

1958 SUMMARY OF DISEASE OUTBREAKS¹

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The pattern of foodborne and waterborne disease outbreaks in 1958 did not differ greatly from that of the previous years (table 1). However, a closer inspection should be made of some aspects of the pattern. For instance, there is no convincing evidence that staphylococcal food poisoning and foodborne *Salmonella* infections are becoming less frequent.

The decline in number of outbreaks and cases of staphylococcal food poisoning reported in 1958 and in 1957 compared with previous years is more likely to be due to failure in reporting than to a reduction in this type of illness (table 2). Two outbreaks involving cheese were among the reports received in 1958. In one outbreak cases occurred in two adjoining States receiving shipments of cheese processed in another State. Staphylococci were isolated from samples of the cheese obtained from the distributor and the factory. Furthermore, the organism was found in milk from dairy herds supplying milk to the cheese factory. Some strains of staphylococci isolated from samples of milk were resistant to certain antibiotics. The second outbreak occurred in an institutional population that had been supplied with cheese manufactured in the same State.

A review of reports received in past years shows that staphylococcal food poisoning associated with fluid milk, dried milk, and cheese is not uncommon. It is also known that bovine mastitis caused by staphylococci is common. Furthermore, the indiscriminate use of some antibiotics in the treatment of mastitis has favored the development of strains of staphylococci that are resistant to the antibiotics. Therefore, there is need to investigate more thoroughly many aspects of the whole problem of staphylococci in milk and milk products and to study the relationship between staphylococcal infections in man and animals. More intensive studies of outbreaks should also be made when milk or milk products appear to be vehicles of infection.

Fewer cases as well as fewer outbreaks of foodborne *Salmonella* infection were reported in 1958 than in 1957. The numerous sources of infection reported emphasize the wide distribution of these organisms, particularly in animals and animal prod-

ucts, such as meat and eggs (table 3). In one outbreak caused by *Salmonella dublin*, infection was traced to a certified raw milk dairy. Laboratory examination revealed the presence of this organism in specimens of feces of a dairy farm employee, but *Salmonella* organisms were also isolated from three cows in the dairy herd. In another State, employees on a dairy farm presumably were infected by contact with cows that had diarrhea. *Salmonella typhimurium* was isolated from both cattle and men that were ill.

Salmonellae were isolated from shell eggs and frozen egg whites in several epidemics and from packages of a powdered scrambled egg product. Numerous outbreaks were reported following the eating of chicken and turkey meat, especially the latter. In others, food handlers were the probable source of infection. A number of cases of salmonellosis were traced to contaminated well water, seldom reported as a source. The wide distribution of *Salmonella* and the possibilities for spread in a community are indicated by a summary prepared by the health department laboratory service of a large western city. Twenty-seven different subtypes of the organism were isolated from 209 persons in 1958. These subgroups included 10 in group B, 11 in group C, 3 in group D, 2 in group E, and 1 in group G. Seventy-two strains of *S. typhimurium* were isolated, 23 of *Salmonella saint-paul*, 16 of *Salmonella oranienburg*, 14 of *Salmonella newport*, 13 of *Salmonella montevideo*, 11 of *Salmonella infantis*, and 10 of *Salmonella give*. The same variety of types has been reported where laboratory diagnostic services are extensively utilized.

Since only a fraction of the outbreaks caused by staphylococci and salmonellae and by other organisms appear to be reported, the real extent of the foodborne diseases is unknown. Year after year the same few States report the majority of the outbreaks summarized in these annual reports. Other States report a moderate number, and some report none. The reports from certain large cities are conspicuous by their absence. More complete reporting is needed not only for measuring the magnitude of the problem but also to show what is needed for improvement in food handling facilities and practices and for planning more effective control programs. Furthermore, the food industry is fourth largest of all industries in the United States, and the quality of its products is the direct concern of all persons.

The various categories of foodborne and water-

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TABLE 1. FOODBORNE AND WATERBORNE DISEASE OUTBREAKS REPORTED IN 1958, BY VEHICLE OF INFECTION

Area ¹	Water		Milk and milk products ²		Other foods ²	
	Outbreaks	Cases	Outbreaks	Cases	Outbreaks	Cases
United States...	4	445	13	441	236	9, 925
New England:						
Maine.....					5	183
Massachusetts.....					13	425
Rhode Island.....					2	101
Connecticut.....					2	43
Middle Atlantic:						
New York.....	1	11			17	747
New Jersey.....					4	470
Pennsylvania.....					3	947
East North Central:						
Ohio.....					1	45
Indiana.....			3	124	7	694
Illinois.....					5	223
Michigan.....			1	21	3	342
Wisconsin.....					1	43
West North Central:						
Minnesota.....					3	36
Iowa.....			1	200	1	60
Missouri.....	1	61			3	85
South Dakota.....					2	16
Nebraska.....			1	5		
South Atlantic:						
Maryland.....					1	61
Virginia.....					1	16
West Virginia.....					6	17
North Carolina.....					3	347
South Carolina.....					2	391
Georgia.....					3	196
East South Central:						
Kentucky.....					3	60
Mississippi.....					2	234
West South Central:						
Louisiana.....			1	31	2	23
Oklahoma.....					2	141
Mountain:						
Idaho.....					1	32
Colorado.....	1	350			1	5
New Mexico.....	1	23				
Pacific:						
Washington.....					2	64
Oregon.....					5	120
California.....			6	60	130	3, 758
United States 1957.....	4	131	8	67	250	11, 085
United States 1956.....	9	1, 719	31	873	210	11, 133

¹ States not listed submitted no reports.

² Includes outbreaks among military personnel.

borne disease outbreaks reported in 1958 are discussed and tabulated in the same manner as in the report for 1957.

WATERBORNE OUTBREAKS

Only four outbreaks were demonstrated to be due to contaminated water. An outbreak of shigellosis followed failure to chlorinate the public water supply of a small city for several days while the water inspector was out of town because of illness in his family. Another outbreak of shigellosis occurred in a group of campers who drank inadequately treated water from a livestock watering tank. The other two outbreaks included salmonellosis resulting from the use of a polluted well and gastroenteritis due to contamination of a public water supply, although the manner in which the supply was contaminated was not determined.

MILKBORNE OUTBREAKS

Milk and milk products were considered the source of infection for 13 outbreaks. Cheese and cheese spreads were implicated in five outbreaks, several of which occurred only among members of individual families. The outbreaks involving Cheddar cheese have been described.

Thirty cases of salmonellosis were traced to raw milk from a certified dairy. In this episode a bottle washer continued to work at his job while he was ill. About a week after the onset of his illness, a stool specimen was found to be positive for *S. dublin*. In another State, five cases of salmonellosis were thought to be due to milk from a small uninspected dairy. An outbreak of salmonellosis in a hospital was traced to malted milk, but raw eggs used in the preparation of the milk drinks may have been the primary source of infection. Another outbreak in a hospital, not included in the milkborne category, was thought to be due to eggs used in making eggnog. Investigation revealed the flock which supplied the eggs was infected.

Reconstituted dried, nonfat milk was the source of infection for 15 cases of gastroenteritis in a labor camp. Not included in the milkborne category was an outbreak of 75 to 80 cases of gastroenteritis, thought to be due to milk served from dispensers in a university dining room. But this could not be proved, and milk obtained several days later from the dispensers did not show evidence of contamination.

TYPHOID FEVER

Only one outbreak of typhoid fever was reported during 1958 in which food or drinking water was incriminated. The organisms recovered from the ill

TABLE 2. FOODBORNE, WATERBORNE, AND OTHER DISEASE OUTBREAKS REPORTED IN 1958, BY TYPE OF INFECTION

Area ¹	Typhoid fever		Salmonellosis ²		Shigellosis		Trichinosis		Botulism		Staphylococcal food poisoning ²		Streptococcal infections		Gastroenteritis, etiology unknown ²		Toxic agents	
	Outbreaks	Cases	Outbreaks	Cases	Outbreaks	Cases	Outbreaks	Cases	Outbreaks	Cases	Outbreaks	Cases	Outbreaks	Cases	Outbreaks	Cases	Outbreaks	Cases
United States.....	1	30	27	1,043	3	392	7	68	3	4	62	2,291	2	598	134	6,216	14	169
New England:																		
Maine.....							1	4			1	5			3	174		
Massachusetts.....			3	177							2	142	1	12	7	94		
Rhode Island.....			1	4											1	97		
Connecticut.....			1	3											1	40		
Middle Atlantic:																		
New York.....			5	164							3	130			9	458	1	6
New Jersey.....														4	470			
Pennsylvania.....							1	7						1	840	1	100	
East North Central:																		
Ohio.....							1	45										
Indiana.....											6	749			4	69		
Illinois.....											2	108			3	115		
Michigan.....			2	277							2	86						
Wisconsin.....			1	43														
West North Central:																		
Minnesota.....							1	9			1	20					1	7
Iowa.....											2	260						
Missouri.....					1	19									3	127		
South Dakota.....			1	7											1	9		
Nebraska.....			1	5														
South Atlantic:																		
Maryland.....											1	61						
Virginia.....											1	16						
West Virginia.....							3	3			1	5			2	9		
North Carolina.....			1	140					1	1	1	206						
South Carolina.....															2	391		
Georgia.....			1	58											2	138		
East South Central:																		
Kentucky.....									1	2					1	38	1	20
Mississippi.....											1	34			1	200		
West South Central:																		
Louisiana.....			1	31											1	22	1	1
Oklahoma.....															2	141		
Mountain:																		
Idaho.....															1	32		
Colorado.....					1	350					1	5						
New Mexico.....					1	23												
Pacific:																		
Washington.....											2	64						
Oregon.....											2	6			3	114		
California.....	1	30	9	134					1	1	33	394	1	586	82	2,638	9	35
United States 1957.....	4	70	30	1,607	11	754	1	14	6	12	58	1,660	4	1,030	135	6,065	8	68
United States 1956.....	7	52	23	1,999	8	1,107	11	98	11	22	111	4,313			88	6,688	9	160

¹ States not listed submitted no reports.² Includes outbreaks among military personnel.

TABLE 3. OUTBREAKS OF CERTAIN FOODBORNE DISEASES REPORTED IN 1958, BY TYPE AND SOURCE OF FOOD

Source	Salmonellosis		Shigellosis		Staphylococcal food poisoning		Streptococcal infections		Gastroenteritis, etiology unknown	
	Number of outbreaks	Number of persons affected	Number of outbreaks	Number of persons affected	Number of outbreaks	Number of persons affected	Number of outbreaks	Number of persons affected	Number of outbreaks	Number of persons affected
	Type of food									
Poultry.....	8	162	0	-----	6	214	0	-----	28	1, 672
Other meat.....	1	58	0	-----	31	651	1	586	44	975
Custard-filled dessert.....	1	23	0	-----	6	40	0	-----	5	234
Salad.....	0	-----	1	19	8	825	0	-----	6	204
Other.....	6	442	0	-----	9	471	1	12	17	438
Not determined.....	10	347	0	-----	2	90	0	-----	33	2, 632
Total.....	26	1, 032	1	19	62	2, 291	2	598	133	6, 155
	Source of food									
Public eating establishments.....	10	117	0	-----	17	214	1	12	30	346
Private clubs.....	1	40	0	-----	1	141	0	-----	4	68
Schools.....	1	140	0	-----	3	840	0	-----	8	516
Colleges.....	0	-----	0	-----	1	65	1	586	5	326
Hospitals and institutions.....	4	191	0	-----	4	321	0	-----	8	2, 418
Recreation camps.....	0	-----	0	-----	0	-----	0	-----	4	162
Labor camps.....	0	-----	0	-----	0	-----	0	-----	7	432
Social gatherings.....	4	185	0	-----	7	285	0	-----	9	273
Bakery caterers.....	1	24	0	-----	1	8	0	-----	3	235
Private homes.....	2	28	0	-----	16	215	0	-----	34	234
Transportation.....	0	-----	0	-----	1	2	0	-----	1	10
Other.....	2	39	1	19	10	180	0	-----	16	880
Not stated.....	1	268	0	-----	1	20	0	-----	4	255
Total.....	26	1, 032	1	19	62	2, 291	2	598	133	6, 155

persons were phage type E₁. However, several other episodes of typhoid fever were reported. Three boys became ill with typhoid fever after swimming in a stream which carried untreated sewage. The organism in this instance was also phage type E₁. In another instance, six cases with one death occurred over several weeks in a slum community which did not have public water and sewage facilities.

SALMONELLOSIS

Twenty-seven outbreaks of salmonellosis were reported in which laboratory confirmation was made either by isolation of organisms from the food, from the stools of the ill persons, or from food handlers. Four of the outbreaks were related to ingestion of chicken meat and four to turkey meat. The source of the food for 10 of the outbreaks was public eating establishments. Eleven species of *Salmonella* organisms were isolated. Among these were *S. typhimuri-*

um in seven instances and *S. dublin*, *Salmonella sandiego*, and *S. saint-paul* in two outbreaks each.

Several other outbreaks were reported, but no foods were thought to be involved. *Salmonella reading* was isolated from a package of powdered egg product which was served at a Boy Scout ranch, but no cases resulted.

SHIGELLOSIS

Three outbreaks of shigellosis were reported. Two resulted from contaminated water supplies and the other from a tossed salad. The responsible organism in each instance was *Shigella sonnei*.

Shigella flexneri 2a was found to be responsible for a number of cases of shigellosis which occurred over a 2-week period in an unsanitary labor camp. And *S. flexneri* 4 was responsible for an outbreak in a boarding home for children, but no common source of infection was found in either episode.

TRICHINOSIS

In two of the seven outbreaks of trichinosis reported during 1958, the source of infection was home-made pork sausage. In another, it was pork sausage prepared by a local butcher. In a fourth outbreak, dietary histories indicated that ham had been eaten. Investigations revealed that the ham itself probably was free of viable *Trichinella* and that contamination could have taken place by the addition of raw pork. In this outbreak 78 persons developed symptoms of trichinosis, and about 45 of these gave definite laboratory evidence of recent infection.

BOTULISM

Four cases of botulism were reported. Two persons became ill after eating home-canned string beans which had been discarded by another family because they looked spoiled. The beans were heated in a skillet before serving. *Clostridium botulinum* was identified morphologically and culturally from the original jar of beans. One other case resulted from eating home-canned mushrooms, and no particular food was incriminated in the illness of the fourth person.

STAPHYLOCCAL FOOD POISONING

Most of the 62 outbreaks of staphylococcal food poisoning occurred following meals in public eating establishments and private homes. The foods most often involved were meats other than poultry. Eclairs and custard-filled desserts were proved by laboratory tests to be the vehicle of infection in only six outbreaks.

GASTROENTERITIS, ETIOLOGY UNKNOWN

More than one-half of the local waterborne and foodborne outbreaks were of unknown etiology. Poultry and other meats were the suspected vehicles in 72 of them. The two most frequent sources of infected foods were public eating establishments and private homes. Usually food samples were not available for laboratory examination, and, when specimens were obtained either from the food or from the ill persons, the results were negative or inconclusive for food-poisoning organisms.

CHEMICAL POISONING AND NOXIOUS FOODS

Five reports of chemical or noxious food poisoning, each affecting only a few persons, were related to the ingestion of wild mushrooms. Another report stated that 20 children became ill when a dining room was sprayed with an insecticide while the group was eating. Several other outbreaks of chemical poisoning resulted from contamination of punch drinks with metal from the containers in which the drinks were stored. Zinc, antimony, and copper were the metals involved.

In two instances beef and French doughnuts were found to be contaminated, and in another instance a number of persons became acutely ill while eating soup in a restaurant. Investigators thought the illness was due to chemical poisoning, although there was no definite evidence of such contamination. One case of lead poisoning resulted from ice used in alcoholic drinks. The ice was stored in a chest which had a lead slab lining the bottom, and chips of the lead were scooped up along with the ice.