1960 Summary of Disease Outbreaks and a 10-Year Résumé

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This is the 10th summary of foodborne and waterborne disease outbreaks prepared by the author. In addition to presenting data for 1960, it summarizes data collected during the decade 1951–60. The summary also reviews the reporting by individual States, compares reporting in the United States with that of England and Wales, and describes the general pattern of disease outbreaks in this period.

THE TOTAL NUMBER of outbreaks reported was considerably lower in 1960 than in 1959 or 1958 (table 1) principally because of a marked decrease in the categories of staphylococcal food poisoning and gastroenteritis, etiology unknown (table 2). It is not presumed that these decreases indicate significant progress in prevention of these foodborne diseases but rather that reporting was even more incomplete than usual in 1960.

Waterborne Outbreaks

The 11 waterborne disease outbreaks reported in 1960 included 2 small outbreaks of typhoid fever, 2 cases in one outbreak and 6 in the other; 3 of hepatitis; 2 of shigellosis or bacillary dysentery; and 3 of gastroenteritis. Only 1 of the 11 outbreaks was attributed to a public water supply. A large number of cases of shigellosis occurred after a breakdown in a town's water treatment plant. All other outbreaks were associated with the use of water from wells or springs.

Milkborne Outbreaks

Fluid milk was the vehicle of infection in only one of the five outbreaks reported. The other four were attributed to various milk products. In the instance involving fluid milk, five cases of staphylococcal food poisoning were traced to unpasteurized milk from a fresh cow. Many coagulase-positive staphylococci were isolated from a specimen of the cow's milk. Another outbreak of five cases followed consumption of ice cream made with unrefrigerated raw milk that had been obtained from one cow. There was no evidence of mastitis in the cow. In another instance, 10 cases of *Salmonella montevideo* infection followed the eating of homemade ice cream made with raw milk and a cracked egg found in a hen's nest. Five cases of gastroenteritis of undetermined etiology occurred in a family group who ate cottage cheese purchased from a store. The probable source of infection was not found.

Typhoid Fever

The four outbreaks of typhoid fever reported included one that was clearly waterborne, one that probably was waterborne, and two that were foodborne. In the first outbreak, six users of well water developed the disease. Investigation demonstrated that the well was contaminated by seepage from a septic tank used by a known carrier. In the other small outbreak the two persons affected lived in crowded, unhygienic surroundings and had used water from a well that was susceptible to contamination from a septic tank. A resident of the immediate area who used these sanitary facilities was found to be a typhoid carrier. One of the foodborne outbreaks occurred after a wedding reception where chicken salad sandwiches were served. One of

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the women who helped in the preparation of the chicken salad was a carrier. The preliminary report showed a total of 30 cases including one boy who did not attend the reception but presumably ate one of the sandwiches. The other foodborne outbreak occurred among 10 college students who ate in a college dining hall. A cook who worked in the kitchen was found to be carrying the same phage type of organism that was isolated from some of the patients. Investigation was hampered by the fact that the students developed symptoms after leaving the school for their summer vacations.

Salmonellosis

Seventeen outbreaks of salmonellosis were reported. One was considered milkborne, and the remainder were foodborne (table 3). Four of the outbreaks were associated with eating poultry meat, three with other meat, three with custard-filled desserts, and two with other foods. In four outbreaks the type of food was not definitely determined but they were considered to be *Salmonella* infections because specific types of organisms were recovered from affected persons. One of the outbreaks associated with custard-filled desserts was believed to have been caused by contamination of the food with rat droppings. In another instance, frozen whole eggs used in the preparation of cream puffs were thought to be the source of infection. One outbreak was reported in which a food-handler in a bakery had *Salmonella* diarrhea. He was believed to be the source of infection of the cream pie, eclairs, and cake eaten by members of several families who purchased the food. In a family outbreak of 10 cases after eating homemade ice cream made with raw milk and a cracked egg, *S. montevideo* was isolated from specimens of the ice cream and from stools of the patients.

Salmonella typhimurium was isolated in five outbreaks, *S. heidelberg* in four, and *S. enteritidis*, *S. manhattan*, *S. montevideo*, *S. newport*, and *S. oranienburg* in one each. The specific type was not reported in the three remaining outbreaks. The four isolations of *S. heidelberg* were made in one State while the five of *S. typhimurium* were made in widely scattered areas.

Table 1. Foodborne and waterborne disease outbreaks reported in 1960, by vehicle of infection [1]

Area	Water		Milk and milk products		Other foods	
	Outbreaks	Cases	Outbreaks	Cases	Outbreaks	Cases
Total	11	1,784	5	48	182	7,434
New England:						
Maine	---	---	---	---	7	306
Massachusetts	---	---	1	20	8	201
Connecticut	1	23	---	---	1	220
Middle Atlantic:						
New York	4	1,511	---	---	18	1,442
New Jersey	1	63	---	---	---	---
Pennsylvania	---	---	---	---	4	569
East North Central:						
Ohio	1	98	---	---	1	20
Indiana	---	---	---	---	2	29
Illinois	1	2	2	18	5	111
Michigan	---	---	---	---	2	10
Wisconsin	---	---	---	---	1	13
West North Central:						
Minnesota	---	---	---	---	6	283
Iowa	---	---	---	---	2	23
South Dakota	---	---	---	---	1	27
Nebraska	---	---	---	---	1	152
Kansas	---	---	---	---	1	76
South Atlantic:						
District of Columbia	---	---	---	---	1	46
Virginia	---	---	---	---	1	10
West Virginia	1	53	---	---	1	30
South Carolina	---	---	---	---	2	1,000
Florida	---	---	---	---	1	3
East South Central:						
Mississippi	---	---	---	---	2	40
West South Central:						
Louisiana	---	---	---	---	2	70
Texas	---	---	---	---	1	123
Mountain:						
Montana	---	---	---	---	1	36
Idaho	---	---	---	---	1	65
Colorado	---	---	---	---	4	73
Pacific:						
Washington	---	---	1	5	14	524
Oregon	1	6	---	---	---	---
California	1	28	1	5	90	1,930
Alaska	---	---	---	---	1	2
United States, 1959	7	206	11	49	322	10,595
United States, 1958	4	445	13	441	236	9,925

[1] Includes outbreaks among military personnel.

Shigellosis

All outbreaks of shigellosis reported in 1960 were caused by *Shigella sonnei* infections. One waterborne outbreak following a breakdown in

Table 2. Foodborne and waterborne disease outbreaks reported in 1960, by type of infection[1]

Area	Typhoid fever		Salmonellosis		Shigellosis		Hepatitis		Botulism		Staphylococcal food poisoning		Gastroenteritis, etiology unknown		Toxic agents		Other	
	Outbreaks	Cases	Outbreaks	Cases	Outbreaks	Cases	Outbreaks	Cases	Outbreaks	Cases	Outbreaks	Cases	Outbreaks	Cases	Outbreaks	Cases	Outbreaks	Cases
Total	4	48	17	629	7	2, 256	4	108	4	7	54	2, 088	89	2, 874	11	93	8	1, 163
New England:																		
Maine	---	---	2	156	1	52	---	---	---	---	1	2	2	94	---	---	[2]1	2
Massachusetts	---	---	1	9	---	---	---	---	---	---	4	81	4	131	---	---	---	---
Connecticut	---	---	---	---	---	---	1	23	---	---	1	220	---	---	---	---	---	---
Middle Atlantic:																		
New York	---	---	3	160	3	2, 015	1	21	---	---	4	253	10	501	1	3	---	---
New Jersey	---	---	---	---	---	---	---	---	---	---	---	---	1	63	---	---	---	---
Pennsylvania	---	---	---	---	1	105	---	---	---	---	3	464	---	---	---	---	---	---
East North Central:																		
Ohio	---	---	---	---	---	---	---	---	---	---	---	---	1	98	1	20	---	---
Indiana	---	---	---	---	---	---	---	---	---	---	---	---	2	29	---	---	---	---
Illinois	1	2	1	10	---	---	1	11	---	---	2	22	2	42	1	44	---	---
Michigan	---	---	---	---	---	---	---	---	1	1	1	9	---	---	---	---	---	---
Wisconsin	---	---	---	---	---	---	---	---	---	---	1	13	---	---	---	---	---	---
West North Central:																		
Minnesota	---	---	---	---	---	---	---	---	2	4	2	60	2	219	---	---	---	---
Iowa	---	---	---	---	---	---	---	---	---	---	1	22	---	---	---	---	[2]1	1
South Dakota	---	---	---	---	---	---	---	---	---	---	1	27	---	---	---	---	---	---
Nebraska	---	---	---	---	---	---	---	---	---	---	1	152	---	---	---	---	---	---
Kansas	---	---	---	---	---	---	---	---	---	---	1	76	---	---	---	---	---	---
South Atlantic:																		
District of Columbia	---	---	---	---	---	---	---	---	---	---	---	---	1	46	---	---	---	---
Virginia	1	10	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
West Virginia	---	---	---	---	---	---	1	53	---	---	1	30	---	---	---	---	---	---
South Carolina	---	---	---	---	---	---	---	---	---	---	---	---	1	46	---	---	[3]1	954
Florida	---	---	---	---	---	---	---	---	---	---	---	---	---	---	1	3	---	---
East South Central:																		
Mississippi	---	---	1	3	---	---	---	---	---	---	1	37	---	---	---	---	---	---
West South Central:																		
Louisiana	1	30	---	---	---	---	---	---	---	---	---	---	1	40	---	---	---	---
Texas	---	---	---	---	---	---	---	---	---	---	---	---	1	123	---	---	---	---
Mountain:																		
Montana	---	---	---	---	---	---	---	---	---	---	---	---	1	36	---	---	---	---
Idaho	---	---	---	---	1	65	---	---	---	---	---	---	---	---	---	---	---	---
Colorado	---	---	---	---	---	---	---	---	---	---	3	53	1	20	---	---	---	---
Pacific:																		
Washington	---	---	---	---	---	---	---	---	---	---	3	12	12	517	---	---	---	---
Oregon	1	6	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
California	---	---	9	291	1	19	---	---	---	---	23	555	47	869	7	23	[4]5	206
Alaska	---	---	---	---	---	---	---	---	1	2	---	---	---	---	---	---	---	---
United States, 1959	5	43	19	1, 428	6	228	1	160	10	24	89	4, 138	182	4, 285	14	74	9	592
United States, 1958	1	30	27	1, 043	3	392	---	---	3	4	62	2, 291	138	6, 216	14	169	---	---

[1] Includes outbreaks among military personnel. [2] Trichinosis. [3] Alpha streptococcal infection.
[4] 1 *Bacillus cereus*, 2 *Clostridium perfringens*, 2 paracolon organisms.

the water treatment plant of a town was mentioned above. An estimated 1,400 cases occurred as a result of this failure. Another outbreak was traced to the water from a spring in a picnic area. Another rather large outbreak was reported in which the epidemiologic evidence pointed to some food eaten in a school cafeteria. In another instance students who ate in a college dining hall became ill with diarrhea, which was confirmed as shigellosis by laboratory tests of specimens. *S. sonnei* was isolated from the stools of a cook who had gastroenteritis 5 days before the outbreak. In another outbreak, *S. sonnei* was also isolated

from a person who prepared potato salad for a buffet supper in a home.

Hepatitis

The total number of hepatitis cases, including both infectious hepatitis and serum hepatitis, reported in the United States increased from about 23,500 in 1959 to about 40,000 in 1960. There was also a relatively large increase in common-source outbreaks of the disease in which water or food was considered to be the vehicle of infection. Epidemiologic investigations indicated that three outbreaks could be classed as waterborne and one as foodborne. Two of the three waterborne outbreaks occurred among school children whose drinking water at their schools came from wells. In each instance contamination of the wells with sewage was demonstrated. The other outbreak affected five different groups of persons who had picnics in a park where, it was stated, the water supply was inadequately chlorinated. Eleven students who had their meals in a college dining hall developed infectious hepatitis. Since one of the foodhandlers had been hospitalized with hepatitis about 3 weeks prior to onset in the students, this outbreak probably can be considered foodborne.

Botulism

Comparatively few cases of botulism were reported in 1960. Two were in native Alaskan

Table 3. Outbreaks of certain foodborne diseases reported in 1960, by type and source of food [1]

Source	Salmonellosis		Shigellosis		Staphylococcal food poisoning		Other [2]		Gastroenteritis, etiology unknown	
	Outbreaks	Cases	Outbreaks	Cases	Outbreaks	Cases	Outbreaks	Cases	Outbreaks	Cases
	Type of food									
Poultry	4	350	------	--------	8	682	------	--------	18	374
Other meat	3	180	------	--------	23	383	2	42	30	686
Fish	------	--------	------	--------	------	--------	------	--------	3	58
Custard-filled dessert	3	53	------	--------	12	210	------	--------	2	75
Salad	------	--------	2	124	4	688	------	--------	5	182
Other	2	12	------	--------	4	100	3	1, 071	10	92
Not determined	4	24	3	687	------	--------	1	47	16	1, 169
Total	16	619	5	811	51	2, 063	6	1, 160	84	2, 636
	Source of food									
Public eating establishments	6	84	------	--------	9	95	1	17	29	791
Private clubs	1	6	------	--------	1	18	1	100	5	308
Schools	------	--------	1	570	4	689	------	--------	3	92
Colleges	------	--------	1	52	1	40	------	--------	1	12
Hospitals and institutions	------	--------	------	--------	4	272	------	--------	6	208
Labor camps	------	--------	------	--------	------	--------	------	--------	3	178
Social gatherings	4	320	------	--------	10	695	1	47	13	639
Private homes	4	56	1	19	15	92	------	--------	19	83
Transportation	------	--------	------	--------	------	--------	------	--------	2	32
Picnics	------	--------	------	--------	1	22	2	42	1	164
Other	1	153	1	105	6	140	1	954	2	129
Not stated	------	--------	1	65	------	--------	------	--------	------	--------
Total	16	619	5	811	51	2, 063	6	1, 160	84	2, 636

[1] Milkborne and waterborne outbreaks not included.
[2] Includes two outbreaks each due to *Clostridium perfringens* infections and paracolon organisms, and one each of *Bacillus cereus* infection and alpha streptococcal infection.

women who had eaten home-prepared salmon egg cheese. Frozen chicken pies were the suspected source of toxin for two cases, frozen ciscoes (fish) in two cases, and home-canned green beans in one case. Five of the seven cases reported were fatal.

Staphylococcal Food Poisoning

The 54 outbreaks of staphylococcal food poisoning reported in 1960 were considerably fewer than the 89 in 1959. Otherwise there appeared to be little change from reports for previous years. However, it may be noted that the number of cases per outbreak varied widely for the different types of food involved (table 3). For instance, 383 cases were reported in 23 outbreaks associated with the consumption of meat, while 688 cases in 4 outbreaks were traced to salads. The same disproportions were present for places where the food was served or prepared.

Gastroenteritis, Etiology Unknown

Only about half as many foodborne and waterborne outbreaks in which the etiology was not stated or determined were reported in 1960 compared with 1959. The average for the previous 4 years was 135. In more than half of the 1960 outbreaks the suspected vehicle of infection was poultry or other meat. The proportion caused by cream-filled foods was less than usual. About one-third were caused by food served in public eating establishments such as restaurants and hotels.

Chemical Poisoning and Noxious Foods

Four reports of chemical poisoning associated with the consumption of food or drink were received. In one, a weedkiller containing arsenic was accidentally introduced into the tank of a soft drink dispenser. One person became ill after eating peanut brittle that had been in contact with roach powder containing sodium fluoride. Seven persons became acutely ill after drinking punch that had been left overnight in a copper-lined receptacle. A drink concocted by a child caused the death of three playmates. An insecticide containing parathion was believed to have been used in the mixture. Another episode might be classed as chemical poisoning. After eating hamburger meat to which sodium nicotinate had been added before its sale, 44 students noticed a flushing and itching of the skin.

Two small family outbreaks of mushroom poisoning were reported with no fatalities. Tung seeds caused severe gastroenteritis in three workmen who ate some of the nuts while unloading them from a ship. Members of a family complained of dizziness, blurred vision, nausea, and diarrhea after eating portions of the tree tobacco plant, *Nicotiana glauca*, which was mistaken for wild "greens." Only one report was received of poisoning from fish, in this instance smoked tuna.

Other Disease Outbreaks

In one of the outbreaks included in this category, *Bacillus cereus* was believed to be the probable etiological agent. Although various foods eaten by those affected were examined in the laboratory, only one, roast beef, yielded a culture of *B. cereus*. One of two outbreaks considered to be due to *Clostridium perfringens* was associated with consumption of roast beef. The other outbreak affected 100 picnickers who ate chile containing ground roast beef. Two outbreaks due to paracolon organisms affected 34 picnickers who ate meat sandwiches and 17 persons who ate Chinese food in a restaurant.

A large outbreak with 954 cases of an alpha streptococcal infection occurred on a military installation. Giblet gravy left unrefrigerated overnight was thought to be the vehicle of infection. The cook who prepared it had sore throat prior to the outbreak.

In contrast to previous years, only three epidemiologic reports of trichinosis cases were received in 1960. For this reason the disease is included under "Other" in table 2.

Summary of Disease Outbreaks, 1951–60

In the 10-year period ended in 1960 about 2,300 outbreaks were reported, 65, or about 3 percent, of which were waterborne. The total number of cases recorded was almost 100,000. The actual number of outbreaks and the average

annual number per million population for each State is shown in table 4 for two 5-year periods. The average number of outbreaks per million population was calculated for each State so that more valid comparisons could be made of the reporting in one State with that in another.

The average number of outbreaks per million population varied widely from State to State. In the 5-year period 1951–55 half of the States had an average of less than one outbreak per year and only 11 had an average of two or more. The figures for the second 5-year period show that only a few more outbreaks were reported than in the previous 5 years. There were more States with an annual average of less than one outbreak and only six States with an average of two or more in this latter period. Twenty-one States reported fewer foodborne and waterborne outbreaks in the second 5-year period than in the first.

It cannot be assumed that States reporting the larger number of outbreaks per million population had inferior sanitary conditions in establishments which prepared or sold food products. They probably had higher rates because they encouraged and stimulated reporting and investigation to a greater degree than did the States with lower rates. It has been apparent for some time that certain large cities report no outbreaks and some report comparatively few. Many episodes are known to be investigated in some of these cities, but few are

Table 4. Number of foodborne and waterborne disease outbreaks reported and average annual number per million population, by State, 1951–55 and 1956–60

Area	1951–55		1956–60	
	Total outbreaks reported	Average per million population	Total outbreaks reported	Average per million population
Total	1,066	1.4	1,274	1.5
New England:				
Maine	12	3.4	36	7.6
New Hampshire	2	.8	3	1.0
Vermont	2	1.1	3	1.6
Massachusetts	43	1.8	43	1.8
Rhode Island	4	1.0	8	1.8
Connecticut	25	2.4	14	1.2
Middle Atlantic:				
New York	237	3.0	99	1.2
New Jersey	3	.1	16	.6
Pennsylvania	9	.1	13	.2
East North Central:				
Ohio	18	.4	38	.8
Indiana	27	1.3	21	.9
Illinois	47	1.1	53	1.1
Michigan	7	.2	13	.3
Wisconsin	13	.7	9	.5
West North Central:				
Minnesota	17	1.1	21	1.2
Iowa	7	.5	8	.6
Missouri	14	.7	13	.6
North Dakota	2	.6	3	.9
South Dakota	3	.9	3	.9
Nebraska	1	.1	7	1.0
Kansas	5	.5	2	.2
South Atlantic:				
Delaware	1	.6	0	0
Maryland	14	1.1	16	1.1
District of Columbia	1	.2	5	1.2
Virginia	9	.6	17	.9
West Virginia	10	1.0	14	1.4
South Atlantic—Con.				
North Carolina	15	0.7	11	0.5
South Carolina	1	.1	6	.5
Georgia	6	.3	12	.6
Florida	12	.8	11	.5
East South Central:				
Kentucky	31	2.1	16	1.0
Tennessee	22	1.3	5	.3
Alabama	4	.3	5	.3
Mississippi	6	.6	7	.7
West South Central:				
Arkansas	14	1.6	5	.5
Louisiana	8	.6	15	.9
Oklahoma	3	.3	2	.2
Texas	10	.2	6	.1
Mountain:				
Montana	1	.3	2	.6
Idaho	7	2.4	9	2.8
Wyoming	3	2.1	2	1.2
Colorado	7	1.0	13	1.6
New Mexico	6	1.6	6	1.4
Arizona	4	.9	3	.5
Utah	5	1.3	1	.2
Nevada	1	1.1	1	.7
Pacific:				
Washington	46	3.8	72	5.2
Oregon	37	4.6	25	2.8
California	273	4.6	553	7.2
Alaska	2	2.5	3	3.7
Hawaii	8	3.4	4	1.1
Noncontiguous:				
Puerto Rico	1	<.1	1	<.1

reported to State health authorities. It is also probable that many foodborne disease outbreaks occur, particularly family outbreaks, which never come to the attention of local authorities.

It has been variously and conservatively estimated that the actual number of foodborne and waterborne disease outbreaks is at least 10 to 20 times larger than the reported number. This means that the number of cases occurring annually is of the order of 100,000 to 200,000, a figure much greater than the approximately 10,000 presently reported.

Another method of evaluating the reporting in the United States is to compare its record with that of another country. A recent report on food poisoning in England and Wales (*1*) shows that the average annual number of "general outbreaks," which are defined as two or more cases in persons in different families, was 9.8 per million population during the 5-year period 1949–53. The rate for the United States, as shown in table 4, was 1.4 for the period 1951–55. The average annual rate was 10.6 in England and Wales for 1954–58 as compared with 1.5 for the United States in 1956–60. Not one of the United States had an average annual rate equal to that of England and Wales as a whole. While procedures for collecting information on foodborne disease and the method used to investigate outbreaks are different in the two countries, the differences in procedures probably do not explain the wide differences in numbers of episodes reported in the two countries, nor may it be assumed that sanitary conditions in establishments manufacturing, processing, or preparing foods are much more inferior in the country with the higher rate. A more effective system of collecting information in England and Wales probably accounts for much of this wide difference in number of outbreaks.

Changes in Patterns of Infections

Table 5 shows the numbers of foodborne and waterborne disease outbreaks reported in the United States over a 9-year period by the principal etiological agents commonly reported to be the causes of such outbreaks. The sudden decrease in number of staphylococcal food poisoning outbreaks in 1957 and the concurrent increase in the number classified as gastroenteritis, etiology unknown, is due to a change in classification. Beginning in 1957, only those confirmed by laboratory examinations were placed in the category of staphylococcal food poisoning. "Suspect" outbreaks were included with gastroenteritis, etiology unknown, because the etiological agent was not determined or reported. In spite of this artificial decrease in number of reports of staphylococcal food poisoning there is no convincing evidence that this type is decreasing in frequency in the United States even though determined efforts have been made to improve food-handling procedures.

Likewise, there is no evidence of a decrease

Table 5. Outbreaks of foodborne and waterborne diseases reported from 1952–60, by type of infection

Year	Typhoid fever		Salmonellosis		Shigellosis		Botulism		Staphylococcal food poisoning		Gastroenteritis, etiology unknown	
	Outbreaks	Cases	Outbreaks	Cases	Outbreaks	Cases	Outbreaks	Cases	Outbreaks	Cases	Outbreaks	Cases
1960	4	49	16	619	7	2, 256	4	7	53	2, 088	89	2, 874
1959	5	43	19	1, 428	6	228	10	24	89	1, 138	182	4, 285
1958	1	30	27	1, 043	3	392	3	4	62	2, 291	134	6, 216
1957	4	70	30	1, 607	11	754	6	12	58	1, 660	135	6, 065
1956	7	52	23	1, 999	8	1, 107	11	22	111	4, 313	88	6, 688
1955	5	36	16	971	10	475	5	14	102	4, 130	66	5, 160
1954	16	92	26	1, 164	19	1, 471	8	18	100	4, 868	103	5, 914
1953	12	75	21	533	23	2, 230	7	10	81	4, 045	92	4, 832
1952	11	156	31	1, 335	12	1, 441	2	5	77	3, 798	50	2, 049

in the amount of foodborne disease caused by *Salmonella* organisms. The wide distribution of the many types of this organism in many species of animals with which man has contact or may use as food makes it difficult to prevent transmission to man. The increasing use of chickens, turkeys, and ducks, and their eggs as food also contributes greatly to the incidence because these fowl are commonly infected with *Salmonella* organisms. In addition to the animal sources of infection, human carriers and patients have many opportunities to contaminate food.

Etiological agents not previously associated with foodborne infection or disease in the United States were demonstrated during the past decade. These included *C. perfringens* and *B. cereus*, which have been isolated in several outbreaks in recent years. The extent to which they contribute to foodborne disease in the United States has not been determined.

Since the early 1950's when hepatitis became reportable in all of the States, it has become apparent that the disease is one of high frequency and often occurs in localized epidemics. An increasing number of the epidemics in recent years have been waterborne according to evidence obtained in epidemiologic investigations. Foodborne hepatitis had been suspected but good epidemiologic evidence of such transmission or association with a specific food was not obtained until quite recently.

Need for More Complete Reporting

A lack of enthusiasm regarding any attempt to improve the reporting of foodborne and waterborne disease is readily apparent in some parts of the United States. Several factors may contribute to this attitude. One possibility is that the volume of reported illness has been relatively small. There is also a general impression that infectious diseases are no longer an important public health problem and that other disease problems are paramount. This impression may have been formed because of the remarkable decline in waterborne outbreaks of typhoid fever, dysentery, and some other enteric infections and the virtual disappearance of milkborne epidemics of diphtheria, streptococcal sore throat, and typhoid fever. Also some of the infectious diseases have been brought under control, the severe effects of others have been counteracted by chemotherapy, and a few, such as measles, whooping cough, and streptococcal infections, have declined in severity.

On the other hand, there is good reason to believe that foodborne diseases and, to a lesser extent, waterborne diseases, are still widely prevalent; neither can be measured in terms of reported incidence. Consequently, it can be argued persuasively that there is a real need to improve the reporting of both waterborne and foodborne illness as the first step in the development of effective control measures. There also is real need to study more intensively and extensively the epidemiology of staphylococcal food poisoning and *Salmonella* infections because their causative agents are widely distributed and their ecologic factors are complex. The relationship of the many phage types of staphylococci which cause septic infections to foodborne illness needs to be determined more accurately, and the ecology of the hundreds of salmonellae serotypes found in man and animals needs more extensive study. The relative importance and frequency of illness due to etiological agents not previously associated with foodborne disease in the United States should be determined. The increasing frequency of common-source epidemics of infectious hepatitis reported recently suggests the need for more careful investigation of their epidemiologic factors. The lack of information on these aspects of foodborne and waterborne diseases is ample justification for making more thorough epidemiologic and microbiological investigations and for more complete reporting.

REFERENCE

(1) Cockburn, W. C.: Food poisoning: reporting and incidence of food poisoning. Roy. Society Health J. 4: 249, July–August 1960.