REPORT NO. 69
March 13, 1968

NATIONAL
COMMUNICABLE DISEASE CENTER

SALMONELLA

SURVEILLANCE

CONTENTS. . .

FOR THE MONTH OF DECEMBER 1967

U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE/PUBLIC HEALTH SERVICE
Bureau of Disease Prevention and Environmental Control

PREFACE

Summarized in this report is information received from State and City Health Departments, university and hospital laboratories, the National Animal Disease Laboratory (USDA, ARS), Ames, Iowa, and other pertinent sources, domestic and foreign. Much of the information is preliminary. It is intended primarily for the use of those with responsibility for disease control activities. Anyone desiring to quote this report should contact the original investigator for confirmation and interpretation.

Contributions to the Surveillance Report are most welcome. Please address

National Communicable Disease Center, Atlanta, Georgia 30333

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I. SUMMARY

This issue of the Salmonella Surveillance Report includes reports of four community outbreaks and three institutional outbreaks, a summary of products recalled by the U.S. Food and Drug Administration because of salmonella contamination, a summary of salmonellosis in Belgium for 1967, and the preliminary results from a program of surveillance of rendering plants in Wisconsin.

In December 1967, 1,366 isolations of salmonellae were reported from humans, an average of 342 isolations per week (Tables I and II). This number represents a decrease of 19 (5.3 percent) from the weekly average of November 1967 and a decrease of 27 (7.3 percent) from the weekly average of December 1966.

Reports of 797 nonhuman isolations of salmonellae were received during December, a decrease of 146 (15.5 percent) from November 1967 (Tables IV, V, and VI).

II. REPORTS OF ISOLATIONS FROM THE STATES

A. HUMAN

The seven most frequently reported serotypes during December were as follows:

Rank	Serotype	Number	Percent	Rank Last Month
1	S. typhi-murium and S. typhi-murium var. copenhagen	393	28.8	1
2	S. heidelberg	102	7.5	3
3	S. enteritidis	97	7.1	4
4	S. saint-paul	89	6.5	6
5	S. infantis	84	6.1	5
5	S. newport	84	6.1	2
7	S. typhi	47	3.4	7
	Total	896	65.7	
	Total (all serotypes)	1366		

The age and sex distribution is shown in Table III.

B. NONHUMAN

Thirty-seven centers reported nonhuman isolations of salmonellae, in which 60 different serotypes were represented.

The seven most frequently reported serotypes during December were as follows:

Rank	Serotype	Predominant Source and Number	Number	Percent	Rank Last Month
1	S. typhi-murium and S. typhi-murium var. copenhagen	chickens (25)	86	10.8	1
2	S. heidelberg	chickens (30)	59	7.4	4
3	S. anatum	candy (22)	57	7.2	2
4	S. montevideo	bone meal/meat scraps (18)	49	6.1	Not listed
5	S. infantis	chickens (10) and eggs (10)	48	6.0	3
6	S. enteritidis	noodles (13)	33	4.1	Not listed
7	S. eimsbuettel	animal feed (9)	31	3.9	7
	Total		363	45.5	
	Total (all serotypes)		797		

The most prominent nonhuman sources of salmonellae reported during December were chickens, 138 (17.3 percent); animal feed, 122 (15.3 percent); turkeys, 80 (10.0 percent); bone meal/meat scraps, 71 (8.9 percent); and pigs, 59 (7.4 percent).

III. CURRENT INVESTIGATIONS

NONE

IV. REPORTS FROM THE STATES

A. GEORGIA

An Outbreak of Salmonellosis Due to Barbecued Pork

Reported by John E. McCroan, Ph.D., Chief Epidemiologist, and Thomas W. McKinley, B.S., Assistant Epidemiologist, Epidemiologic Investigations Branch, Georgia Department of Public Health.

In late October and early November 1967, ten cases of salmonellosis due to consumption of contaminated barbecued pork occurred among employees and patrons of a local restaurant in Bleckley County, Georgia. On October 19, a part-time employee of the sandwich shop developed diarrhea; stool culture yielded Salmonella typhi-murium. The source of his infection could not be documented. However, he was involved in food preparation and was in the habit of eating the raw pork while it was being barbecued. Over the next 3 weeks, six patrons and one employee also developed diarrhea within 24 to 48 hours after consumption of pork barbecue sandwiches. Stool cultures performed on five of these individuals were positive for S. typhi-murium.

Preparation of the suspect sandwiches was investigated. The meat came from a hog carcass cooked slowly over an open barbecue pit for approximately 16 hours and cooled overnight without refrigeration. In the morning the meat was chopped and refrigerated. Portions were removed from the refrigerator and warmed in a double boiler until served as sandwiches. Cultures of sandwiches, other food items, and the kitchen environment were negative for salmonellae.

Food histories implicated the sandwiches as the cause of this outbreak, but the method of contamination was not apparent. The distribution of cases over a 13-week period was not characteristic of an outbreak due to a single common exposure. It appeared that the outbreak began when the first case, a restaurant employee in the habit of eating raw pork, acquired S. typhi-murium and then contaminated the barbecue in its preparation. Since the meat was held at incubation temperature for many hours, even a small initial inoculum would have been sufficient to produce illness.

B. MICHIGAN

Gastroenteritis Caused by Salmonella pullorum Contaminated Eggs

Reported by Donald B. Coohon, D.V.M., Division of Epidemiology, Michigan Department of Public Health, E. B. Weisner, D.V.M., Poultry Specialist, Michigan Department of Agriculture, and Mr. George B. Scott, Michigan Poultry Improvement Association.

On July 21, 1967, a 5-year-old boy from Battle Creek, Michigan, was hospitalized with diarrhea and vomiting. Treated symptomatically without antibiotics, he recovered uneventfully and was discharged on the sixth hospital day. A stool culture obtained by the hospital laboratory yielded a Salmonella species which was further identified as Salmonella pullorum by the Salmonella Typing Station of the Michigan Department of Public Health and the Enteric Bacteriology Unit, Laboratory Program, National Communicable Disease Center.

Because infections of humans with S. pullorum are unusual, an epidemiologic investigation was initiated. Three other children and one adult female in the same family had all experienced a mild diarrheal illness at the time the index case was hospitalized. However, stool cultures taken on August 21, 1 month after the outbreak, were negative.

Food histories obtained from the family implicated eggs, which had been obtained from a local farm and incompletely fried, as the vehicle of infection. The flock on the farm was tested, and 7 of 53 hens were pullorum reactors. One of the hens was then sacrificed and cultures from the intestine and internal organs were positive for S. pullorum.

EDITOR'S COMMENT: Salmonella pullorum is a host-adapted serotype isolated almost solely from poultry; since 1963, only 18 isolations have been reported from non-poultry sources. Although S. pullorum is thought to cause only mild illness in humans, at least one fatal case has been reported[1], and in the case reported above, the child became ill enough to require hospitalization. Fourteen other human isolations have been reported during the past 5 years. Salmonella pullorum appears to be considerably less pathogenic for man than other salmonella serotypes.

Reference

1. U.S. Department of Health, Education, and Welfare, Public Health Service, National Communicable Disease Center: Salmonella Surveillance Report No. 19. Atlanta, Georgia, 1963, p. 10.

C. OREGON

Salmonella typhi-murium var. copenhagen Infections in Five Elderly Persons Following a Common Meal

Reported by Edward L. Goldblatt, M.D., Director, Epidemiology Section, Monroe A. Holmes, D.V.M., Public Health Veterinarian, Epidemiology Section, and Vivien Runte, P.H.N., Epidemiology Section, Oregon State Board of Health.

In June 1967, five elderly persons, ages 72-77, became severely ill with gastroenteritis following consumption of a home-cooked meal. There were no deaths, but three of the patients required hospitalization. The durations of illness ranged from 13 days to 1 month. Stool cultures of the patients were positive for *Salmonella typhi-murium var. copenhagen*, phage type 1a.

The five individuals represented three related families living in separate homes. The only common meal consumed was lunch the day prior to onset of illness. The lunch consisted of pork spare ribs with Hawaiian sauce, mashed potatoes, buttered cauliflower, turnips cooked with the greens and seasoned with butter, and lemon meringue pie. All food items were prepared in the home of the hostess. The spare ribs were baked in an oven at 450° until browned, then 350° for 2-2½ hours. The Hawaiian sauce contained chili and worchestershire sauce, ginger, brown sugar, and pineapple juice. The sauce was cooked slowly until thickened (approximately 1 hour). The meat with sauce, cauliflower, turnips, and greens were served immediately following the cooking. The filling of the lemon meringue pie contained the following ingredients: lemon juice, three egg yolks, corn starch, and water. These materials were cooked in a double boiler over boiling water until the filling was thickened. The meringue was placed on the pie and the pie was placed in the oven to brown. The woman who ate the pie stated that the meringue was undercooked. None of the food items were available for culturing.

The investigators assumed that eggs were the most likely source of illness. The eggs were brown jumbo eggs and were said to be unchecked. The source of supply was traced from the retail store, through the wholesaler to the jobber, and finally to three possible producers. Accordingly, the three possible producers (the only producers selling brown jumbo eggs through the involved retailer, wholesaler, and jobber) were investigated.

The three producers were associated with a large poultry association in southwest Washington. All eggs were picked up and transported by an Oregon jobber. Investigation revealed that all three producers had ill birds on their farms. Environmental sampling of nesting material and food samples from all three farms were negative for enteric pathogens. Cloacal swabs from sick birds on one ranch yielded *S. heidelberg*. However, three sick birds from one producer which had been sent to the Oregon State Department of Agriculture Poultry Improvement Laboratory yielded *S. typhi-murium*; this was confirmed by the Public Health Laboratory of the Oregon State Board of Health. Additional examination was conducted by the Enteric Bacteriology Unit, Laboratory Program, National Communicable Disease Center, and *S. typhi-murium var. copenhagen*, phage type 1a, was found. This matched the phage typing results of the isolates from the five patients.

In a further attempt to determine if chicken feed was the source of infection, feed samples were taken from the appropriate feed mill. Both the finished feed and organic supplements were sampled. No enteric pathogens were found.

D. CALIFORNIA

Salmonella heidelberg Infections Following a Turkey Dinner

Reported by Catherine Tipton, P.H.N., El Dorado County Health Department, and Philip K. Condit, M.D., Chief, Bureau of Communicable Diseases, California Department of Public Health.

In August 1967, an outbreak of febrile gastroenteritis occurred affecting seven of eight persons who consumed a turkey dinner. Symptoms and signs included diarrhea, cramps, vomiting, and fever over 102°. Three patients were hospitalized; the average duration of symptoms was 4 days. Salmonella heidelberg was cultured from five persons. The only meal common to all the patients was an evening picnic meal which preceded symptoms by 15 to 25 hours. The meal consisted of roast turkey, gravy, canned cranberry sauce, and potatoes. The turkey was purchased and cooked the day before the meal. It was then transported in the back of a station wagon and was exposed to sun and heat during a 2½-hour drive. It was warmed slightly and served that evening. No food was available for culturing, but it was assumed that the turkey was the vehicle of infection.

An Outbreak of Salmonellosis in a Newborn Nursery

Reported by Philip K. Condit, M.D., Chief, Bureau of Communicable Diseases, and Rebecca L. Proctor, M.D., General Epidemiology Section, Bureau of Communicable Diseases, California Department of Public Health.

During September, October, and November 1967, an outbreak of salmonellosis due to Salmonella typhi-murium occurred in the newborn nursery of a northern California general hospital. Eight of 155 infants born in the hospital over the 3-month period were involved in the outbreak, and 2 deaths were reported. The first isolation was reported on September 4 from a newborn who had been discharged from the hospital nursery shortly before developing diarrhea. The baby was rehospitalized elsewhere and subsequently died. A stool culture was positive for S. typhi-murium. In addition, a stool culture from the infant's mother, who had no history of diarrheal illness, was also positive for S. typhi-murium. A culture survey of hospital personnel was negative.

On October 30, 7 weeks after the first reported isolation, a second newborn developed diarrhea shortly after discharge from the same newborn nursery. This child was also hospitalized elsewhere and recovered uneventfully. A stool culture was positive for S. typhi-murium. On November 7, a premature infant developed diarrhea while in the nursery. No stool culture was obtained, and the child died with multiple congenital abnormalities shortly thereafter. Between November 12 and 20, five more newborns developed diarrhea while in the nursery. All were positive for S. typhi-murium, and all recovered uneventfully. No common vehicle such as baby formula or drug could be implicated.

At this time, after eight cases had occurred, a repeat culture survey of all hospital personnel was performed. A nurse in the newborn nursery who had been asymptomatic and was negative on the previous survey was positive for S. typhi-murium. She was removed from patient contact. In addition, the nursery was closed to further admissions to permit thorough cleaning and installation of additional hand-washing facilities. The nursery was then reopened and no further cases have occurred.

EDITOR'S COMMENT: This nursery outbreak began when a newborn infant was infected presumably by its mother either during delivery or in the early postpartum period. A 7-week interval then elapsed, during which no further cases occurred. In the next 3 weeks, seven more infants became ill before control measures were instituted and

the outbreak was terminated. It seems unlikely that the first case and those following were actually related, since neither contaminated common vehicle nor human carrier could be identified in the nursery. The latter group of cases was probably caused by person-to-person spread within the nursery rather than by a contaminated common vehicle, since control measures aimed at improving sanitation in the nursery were effective in preventing further cases. However, the manner in which the organisms was introduced into the nursery to initiate the latter group of cases is not clear. The nurse-carrier identified after the outbreak may have been responsible, but may also have been an innocent victim of the outbreak.

Salmonella heidelberg Infections in Los Angeles County

Reported by Edward Aaron, Epidemiologist D.V.M., Peter A. Gross, M.D., EIS Officer, County of Los Angeles Health Department; Paul F. Wehrle, M.D., Chief Physician, Pediatrics and Communicable Disease Division, Los Angeles County General Hospital, and Hastings Professor of Pediatrics, University of Southern California School of Medicine; B. A. Kogan, M.D., Chief, Acute Communicable Disease Control Division, and G. A. Heidbreder, M.D., Health Officer, County of Los Angeles Health Department.

An increase in reported cases of salmonella infection was noted during the late winter and early spring months of 1967 in Los Angeles County. This is usually a period during which the number of salmonella cases declines. The distribution of serotypes involved was strikingly similar to previous years, with the exception of Salmonella heidelberg, which was responsible for most of the increase. In addition, most of the isolations of S. heidelberg came from a single health district, and many were related to a small hospital located within that district.

Case investigations disclosed that 9 children appeared to have acquired S. heidelberg in the hospital between February and April 1967. All were 1 year of age or less, with the exception of one 7-year-old child. Each was admitted to the same room of the pediatric ward with a diagnosis of pneumonia or upper respiratory illness. No single food, beverage, or drug had been given to all these children. The epidemic curve showed cases scattered throughout the entire time period. By plotting the duration of stay of infected children, it was demonstrated that on almost every day during February, March, and April, an infant harboring S. heidelberg was present in the room. The exact mode of introduction of the organism into this single room on the pediatric ward could not be determined; it may have been introduced by hospital personnel or by one or more infected patients within the community. Once introduced into the hospital, the infection was propagated within the patient population. The mode of transmission within the hospital was apparently from person to person, presumably by direct contact of infants with an infected child or by improper aseptic procedures by hospital personnel or visitors. Stool cultures obtained from the hospital staff in April were negative for salmonellae.

A total of 19 additional isolates of S. heidelberg were obtained from 58 family contacts of the 9 hospital-associated cases. Fourteen of the 19 cases had symptoms of diarrhea, and 5 were asymptomatic. One of the cases of hospital-associated salmonella infection was discharged from the hospital and later admitted with a diarrheal illness to a second hospital. Following the admission of this patient to the second hospital, 4 additional cases of diarrhea due to S. heidelberg developed. These 4 children had been admitted for reasons other than gastrointestinal illness. In the second hospital, all the patients were in the same room with the original case at the time they presumably acquired their infection.

Following the epidemiologic investigation, stringent medical asepsis was enforced in the involved hospitals during the month of April. After the application of these measures, no additional episodes of salmonellosis were reported from either of these institutions. The frequency and distribution of reported salmonella infections in the county have returned to expected levels.

E. CONNECTICUT

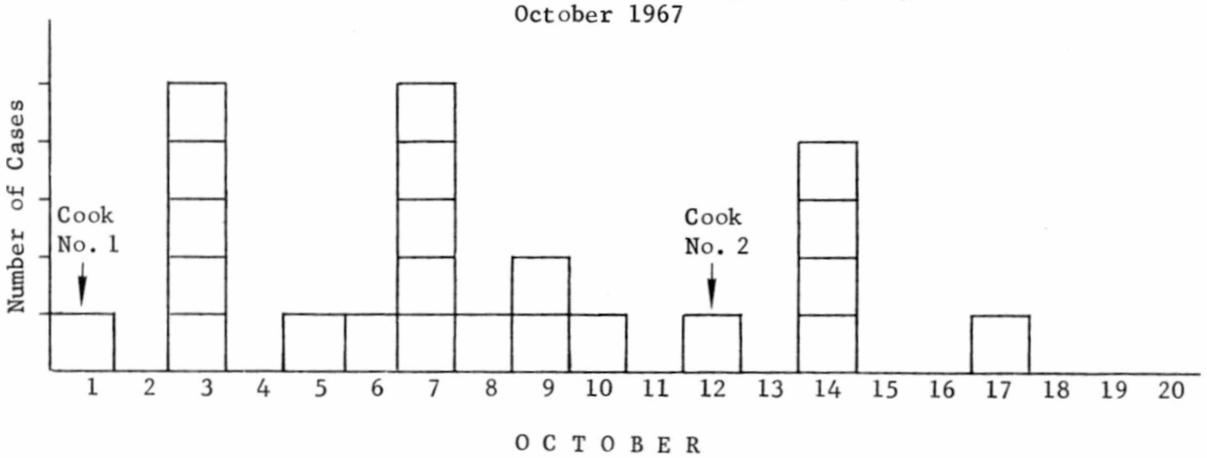
An Outbreak of Salmonellosis in a Nursing Home

Reported by James C. Hart, M.D., Director, Division of Preventable Diseases, and Barbara W. Christine, M.D., Chief, Section of Epidemiology, Division of Preventable Diseases, Connecticut State Department of Health.

In October 1967, an outbreak of salmonellosis spread through a Connecticut nursing home involving 26 residents and 5 employees. The outbreak began on October 3 when 5 residents in three different areas of the nursing home became ill with diarrhea. During the next 2 weeks, 17 more residents became ill with gastroenteritis (see figure). Stool cultures were positive for Salmonella enteritidis in 10 of those ill. One death was reported, that of a 76-year-old female hospitalized for unrelated causes who was found to have a positive blood culture for S. enteritidis shortly before death. A stool culture survey in the nursing home demonstrated S. enteritidis in 4 other residents and 3 nurses aides, all of whom were asymptomatic.

To investigate the cause of the outbreak, food histories from individuals in the first cluster of cases were taken, and a blended meal of turkey and vegetables served only to incapacitated patients on October 2 was implicated. The turkey used was left over from a turkey roll consumed the night before in the nursing home dining room. Both meals had been prepared by a food handler who had had a diarrheal illness on October 1, the day the turkey roll was prepared. She was cultured and was positive for S. enteritidis. A second food handler became ill on October 12 and was also positive for S. enteritidis. Following the investigation, it was recommended that the nursing home improve its procedures for isolating patients with transmissible diseases and screen food handlers with diarrheal illness. No further cases have been reported.

Diarrheal Illness in Connecticut Nursing Home by Day of Onset
October 1967



EDITOR'S COMMENT: This outbreak was apparently caused by a food handler who became ill shortly before preparing a meal. Although no one became ill from this meal, a second meal prepared from leftovers and served to debilitated patients resulted in illness in 5 individuals. Illness then spread presumably by person-to-person contact within the nursing home. When a second food handler became ill, an additional cluster of 5 cases developed. The outbreak terminated after measures aimed at reducing person-to-person spread and measures to educate kitchen help were instituted. The vehicle which caused the infection in the first food handler could not be identified.

V. SPECIAL REPORTS

U.S. Food and Drug Administration Recall of Products Contaminated with Salmonellae, November 8, 1967, to January 9, 1968

For the 2-month period, November 8, 1967, to January 9, 1968, ten products were recalled by the U.S. Food and Drug Administration because of salmonella contamination. These products, including foods, feed, and over-the-counter and prescription drugs, are summarized on the following page.

VI. INTERNATIONAL

Salmonellosis in Belgium - 1967

Reported by E. van Oye, M.D., National Salmonella and Shigella Center of Belgium.

In 1967, a total of 3,439 isolations of salmonellae were reported from humans. This number represents a 14.8 percent increase over the 2,871 human isolations reported in 1966. Fifty-two different serotypes were isolated; the six most common, representing 88.6 percent of total isolations, are listed in the table below. The seasonal incidence of salmonellosis is similar to that seen in the United States, with 43.5 percent of all yearly isolations reported between July and September.

Six Most Common Salmonella Serotypes
Isolated from Man in Belgium, 1967

Serotype	Number	Percent of Total Isolations
S. typhi-murium	2272	66.1
S. panama	499	14.5
S. brandenburg	122	3.5
S. bovis-morbificans	64	1.9
S. give	47	1.4
S. infantis	44	1.3
Total	3048	88.6
Total (all serotypes)	3439	

U.S. Food and Drug Administration Weekly Recall List
Summary of Products Contaminated with Salmonellae
Week Ending November 14, 1967, through Week Ending January 9, 1968

Week Ending	Name, Label, Form	Manufacturer, Distributor	Lot Number	Use	Depth of Recall	Product Distribution	Serotype
11/14	Bile Salts Compound*	Modern Drug, Inc.	60867 64867	prescrip-tion drug	retail	Los Angeles	S. worthington
	Energizer 67*	Modern Drug, Inc.	137967 184967	over-the-counter drug	retail	Los Angeles	S. worthington
	Vitamin-Mineral Supplement*	Modern Drug, Inc.	46967	over-the-counter drug	retail	Los Angeles	S. worthington
11/28	Pepsocoll	Western Research Laboratories, Inc.	A832 A833	over-the-counter drug	physician	national	S. muenchen
12/5	Egg yolk solids	Nebraska Egg & Poultry Co., Inc.	D0554 D0553	food	wholesale	N.Y., N.J., Calif.	S. eimsbuettel S. alachua S. montevideo
	Wilzyme 400, pancreatic enzyme	Wilson Laboratories	38519	prescrip-tion drug	manufacturer	Calif., Mich., Kans., Canada	S. worthington
12/12	Double Star Brand Edible Sweet Cheese, Extra Grade Swiss Whey	Star Valley Swiss Cheese Co.	305	food	wholesale	Calif.	S. derby
	Pawnee 50% meat & bone meal	Ray's Pet Foods, Inc.		veterinary	wholesale	Neb., Utah	S. typhi-murium S. saint-paul S. newport S. infantis S. minnesota
12/26	Frozen egg whites	Lonsdale Egg Co.	all lots prior to 9/28	food	wholesale	Minn., Iowa, N.Dak., Ill.	S. thompson S. siegburg S. oranienburg S. infantis
1/9	Whole egg solids	Nebraska Egg Corp.	DO 4045 DO 4046	food	wholesale	Tex., Colo., Neb.	S. eimsbuettel S. montevideo S. alachua

*Pancreatin, used as a raw material and manufactured by Wilson Laboratories, Chicago, Illinois, was found contaminated.

VII. FOOD AND FEED SURVEILLANCE

A Program of Salmonella Surveillance in Rendering Plants in Wisconsin

Abstracted from Animal Health Notes, January 1968, p. 3. Wisconsin State Department of Agriculture.

In May 1967, the Wisconsin State Department of Agriculture embarked on a state and federally sponsored salmonella surveillance program of rendering plants in an attempt to eliminate contaminants from animal feeds. In an initial survey over a 7-month period, on 42 occasions 1 or more of the 235 samples taken from 27 Wisconsin rending plants were positive for salmonellae. During this period, 15 plants maintained a certified salmonella-free status.

Figure 1.

REPORTED HUMAN ISOLATIONS OF SALMONELLAE
IN THE UNITED STATES

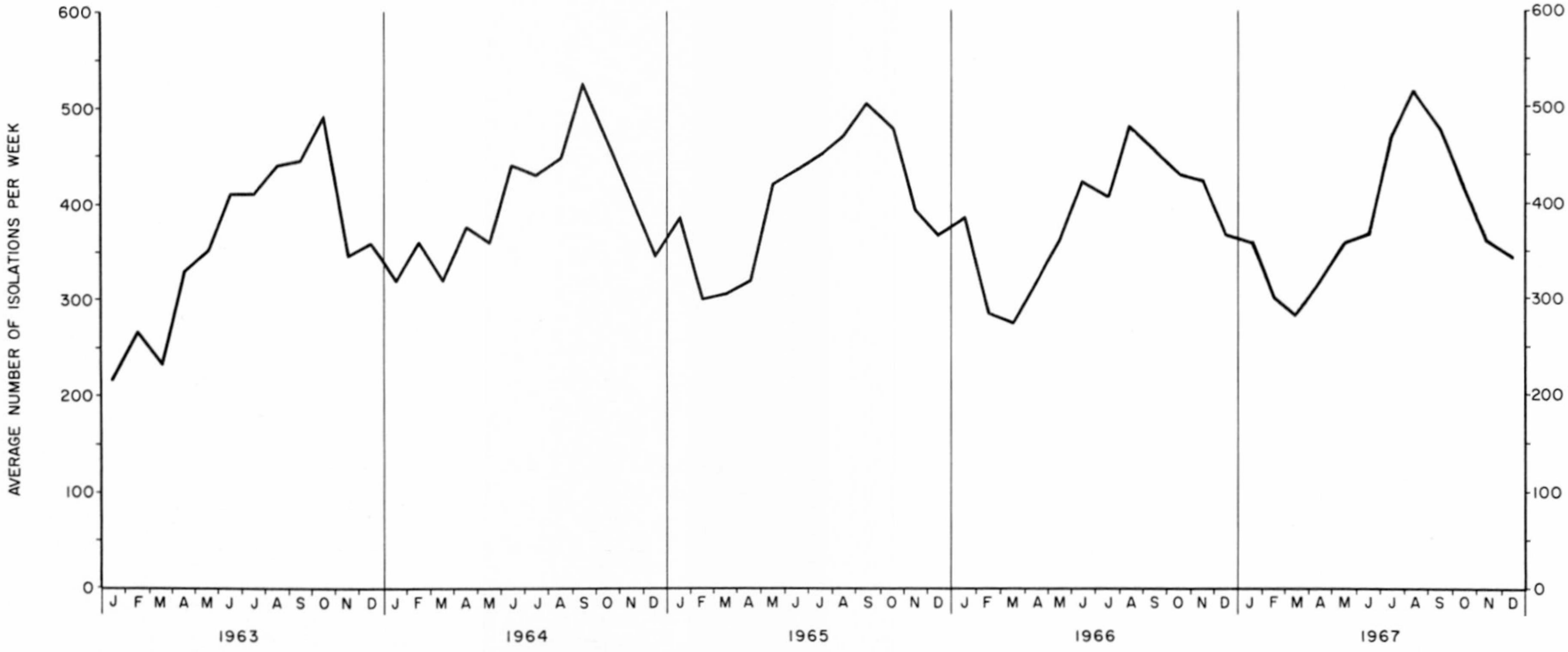


TABLE I

COMMON SALMONELLA SEROTYPES ISOLATED FROM HUMANS IN THE UNITED STATES DURING DECEMBER, 1967

SEROTYPE	GEOGRAPHIC DIVISION AND REPORTING CENTER																														SEROTYPE
	NEW ENGLAND							MIDDLE ATLANTIC						EAST NORTH CENTRAL						WEST NORTH CENTRAL							SOUTH ATLANTIC							
	ME	NH	VT	MASS	RI	CONN	TOT	NY-A	NY-BI	NY-C	NJ	PA	TOT	OHIO	IND	ILL	MICH	WIS	TOT	MINN	IOWA	MO	ND	SD	NEBR	KAN	TOT	DEL	MD	DC	VA	WV	NC	SC	GA	FLA	TOT	
anatum									1	1	1		3			1		1	2																	anatum
bareilly														2					2																1	1	bareilly
berta																	1		1																	berta
blockley		1		7			8		2	2		1	5	3		2	1		6		1					1		1			2		1	2	6	blockley
braenderup				2			2																												1	1	braenderup
bredeney											1		1																								bredeney
chester												1	1			1			1															1	1	2	chester
cholerae-suis v. kun																																			1	1	cholerae-suis v. kun
cubana				2			2				1		1	1		2			3															1	1	cubana
derby											1	4	5	1	1	4		2	8	1						1		2			1			1	4	derby
enteritidis	4			12			16		5	9	1	14	29	5	6	10	4	4	29			3				3		8		1	3		2		14	enteritidis
give															1				1																	give
heidelberg	3	2		6	1	2	14		1	2	4	13	20	4	3	7	6		20	1		4				5		1	1	4		6		4		16	heidelberg
indiana				1			1							1					1									1						3		4	indiana
infantis				4			4		6	2	2	5	15	4	3	4	1	1	13	1	1	4				6	12		2		2		1		4	3	12	infantis
java				1			1			2	2		4			3		2	5	1	1	1					3								6	6	java
javiana																		1	1																7	7	javiana
kentucky																																			1	1	kentucky
litchfield									1				1							1							1										litchfield
livingstone																																					livingstone
manhattan						1	1			1		1	2			3	3	1	7															1	5	6	manhattan
meleagridis																																					meleagridis
miami										1	1		2																						6	6	miami
mississippi																																		1	1	2	mississippi
montevideo				1			1					3	3				6		6	1					1		2								1	1	montevideo
muenchen									1	1	3	1	6				1		1											2			2	1	5	muenchen
newington																																					newington
newport				1	2		3			6	1	5	12	4	1	2	2	1	10	1					1	2	1			5			1	15	22	newport
oranienburg				1			1			1	2	1	4	2			4		6	1						1				1			1	1	3	oranienburg
panama				1			1									1			1																	panama
paratyphi B																	4		4												1					1	paratyphi B
poona																																		4	5	poona
saint-paul	2			6		1	9		5	6	1	12	24		2	7		10	19	3	1					4			1	7		7	4	3	22	saint-paul
san-deigo																														1		1			2	4	san-diego
schwarzengrund																																					schwarzengrund
senftenberg																																			1	1	senftenberg
tennessee																				1						1										tennessee
thompson				2		3	5		1	5	3	6	15					1	1								1		1	2		3		2		9	thompson
typhi				4		1	5		1			2	3	4	1			1	6			6			1	7				1		4			1	6	typhi
typhi-murium				24	1	3	28		14	24	9	27	74	18	12	34	13	12	89	3		5		1		6	15		7		2	3	4		12	8	36	typhi-murium
typhi-murium v. cop				3		2	5				4		4								1					1										typhi-murium v. cop
urbana																																					urbana
weltevreden																																					weltevreden
worthington																																					worthington
untypable, group B															1				1											1					6	7	untypable, group B
untypable, group C[1]					7	2	9										1		1																		untypable, group C[1]
untypable, group C[2]																																					untypable, group C[2]
untypable, group D																																					untypable, group D
untypable, group E																																					untypable, group E
untypable, or unknown					1		1	10		1			11					1	1		1					1		2	1						3	untypable, or unknown
TOTAL COMMON	9	3	0	78	12	15	117	10	38	64	37	96	245	49	31	81	47	38	246	15	6	23	0	1	1	14	60	2	24	5	28	4	33	0	39	80	215	TOTAL COMMON
TOTAL OTHER	0	0	0	2	0	0	2	0	0	1	0	2	3	0	0	2	0	1	3	0	1	1	0	0	0	0	2	0	0	0	3	0	0	0	6	13	22	TOTAL OTHER
GRAND TOTAL	9	3	0	80	12	15	119	10	38	65	37	98	248	49	31	83	47	39	249	15	7	24	0	1	1	14	62	2	24	5	31	4	33	0	45	93	237	GRAND TOTAL

(New York, A-Albany, BI-Beth Israel, C-City)

The Beth Israel Salmonella Typing Center in New York is a reference laboratory and processes many cultures from other states which are assigned to the respective states although reported by NY-BI. Beth-Israel reported a total of 72 isolations for December.

TABLE I (Continued)
COMMON SALMONELLA SEROTYPES ISOLATED FROM HUMANS IN THE UNITED STATES DURING DECEMBER, 1967

SEROTYPE	GEOGRAPHIC DIVISION AND REPORTING CENTER																							OTHER	DEC TOTAL	% of DEC TOTAL	1967 TOTAL	% of 1967 TOTAL	1966 TOTAL	% of 1966 TOTAL	SEROTYPE
	EAST SOUTH CENTRAL					WEST SOUTH CENTRAL					MOUNTAIN										PACIFIC										
	KY	TENN	ALA	MISS	TOT	ARK	LA	OKLA	TEX	TOT	MONT	IDA	WYO	COLO	NM	ARI	UTAH	NEV	TOT	WASH	ORE	CAL	ALAS	HAI	TOT							
anatum		1			1		2			2												7		2	9		17	1.2	295	1.5	333	1.7	anatum
bareilly							1		1	2																	5	0.4	80	0.4	78	0.4	bareilly
berta																								1	1		2	0.1	37	0.2	34	0.2	berta
blockley							2			2												2			2		30	2.2	517	2.6	602	3.0	blockley
braenderup																						1			1		4	0.3	82	0.4	111	0.5	braenderup
bredeney							2			2												1			1		4	0.3	121	0.6	158	0.8	bredeney
chester														1			1		2			2			2		8	0.6	99	0.5	108	0.5	chester
cholerae-suis v. kun																											1	0.07	20	0.1	26	0.1	cholerae-suis v. kun
cubana																											7	0.5	66	0.3	131	0.7	cubana
derby							2		3	5				1					1		1			1	2		26	1.9	326	1.7	402	2.0	derby
enteritidis							2		1	3				2					2			1			1		97	7.1	1,276	6.5	1,234	6.2	enteritidis
give							1			1														1	1		3	0.2	61	0.3	78	0.4	give
heidelberg	2	1			3		1			1	1			1		1			3		1	19			20		102	7.5	1,646	8.3	1,623	8.1	heidelberg
indiana																											6	0.4	49	0.2	65	0.3	indiana
infantis		2			2			1	3	4	1			2					3	2		7		10	19		84	6.1	975	4.9	1,309	6.5	infantis
java			2		2		3			3												2			2		26	1.9	307	1.6	365	1.8	java
javiana							3		4	7												1			1		16	1.2	371	1.9	302	1.5	javiana
kentucky																						1		3	4		5	0.4	38	0.2	38	0.2	kentucky
litchfield																											2	0.1	80	0.4	97	0.5	litchfield
livingstone														1					1			1		1	2		3	0.2	55	0.3	32	0.2	livingstone
manhattan											1								1			3			3		20	1.5	284	1.4	134	0.7	manhattan
meleagridis		1			1																						1	0.07	7	0.04	8	0.0	meleagridis
miami																											8	0.6	69	0.3	83	0.4	miami
mississippi							2			2				1					1								5	0.4	58	0.3	54	0.3	mississippi
montevideo							1		3	4												1			1		18	1.3	397	2.0	337	1.7	montevideo
muenchen							3		1	4																	16	1.2	217	1.1	228	1.1	muenchen
newington																											0	0.0	43	0.2	53	0.3	newington
newport	1			1	2		6	1	9	16						1	1		2			13		2	15		84	6.1	1,245	6.3	1,302	6.5	newport
oranienburg									4	4								1	1			2			2		22	1.6	405	2.1	398	2.0	oranienburg
panama									2	2														4	4		8	0.6	181	0.9	272	1.4	panama
paratyphi B									1	1				1					1	2					2		9	0.7	171	0.9	153	0.8	paratyphi B
poona									1	1												1			1		7	0.5	58	0.3	40	0.2	poona
saint-paul	2				2															5	1	3			9		89	6.5	906	4.6	736	3.7	saint-paul
san-diego									1	1												2			2		7	0.5	147	0.7	118	0.6	san-diego
schwarzengrund																	1		1			1			1		2	0.1	72	0.4	71	0.4	schwarzengrund
senftenberg	1				1																						2	0.1	58	0.3	70	0.3	senftenberg
tennessee							2			2																	3	0.2	63	0.3	133	0.7	tennessee
thompson		1	1		2		2			2												6	2		8		42	3.1	500	2.5	577	2.9	thompson
typhi						2	4		3	9	1								1		1	9			10		47	3.4	691	3.5	657	3.3	typhi
typhi-murium	1	3		2	6	2	8		13	23			1	9		1	3	1	15	14		68		12	94		380	27.8	5,511	27.9	5,729	28.6	typhi-murium
typhi-murium v. cop						1	1			2											1				1		13	1.0	272	1.4	177	0.9	typhi-murium v. cop
urbana																											0	0.0	18	0.09	28	0.1	urbana
weltevreden																								3	3		3	0.2	61	0.3	45	0.2	weltevreden
worthington																						1			1		1	0.07	24	0.1	44	0.2	worthington
untypable, group B				6	6	2			3	5					12				12			1			1		32	2.3	523	2.7	350	1.7	untypable, group B
untypable, group C[1]									2	2																	12	0.9	155	0.8	153	0.8	untypable, group C[1]
untypable, group C[2]				3	3	1				1					1				1				1		1		6	0.4	154	0.8	79	0.4	untypable, group C[2]
untypable, group D						2			1	3																	3	0.2	82	0.4	67	0.3	untypable, group D
untypable, group E									2	2					1				1								3	0.2	37	0.2	14	0.1	untypable, group E
untypable, or unknown				1	1				7	7																	25	1.8	216	1.1	86	0.4	untypable, or unknown
TOTAL COMMON	7	9	3	13	32	10	48	2	65	125	4	0	1	19	14	3	6	2	49	23	5	156	3	40	227		1,316	96.3	19,126	96.9	19,322	96.3	TOTAL COMMON
TOTAL OTHER	0	1	0	0	1	0	4	1	0	5	0	0	0	0	0	1	0	0	1	0	0	8	0	3	11		50	3.7	608	3.1	736	3.7	TOTAL OTHER
GRAND TOTAL	7	10	3	13	33	10	52	3	65	130	4	0	1	19	14	4	6	2	50	23	5	164	3	43	238		1,366		19,734		20,058		GRAND TOTAL

TABLE II
OTHER SALMONELLA SEROTYPES ISOLATED FROM HUMANS DURING DECEMBER, 1967

SEROTYPE	REPORTING CENTER																	SEROTYPE
	ARIZ	CAL	FLA	GA	HAW	ILL	IOWA	LA	MASS	MO	NY C	OKLA	PA	TENN	VA	WISC	TOTAL	12 mos Total	
adelaide			1														1	4	adelaide
agona								1									1	1	agona
alachua		1			1												2	13	alachua
abony								2									2	5	abony
atlanta				1													1	11	atlanta
ball										1							1	1	ball
binza				4										1			5	14	binza
california		1															1	15	california
cambridge		1															1	1	cambridge
dublin		2							1								3	8	dublin
eimsbuettel				1													1	26	eimsbuettel
hartford			3														3	22	hartford
kaapstad							1										1	1	kaapstad
kunduchi															1		1	1	kunduchi
loma-linda	1																1	6	loma-linda
madelia			1														1	8	madelia
missouri												1					1	1	missouri
muenster			1			1											2	25	muenster
oslo					1												1	19	oslo
pensacola															1		1	4	pensacola
pharr						1											1	1	pharr
pomona		1															1	1	pomona
reading		2											1				3	51	reading
richmond			1														1	1	richmond
rubislaw								1									1	24	rubislaw
stanley													1				1	7	stanley
sterrenbos															1		1	1	sterrenbos
takoradi											1						1	2	takoradi
taksony					1												1	1	taksony
tallahassee			2														2	6	tallahassee
uganda			1														1	1	uganda
virchow			1						1							1	3	4	virchow
untypable group G			1														1	7	untypable group G
untypable group H			1														1	9	untypable group H
TOTAL	1	8	13	6	3	2	1	4	2	1	1	1	2	1	3	1	50	608	TOTAL

NY-C = New York City

TABLE III

Age and Sex Distribution of Individuals Reported as Harboring Salmonellae During December 1967

Age (Years)	Male	Female	Unknown	Total	Percent	Cumulative Percent
< 1	122	93	1	216	21.6	21.6
1 - 4	137	99	1	237	23.7	45.4
5 - 9	57	42		99	9.9	55.3
10 - 19	54	54		108	10.8	66.1
20 - 29	44	48		92	9.2	75.3
30 - 39	17	37		54	5.4	80.7
40 - 49	22	30		52	5.2	85.9
50 - 59	25	27		52	5.2	91.2
60 - 69	23	19		42	4.2	95.4
70 - 79	14	21		35	3.5	98.9
80 +	4	7		11	1.1	100.0
Subtotal	519	477	2	998		
Child (Unspec.)	3	3	3	9		
Adult (Unspec.)	6	19		25		
Unknown	154	145	35	334		
Total	682	644	40	1366		
Percent of Total	51.4	48.6				

TABLE IV

REPORTED NONHUMAN ISOLATES BY SEROTYPE AND SOURCE, *DECEMBER, 1967

SEROTYPE	poultry	chicken	turkey	pigeon	hatchery litter	turkey pool	cockatoo	sparrow	penguin	avian	equine	bovine	porcine	canine	feline	lab mouse	lab rat	guinea pig	monkey	wolverine	wildcat	animal, unknown	egg	egg yolk	powdered egg	frozen egg	cooked chicken	sausage	candy	dry milk	broth	noodles	coconut	yeast	shrimp	powdered cheese	frozen frogs legs	wantan skins	dairy product	food sample	chicken feed	feather meal	bone meal/ meat scraps	animal feed, unknown	fish meal	tankage	turtle	well water	turtle water	auger	milk plant environment	glandular material	drug, unknown	unknown	Total	12 mo. Total	SEROTYPE
alachua																									3						2											1												7	119	alachua
anatum		2		5																								22		3		2										3	10							4	5			57	504	anatum
bareilly		1											1																	1																							11	52	bareilly
binza																													1													1											2	130	binza
blockley		7																																																			7	98	blockley
braenderup		7										1																																									8	56	braenderup
bredeney		1				1																	4																				2	6										1	15	164	bredeney
california		1																																											1	2											4	19	california
cerro		2																					3		8																			4	5	1										23	91	cerro
chester				3																																																		3	47	chester
cholerae-suis													1																																									1	8	cholerae-suis
cholerae-suis v kun													22																																										22	65	cholerae-suis v
cubana																													1	4													1	9	1										17	232	cubana
derby		2		2									4							1							1			1		1											1	9	1							1			18	442	derby
eimsbuettel		5												1									1		3								1	2	4							1	7	9	1										31	237	eimsbuettel
enteritidis		8		5									2										4							13																							1	33	100	enteritidis
gallinarum		2																																																				2	10	gallinarum
give				1																																							1	4	1										7	48	give
habana																																												1	3											3	6	habana
halmstad																																												1	2											3	12	halmstad
heidelberg		30		18								1	5									1																			1	1											1	59	519	heidelberg
hvittingfoss																																				5																		5	5	hvittingfoss
illinois																																											1												1	8	illinois
infantis	1	10		6									1							1			10	1	2					1						1				1				2	7					2	1		1	48	379	infantis
johannesburg																																													1											1	17	johannesburg
kentucky																																												2	11											13	88	kentucky
lexington																																													1											1	20	lexington
lindenburg															1																																									1	1	lindenburg
manila																																													1	1											2	3	manila
meleagridis																												1			3														1											5	47	meleagridis
mgulani																														1																									1	1	mgulani
miami																																					10																			10	13	miami
minnesota		1																																											1	2											4	46	minnesota
montevideo		2							2				1												1				2	1		2		1					3				18	16											49	297	montevideo
muenchen																																																						2	2	95	muenchen
muenster		2																																																				2	10	muenster
newington		1											3												1				2																									8	148	newington
newport				9								4		1			2																																						24	146	newport
okatie																																																							1	1	okatie
oranienburg		2																					7		1	6				1	1								1				4	2											26	249	oranienburg
panama													9																																										9	58	panama
poona		2																																		1																			3	18	poona
pullorum		5																																																				5	37	pullorum
reading		1		3																																																	3	7	92	reading
saint-paul		5		4			3						1								1																									1											15	355	saint-paul
san-diego						1							1																																										2	82	san-diego
schwarzengrund				11				2																																					1	3				1					2	2	22	145	schwarzengrund
senftenberg				4																																											3	13											21	232	senftenberg
siegburg		3																																	1											2											6	47	siegburg
simsbury																																															2											2	5	simsbury
tennessee		1											6										1		3																			6	3								1			23	295	tennessee
thomasville																																														2											2	22	thomasville
thompson	3	9																					7																		1													2	22	181	thompson
typhi																																																						2	2	3	typhi
typhi-murium		3		8			2		2	2	2	20	3		3			2	2				3								1													3									1	4	61	822	typhi-murium
typhi-murium v cop		22		1	1											1																																							25	178	typhi-murium v cop
urbana																																													3											4	19	urbana
westerstede		1																																																				1	1	westerstede
westhampton																																														1		9										10	79	westhampton
worthington																														1																	1	4	1									2	9	124	worthington
untypable group B																										1																															2	4	26	untypable group B
untypable group E																																			1																						1	6	untypable group E
untypable group M																																															1											1	2	untypable group M
untypable group O				1																																																					1	4	untypable group O
untypable group R																																																									1	1	untypable group R
unknown																													1																											1	17	unknown
TOTAL	4	138	80	1	1	5	2	2	4	2	27	59	2	4	1	2	2	3	1	1	1	60	1	19	6	2	1	29	19	2	21	1	8	1	1	19	10	3	6	2	4	71	122	15	1	1	1	3	2	7	13	5	17	797	7,844	TOTAL

Source: National Animal Disease Laboratory, Ames, Iowa, weekly Salmonella Reports from individual states and US-FDA-Div. of Microbiology, Washington, D.C.

*Includes November late report from US-FDA.

TABLE V

REPORTED NONHUMAN ISOLATES BY SEROTYPE AND STATE, *DECEMBER, 1967

SEROTYPE	ALA	ARK	CAL	COLO	CONN	DC	FLA	GA	HAI	ILL	IND	IOWA	KAN	KY	MD	MASS	MICH	MINN	MISS	MO	NEB	NJ	NY-A	NC	OHIO	OKLA	ORE	PA	SC	SD	TENN	TEX	UTAH	VA	WASH	WISC	WYO	TOTAL	12 mos TOTAL	SEROTYPE
alachua						1					1										3										2						7	119	alachua
anatum	1		4			4				12	1							7				22			6												57	504	anatum
bareilly		1				8				2																											11	42	bareilly
binza																		1																	1		2	130	binza
blockley			1					4		1									1																		7	98	blockley
brænderup			6								1		1					2			4																8	56	brænderup
bredeney		3	2				1	2		1								2			4																15	144	bredeney
california			1			1		1			1																										4	19	california
cerro		1	1			1	1			2	1		1					6			7	1				1										23	91	cerro
chester																		2												1							3	47	chester
cholerae-suis										1						1			1					9				5		1			1				1	8	cholerae-suis
cholerae-suis v kun																	4														4						22	65	cholerae-suis v kun
cubana						3	1			1	1		5						1			1															17	232	cubana
derby	1		2						4	1	3			1												1									4	1	18	442	derby
eimsbuettel	1	3					1			2	8					2	1	2				3			2		3					2		1			31	237	eimsbuettel
enteritidis		1						1		6						1		5		4			13	1	1												33	100	enteritidis
gallinarum																		1																		1		2	10	gallinarum
give			1			3		1			2																										7	48	give
habana						1	1	1																													3	6	habana
halmstad								2										1																			3	12	halmstad
heidelberg		4	9					24		1	1	6		1				10						1				1					1				59	519	heidelberg
hvittingfoss						5																															5	5	hvittingfoss
illinois																		1																			1	8	illinois
infantis	1	3	4			2	2	3	1	5	2					1	3	16			2	1							1						1		48	379	infantis
johannesburg																									1												1	17	johannesburg
kentucky										1	1							3													6		2				13	88	kentucky
lexington																															1						1	20	lexington
lindenburg													1																								1	1	lindenburg
manila											1																				1						2	3	manila
meleagridis								1		1								1			2																5	47	meleagridis
mgulani						1																															1	1	mgulani
miami																							10														10	13	miami
minnesota							1	2			1																										4	46	minnesota
montevideo	1		1			4	3	3		4	4			2				17			1	1			1	1		3				3					49	297	montevideo
muenchen				2																																	2	95	muenchen
muenster								2																													2	10	muenster
newington								1	3	1											1	2															8	148	newington
newport			5			5			1	2				2				6													1				2		24	146	newport
okatie																			1																		1	1	okatie
oranienburg			4			1				1	1							5			2	1			10											1	26	249	oranienburg
panama									9																												9	58	panama
poona						1	1																											1			3	18	poona
pullorum																1																				4	5	37	pullorum
reading			1									1						1															3	1			7	92	reading
saint-paul			6					4		1	1							2											1								15	355	saint-paul
san-diego			1													1																					2	82	san-diego
schwarzengrund			13			2					1							5																		1		22	145	schwarzengrund
senftenberg			7			2					2							5	2									2								1		21	232	senftenberg
siegburg	1							1		2	1																				1						6	47	siegburg
simsbury																															2						2	2	simsbury
tennessee								1	6	6	2		1			1		3			1	1				1											23	295	tennessee
thomasville																		2																			2	22	thomasville
thompson	3	1						6		1								1		3			4												3		22	181	thompson
typhi																																			2		2	3	typhi
typhi-murium			27		1	1	1			4	2		6				3	4	2	1			2		4			1				2					61	822	typhi-murium
typhi-murium v cop		4			2			15			1				1	1								1													25	178	typhi-murium v cop
urbana																		3																	1		4	19	urbana
westerstede								1																													1	1	westerstede
westhampton													10																								10	29	westhampton
worthington						1	1			2	1		1								1													2			9	124	worthington
untypable group B							1														2						1										4	26	untypable group B
untypable group E																											1										1	6	untypable group E
untypable group M																			1																		1	2	untypable group M
untypable group O																		1																			1	4	untypable group O
untypable group R										1																											1	1	untypable group R
unknown																						1															1	17	unknown
TOTAL	9	21	96	2	3	47	15	76	24	61	41	7	28	3	2	12	8	113	9	27	12	29	29	12	23	5	3	10	6	1	2	25	3	9	9	10	5	797	7,844	TOTAL

Source: National Animal Disease Laboratory, Ames, Iowa, weekly Salmonella Reports from individual states and US-FDA-Div. of Microbiology, Washington, D.C.

New York-A, Albany

*Includes November late report from US-FDA.

TABLE VI
OTHER SEROTYPES REPORTED DURING 1967
FROM NONHUMAN SOURCES

SEROTYPE	MONTH(S)	REPORTING CENTER(S)	NUMBER OF ISOLATIONS
adelaide	Jun	Ill	1
albany	Jan	Ky(2)	
	Feb-Jul	Ill(3)	
	Feb-Mar-Nov	Miss(16)	
	Mar	Ark(1)	
	Mar	Ohio(2)	
	Oct	Iowa(2)	
	Oct	Tenn(2)	
	Nov	Tex(2)	30
albuquerque	Sep	Kan	7
amager	Mar	Ill(4)	
	Nov	Ark(1)	
	Nov	Minn(1)	
	Nov	Tex(1)	7
arkansas	Mar	La	1
berlin	May	Pa	1
berta	Jan	Ill(1)	
	Feb-Jun-Jul	Ariz(11)	
	Nov	Ga(1)	13
bonariensis	Aug	Kan	1
bornum	Nov	Ind	1
canoga	Apr	Ind(1)	
	Jul	Minn(1)	
	Nov	Va(1)	3
carrau	Jan	La(1)	
	Aug	Cal(1)	2
champaign	Feb	Minn(1)	
	Jul	Mich(2)	3
colorado	Nov	Hai	1
corvallis	Jan-Feb	La	3
decatur	Aug	Kan	5
dessau	Nov	Va	1
drypool	Jan	Conn(1)	
	Jan-Feb-Apr-May	Ohio(7)	
	Feb	La(1)	
	Apr	Ind(1)	
	Apr	Kan(1)	
	May-Aug-Oct	Mich(8)	
	May-Jun-Jul	Minn(4)	
	May	Tenn(1)	24
dublin	May-Jun-Jul-Oct-Nov	Cal(16)	
	May	NY-A(1)	17
duesseldorf	Mar	Ohio(8)	
	Apr	Mich(1)	
	Nov	Iowa(1)	10
duisburg	Jun	Ohio	1

TABLE VI
OTHER SEROTYPES REPORTED DURING 1967
FROM NONHUMAN SOURCES - (Continued)

SEROTYPE	MONTH(S)	REPORTING CENTER(S)	NUMBER OF ISOLATIONS
duval	Nov	Ala	4
eastbourne	Jan	Minn(1)	
	Sep	Mich(1)	2
gaminara	Apr-Jul-Sep-Nov	Cal(4)	
	Apr	Neb(1)	
	Jun	Tex(1)	
	Jul	Ill(1)	
	Jul	La(1)	8
gatow	Apr	Wash(4)	
	May	Kan(1)	5
grumpensis	Jan	La(2)	
	Jan	Mich(1)	3
hartford	Jan	Hai	1
hato	Jun	La	1
indiana	Jan-May-Jul-Sep	Ind(10)	
	Jan	NC(1)	
	Jun-Jul-Aug-Sep-Oct	Ohio(10)	
	Jul	Mo(1)	
	Aug	Minn(1)	
	Oct	Ga(3)	
	Nov	Wisc(1)	27
irumu	Apr-Aug	Hai	2
java	Jan-Apr-Sep-Oct	Cal(10	
	Mar	La(1)	
	Apr-Jul-Aug-Sep	Ill(5)	
	May	Hai(1)	
	May	Kan(2)	
	May-Jun	Ohio(3)	
	Jul	Ind(2)	
	Aug	Conn(3)	
	Nov	Fla(1)	28
javiana	Jan-Feb-Aug-Nov	La(13)	
	Jan	Mo(1)	
	Jun	Minn(1)	
	Jun-Jul-Sep-Nov	Tex(7)	
	Jul	Ill(1)	
	Aug	Conn(1)	
	Aug	Va(1)	
	Oct	Cal(1)	
	Nov	Del(1)	
	Nov	NC(2)	29
kottbus	Jun-Nov	Cal(2)	
	Nov	Ga(1)	3
litchfield	Feb-Mar-May	Va(3)	
	Nov	Ga(1)	4
livingstone	Jan-Feb-Mar-Apr-May-Jul-Nov	Cal(16)	
	Jan	Conn(2)	
	Jan-Feb-May-Jun-Nov	Ohio(11)	
	Feb	La(1)	
	Mar-Apr	Md(8)	

TABLE VI
OTHER SEROTYPES REPORTED DURING 1967
FROM NONHUMAN SOURCES - (Continued)

SEROTYPE	MONTH(S)	REPORTING CENTER(S)	NUMBER OF ISOLATIONS
	Apr	Hai(1)	
	Apr-May-Jun-Aug-Sep-Oct-Nov	Mich(18)	
	May	Pa(1)	
	May	Tenn(1)	
	Jul	Kan(6)	
	Sep	NY-BI(1)	
	Oct	Ind(1)	
	Oct-Nov	NJ(3)	
	Nov	Va(1)	71
loma-linda	Nov	Cal	1
london	Nov	Ga(1)	
		Hai(1)	2
madelia	Jul	DC	1
manchester	Jul	NJ	1
manhattan	Feb-Apr-May-Jun	Cal(4)	
	Feb-May-Sep-Oct	Ind(4)	
	Feb-Mar	La(3)	
	Mar	Ohio(1)	
	Apr	Kan(1)	
	Apr-May	Minn(2)	
	Apr	Pa(1)	
	May	Mich(1)	
	Jul	SD(1)	
	Sep-Oct-Nov	Ill(3)	
	Oct	Mo(1)	
	Nov	Hai(14)	
	Nov	Wash(1)	37
minneapolis	Feb-Jun-Jul	Ohio(19)	
	May	Okla(12)	
	Jul	Ill(1)	
	Aug	Cal(1)	
	Nov	Ind(1)	34
mission	May	Ohio	1
mississippi	Feb	La(2)	
	Oct	Cal(2)	4
mokola	Feb	La	1
ness-ziona	Jul	NC	2
new-brunswick	Aug	Kan(1)	
	Sep	Ill(1)	2
new-haw	Feb	Iowa(1)	
	Apr	Ill(1)	2
norwich	Aug	Tex	1
ohio	Oct	Ohio	2
okerara	Feb	La	1
orion	Jan-May-Jun-Jul-Aug-Sep-Oct-Nov	Minn(14)	
	Mar-May-Jun	Ill(6)	
	Mar	Utah(2)	
	Apr	Iowa(1)	
	Jun	Miss(1)	
	Nov	Mo(1)	25

TABLE VI
OTHER SEROTYPES REPORTED DURING 1967
FROM NONHUMAN SOURCES - (Continued)

SEROTYPE	MONTH(S)	REPORTING CENTER(S)	NUMBER OF ISOLATIONS
oslo	Feb	Fla	2
paratyphi-B	Jun	Wash(1)	
	Jul	Mass(1)	
	Jul	Tenn(1)	3
pomona	Jan	La(1)	
	Nov	NJ(1)	2
putten	Jun	Cal	1
redlands	Feb	La	1
rubislaw	Jan-Feb-Mar	La(3)	
	Apr	Kan(10)	
	Apr-Jul	Tex(2)	15
saphra	Jun	Tex	1
shubra	Feb	La	1
sinstorf	Nov	Hai	1
stanley	Apr	La	1
sunsvall	Jul	Ariz	2
taksony	Jan-Feb	Utah(2)	
	Aug	Cal(1)	3
tucson	Feb	Cal	1
tuindorp	Feb	Ill(1)	
	Apr	Cal(1)	2
typhi-suis	Jan-May-Jun-Jul	Minn(4)	
	Mar-Oct	Cal(5)	9
vejle	Feb	La	1
weltevreden	Sep-Nov	Hai	2
wichita	Feb	Utah	1
zanzibar	May	NJ(1)	
	Jul	DC(2)	3
zeist	Sep	Conn	1
TOTAL			490