	
Virginia	1	21		1	1	12	1
West Virginia		11			1	24	2
North Carolina	2	70			3	34	
South Carolina		8			1	3	5
Georgia		19		1	2	8	6
Florida		1				13	
East South Central		**108**		**1**	**7**	**69**	**17**
Kentucky		23				32	9
Tennessee		51			6	19	4
Alabama		24			1	14	3
Mississippi		10		1		4	1
West South Central		**54**		**2**	**11**	**158**	**25**
Arkansas		5		1		16	3
Louisiana		6		1	5		
Oklahoma		9			1	10	2
Texas		34			5	132	20
Mountain		**19**		**1**	**4**	**101**	**1**
Montana		6				7	
Idaho		1			1	11	
Wyoming				1	1		
Colorado		6				14	
New Mexico		1			1	37	
Arizona		1			1	30	1
Utah		4				2	
Nevada							
Pacific		**96**			**4**	**62**	**4**
Washington		31			1	4	
Oregon		9				5	
California		56			3	53	4
Alaska						2	
Hawaii						2	

[1] Including cases reported as salmonellosis.

[2] Including cases reported as streptococcal sore throat.

FOREIGN REPORTS

CANADA

Reported Cases of Certain Diseases—Week Ended Sept. 30, 1950

Disease	Newfoundland	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia	Total
Brucellosis					2	1	1				4
Chickenpox			18		28	74	26	27	45	27	245
Diphtheria					5	1		1		1	8
Dysentery, bacillary					6	16	1			1	24
Encephalitis, infectious								2			2
German measles			9		1	56		6	16	4	92
Influenza			23				2				25
Measles			3		56	183	7	4	2	14	269
Meningitis, meningococcal								1			1
Mumps			5		71	99	8	38	66	18	305
Poliomyelitis			1		2	27		14	5	2	51
Scarlet fever	6			6	29	30	21	10	22	12	136
Tuberculosis (all forms)	13		1	5	137	41	30	16		28	271
Typhoid and paratyphoid fever				2	8				1	5	16
Venereal diseases:											
Gonorrhea	4		15	5	66	69	24	23	44	64	314
Syphilis	5		11	4	61	17	5	8	4	13	128
Primary			1	2	9	3		4			19
Secondary					6	3			1	1	11
Other	5		10	2	46	11	5	4	3	12	98
Other forms							1				1
Whooping cough			12	7	99	113	38	6	7	16	298

NORWAY

Reported Cases of Certain Diseases—July 1950

Disease	Cases	Disease	Cases
Diphtheria	8	Pneumonia (all forms)	1,698
Dysentery, unspecified	4	Poliomyelitis	67
Encephalitis, infectious	1	Rheumatic fever	75
Erysipelas	267	Scabies	461
Gastroenteritis	3,400	Scarlet fever	97
Hepatitis, infectious	50	Tuberculosis (all forms)	230
Impetigo contagiosa	1,216	Typhoid fever	3
Influenza	3,015	Venereal diseases:	
Malaria	1	Gonorrhea	204
Measles	406	Syphilis	43
Meningitis, meningococcal	13	Other forms	3
Mumps	92	Whooping cough	1,584
Paratyphoid fever	1		

SCARLET FEVER IN GERMANY AND IN YUGOSLAVIA

According to information received through the World Health Organization the incidence of scarlet fever has been increasing in both the German Federal Republic and Yugoslavia since April 1950.

For the period April 1–September 15, 1950, 36,199 cases of the disease were reported in the German Federal Republic. Reported incidence for the same period in preceding years is as follows: 1947—10,396; 1948—19,453; 1949—26,209.

Five thousand three hundred and thirty-eight cases were reported in Yugoslavia for this period during the current year. Figures for the comparable periods of the three preceding years are as follows: 1947—1,242; 1948—977; 1949—2,296.

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

India. During the week ended October 14, 1950, 173 cases of cholera, with 32 deaths, were reported in Madras.

Plague

Belgian Congo. On October 9, 1950, one fatal case of pneumonic plague was reported in Costermansville Province at Butongole, north of Lubero.

Brazil. During the month of August 1950, 13 cases of plague, one fatal, were reported in Brazil by States as follows: Alagoas 3; Bahia 7 (1 death); Ceara 2; Pernambuco 1.

Smallpox

India (French). During the period September 17–30, 1950, 69 cases of smallpox were reported in Pondicherry.

Rhodesia (Southern). Eighty-six cases of smallpox with 10 deaths were reported in Southern Rhodesia during August 1950.

Typhus Fever

Ethiopia. During the period June 25–July 22, 1950, 170 cases of typhus fever, 8 fatal, were reported.

Spain. During the week ended September 9, 1950, two cases of typhus fever were reported in Madrid.

Plague Infection in Bernalillo County, N. Mex., and Dallam County, Tex.

New Mexico

A report, dated October 20, 1950, states that plague infection was proved positive in 17 fleas taken from 2 wood rats, *Neotoma*, trapped approximately 17 miles east of Albuquerque, in Bernalillo County. The wood rats were trapped under date of April 22, 1950.

Texas

A memorandum, dated October 20, 1950, states that plague infection was proved positive in the following specimens: 118 fleas from 1 prairie dog, *Cynomys ludovicianus*, shot October 10, 1950, and 118 fleas flagged October 7, 1950, from prairie dog burrows. These specimens were taken 2½ miles west of Perico in Dallam County.

Examination for Dental Officers

A competitive examination for appointment of dental officers in the Regular Corps of the Public Health Service will be held January 15, 16, and 17, 1951, in various cities throughout the country. Completed applications must be in the Washington office by December 11.

Appointments will be made in the grades of assistant and senior assistant dental surgeon, equivalent to Navy ranks of lieutenant, j. g., and lieutenant, respectively. Entrance pay is $5,686 for assistant, and $6,546 for senior assistant (with dependents). These figures include the $1,200 annual additional pay received by dental officers as well as subsistence and rental allowance. Applicants must be citizens and graduates of an approved school of dentistry. The assistant must have 7 years and the senior assistant 10 years of educational training and professional experience subsequent to high school.

The written professional examination will include the following subjects: oral surgery, oral medicine, oral pathology and bacteriology, anatomy, pathology and bacteriology (general), physiology, pharmacology, operative dentistry, prosthetic dentistry, dental materials, periodontia, roentgenology, public health, and pedodontia.

The practical examination will include an amalgam restoration; a gold inlay; and a complete write up of diagnostic procedures and treatment.

For application forms and additional information write to: Surgeon General, Public Health Service, Federal Security Agency, Washington 25, D. C. Attention: Division of Commissioned Officers.
