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Two Surveys of Methods Used by Public Health Laboratories for the Examination of Stool Specimens for *Salmonellae*, *Shigellae*, and Protozoa

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In order to ascertain which methods are generally used for the examination of stool specimens, questionnaires were sent out during the winter of 1944 and spring of 1945 to the laboratories of 48 States, the District of Columbia, Hawaii, Alaska, and Puerto Rico. Complete answers were received from 40 laboratories. Incomplete information was available from 12 more sources. The survey showed that no two laboratories use exactly the same procedures. This survey was repeated 5 years later in 1949 when questionnaires were sent to the same public health laboratories as in 1944. This time, the complete answers received from 46 sources and the incomplete returns from 6 more laboratories again showed a great variance in the methods used. Both surveys are reported here.

The first question on the form sent to the laboratories concerned

Table 1. *Methods of collecting specimens for bacteriologic and parasitologic stool examination recommended, permitted, and refused by public health laboratories*

Specimen	For bacteriologic examination						For protozoologic examination					
	Recommended		Permitted		Refused		Recommended		Permitted		Refused	
	1944	1949	1944	1949	1944	1949	1944	1949	1944	1949	1944	1949
Fresh stools, promptly delivered	42	36	[1] 2	[2] 11	0	0	42	30	1	4	0	0
Postcathartic stools	12	[2] 11	6	23	0	0	12	[4] 11	6	15	0	0
Enema specimens	X	1	X	23	X	3	X	0	X	16	X	6
Proctoscopic specimens	8	5	3	[1] 23	1	3	10	[4] 7	3	12	3	2
Rectal swab	[5] 13	[5] 13	11	[5] 31	1	3	0	0	7	12	11	5
Material collected on finger cot	0	0	6	[1] 23	2	4	0	0	6	9	2	9

[1] 1 laboratory: for dysentery only.
[2] 3 laboratories: preserved specimens preferred.
[3] 2 laboratories: preferred to fresh specimens.
[4] 2 laboratories: after repeated negative, fresh specimens.
[5] 2 laboratories: in dysentery; 1 laboratory: in children.
X=Question not asked in 1944.

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the methods used for the collection of the stool specimens (table 1). Information on the collection of specimens for bacteriologic examination was received from 50 laboratories in both surveys, while on protozoologic studies data were received from 40 in 1944, and from 44 laboratories in 1949. Twenty-three laboratories in 1944 and 16 in 1949 recommended more than one method for bacteriologic examination; 24 laboratories in 1944 and 4 in 1949 recommended more than one method for parasitologic studies.

The second question concerned methods used for the preservation of specimens for mailing. There were no inquiries regarding preservatives for protozoa in 1944. Fifty answers were available in 1944 and 46 in 1949 on bacteriologic examination (table 2). Four laboratories in 1949 had no preference. During both surveys, two laboratories recommended two methods.

Table 2. *Methods of preserving specimens for bacteriologic and parasitologic stool examination recommended, permitted, and refused by public health laboratories*

Examination	Preservative	Recommended		Permitted		Refused	
		1944	1949	1944	1949	1944	1949
Bacteriologic	Buffered glycerol-saline	21	29	19	6	0	0
	Unbuffered glycerol-saline	1	7	X	XX	X	XX
	Glycerol-saline with phenol red	X	1	X	XX	X	XX
	Buffered glycerol-water	X	1	X	XX	X	XX
	Lithium chloride glycerol	X	1	X	XX	X	XX
	Alkaline lithium chloride	0	1	0	0	1	1
	Selenite-F	X	1	X	XX	X	XX
	Desoxycholate-citrate	3	3	3	15	2	3
	Bile-peptone	3	0	0	15	2	5
	Alkaline bile	1	2	0	17	3	6
	No preservative for bacteriologic examination	3	2	3	2	0	1
Parasitologic	10 percent formalin	1	7	X	10	X	4
	Schaudinn	X	5	X	12	X	3
	P. V. A.-fixative	X	12	X	7	X	4
	No preservative for protozoologic examination	X	18	X	0	X	1

X=Question not asked in 1944.
XX=Question not asked in 1949.

A preservative for protozoa was recommended by only 24 laboratories in 1949. The others did not comment or indicate a preference for fresh stools.

Media used for the plating and primary identification of *Salmonellae* and *Shigellae* were the subject of the next question. Answers were received from 44 laboratories in 1944 and from 50 in 1949. In 1944 only three and in 1949 only two laboratories used exactly the same combination of enrichment fluids and plating media. For the statistical evaluation, occasionally used tubes or plates were considered as a one-half tube or plate. The same method of accounting served for the evaluation of the number of media used by laboratories which follow different procedures for the detection of *Salmonellae* and of *Shigellae*. Five laboratories in each survey reported that they ap-

Table 3. *Combinations of enrichment media and number of plates used for indirect and direct streaking of stool specimens in public health laboratories*

Enrichment medium	Total laboratories		Plates streaked from each tube (indirect streaking)[3]													
			0–½		1–1½		2–2½		3–3½		4		5		6–9	
	1944	1949	1944	1949	1944	1949	1944	1949	1944	1949	1944	1949	1944	1949	1944	1949
All combinations	44	50	4	3	5	7	16	18	11	10	5	10	3	----	----	2
None	4	2	4	2	----	----	----	----	----	----	----	----	----	----	----	----
1 tube tetrathionate broth (Mueller)	[1] 10	[1] 16	----	----	1	3	5	5	2	5	1	3	1	----	----	----
2 tubes tetrathionate broth (Mueller)	1	----	----	----	----	----	----	----	1	----	----	----	----	----	----	----
3–4 tubes tetrathionate broth (Mueller)	1	----	----	----	----	----	----	----	1	----	----	----	----	----	----	----
1 tube tetrathionate broth (Mueller), 1 tube Kauffman's broth	1	----	----	----	----	----	1	----	----	----	----	----	----	----	----	----
1 tube tetrathionate broth (Mueller), 1 tube selenite F	[1] 8	[1] 5	----	1	1	----	3	1	2	1	1	1	1	----	----	1
1 tube tetrathionate broth (Mueller),[2] 1 tube Kauffman's broth,[2] 1 tube selenite F	2	----	----	----	----	----	1	----	1	----	----	----	----	----	----	----
1 tube tetrathionate broth (Mueller), 1 tube desoxycholate-citrate broth (Bangxang and Elliot and modifications),[2] 1 tube selenite F.[2]	----	1	----	----	----	----	----	1	----	----	----	----	----	----	----	----
1 tube Kauffman's broth	1	2	----	----	----	1	1	1	----	----	----	----	----	----	----	----
1 tube Kauffman's broth, 1 tube selenite F	[1] 1	[1] 1	----	----	1	----	----	1	----	----	----	----	----	----	----	----
1 tube desoxycholate-citrate broth (Bangxang and Elliot and modifications)	1	2	----	----	----	----	----	----	----	----	1	2	----	----	----	----
1 tube selenite F	[1] 12	[1] 18	----	----	2	3	5	9	4	4	1	2	----	----	----	----
2 tubes selenite F	1	2	----	----	----	----	----	----	----	----	1	1	----	----	----	1
3 tubes brilliant green-bile	1	----	----	----	----	----	----	----	----	----	----	----	1	----	----	----
1 tube buffered glycerol-saline	----	1	----	----	----	----	----	----	----	----	----	1	----	----	----	----
			Plates streaked from each stool specimen directly[3]													
All combinations	44	50	----	*2	----	2	11	14	13	14	8	13	7	1	5	4
None	4	2	----	----	----	----	1	1	3	----	----	----	----	----	----	1
1 tube tetrathionate broth (Mueller)	[1] 10	[1] 16	----	----	----	----	3	4	3	4	1	8	3	----	----	----
2 tubes tetrathionate broth (Mueller)	1	----	----	----	----	----	----	----	----	----	1	----	----	----	----	----
3–4 tubes tetrathionate broth (Mueller)	1	----	----	----	----	----	----	----	----	----	----	----	----	----	1	----
1 tube tetrathionate broth (Mueller), 1 tube Kauffman's broth	1	----	----	----	----	----	----	----	----	----	----	----	----	----	1	----
1 tube tetrathionate broth (Mueller), 1 tube selenite F	[1] 8	[1] 5	----	----	----	1	1	1	2	1	1	1	3	----	1	1
1 tube tetrathionate broth (Mueller),[2] 1 tube Kauffman's broth,[2] 1 tube selenite F	2	----	----	----	----	----	----	----	1	----	1	----	----	----	----	----
1 tube tetrathionate broth (Mueller), 1 tube desoxycholate-citrate broth (Bangxang and Elliot and modifications),[2] 1 tube selenite F.[2]	----	1	----	1	----	----	----	----	----	----	----	----	----	----	----	----
1 tube Kauffman's broth	1	2	----	----	----	----	----	1	1	1	----	----	----	----	----	----
1 tube Kauffman's broth, 1 tube selenite F	[1] 1	[1] 1	----	----	----	----	1	----	----	----	----	1	----	----	----	----
1 tube desoxycholate-citrate broth (Bangxang and Elliot and modifications)	1	2	----	1	----	----	1	----	----	1	----	----	----	----	----	----
1 tube selenite F	[1] 12	[1] 18	----	----	----	----	4	7	3	7	3	3	1	----	1	1
2 tubes selenite F	1	2	----	----	----	1	----	----	----	----	1	----	----	----	----	1
3 tubes brilliant green-bile	1	----	----	----	----	----	----	----	----	----	----	----	----	----	1	----
1 tube buffered glycerol-saline	----	1	----	----	----	----	----	----	----	----	----	----	----	1	----	----

[1] Includes laboratories which use the medium only occasionally.
[2] The tube is used in that combination only occasionally.
[3] One-half, with the exception of column marked * stands for "one additional plate occasionally."

Table 4. *Selection of plating media for indirect and direct plating of stool specimens for bacteriologic examination by State health laboratories*

Medium	For indirect plating											
	Occasionally		Routinely								Together	
			Alone				In combination					
			1 plate		More plates		1 plate		More plates			
	1944	1949	1944	1949	1944	1949	1944	1949	1944	1949	1944	1949
Endo							4	1	1	1	5	2
E. M. B							3	1	1	3	4	4
McConkey						1	9	13	6	3	15	17
Desoxycholate							1	3	2		3	3
D. C. L. S.[2]								4				4
S. S	6	2	2	4	1		18	18	12	12	39	36
D. C	4			1		1	6	1	5	2	15	5
Brilliant green			1				1	3		3	2	6
BiS streak	1	3		1			12	17	11	7	24	28
BiS pour							2	5	1	4	3	9

Medium	For direct plating [1]									
	Occasionally		Routinely						Together	
			Alone, 1 plate		In combination					
					1 plate		More plates			
	1944	1949	1944	1949	1944	1949	1944	1949	1944	1949
Endo	1	1			9	5			10	6
E. M. B		1			8	6	3	3	11	10
McConkey	1	1		1	13	20	2	2	16	24
Desoxycholate	1	1			7	5			8	5
D. C. L. S.[2]		1				3				4
S. S	2				30	34	3	8	35	42
D. C	1	1			10	3	2	2	13	6
Brilliant green						4	1		1	4
BiS streak	2	3			28	25	3	3	33	31
BiS pour	1	1			3	4	3	4	7	9

[1] No laboratories used more than 1 plate except in combinations.
[2] Introduced after 1945.
E. M. B.=Eosin methylene blue plate.
D. C. L. S.=Desoxycholate citrate-lactose-sucrose plate, B. B. L.
S. S.=*Salmonella-Shigella* plate, Difco.
D. C.=Desoxycholate-citrate plate, B. B. L.
Brilliant green=Brilliant green-phenol red plate.
BiS streak=All forms of the Wilson-Blair plate, streaked.
BiS pour=All forms of the Wilson-Blair plate, poured.

plied different media in such cases, while all other laboratories used one procedure for the isolation of bacteria belonging to both genera.

The groups of media were listed according to the enrichment tubes employed at the same time. Plating media were divided into those used for streaking from the enrichment fluids (indirect plating) and those used for inoculation directly from the specimens (direct plating).

Tables 3 and 4 show the great variety of media employed by the laboratories.

Table 5 demonstrates the use of primary differentiating media.

Table 5. *Primary differentiating media used in the diagnosis of* Salmonellae *and* Shigellae *by public health laboratories*

Medium	Routinely used		Occasionally used		Together	
	1944	1949	1944	1949	1944	1949
Russell	12	4	4	3	16	7
Russell with Andrade's indicator	1	1	0	1	1	2
Kligler	16	19	12	2	28	21
Mickle	3	2	5	0	8	2
Krumwiede	12	7	6	4	18	11
T. S. I.	1	17	4	3	5	20
Friewer-Shaughnessy	1	1	0	1	1	2
M. T. I.	X	1	X	1	X	2
Lactose broth	1	2	0	2	1	4
Lactose-sucrose broth	X	2	X	0	X	2
Brom cresol purple plate	1	0	0	0	1	0

X=Not asked in 1944.

Only 20 laboratories out of 43 in 1944 but 40 out of the 48 laboratories answering this question in 1949 used a single primary differentiating medium routinely. One of the laboratories each in 1944 and in 1949 had no preference for any medium.

Table 6 shows the answers to the question on the final serologic classification of *Salmonellae* and *Shigellae*. Information was available in 1944 from 47, and in 1949 from 49 laboratories.

Table 7 contains the answers to the question on methods used for the detection and identification of *Endamoeba histolytica*. Forty laboratories cooperated in 1944 and 46 in 1949. Two laboratories each in 1944 and 1949 did not examine direct smears at all.

Further answers concerned questions not pertaining to the actual work in the public health laboratories. They were, nevertheless, considered essential to complete the picture of the present state of enteric work.

Table 8 shows the evaluation of organisms of questionable pathogenicity. Forty-four laboratories answered the question in 1944 and 46 in 1949.

Table 6. *Extent of the use of serologic methods (typing) for the diagnosis of* Salmonellae *and* Shigellae *in public health laboratories*

Serologic tests	*Salmonellae*		*Shigellae*	
	1944	1949	1944	1949
Not typed at all	7	2	6	5
Typhoid alone typed, others not	1	1		
Typhoid and paratyphoid A and B typed, others not	7	2		
Groups determined			7	6
Typhoid typed, others sent to center	0	2		
Typhoid and paratyphoid A and B typed, others sent to center	3	4		
Groups typed, others sent to center	8	16	7	11
All suspicious organisms sent to center	2	10	2	7
Complete typing performed locally	16	10	22	18
No set policy	3	2	3	2
Total	47	49	47	49

Table 7. *Preference for procedures used in the detection of* Endamoeba histolytica *in public health laboratories*

Method	Routinely		Occasionally		Together	
	1944	1949	1944	1949	1944	1949
Direct examination of saline suspension	34	33	2	6	36	39
Direct examination of iodine tinged suspension	32	36	2	5	34	41
Quensel stain	X	4	X	9	X	13
Zinc sulfate flotation	6	35	1	9	7	44
Salt flotation	0	5	1	2	1	7
Permanent hematoxylin slides	12	20	4	23	16	43
Culture methods	2	4	0	10	2	14

X = Question not asked in 1944.

The ninth question was: What happens if only organisms of doubtful pathogenicity are isolated from the stools? Forty-four laboratories answered this question in 1944 and 49 in 1949. In 1944, nine stated that the physician treating the case had to decide if the disease was caused by the "doubtful" organism; in 17 States the public health authorities alone were considered competent to settle the question; in 15 the physician treating the patient and the public health authorities together made the decision, and three had no set policy. In 1949, in 16 States the physician on the case alone decided whether the organism reported by the laboratory was to be considered pathogenic; in one the public health authorities made the decision alone; and in 26 the physician and the public health authorities together resolved the problem. Six States had no set policy.

The final question considered the approval of private laboratories for enteric work. Data were available in 1944 from 44, and in 1949

Table 8. *Attitude toward organisms from stools of "doubtful" pathogenicity in public health laboratories*

Organism	Considered						No comment	
	Pathogenic		Doubtful		Nonpathogenic			
	1944	1949	1944	1949	1944	1949	1944	1949
S. alkalescens	2	9	2	20	30	7	10	10
S. dispar	6	9	4	20	23	8	11	9
Proteï	3	[1][2] 6	0	[3] 16	31	14	10	10
Paracolobactra	1	3	0	[4] 22	30	9	13	12
A. faecalis	0	[1] 1	0	11	32	20	12	14
E. nana	1	[5] 4	0	7	30	22	13	13
D. fragilis	0	[5] 5	2	9	29	17	13	15
Chilomastix	1	2	0	7	30	15	13	22
Embadomonas	1	1	0	10	30	18	13	17
Enteromonas	0	1	0	9	31	18	13	18
Enterococci	X	[2] 2	X	16	X	10	X	18

[1] 1 laboratory: in infants.
[2] 1 laboratory: in food poisoning.
[3] 1 laboratory: *Pr. morgani* pathogenic.
[4] 3 laboratories: certain strains (1 laboratory: the Bethesda group).
[5] 1 laboratory: when heavy infestation present.

X = Question not asked in 1944.

from 44 States, the District of Columbia, and Territories. Seven States in 1944 and eight States in 1949 (California, Connecticut, Massachusetts, Michigan, New Jersey, New York, South Dakota, and Wisconsin) granted formal approval to private laboratories to perform enteric work. In addition, two States in 1944 and one in 1949 issued certificates of approval but only to hospital laboratories. Three public-health laboratories in 1944 and 17 in 1949 stated that although formal approval under a law or regulation does not exist, they are assisting or willing to assist private laboratories interested in enteric work.

Discussion

A great variety of methods are used by public-health laboratories for the collection and shipping of stool specimens as well as for the isolation and identification of *Salmonellae*, *Shigellae* and *Endamoeba histolytica*. The statistical evaluation of the collected data is difficult because of the diversity of methods and attitudes. There is, however, an increasing tendency toward greater liberalism, especially in procedures with patients, private physicians, and other laboratories. This is revealed, among other ways, by the increased acceptance of specimens collected and preserved by different methods.

The leading method of stool collection is that of fresh specimens promptly received. With the exception of three laboratories, which prefer preserved stools, such material is generally accepted. Between 1944 and 1949 the number of laboratories listing "permitted" methods in addition to "recommended" means of stool collection significantly increased. Of special interest are answers from two laboratories in 1949 which recommended proctoscopic specimens to be examined for protozoa when fresh stools were found negative. This requires the aid of a proctologist and thus shows the increasing trend toward cooperation with the medical profession.

Glycerol-saline is the most frequently recommended preservative for bacteria. Here again more laboratories checked several preservatives as "permitted" than in 1944, demonstrating a growing liberal tendency.

In spite of its newness, the polyvinyl alcohol-fixative method (*1*) is as often recommended for the preservation of intestinal protozoa as the other two means, i. e., formol and Schaudinn's fluid, together. This indicates the progressiveness of many public health laboratories which try to profit from newest developments in the field. In addition, the story of this fixative shows that the coordinating services and the assistance provided by the Public Health Service are being more and more accepted and utilized.

Between 1944 and 1949 a reduction occurred in the number of media used for the plating of stool specimens. If the data contained in

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table 3 are grouped further, a significant difference may be found between the number of laboratories using four or more and those using less than four plates for direct plating of the specimens in 1944 and in 1949 ($P<.05$), while there is no statistically significant difference between the number of plates streaked from the enrichment tubes (indirect plating). The modal classes remained the same in both surveys: two plates streaked from one tube of enrichment fluid and, from the same specimen, three or occasionally four plates streaked directly.

There was a significant shift from tetrathionate broth to Selenite-F enrichment. S.S. agar is the most popular plating medium. It is used especially frequently for direct plating. There was a decrease in the use of Endo's medium. Desoxycholate agar and its derivative, the D.C.L.S. medium, are more frequently used than Endo's plate. MacConkey's agar and the brilliant green-phenol red medium had more advocates in 1949 than in 1944. The same can be said about poured bismuth sulfite plates, while the use of streaked bismuth sulfite media showed a decrease if occasional use is not considered. In 1944, seven laboratories prepared their own bismuth sulfite plates, but in 1949 all but three used desiccated bismuth sulfite medium. These changes point toward evaluation of experience and economizing in public health laboratories.

Kligler's primary differentiating tube, which had the most advocates in 1944, seems to be replaced by the triple sugar-iron agar (*2*) in many laboratories. The decrease in the number of laboratories using Russell's, Mickle's, and Krumwiede's tubes is ascribed to the spreading popularity of the triple sugar-iron agar. The increased use of a single differentiating medium shows a trend toward standardization of the laboratory technique. The fast growing popularity of Hajna's tube proves again the rapid acceptance of recent advances by public health laboratories.

Due to the establishment of new typing centers, significantly fewer laboratories carry out the serologic identification of the organisms they isolate. In 1949, 28 public health laboratories stated that they are using the services of the *Salmonella* and *Shigella* typing center of the Public Health Service in Atlanta, Georgia. This practice shows an increasing cooperation with the Public Health Service as well as the need for this coordinating establishment and additional ones.

Flotation methods for the diagnosis of protozoa are widely used This is probably due to evaluation of experience and economic trends. Hematoxylin stained slides are examined in the majority of the laboratories, although only occasionally in many of them. The spread of this valuable diagnostic method has resulted from the introduction of the polyvinyl alcohol-fixative which allows the transportation of preserved stools both in bulk and on slides. Diagnostic culture

methods for amebas are also being used on a larger scale, at least occasionally. This shows an effort to improve standard diagnostic means.

The answers to the question concerning the role of organisms of doubtful pathogenicity revealed that most laboratories follow contemporary literature carefully and try to adjust their attitudes accordingly, although they have the same doubts as all other workers specialized in this field. There is a strong trend toward cooperation with the practicing physician, revealing itself in a greater tendency to decide together with the "man on the case" about the etiology of diarrhea. There seems to be a general trend to admit the possible pathogenicity of organisms formerly considered nonpathogenic or "doubtful."

Public health laboratories also extend a helping hand to private establishments which are interested in enteric work. The number of States willing to assist nonpublic laboratories increased significantly.

Finally, this writer performed experiments to establish a minimal series of media necessary to isolate the *Salmonellae* and *Shigellae* which are most frequent in the United States (*3*). Only two laboratories in 1944 and one in 1949 of those which cooperated in this survey used methods which have a probability of less than 0.95 to detect common *Salmonellae* and *Shigellae* from the stools. Thus the choice of methods is satisfactory from the statistical point of view and should bring good results provided that the technique of the workers engaged in stool examination is also satisfactory.

Summary

Surveys of the methods used for the collection and preservation of stool specimens, and the isolation and identification of *Salmonellae*, *Shigellae*, and intestinal protozoa were carried out in 1944 and 1949. An inquiry was made into the attitude of the laboratories toward the so-called doubtful pathogens and the approval of private laboratories. The results are given in tabulations.

ACKNOWLEDGMENT

The writer is much indebted to all public health laboratories which cooperated during these surveys and patiently answered questionnaires and letters.

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The Role of Morbidity Reporting and Case Registers in Cancer Control

By Sidney J. Cutler*

That no community can effectively prevent or control disease without knowledge of the number, location, and characteristics of cases is generally accepted. Information on the incidence of new cases is needed to prevent the spread of a communicable disease. Data on the relative incidence of a disease in various segments of the population are necessary for planning a productive and economical case-finding program. Information on the total number of persons with a disease is required for evaluating the adequacy of community resources.

This information may be collected either through the operation of a routine reporting system or by means of periodic surveys and special studies. Routine reporting of all known cases in a community is generally accepted as a useful tool in the control of certain acute communicable diseases. Cases are reported so that appropriate action may be taken by the health department to prevent the spread of disease. The statistics obtained through the operation of the reporting system are essentially by-products of the control program. In chronic disease control, routine reporting of all known cases can be justified only if service is to be given. If the primary purpose is to make statistical studies, the necessary data can be collected more economically and more efficiently by means of special investigations. Chronic disease incidence rates probably do not change rapidly enough to necessitate the continuous collection of data. Trends may be analyzed by repeating the investigation periodically. In addition, special studies will probably yield more accurate and more comprehensive data than a routine reporting system which is not an integral part of a service program.

Records of one type or another are kept in connection with every service program. These records are generally intended to: (1) facilitate service—by identifying the individual being served, indicating the nature and status of the case, providing a record of services given, and scheduling activity; and (2) facilitate program planning and evaluation—by providing measures of the number of persons served, the number and types of services given, and the effectiveness with which service is provided.

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Service records ordinarily cannot be used as a source of information concerning the magnitude and nature of a community disease problem. However, if a community disease control program is intended to provide service to a large proportion of persons with a particular disease, it may be desirable to combine the maintenance of service records with the collection of morbidity data into one operation. A case register is one type of record system which readily lends itself to use in a dual capacity, both as an administrative tool in a service program and as a source of morbidity data.

Case Register

A case register may be defined as a record system which is used as an administrative tool in a service program, and which includes a continuous case history in abstract form and a mechanism for scheduling follow-up. It is intended to:[1]

1. Identify the individuals being followed in the specific program for which the register is maintained.
2. Ascertain the status of individual cases.
3. Assure follow-up directed towards continuity of care.
4. Make available statistics for planning and evaluating the service program.

The cases to be included in the register will be determined by the nature and scope of the service program. The register may be restricted to selected groups of cases, such as patients seen in one clinic, one hospital, or a group of medical facilities; patients under home nursing care; or patients receiving financial assistance. A case register should properly include all diagnosed cases in a community only if all of these cases are to be followed for an extended period and some form of service is to be given.

A case register can provide useful operational statistics, irrespective of its coverage. However, if it is to be used also for the collection of morbidity data, due consideration should be given to the type of statistics to be compiled and the representativeness of the cases included in the register. If a register is to be used to obtain information concerning the incidence and prevalence of a disease, it should contain a record on every diagnosed case among residents of a community of known size and composition. If a register is to be used for making generalizations concerning the characteristics of persons with a disease, the relative importance of various diagnostic classes, methods of diagnosis and therapy, or survival and cure, then the cases included in the register must be representative of the population about which generalizations are to be made.

[1] The definition and statement of purpose are in essential agreement with the recommendations made by the Working Group on Case Registers at the second annual meeting of the Public Health Conference on Records and Statistics, Washington, D. C., April 24-27, 1950.

Community Case Register

A case register which includes a record on all cases diagnosed in a community of known size and composition can be used not only as an integral part of a service program but also as a source for a wide variety of morbidity data. For the sake of convenience this type of record system is referred to as a "community case register." If the scope of a disease control program warrants the maintenance of a record on every diagnosed case in a particular area, a community case register can be a very useful tool. The contributions it can make to a number of basic elements of a cancer control program are indicated below. It is felt, however, that the principles worked out in cancer control are generally applicable to chronic diseases, such as diabetes, heart disease, and so forth.

Program Planning and Evaluation

The case register provides a basis for answering the question: What are the magnitude and nature of the cancer problem? The answer may be found in data abstracted from reported cases pertaining to: (a) the number of new cases diagnosed (incidence); (b) the number of cases with cancer as of a specified date or during a specified time period (prevalence); (c) the demographic characteristics and geographic distribution of persons with cancer; and (d) primary site and stage at diagnosis. The register may be used for determining community requirements for different types of medical facilities, such as clinics, hospital beds, nursing and terminal care homes. Data on number of cases classified by geographic location and source of medical care are useful in evaluating the adequacy of available diagnostic and treatment facilities and for planning the location and capacity of new facilities. Data on number of cases classified by geographic location and primary site are useful in evaluating the efficacy of various preventive aspects of the cancer control program.

Professional and Lay Education

Information made available by the community case register provides material for use in professional and lay education programs. Professional interest in a cancer control program can be aroused and maintained by bringing information utilized in planning the program and in evaluating its progress to the attention of the physicians in the community. Of special interest may be information pertaining to primary site, method of diagnosis, therapy, and end results. Public awareness can best be aroused by indicating the size of the cancer problem, the importance of early and accurate diagnosis, and the need for adequate and continuous medical care.

Case Finding, Diagnostic and Treatment Services

The routine operation of the morbidity reporting system provides quantitative measures for evaluating:

(a) The results of educational and case-finding activities—by examining trends in stage at diagnosis;

(b) Progress in the utilization of accepted diagnostic techniques—by analyzing reported cases with respect to method of diagnosis;

(c) Success of case holding—by determining the proportion of cases returning for reexamination or treatment at regular intervals; and

(d) Efficacy of various therapeutic techniques—by analyzing survival and cure.

Nursing and Follow-up Services

One technique for using a community case register to facilitate nursing and follow-up services to cancer patients is indicated:

(a) Information on each case in the register is readily available to the public health nurse or medical social worker who can check on the patient's history and current status before contacting the physician or the patient.

(b) Each newly reported case is routinely followed up. A nurse or social worker calls the responsible physician and asks whether he would like her to visit his patient. This procedure helps remind physicians of services available to their patients and helps get necessary service to the patient promptly.

(c) Case records are signalled to indicate dates on which periodic follow-up questionnaires are to be sent to physicians and clinics. In addition to serving as a means for keeping records up to date, these questionnaires tend to stimulate physicians and clinics to follow up delinquent patients. Thus, the routine operation of the system is indirectly instrumental in improving the quality of case holding.

(d) If a physician indicates on the periodic follow-up report that the patient has not been in for his regular check-up, the case is referred to the nursing section. A nurse calls the physician and offers to contact the patient for him. Patients can thus be brought back under medical supervision.

Special Studies

The register provides a basis for the selection of cases for intensive investigation of selected problems, e. g., epidemiological studies, analysis of the financial impact of the disease on the family, etc. The information necessary for carrying out such special studies is

usually detailed and complex and should not be routinely collected as part of the regular reporting system. Inclusion of the necessary items would make the reporting forms unduly extensive and complicated. Experience has demonstrated that extensive or complicated reporting forms will not be completed accurately and that resistance to reporting increases rapidly as forms become increasingly complicated. However, the information contained in the register affords a means for selecting cases to be included in special sample studies.

Operation Level and Completeness of Records

In order to function as an integral part of a cancer control program, a community case register should be maintained at the operating level of the program. This will usually be the local community. Appropriate information may be forwarded to the State health department for the compilation of statistics and the maintenance of a clearance system. A register that is maintained at the State level ordinarily will not be effective in promoting follow-up and service to the patient.

To serve as a source of information concerning the magnitude and nature of a community cancer problem, a community case register should contain a record on every case of cancer diagnosed among residents of a specified area. The full value of morbidity reporting can be obtained only by relating the number of cases to the population from which they are drawn through the computation of rates per unit of population (incidence, prevalence and mortality rates). To draw reliable conclusions from computed rates, morbidity reporting must be complete.

To achieve completeness, the reporting system should cover every physician, hospital, clinic, and medical facility. A reporting system in which coverage is not complete will result not only in an incomplete count of cases but may also make for unrepresentative data. It should also be borne in mind that incomplete coverage of medical facilities tends to defeat one of the principal objectives of morbidity reporting as an instrument in cancer control, namely, to obtain information concerning living cases at the earliest possible stage in the development of the disease.

Death certificates should be routinely checked for unreported cases. Completeness of reporting can thus be checked at the same time that a more complete count is obtained. Official mortality records should also be used for clearing dead cases from the active file.

Pitfalls in the Operation of a Community Case Register

Although a community case register is a very useful tool, experience has shown that it may degenerate into a file of records to which nobody

refers except the clerk responsible for keeping it up to date. The records are not utilized as a basis for action on particular cases and it soon becomes apparent that the data derived from these records are neither complete nor accurate and therefore of little value in program planning and evaluation. This is almost inevitable unless the register is integrated into the day-to-day operations of the control program. A register may degenerate for one or more of the following reasons:

1. The patient-service functions of the register are duplicated in a variety of special record and tickler files. The register is not used by the nurses and others as a basis for action. Information on action taken, contacts made, and findings in the field is posted to the various special records but is not forwarded to the register clerk. As a result, the register soon becomes both incomplete and out of date and cannot be used as a basis for action. This is unfortunate, unnecessary, and wasteful. A properly organized register is an efficient mechanism for scheduling action and makes available more complete information on each case than a number of unco-ordinated special files. In addition, the statistical data which can be abstracted from the register are generally more comprehensive and more uniform than those derived from a variety of specialized records.

2. The reporting system and the case register are poorly planned. Poor planning may involve one or more of the following: (a) report forms that do not provide the necessary information; (b) record forms that do not facilitate the posting of clear, concise, and complete abstract data; (c) files that do not facilitate ready reference to case records and are not efficient for use in scheduling action; (d) instructions that do not specify clear-cut procedures for handling the various report forms and for taking necessary action.

3. Insufficient personnel are provided for maintaining the register.

4. The reporting program is not promoted effectively, resulting in poor cooperation from the community physicians, hospitals, and other medical facilities.

5. Local health units are not given sound, continuous guidance by the State office in carrying out the control program and in maintaining the reporting and record keeping system.

6. The nature of the control program does not call for the establishment of a community case register and it is therefore not used.

If the aforementioned pitfalls are avoided, a community case register can be an effective tool in the administration of a cancer control program. Various elements of the service program, such as nursing and follow-up, can be built around its operation. It facilitates the collection of quantitative data about services given and provides a wide variety of morbidity statistics.

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PUBLIC HEALTH SERVICE PUBLICATIONS

July–December 1949

The purpose of this list is to provide a complete and continuing record of Public Health Service publications for reference use by librarians, scientists, researchers and others interested in public health work, and not to offer the publications for indiscriminate free distribution.

Single sample copies of most of the publications listed are available from the Public Inquiries Branch, Division of Public Health Methods, Public Health Service, Washington 25, D. C.

For quantities of any of these publications, except the statistical reports of the National Office of Vital Statistics, order from the Government Printing Office, where they are available at the prices shown, with a 25 percent reduction on orders of 100 or more copies of any single publication. The statistical reports of the National Office of Vital Statistics can be obtained only by writing to the National Office of Vital Statistics, Public Health Service, Washington 25, D. C.

PERIODICALS

*Public Health Reports (weekly), July–December, vol. 64, Nos. 26–52, pages 817–1677. 10 cents a copy. Subscription price $4 a year.

*Extracts from Public Health Reports (monthly), July–December, Tuberculosis Control Issues, Nos. 41–46. Average 30 pages each. 10 cents a copy. Subscription price $1 a year.

*The Journal of Venereal Disease Information (monthly), July–December, vol. 30, Nos. 7–12, pages 185–382. 10 cents a copy. Subscription price $1.25 a year.

*Journal of the National Cancer Institute (bimonthly), August–December, vol. 10, Nos. 1–3, pages 1–807. Nos. 1 and 2, 40 cents a copy; No. 3, $1.50 a copy. Subscription price $8 a year.

Public Health Engineering Abstracts (monthly), July–December, vol. 29, Nos. 6–12. 32 pages each. No sales stock.

*Industrial Hygiene Newsletter (monthly), July–December, vol. 9, Nos. 7–12. 16 pages each. 10 cents a copy. Subscription price $1 a year.

National Negro Health News (quarterly), July–September; October–December, 1949, vol. 17, Nos. 3 and 4. 24 and 28 pages. No sales stock.

REPRINTS FROM PUBLIC HEALTH REPORTS

2944. Filariasis control by DDT residual house spraying, Saint Croix, Virgin Islands. I. Operational Aspects. By Charles E. Kohler. II. Results. By H. W. Brown and R. W. Williams. July 8, 1949. 20 pages. 10 cents.

*Subscriptions to this periodical can be obtained from the Superintendent of Documents, Government Printing Office, Washington 25, D. C.

2945. *Salmonella* types encountered in Maryland between 1944 and 1948. By A. A. Hajna. July 8, 1949. 2 pages. 5 cents.

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199. The nature of radiation injury to amphibian cell nuclei. By William R. Duryee. December 1949. 24 pages; 18 plates. No sales stock.

361. Reports of the North Carolina syphilis studies. II. An evaluation of case-finding measures in multiple episodes of infectious syphilis. By John J. Wright and Cecil G. Sheps. July 1949. 8 pages. 5 cents.
362. Serologic activity of dipalmityl lecithin. Preliminary report. By Arthur A. Rosenberg. July 1949. 2 pages. 5 cents.
363. Mass public venereal disease education—Ohio fairs. By Charles R. Freeble, Jr. and Earl O. Wright. July 1949. 8 pages. 5 cents.
364. Reports of the North Carolina syphilis studies. III. An evaluation of case-finding measures in the control of gonorrhea. By John J. Wright and Cecil G. Sheps. August 1949. 8 pages. 5 cents.
365. The role of cardiolipin antigens in the serology of syphilis. By R. C. Arnold and J. F. Mahoney. August 1949. 2 pages. 5 cents.
366. A report of spinal fluid findings in patients who "relapsed" following penicillin therapy for early syphilis. By Andrew P. Sackett and Hunter Boggs. August 1949. 5 pages. 5 cents.
367. A study of nonspecific urethritis in British soldiery. By R. R. Willcox, September 1949. 9 pages. 5 cents.
368. Penicillin in the abortive treatment of syphilis. By Frederick Plotke, Henry Eisenberg, Amelia H. Baker, and M. E. Laughlin. September 1949. 5 pages. 5 cents.
369. The baffling case of baby T. By E. Walter Shervington, Cornelia M. Phillips, and N. A. Nelson. September 1949. 4 pages. 5 cents.
370. Attitude of venereal disease patients toward clinics and rapid treatment centers. By Lida J. Usilton and John W. Morse. October 1949. 6 pages. 5 cents.
371. Case holding in out-patient therapy of syphilis. A study of case-holding experiences in the out-patient management of patients treated with penicillin on an ambulatory basis. By R. M. Sorenson and R. D. Shannon. October 1949. 5 pages. 5 cents.
372. Rapid treatment of syphilis. A second study of clinic attendance. By Charles R. Hayman. October 1949. 4 pages. 5 cents.
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374. Characteristics of the cerebrospinal fluid in lymphogranuloma venereum. By Laurence Finberg, Richard E. Lord, and Mark T. Cenac. October 1949. 4 pages. 5 cents.
375. Treponemal immobilization test of normal and syphilitic serums. By Harold J. Magnuson and Frederick A. Thompson, Jr. November 1949. 12 pages. 5 cents.
376. Penicillin in the treatment of early syphilis: 639 patients treated with 2,400,000 units of sodium penicillin in 7½ days. By Herman N. Bundesen, Frederick Plotke, George X. Schwemlein, and Jack Rodriquez. November 1949. 4 pages. 5 cents.
377. The effect of temperature variants on quantitative turbidimetric determinations of spinal fluid protein, using trichloracetic acid. By Virginia L. Harding and Ad Harris. November 1949. 4 pages. 5 cents.
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379. Observation of the Kolmer complement-fixation test and the VDRL spinal fluid test. By Frank M. Victor and Charles A. Hunter. December 1949. 4 pages. 5 cents.

380. Penicillin treatment of early syphilis—First four patients after six years. By J. F. Mahoney, R. C. Arnold, and Ad Harris. December 1949. 6 pages. 5 cents.

SUPPLEMENTS TO THE JOURNAL OF VENEREAL DISEASE INFORMATION

22. Manual of serologic tests for syphilis. 1949. 128 pages. $1.50.
23. The diagnosis of syphilis by the general practitioner. By Joseph Earle Moore. 1949 revision of supplement 5. 68 pages. 25 cents.

PUBLIC HEALTH BULLETINS

302. Emergency health and sanitation activities of the Public Health Service during World War II. By Joseph W. Mountin and Edward B. Kovar. 1949. 96 pages, illustrated. 25 cents.
303. The role of grants-in-aid in financing public health programs. By Joseph W. Mountin and Clifford H. Greve. 1949. 45 pages. 15 cents.
304. Planning for health services. A guide for States and communities. 1949. 69 pages. 20 cents.
305. Health service areas. Estimates of future physician requirements. By Joseph W. Mountin, Elliott H. Pennell, and Anne G. Berger. 1949. 89 pages. 45 cents.
306. Air pollution in Donora, Pa. Epidemiology of the unusual smog episode of October 1948. Preliminary report. By H. H. Schrenk, Harry Heimann, George D. Clayton, W. M. Gafafer, and Harry Wexler. 1949. 173 pages, illustrated. $1.25.

NATIONAL INSTITUTES OF HEALTH BULLETIN

191. Relation between the toxic action of chlorinated methanes and their chemical and physicochemical properties. By W. F. von Oettingen, C. C. Powell, N. E. Sharpless, W. C. Alford, and L. J. Pecora. 1949. 85 pages. 30 cents.

HEALTH INFORMATION SERIES

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32. Allergy. 1949. 2 pages. 5 cents; $1.00 per 100.
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39. Home sanitation. 1949. 6 pages. 5 cents; $1.50 per 100.
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1. Cancer—What to know, what to do about it. 1949. 8 pages. 5 cents; $1.50 per 100.
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4. Cancer of the digestive tract. 1949. 24 pages. 10 cents; $5.50 per 100.
5. Cancer of the mouth and respiratory tract. 1949. 20 pages. 10 cents; $4.50 per 100.

UNNUMBERED PUBLICATIONS

The American family. A factual background. 1949. 457 pages. $1.25.
Studies on household sewage disposal systems. By S. R. Weibel, C. P. Straub, and J. R. Thoman. 1949. 260 pages. $1.25.

The dentist in the U. S. Public Health Service. 1949. 28 pages; illustrated 15 cents.

Sodium fluoride goes to school. By V. R. Sill. 1949. 3 pages. 5 cents.

Methods of removing fluorides from water. By F. J. Maier. October 1949. 8 pages. No sales stock.

An evaluation of the effectiveness as a caries control measure of the topical application of solutions of fluorides. By John W. Knutson. October 1949. 12 pages. No sales stock.

A symposium on current progress in the study of venereal diseases. 1949. 308 pages. 75 cents.

Index to Public Health Reports, vol. 63, part II, July-December 1948. 31 pages. 10 cents.

NATIONAL OFFICE OF VITAL STATISTICS PUBLICATIONS*

Current Mortality Analysis (monthly), vol. 6, No. 13, 1948; vol. 7, Nos. 4–8, 1949.

Monthly Marriage Report (marriage licenses issued in major cities), vol. 3, Nos. 5–10, 1949.

Monthly Vital Statistics Bulletin, vol. 12, Nos. 5–10, 1949.

Weekly Mortality Index, vol. 20, Nos. 26–51, 1949.

Health Officers' Weekly Statement, July 2–December 31, 1949.

Communicable Disease Summary, July 2–December 31, 1949.

Vital Statistics—Special Reports, Vol. 31, National Summaries

No. 4. Deaths and death rates for selected causes: United States, each division and State, 1947. pp. 39–54.

No. 5. Deaths from selected causes for 92 major cities in the United States, 1947. pp. 55–72.

No. 6. Maternal mortality by race and by urban and rural areas: United States, each division and State, 1947. pp. 73–78.

No. 7. Births by person in attendance, by race and by urban and rural areas: United States, each division and State, 1947. pp. 79–90.

No. 8. Births by race and by urban and rural areas: United States, each division and State, 1947. pp. 91–98.

No. 9. Stillbirth statistics: United States, each division and State, and 92 major cities, 1947. pp. 99–108.

No. 10. Maternal mortality by cause: United States, 1947. pp 109–116.

No. 11. Deaths and death rates for selected causes, by age, race, and sex: United States, 1947. pp. 117–146.

No. 12. Infant mortality by race and by urban and rural areas: United States, each division and State, 1947. pp. 147–156.

No. 13. Deaths by urban and rural areas and by race: United States, each division and State, 1947. pp. 157–164.

No. 14. Infant mortality from selected causes: by age, race, and sex; United States, 1947. pp. 165–198.

No. 15. Births by age of mother, race, and birth order: United States, 1947. pp. 199–218.

No. 16. Provisional marriage and divorce statistics: United States, 1948. pp. 219–230.

*Available only from the National Office of Vital Statistics, Public Health Service, Washington 25, D. C.

No. 17. Accident fatalities in the United States, 1947. pp. 231–254.
No. 18. Motor vehicle accident fatalities: United States, 1947. pp. 255–303.

Vital Statistics—Special Reports, Vol. 32, Cancer Mortality in the United States

No. 1. Trend of cancer mortality in the United States, 1900–1945. pp. 1–14.

Vital Statistics—Special Reports, Vol. 33, Selected Studies

No. 3. The vital statistics system in Alaska. pp. 49–62.

Vital Statistics—Special Reports, Vol. 35, Selected Studies

No. 1. Summary of natality statistics: United States, 1948. pp. 1–10.

Examination for Medical Officers

Examination for Medical Officers in the Regular Corps of the Public Health Service will be held October 9, 10, and 11, 1950, in various cities throughout the country. Completed applications must be in the Washington office by September 11, 1950.

Appointments are permanent and offer opportunities for career service in clinical medicine, research and public health.

Appointments will be made in the grades of assistant and senior assistant (equivalent to Army ranks of 1st lieutenant and captain, respectively). Entrance pay is $5,686 for assistant (with dependents) and $6,546 for senior assistant (with dependents), including the $1,200 annual additional pay received by Medical Officers and rental and subsistence allowance.

Applicants must have at least 7 years educational training and professional experience after high school, including graduation from a recognized school of medicine.

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.

Incidence of Disease

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

UNITED STATES

Reports From States for Week Ended August 5, 1950

For the current week, new cases of acute poliomyelitis reported in the Nation numbered 1,186, an increase over the 970 cases reported last week. However, the rate of increase is roughly comparable to preceding weeks. The total for the current week is less than the total for the corresponding week in 1946, 1948, and 1949. These totals were 1,284, 1,237, and 2,446, respectively.

The cumulative total (6,171) for the current "disease" year was below the corresponding total (9,810) for last year, the highest on record. The "disease" year for acute poliomyelitis begins with the twelfth week of the calendar year.

Comparative Data for Cases of Specified Reportable Diseases: United States

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

Disease	Total for week ended		5-year median 1945–49	Seasonal low week	Cumulative total since seasonal low week		5-year median 1944–45 through 1948–49	Cumulative total for calendar year		5-year median 1945–49
	Aug. 5, 1950	Aug. 6, 1949			1949–50	1948–49		1950	1949	
Anthrax (062)	2	2	(1)	(1)	(1)	(1)	(1)	29	35	(1)
Diphtheria (055)	63	86	135	27th	239	366	526	3,367	4,134	6,823
Acute infectious encephalitis (082)	20	22	19	(1)	(1)	(1)	(1)	472	333	294
Influenza (480–483)	859	508	508	30th	859	508	508	247,118	76,375	139,506
Measles (085)	1,906	1,526	1,526	35th	303,490	637,767	580,926	284,360	585,374	545,980
Meningococcal meningitis (057.0)	43	57	57	37th	3,456	3,094	3,355	2,543	2,250	2,383
Pneumonia (490–493)	873	899	------	(1)	(1)	(1)	(1)	59,342	54,139	------
Acute poliomyelitis (080)	1,186	2,446	1,237	11th	6,171	9,810	4,983	7,305	10,725	5,450
Rocky Mountain spotted fever (104)	22	30	40	(1)	(1)	(1)	(1)	299	377	353
Scarlet fever (050)	257	241	451	32d	56,352	79,965	88,334	39,913	57,421	61,648
Smallpox (084)	------	------	1	35th	[2] 44	49	197	[2] 24	39	143
Tularemia (059)	16	31	24	(1)	(1)	(1)	(1)	612	758	619
Typhoid and paratyphoid fever [3] (040, 041)	109	138	138	11th	1,399	1,631	1,631	1,909	2,119	2,119
Whooping cough (056)	2,602	1,696	2,519	39th	103,338	45,139	86,815	81,802	35,106	60,231

[1] Not computed.
[2] New Mexico: Addition—week ended July 1, 1 case.
[3] Including cases reported as salmonellosis.

The cumulative total for the calendar year was 7,305, compared with the total of 10,725 for the corresponding period last year.

For the current week, all geographic divisions except the New England and Pacific showed increases over the preceding week. These increases ranged from 9 (16 to 25) cases reported in the Mountain States to 59 (140 to 199) cases in the East North Central States. The New England division decreased by 11 cases (30 to 19) and the Pacific decreased by 3 (95 to 92).

For the current week, the States reporting the largest numbers of cases were: Texas (122), New York (95), Virginia (88), Illinois (77), California (76), Pennsylvania (49), Tennessee (45), and Ohio (44).

The total number of cases of influenza reported for the current week was 859, compared with 508 for the corresponding period last year. Of this total, 680 cases were reported by Texas (420) and Virginia (260), The next highest number was reported by Arizona (43).

The total number of cases of infectious encephalitis reported for the week was 20, compared with 22 reported for the same period last year. For the calendar year, a total of 472 cases was reported, the highest total in the past 5 years.

Whooping cough continued above the 5-year median with 2,602 cases reported for the current week. For the corresponding period last year 1,696 cases were reported. For the current week, the State reporting the highest total was Texas, with 252 cases.

No smallpox was reported in the United States. One case of anthrax was reported in Pennsylvania and one case in Texas. Two cases of typhus were reported in Tennessee, type unspecified but presumed endemic.

Deaths During Week Ended August 5, 1950

	Week ended August 5, 1950	*Corresponding week, 1949*
Data for 93 large cities of the United States:		
Total deaths	8, 359	8, 817
Median for 3 prior years	8, 817	----------
Total deaths, first 31 weeks of year	289, 729	289, 327
Deaths under 1 year of age	600	736
Median for 3 prior years	704	----------
Deaths under 1 year of age, first 31 weeks of year	19, 179	20, 100
Data from industrial insurance companies:		
Policies in force	69, 675, 236	70, 282, 580
Number of death claims	11, 246	12, 534
Death claims per 1,000 policies in force, annual rate	8. 4	9. 3
Death claims per 1,000 policies, first 31 weeks of year, annual rate	9. 6	9. 4

Reported Cases of Selected Communicable Diseases: United States, Week Ended August 5, 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	**63**	**20**	**859**	**1,906**	**43**	**873**	**1,186**
New England	**1**			**138**		**40**	**19**
Maine						16	1
New Hampshire							
Vermont				9			
Massachusetts	1			110			9
Rhode Island							2
Connecticut				19		24	7
Middle Atlantic	**11**	**5**	**1**	**576**	**7**	**120**	**168**
New York	5	5	[1] 1	216	6	79	95
New Jersey	1			217		17	24
Pennsylvania	5			143	1	24	49
East North Central	**10**	**4**	**9**	**598**	**5**	**74**	**199**
Ohio	2		4	107	1	7	44
Indiana	4	1	1	8		4	14
Illinois	2	1		145	3	42	77
Michigan	2	2		72		18	41
Wisconsin			4	266	1	3	23
West North Central		**1**	**4**	**63**	**5**	**83**	**125**
Minnesota			1	12	2	8	13
Iowa				6	1		46
Missouri			2	27	1	5	15
North Dakota				8		65	1
South Dakota		1		1			2
Nebraska				5	1	1	19
Kansas			1	4		4	29
South Atlantic	**23**	**1**	**306**	**105**	**6**	**247**	**244**
Delaware					1		1
Maryland			1	8		14	11
District of Columbia			1	2		11	15
Virginia	1		260	31	1	16	88
West Virginia	4		3	29	1	1	19
North Carolina	10	1		9	2		41
South Carolina	1		7	2		2	26
Georgia	3		33	14	1	195	31
Florida	4		1	10		8	12
East South Central	**7**	**1**	**6**	**52**	**3**	**79**	**117**
Kentucky				6	1	10	42
Tennessee			3	34	1		45
Alabama	3		1	8	1	34	12
Mississippi	4	1	2	4		35	18
West South Central	**5**	**3**	**444**	**119**	**13**	**171**	**197**
Arkansas			15	6	2	9	11
Louisiana	1		1	5	2	13	29
Oklahoma		3	8	5	3	6	35
Texas	4		420	103	6	143	122
Mountain	**3**		**80**	**92**		**29**	**25**
Montana			12	1			3
Idaho			15	22			2
Wyoming						1	3
Colorado			10	28		21	7
New Mexico				3		4	6
Arizona			43	5		1	2
Utah	3			30		2	2
Nevada				3			
Pacific	**3**	**5**	**9**	**163**	**4**	**30**	**92**
Washington				19			9
Oregon	1		5	9	2	6	7
California	2	5	4	135	2	24	76
Alaska		1					
Hawaii				2			2

[1] New York City only.

Anthrax: Pennsylvania and Texas, 1 case each.

Reported Cases of Selected Communicable Diseases: United States, Week Ended August 5, 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 (040, 041) [1]	Whooping cough (056)	Rabies in animals
United States	**22**	**257**		**16**	**109**	**2,602**	**114**
New England		**10**			**7**	**236**	
Maine					5	35	
New Hampshire							
Vermont						23	
Massachusetts		5			2	109	
Rhode Island		1				12	
Connecticut		4				57	
Middle Atlantic	**4**	**43**		**1**	**11**	**384**	**37**
New York	3	[2] 23			5	160	37
New Jersey		5		1		113	
Pennsylvania	1	15			6	111	
East North Central	**1**	**85**		**2**	**24**	**662**	**17**
Ohio		41			4	166	3
Indiana	1	4		1	1	8	
Illinois		11		1	5	98	3
Michgan		22				218	10
Wisconsin		7			14	172	1
West North Central		**17**		**3**	**5**	**150**	**12**
Minnesota		3				31	
Iowa		2			1	19	12
Missouri		3		3	1	42	
North Dakota							
South Dakota						15	
Nebraska		5			1	10	
Kansas		4			2	33	
South Atlantic	**12**	**26**		**3**	**14**	**333**	**5**
Delaware						5	
Maryland	2					50	
District of Columbia		2				5	
Virginia	6	7			2	120	1
West Virginia		[3] 7			2	29	1
North Carolina	4	6			2	73	
South Carolina		1			1	17	2
Georgia		2		2	5	26	1
Florida		1		1	2	8	
East South Central	**2**	**19**		**1**	**20**	**146**	**25**
Kentucky		4			12	90	7
Tennessee	2	9		1	2	22	2
Alabama		6				28	10
Mississippi					6	6	6
West South Central	**1**	**21**		**6**	**17**	**328**	**13**
Arkansas	1	1		3	3	47	
Louisiana		1			2	3	
Oklahoma		7		3	1	26	1
Texas		12			11	252	12
Mountain	**2**	**10**			**4**	**168**	**3**
Montana					1	16	
Idaho	1	1				23	
Wyoming						17	
Colorado		3			1	10	3
New Mexico		2			2	49	
Arizona		1				29	
Utah	1	2				24	
Nevada		1					
Pacific		**26**			**7**	**195**	**2**
Washington		9				60	
Oregon		3				17	
California		14			7	118	2
Alaska						1	
Hawaii						1	

[1] Including cases reported as salmonellosis.
[2] Including cases reported as streptococcal sore throat.
[3] Two weeks report.

FOREIGN REPORTS

CANADA

Reported Cases of Certain Diseases—Week Ended July 8, 1950

Disease	Newfoundland	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia	Total
Brucellosis					2	1					3
Chickenpox			33	1	76	173	33	40	32	61	449
Diphtheria			1	1	2						4
Dysentery, bacillary						1	5				6
Encephalitis, infectious						1					1
German measles			19		3	175	1	21	27	59	305
Influenza			7				2				9
Measles			4		136	469	10	30	19	45	713
Meningitis, meningococcal			1			2		1			4
Mumps			22		39	141	10	40	50	41	343
Poliomyelitis										4	4
Scarlet fever	4		1	2	29	19	3	1	20	3	82
Tuberculosis (all forms)	11		6	8	81	17	9	11	24	18	185
Typhoid and paratyphoid fever	1				5	1			1	2	10
Venereal diseases:											
Gonorrhea	11		9	6	85	72	22	6	33	58	302
Syphilis	5		1	2	62	18	4	11	3	9	115
Whooping cough	2		14		68	65		4		29	182

NORWAY

Reported Cases of Certain Diseases—May 1950

Disease	Cases	Disease	Cases
Diphtheria	11	Pneumonia (all forms)	2,697
Encephalitis, infectious	2	Poliomyelitis	4
Erysipelas	322	Rheumatic fever	117
Gastroenteritis	2,991	Scabies	754
Hepatitis, infectious	66	Scarlet fever	174
Impetigo contagiosa	1,522	Tuberculosis (all forms)	359
Influenza	2,094	Venereal diseases:	
Malaria	1	Gonorrhea	226
Measles	492	Syphilis	52
Meningitis, meningococcal	18	Weil's disease	3
Mumps	256	Whooping cough	2,611
Paratyphoid fever	1		

WORLD DISTRIBUTION OF CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER

The following tables are not complete or final for the list of countries included or for the figures given. Since many of the figures are from weekly reports, the accumulated totals are for approximate dates.

CHOLERA

(Cases)

Place	January—May 1950	June 1950	July 1950—week ended— 1	8	15	22	29
ASIA							
Burma	15	40	45	66	65		
Akyab	1	1					
Bassein	1	2					
Maubin	3						
Pegu		1					
Rangoon	1						
Toungoo			1				
India	[1] 58,189	8,997	1,982	1,529	191	225	283
Ahmedabad	7						
Allahabad	3						
Bombay	[2] 1	1			1	66	135
Calcutta	[1] 6,509	1,177	193	197	180	158	141
Cawnpore	1						
Cocanada	2						
Cuddalore	31						
Lucknow	3	7		1	1		
Madras	11						
Masulipatam	46				1		
Nagpur				1	1	1	
Negapatam	67						
New Delhi		12	15	20	7		7
Port Blair (Andam Islands)	[2] 2						
Tellicherry	27						
Trichonopoly							1
Tuticorin	25						
Indochina (French)	12	1					
Cambodia	5						
Viet Nam	7	1					
Giadinh	3						
Rachgia	1						
Pakistan	19,120	1,303	273	106	6	6	
Chittagong	125	33	14	1	6	6	
Dacca	182	4	1				

[1] Includes imported case. [2] Imported.

PLAGUE

(Cases)

AFRICA							
Belgian Congo	7	4		3	1	1	
Costermansville Province	4	2					
Stanleyville Province	3	2		3	1	1	
Madagascar	44	1			[1] 2		
Rhodesia, Northern	2						
Union of South Africa	9						
Orange Free State	7						
ASIA							
Burma	[2] 208	5	2		1	2	1
Bassein	1						
Bhamo	[3] 2	1					
Henzada	12						
Kyaiklat	34						
Moulmein	[3] 1	1					1
Myaungmya	5						
Myingyan	2						
Pegu	1						
Pyapon	1						
Rangoon	[2] 5	1				2	
Yenangyaung	58						

See footnotes at end of table.

PLAGUE—Continued

Place	January–May 1950	June 1950	July 1950—week ended— 1	8	15	22	29
ASIA—continued							
China:							
Chekiang Province	10						
Wenchow	[4] 4						
Fukien Province	[5] [6] 121			10			
Amoy				10			
Kwangsi Province	[4] 63						
Kwangtung Province	15						
India	36,523	583					
Allahabad	[3] 18	[3] 1					
Bombay	[2] 5						
Calcutta	[2] 3						
Cawnpore	18						
Lucknow	[2] 9						
Indochina (French):							
Annam	58	12		3	1	1	
Phanthiet	54	12		3	1	1	
Cambodia	[5] 45	1					
Pnompenh	3						
Cochinchina	7				1	3	1
Saigon							1
Laos	2						
Indonesia:							
Java	319	20	4		9	4	
Bandoeng	2	1					
Djakarta						[3] 1	
Jogjakarta	158	19	4		9	3	
Pakistan	1						
Karachi	[3] 1						
Thailand (Siam)	56						
SOUTH AMERICA							
Ecuador	14						
Chimborazo Province	4						
El Oro Province	4						
Loja Province	6						
Peru	14						
Ancash Department	[7] 3						
Lambayeque Department	1						
Lima Department	3						
Piura Department	[8] 7						
Venezuela	5						
Miranda State	5						

[1] July 11–20, 1950.
[2] Includes imported cases.
[3] Imported.
[4] Deaths.
[5] Includes suspected cases.
[6] Includes 9 deaths reported as cases on Kinmen Island.
[7] Mar. 1–31, 1950.
[8] Corrected figure.

SMALLPOX

(Cases)

AFRICA							
Algeria	73	4					
Angola	119						
Bechuanaland	7						
Belgian Congo	1,260	276	136	111	97		
British East Africa:							
Kenya	10						
Nyasaland	237	3					
Tanganyika	224	12	3	2	2		
Uganda	2						
Cameroon (British)	272	38					
Cameroon (French)	88	4					
Dahomey	198	9		[1] 8	[2] 7		
Egypt	[3] 4						
Eritrea	1						
Ethiopia	17						
French Equatorial Africa	417	14					
French Guinea	11	1					
French West Africa: Haute Volta	172	23			[2] 4		
Gambia	5						
Gold Coast	94			[4] 65			

See footnotes at end of table.

Place	January–May 1950	June 1950	July 1950—week ended— 1	8	15	22	29
AFRICA—continued							
Ivory Coast	491	14		[1] 17	[2] 11		
Libya	2						
Mauritania	1						
Morocco (French)	5	2		[1] 1			
Mozambique	107	21					
Nigeria	11,761	604					
Niger Territory	895	110		[1] 19	[2] 42		
Rhodesia:							
Northern	4						
Southern	330	74					
Senegal	2						
Sierra Leone	28						
Sudan (Anglo-Egyptian)	52	19		1	1		
Sudan (French)	96	7					
Togo (French)	42	6					
Tunisia	1						
Union of South Africa	341	3		5			
ASIA							
Afghanistan	255	21					
Arabia	329	[5] 1					
Bahrein Islands: Bahrein	34						
Burma	4,908	47	5	6			
China	630						
India	87,153	13,241	2,645	[6] 1,447	[6] 681		
India (Portuguese)	24	26					
Indochina (French)	355	10	4	4	6		
Indonesia:							
Borneo	145	130	2	6	21		
Java	1,665	800	27	190	237	12	
Sumatra	132	25	2		4		
Iran	168	15	6				
Iraq	114	[3] 15			2	6	
Israel	15						
Japan	[7] 3						
Korea (Republic of)	1,331						
Lebanon	2						
Netherlands New Guinea	3						
Pakistan	11,148	1,879	283	69			
Palestine	88			1			
Syria	15						
Thailand (Siam)	460						
Transjordan	29	1		3		1	
Turkey (See Turkey in Europe.)							
United Nations Relief and Works Agency for Palestine Refugees	1	2	2				
EUROPE							
Great Britain:							
England: Liverpool	[5] 1						
Scotland: Glasgow	21						
Greece	1	14					
Athens		1					
Piraeus		1					
Xylokastron	1						
Turkey	8						
NORTH AMERICA							
Guatemala	2						
Mexico	412	27		1			
SOUTH AMERICA							
Argentina	517						
Brazil	30	4	1	5	1		
Chile	3,482	135	15	49			
Colombia	537	16			1		
Ecuador	88	7					
Paraguay	1						
Peru	855						
Venezuela	47	4					
OCEANIA							
Australia: Fremantle	[5] 1						

[1] July 1–10, 1950. [2] July 11–20, 1950. [3] Includes imported cases. [4] May 25–July 8, 1950. [5] Imported. [6] Preliminary figures. [7] Corrected figure.

TYPHUS FEVER*

(Cases; P=present)

Place	January—May 1950	June 1950	July 1950—week ended— 1	8	15	22	29
AFRICA							
Algeria	83	5					
Basutoland	22						
Belgian Congo	[1] 43	[2] 24					
British East Africa: Kenya	11						
Egypt	64	13	2		1		
Eritrea	10	4		1			
Ethiopia	317						
French Equatorial Africa	5						
Gold Coast	6						
Libya	83	10			2		
Madagascar	[2] 1	1					
Morocco (French)	4	1					
Morocco (International Zone)	1						
Morocco (Spanish Zone)	3						
Mozambique	1	2					
Nigeria	1						
Rhodesia, Southern	5						
Sierra Leone	[2] 3						
Sudan (Anglo-Egyptian)	4						
Tunisia	49						
Union of South Africa	[1] 31	P					
ASIA							
Afghanistan	1,177	105					
Burma	[2] 8						
China	[2] 8						
India	237		2	1			
India (Portuguese)	9	2	3				
Indochina (French)	30		1				
Indonesia:							
Java	6						
Sumatra	1						
Iran	133	12	3				
Iraq	90	21	2	3	4	2	
Japan	829	34	1			1	
Korea (Republic of)	[2] 1,161						
Lebanon	1						
Netherlands New Guinea					1		
Pakistan	68	20	1	1	1	1	
Palestine	2						
Straits Settlements: Singapore	[1] 4	[2] 1					
Syria	[1] 35	2					
Transjordan	14	1					
Turkey (see Turkey in Europe).							
United Nations Relief and Works Agency for Palestine Refugees	1		1				
EUROPE							
France	1						
Germany (British Zone)	2						
Germany (French Zone)	2						
Germany (United States Zone)	1						
Great Britain:							
England: Liverpool	[2] [3] 1						
Island of Malta	[2] 4	[2] 1	[2] 2				
Greece	[1] 22	1					
Hungary	3	1					
Italy	81						
Sicily	73						
Poland	37						
Spain	13	12					
Turkey	132	18	12	2	1	3	2
Yugoslavia	209	27					
NORTH AMERICA							
Costa Rica [2]	3	1					
Guatemala	9						
Jamaica [2]	11	5	1	1	3		
Mexico [1]	261	10		5	1	2	
Panama Canal Zone	[2] 1						
Puerto Rico [2]	9						
SOUTH AMERICA							
Argentina	[1] 2						
Chile	[1] 64	12	1	7		2	
Colombia	[1] 390	17			3		
Curacao	[2] 1						
Ecuador	98	1					
Peru	397						
Venezuela	[2] 6						

See footnotes at end of table.

Place	January–May 1950	June 1950	July 1950—week ended— 1	8	15	22	29
OCEANIA							
Australia [2]	68	12	2	1			
Hawaii Territory	[4] 3	4	1				

*Reports from some areas are probably murine type, while others include both murine and louse-borne types.
[1] Includes murine type. [2] Murine type. [3] Imported. [4] Includes 2 cases murine type, and 1 case off-shipping, type unspecified.

YELLOW FEVER

(C—cases; D—deaths)

AFRICA								
French Equatorial Africa	C	1						
Port Gentil	C	[1] 1						
Gold Coast	C	10						
Ankobra Ferry	D	1						
Kade	C	1						
Oda Area:								
Akwatia	C	[2] 7						
Atiankama	C	1						
Sierra Leone	C	1	2					
Koinadugu District	C	1	[1] 2					
NORTH AMERICA								
Panama:								
Colon	D	1						
SOUTH AMERICA								
Bolivia:								
Chuquisaca Department	C	[3] 850						
La Paz Department	C	[4] 17						
Brazil:								
Maranhao State	D	1						
Colinas	D	[5] 1						
Colombia:								
Magdalena Department	D	1						
Los Angeles, Rio de Oro	D	[6] 1						
Putumayo Commissary	D	3						
Mocoa Locality	D	[7] 3						
Peru:								
Cuzco Department	D	2						
Quincemil	D	2						
Huanuco Department	C	1						
Tingo Maria	C	1						
Junin Department	D		1					
San Ramon	D		1					
San Martin Department	D	2						
Juanjui	D	1						
Lamas	D	1						

[1] Suspected. [2] Includes 4 suspected cases. [3] Reported in Azero Province during the period Jan. 1–Mar. 14, 1950, with 230 deaths. [4] Outbreak in North and South Yungas Provinces. Eight deaths reported. [5] April 3, 1950. [6] Jan. 1–31, 1950. [7] Includes 2 deaths, Apr. 5–7, 1950.

Bubonic Plague in Fort Defiance, Arizona

A positive bubonic plague specimen was identified by the New Mexico State Public Health Laboratory. According to a telegram dated August 15, the specimen was obtained from a patient in the Navajo Medical Center, Fort Defiance, Arizona. Confirmation of the laboratory report and the case report have not yet been received.