REPORT NO. 83

April 15, 1969

NATIONAL
COMMUNICABLE DISEASE CENTER

SALMONELLA

SURVEILLANCE

CONTENTS. . .

FOR THE MONTH OF FEBRUARY 1969

U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE/PUBLIC HEALTH SERVICE
Health Services and Mental Health Administration

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

Attention: Chief, Salmonellosis Unit, Epidemiology Program

National Communicable Disease Center . . . . . David J. Sencer, M.D., Director

Epidemiology Program . . . . . Alexander D. Langmuir, M.D., Chief

Bacterial Diseases Branch . . . . . Philip S. Brachman, M.D., Chief
John V. Bennett, M.D., Deputy Chief

Enteric Diseases Section . . . . . Eugene J. Gangarosa, M.D., Chief

Salmonellosis Unit . . . . . Bernard Aserkoff, M.D., Chief
Andrew Mallory, M.D.

Statistics Section . . . . .
Stanley M. Martin, M.S.
Theodore P. Feury, Jr., M.S.

Veterinary Public Health Section . . . . . James H. Steele, D.V.M., Chief

Epidemiological Services Laboratory Section . . . . . Philip S. Brachman, M.D., Acting Chief

Salmonella Laboratory Unit . . . . . George K. Morris, Ph.D., Chief

Collaborators

Laboratory Division

Bacteriology Section

Enteric Bacteriology Unit . . . . . William H. Ewing, Ph.D., Chief
William J. Martin, Ph.D., Asst. Chief

April 15, 1969

TABLE OF CONTENTS

I. SUMMARY

This issue of the Salmonella Surveillance Report includes a report of a foodborne outbreak and a summary of human and nonhuman salmonella isolations in Australia during 1968.

In February 1969, 1,029 isolations of salmonellae were reported from humans, an average of 257 isolations per week (Tables I, II, and V-A). This number represents a decrease of 77 (23.1 percent) from the weekly average of January 1969, and a decrease of 33 (11.4 percent) from the weekly average of February 1968.

Reports of 817 nonhuman isolations of salmonellae were received during February 1969 (Tables II, IV, and V-B).

II. REPORTS OF ISOLATIONS

The ten most frequently reported serotypes during February:

	HUMAN				NONHUMAN		
	Serotype	Number	Percent	Rank Last Month	Serotype	Number	Percent
1	typhi-murium*	302	29.3	1	typhi-murium*	109	13.3
2	infantis	78	7.6	5	heidelberg	106	13.0
3	enteritidis	76	7.4	2	saint-paul	55	6.7
4	heidelberg	74	7.2	4	cholerae-suis var. kunzendorf	44	5.4
5	thompson	51	5.0	7	thompson	42	5.1
6	saint-paul	50	4.9	6	anatum	37	4.5
7	newport	49	4.8	3	montevideo	36	4.4
8	typhi	30	2.9	10	san-diego	27	3.3
9	blockley	27	2.6	8	minnesota	25	3.1
10	panama	21	2.0	>10	enteritidis	23	2.8
	Total	758	73.7		Total	504	61.7
	TOTAL (all serotypes)	1,029			TOTAL (all serotypes)	817	
	*Includes var. copenhagen	7	0.7		*Includes var. copenhagen	19	2.3

III. CURRENT INVESTIGATIONS

An Outbreak of Salmonellosis Following a Spaghetti Dinner - New York

Reported by James Culver, M.D., M.P.H., Acting Director, Bureau of Epidemiology, New York State Department of Health; Linus J. Leavens, M.D., State Epidemiologist, Vermont Department of Health; Glenn E. Haughie, M.D., EIS Officer located at the New York State Department of Health; and Andrew Mallory, M.D., EIS Officer, Bacterial Diseases Branch, Epidemiology Program, NCDC.

An outbreak of salmonellosis occurred among approximately 130 persons who attended a fire company benefit spaghetti dinner held on January 26, 1969, in Hampton, New York. Following the banquet, 13 persons (10 percent) developed gastroenteritis. Predominant symptoms included fever (85 percent), diarrhea (77 percent), abdominal pain (85 percent), nausea (77 percent), vomiting (77 percent), and headache (31 percent). Onsets of illness ranged from 8 to 76 hours following the meal with a mean incubation period of 34 hours. Two patients required hospitalization; there were no deaths. Stool specimens were obtained from 11 of these patients; six were positive for Salmonella typhi-murium.

The dinner was prepared and served in the firehouse basement and included spaghetti with tomato sauce and meatballs, grated cheese, bread, a green salad, soda, and coffee. Analysis of food histories indicated that the cheese, salad, bread, butter, soda, and coffee were not responsible. However, since virtually all persons present had consumed the spaghetti and meatballs, differential attack rates were of no further use.

The spaghetti had been obtained from a local food distributor and was prepared by boiling in chlorinated water for 10-12 minutes or until a strand when tossed into the air was capable of sticking to the ceiling (whichever came first).

The meatballs were prepared in the firehouse by several firemen and their families approximately 36 hours prior to serving. All-beef hamburger meat obtained from a local processor-distributor was mixed with raw eggs, bread crumbs, and spices and allowed to remain at room temperature for 12-15 hours. They were then lightly fried, added to a commercially canned tomato sauce obtained from a local distributor, and simmered in 3 large pots for 5-6 hours. These were then allowed to cool to room temperature overnight and were reheated for several hours prior to serving on January 26.

The banquet was served from 1:00 pm to 6:00 pm on January 26. Persons arrived rather evenly throughout this period. Approximately 20-25 of the persons who arrived between 1:00 and 1:30 pm were served meatballs and sauce from a single pot. Since many of this group complained that their meatballs were "raw", serving from this pot was discontinued and the batch was further cooked. No complaints about "raw" meatballs were received from persons receiving servings from the other pots. All 12 patients who were able to recall when they had attended the banquet, had eaten between 1:00 and 1:30 pm.

Nine persons were involved in the preparation and serving of the meatballs and sauce. All denied symptoms of gastroenteritis before or after the dinner. Eight of these persons submitted stools for culture; two were positive for S. typhi-murium. Both had helped prepare the meatballs and sauce on the day before the banquet. One admitted eating a moderate number of raw meatballs at that time but did not attend the banquet on the following day. The other was unavailable for comment but was known to have attended the banquet.

Environmental swabs in the firehouse kitchen were obtained one week following the banquet; all were negative for salmonella. A small portion of leftover spaghetti recooked several times following the banquet was also cultured and was negative. Numerous environmental swabs from the local meat processor and distributor's plant were negative for salmonella.

The eggs used in the meatballs had been obtained from a local farmer who sold largely to local families. Eggs obtained for culture from him and from a local family were dirty but obviously not cracked. Cultures of egg slurries, chicken droppings, chicken feed, and chicken litter from his farm were negative for salmonella.

During the period of this investigation, 11 isolations of S. typhi-murium were obtained from two large families in a neighboring town who denied attending the firemen's dinner. Although accurate food histories were unobtainable, both families admitted having eaten together on numerous occasions during the week prior to their illnesses. The families did purchase their meat from the same meat processor and distributor who supplied the firemen. There were no other common sources of food. Although phage typing studies are not yet complete, preliminary results indicate that the isolates of S. typhi-murium from these families are of a different phage type from the isolates obtained from persons attending the firemen's dinner. Antibiotic sensitivity studies are currently being carried out.

EDITOR'S COMMENT: Although the overall attack rate was low (10 percent), it probably was at least 50 percent for those persons eating the undercooked meatballs. Food histories clearly implicated the spaghetti and meatballs as the common vehicle in these cases. Spaghetti is an unlikely vehicle for salmonellosis in view of its method of preparation. However, two rather obvious errors in the preparation of the meatballs and sauce occurred. First, ample opportunities were present during the preparation of the sauce and meatballs for active bacterial multiplication. And second, cooking prior to serving was probably inadequate to destroy organisms present.

The source of the S. typhi-murium was never determined. Although one of the food handlers may have been responsible, it appears more likely that either the eggs or meat was the original source.

IV. REPORTS FROM THE STATES

NONE

V. SPECIAL REPORTS

A. Recent Articles on Salmonellosis

The following articles on salmonellosis of interest to public health workers have been published in recent months.

1. Baldwin, R. E.: Growth and destruction of Salmonella typhi-murium in egg white foam products cooked by microwaves. Appl. Microbiol. 16:1929, 1968.

2. Barkate, J. A.: Screening of feed components for salmonella with polyvalent H agglutination. Appl. Microbiol. 16:1872, 1968.

3. Edel, W., et al.: Comparative studies on salmonella isolation in eight European laboratories. Bull. W.H.O. 39:487, 1968.

4. Goepfert, J. M., et al.: Heat resistance of Salmonella typhi-murium and Salmonella senftenberg 775W in milk chocolate. Appl. Microbiol. 16:1939, 1968.

5. Heard, T. W.: Control of salmonellosis. Vet. Rec. 84:127, 1969.

6. March, B. E.: Bacterial infection of washed and unwashed eggs with particular reference to salmonellae. Appl. Microbiol. 17:98, 1969.

7. Martin, W. J., et al.: Prevalence of serotypes of salmonella. Appl. Microbiol. 17:111, 1969.

8. Mentzing, L.-O.: Salmonella infection in tourists. 2. Prophylaxis against salmonellosis. Acta Pathol. Microbiol. Scand. 74:405, 1968.

9. Osawa, N. et al.: Experimental salmonellosis. XII. In vitro induction of cellular immunity by immune ribonucleic acid. Japanese J. Microbiol. 12:479, 1968.

10. Pennington, J. H., et al.: Salmonella virchow in a chicken-packing station and associated rearing units. Brit. Med. J. 5634:804, 1968.

11. Ringertz, O., et al.: Salmonella infection in tourists. 1. An epidemiological study. Acta Pathol. Microbiol. Scand. 74:397, 1968.

12. Rosenthal, S. L.: Brief recording: Exacerbation of Salmonella enteritidis due to ampicillin. New Engl. J. Med. 280:147, 1969.

13. Semple, A. B., et al.: Outbreak of food posioning caused by Salmonella virchow in spit-roasted chicken. Brit. Med. J. 5634:801, 1968.

B. Recalls of Products Contaminated with Salmonellae for Period February 3 to March 24 (reported by the U.S. Food and Drug Administration).

From February 3 to March 24, 1969, four products were recalled by manufacturers and distributors because of salmonella contamination. These products as reported by the U.S. Food and Drug Administration are summarized in the table below.

Week Ending	Name, Label, Form	Manufacturer, Distributor	Lot Number	Use	Depth of Recall	Product Distribution	Serotype
2/3	Nestles Butterscotch Flavored Toll House Morsels in 6 oz. pkgs.	Nestles Co., Inc. Fulton, N. Y. (manufacturer)	Cases coded F8355, F8356, F8358, F8361, F8362	food	retail	National	S. cubana
2/24	Natural Brand Debittered Brewers' Dried Yeast Flakes in 1 lb. paper bags	General Nutrition Corp., DBA Natural Sales Co., Pittsburgh, Pa. (repacker)	0591H	food	retail	Pa., N. J., Mass., Ohio, Texas	S. newington
3/10	Extra grade pasteurized spray process nonfat dry milk in 50 lb. paper bags	Milk Producers, Inc., Arkansas City, Kansas (manufacturer)	391, 34182	food	user	Arkansas	S. cubana
	Super Value Brand Instant Nonfat Dry Milk, 12 qt. size	Instant and Specialty Producers, Div. Land O'Lakes Creameries, Inc., Eau Claire, Wisc. (manufacturer)	12198	food	wholesale	Minn., N. D.	S. anatum

C. Announcement of a Course on Methods for the Isolation of Salmonellae from Food Products and Animal Feeds

The Epidemiology Program and the Laboratory Division of the National Communicable Disease Center will conduct a course on methods for isolating salmonellae from food products and animal feeds. The course is to be given June 16-27, 1969 and will be repeated January 5-16 and June 15-26, 1970. Prerequisite for the course is 6 months' experience in either a bacteriology or quality control laboratory. The course is divided equally between lectures and laboratory exercises. Lectures include epidemiology, sampling, and principles of isolation and identification. Laboratory exercises include all necessary steps in the isolation and the preliminary biochemical and serologic identification of salmonellae from various foods and feeds, such as eggs, dry milk, candy, red meats, poultry, animal by-products, and fish meal.

State, Federal, and industry personnel may obtain application forms through: Training Office, Laboratory Consultation and Development Section, Laboratory Division, National Communicable Disease Center, Atlanta, Georgia 30333.

VI. INTERNATIONAL

Salmonellosis in Australia - 1968

Reported by Dr. Kevin Anderson, Institute of Medical and Veterinary Science, Adelaide, South Australia.

The majority of serotypes isolated in the Commonwealth of Australia, Papua and New Guinea, the Philippines and Tonga are identified at the Institute of Medical and Veterinary Science. In 1968, a total of 1,027 isolates of salmonellae from humans and 2,200 isolates from non-human sources were serotyped. The ten most frequently isolated serotypes are listed in the table below. As in previous years, Salmonella typhi-murium was the most frequently isolated serotype from both human and animal sources. Of the 126 strains of Salmonella typhi received, 38 originated from Tonga where the disease is endemic. Twenty eight isolates of Salmonella hessarek var. 27 were identified from a single human outbreak traced to the consumption of contaminated frozen egg pulp. One new serotype (Salmonella herston, 6,8 :d, enz_{15}) was isolated from a human.

HUMAN			NONHUMAN		
Serotype	Number	Percent	Serotype	Number	Percent
typhi-murium	347	33.7	typhi-murium	489	22.2
typhi	126	12.2	anatum	209	9.5
muenchen	76	7.4	chester	153	6.9
bovis morbificans	58	5.6	muenchen	124	5.6
chester	41	3.9	oranienberg	118	5.3
anatum	34	3.3	derby	115	5.2
enteritidis	28	2.7	adelaide	110	5.0
hessarek var. 27	28	2.7	bovis morbificans	67	3.0
saint paul	27	2.6	saint paul	63	2.8
adelaide	18	1.7	kottbus	63	2.8
TOTAL	783	75.8	TOTAL	1,511	68.3
TOTAL (all serotypes)	1,027		TOTAL (all serotypes)	2,200	

TABLE I. COMMON SALMONELLAE REPORTED FROM HUMAN SOURCES, FEBRUARY 1969

SEROTYPE	GEOGRAPHIC DIVISION AND REPORTING CENTER																													
	NEW ENGLAND						MIDDLE ATLANTIC					EAST NORTH CENTRAL					WEST NORTH CENTRAL							SOUTH ATLANTIC							
	ME	NH	VT	MAS	RI	CON	NYA	NYB	NYC	NJ	PA	OHI	IND	ILL	MIC	WIS	MIN	IOW	MO	ND	SD	NEB	KAN	DEL	MD	DC	VA	WVA	NC	SC	GA	FLA
anatum											2				1										1					1	2
bareilly	1			1					1																				2		
blockley						1					3	6				1														1	2
braenderup				6					1	1																					1
bredeney												1		2	2																3
chester									1																				1		
cholerae-suis v kun																															
cubana				2		1								4	1		1		1										1		1
derby									1		3			2													1				
enteritidis				7	3			6	6	3	2	1		8	2	3	2	1	2				1		6					2	
give				2																										1	1
heidelberg	2			5		1		2	4	2	11	6	1	6	4		3		1				1							4	1
indiana														1																3	1
infantis	1		1	4		4		3	5	4	2	3	5	4	3	2							1		2		2	1	1	1	5
java						1			1					2																	
javiana														1	1		1		1												4
litchfield														1													1				
livingstone																															
manhattan									3			4			1	1													1		
miami																															1
mississippi																															
montevideo				2				1			1	1		1		1			1						1						
muenchen									3					2	1															1	1
newington																															1
newport				2					3			1		5		1		3					3								8
oranienburg												1			1	1	1													1	
panama				2												2													2	1	
paratyphi B				3									1		1																2
reading																														1	
saint-paul				1		1		2	2		3	4		6	1	3							1		1				2	2	4
san-diego								1	1																						
schwarzengrund														1	1																
senftenberg				1												1															
tennessee										1																					
thompson				6	3			2	1	2		1		2	2	1											6			2	
typhi				1					3			1	1	1					1						1				2	2	7
typhimurium	1		19	13	1	4	2	4	28	11	3	12	6	22	16	12	2	5	6			1	8		3		3		2	7	6
typhimurium v cop				1		2				2																					
weltevreden																															
worthington																															
TOTAL	5	–	20	59	7	15	2	21	64	26	30	42	14	71	38	29	10	9	13	–	–	1	15	–	15	–	13	1	15	–	30	51
ALL OTHER*	–	1	2	–	2	1	30	–	2	–	1	–	–	1	–	2	–	2	–	1	–	–	–	–	1	4	–	2	1	–	–	5
TOTAL	5	1	22	59	9	16	32	21	66	26	31	42	14	72	38	31	10	11	13	1	–	1	15	–	16	4	13	3	16	–	30	56

Note: NYA – New York, Albany; NYB – Beth Israel Hospital; NYC – New York City. Beth Israel Hospital laboratory is a reference laboratory and this month serotyped a total of 38 cultures.

* See Table II.

TABLE I – Continued

GEOGRAPHIC DIVISION AND REPORTING CENTER																					TOTAL	% OF TOTAL	CUMULATIVE TOTAL	% OF CUMULATIVE TOTAL	SEROTYPE
EAST S. CENTRAL				WEST S. CENTRAL				MOUNTAIN								PACIFIC									
KY	TEN	ALA	MIS	ARK	LA	OKL	TEX	MON	IDA	WYO	COL	NM	ARI	UTA	NEV	WAS	ORE	CAL	ALK	HAW					
											1			1		1		2		2	14	1.4	26	1.0	*anatum*
							1														6	0.6	14	0.5	*bareilly*
		1					1	1										7		3	27	2.6	71	2.6	*blockley*
																		1			10	1.0	18	0.7	*braenderup*
							1											1		1	11	1.1	17	0.6	*bredeney*
																					2	0.2	10	0.4	*chester*
																					—	—	4	0.1	*cholerae-suis v kun*
																					12	1.2	26	1.0	*cubana*
					1						1							2			11	1.1	49	1.8	*derby*
	1				1				1		4					3	1	4		6	76	7.4	209	7.7	*enteritidis*
					1													1		1	7	0.7	10	0.4	*give*
	4	1			3								2			1		6		3	74	7.2	178	6.6	*heidelberg*
																					5	0.5	6	0.2	*indiana*
	4	2			3		1				3			1			1	9			78	7.6	179	6.6	*infantis*
																		1			5	0.5	22	0.8	*java*
		1			1								1					1			12	1.2	48	1.8	*javiana*
																					2	0.2	9	0.3	*litchfield*
																				1	1	0.1	4	0.1	*livingstone*
							1											3			14	1.4	35	1.3	*manhattan*
																		1			2	0.2	22	0.8	*miami*
																					—	—	2	0.1	*mississippi*
							1				1							1			12	1.2	32	1.2	*montevideo*
							1											2			12	1.2	34	1.3	*muenchen*
																					1	0.1	1	0.0	*newington*
				1			4						2					15		1	49	4.8	176	6.5	*newport*
							1											3			9	0.9	37	1.4	*oranienburg*
	1						6						1							6	21	2.0	42	1.6	*panama*
							1											1			9	0.9	17	0.6	*paratyphi B*
1																					2	0.2	6	0.2	*reading*
1	1						4											10		1	50	4.9	138	5.1	*saint-paul*
																		1			3	0.3	8	0.3	*san-diego*
	1																	1			4	0.4	12	0.4	*schwarzengrund*
		2																			4	0.4	8	0.3	*senftenberg*
																					1	0.1	6	0.2	*tennessee*
3	1	1		1			1		1					1		1		10		3	51	5.0	103	3.8	*thompson*
	1			2														7			30	2.9	68	2.5	*typhi*
2	3	3	1	2	4	2	5			2	6		1	1		4		58		4	295	28.7	775	28.7	*typhimurium*
					1												1				7	0.7	30	1.1	*typhimurium v cop*
																				5	5	0.5	8	0.3	*weltevreden*
																				1	1	0.1	3	0.1	*worthington*
7	17	11	1	6	15	2	29	1	2	2	16	—	7	4	—	10	3	148	—	38	935	90.9	2,463	91.2	TOTAL
—	—	—	2	2	2	—	8	1	—	—	1	3	1	—	—	3	1	7	4	1	94		237		ALL OTHER*
7	17	11	3	8	17	2	37	2	2	2	17	3	8	4	—	13	4	155	4	39	1,029		2,700		TOTAL

TABLE II. OTHER SALMONELLAE REPORTED FROM HUMAN SOURCES, FEBRUARY 1969

SEROTYPE	REPORTING CENTER																						
	ALK	ARI	ARK	CAL	COL		CON	DC	FLA	HAW	ILL		IOW	LA	MD	MIS	MON		NH	NM	NYA	NYC	NC	
aba																								
alachua							1																	
albany														1										
berta				1																				
binza				1																				
bovis-morbificans											1													
california													1											
dublin				1																				
hartford																	1							
kentucky										1														
lomita																								
meleagridis									1						1									
muenster									1															
norwich				1																				
orion					1																			
paratyphi-A				1																				
pomona		1																						
poona				1					1															
rubislaw									1															
shipley																						1		
urbana														1										
willemstad																								
TOTAL	–	1	–	6	1		1	–	4	1	1		1	2	1	–	1		–	–	–	1	1	
NOT TYPED*	4	–	2	1	–		–	4	1	–	–		1	–	–	2	–		1	3	30	1	–	
TOTAL	4	1	2	7	1		1	4	5	1	1		2	2	1	2	1		1	3	30	2	1	

*See Table V-A

TABLE II – Continued

REPORTING CENTER														TOTAL	CUMULATIVE TOTAL	SEROTYPE
	ND	ORE	PA	RI	TEX		VT	WAS	WVA	WIS						
								3						3	3	*aba*
														1	1	*alachua*
														1	3	*albany*
														2	3	*berta*
														1	3	*binza*
														1	1	*bovis-morbificans*
														1	5	*california*
														1	1	*dublin*
														1	9	*hartford*
			1											2	3	*kentucky*
					1									1	1	*lomita*
														2	2	*meleagridis*
														1	5	*muenster*
														1	3	*norwich*
														1	2	*orion*
														1	2	*paratyphi A*
														1	3	*pomona*
														2	4	*poona*
									1					2	4	*rubislaw*
														1	1	*shipley*
					1									1	3	*urbana*
														1	1	*willemstad*
	–	–	1	–	2		–	3	1	–				29	92	TOTAL
	1	1	–	2	6		2	–	1	2				65	145	NOT TYPED*
	1	**1**	**1**	**2**	**8**		**2**	**3**	**2**	**2**				**94**	**237**	**TOTAL**

Cumulative Totals include isolations of all serotypes (except those listed in Table I) reported this year.

TABLE III. COMMON SALMONELLAE REPORTED FROM NONHUMAN SOURCES, FEBRUARY 1969

SEROTYPE	DOMESTIC ANIMALS AND THEIR ENVIRONMENT							ANIMAL FEEDS			
	CHICKENS	TURKEYS	SWINE	CATTLE	HORSES	OTHER	SUBTOTAL	TANKAGE	VEGETABLE PROTEIN	OTHER	SUBTOTAL
anatum	2	4		4			10	24			24
bareilly							–	1			1
blockley	14	1					15				–
braenderup							–				–
bredeney	1	7	4				12	3		2	5
chester		3					3				–
cholerae-suis v kun			44				44				–
cubana			1				1	10		1	11
derby	3	5	4	1			13	2			2
enteritidis	8	8	2			1	19				–
give		1					1				–
heidelberg	51	42	1	1		1	96	6			6
indiana	1						1				–
infantis	12	2	1			1	16	2			2
java							–				–
javiana							–				–
litchfield	1						1				–
livingstone	1						1	2		2	4
manhattan	3	1					4				–
miami							–				–
mississippi							–				–
montevideo	2	1	2			4	9	20		2	22
muenchen	1	1	7				9				–
newington	1				2		3	2			2
newport		5	1	4		2	12				–
oranienburg							–	5			5
panama							–				–
paratyphi B							–				–
reading		7					7	1			1
saint-paul	11	39			1		51	1		1	2
san-diego		26					26				–
schwarzengrund	1	1				1	3			1	1
senftenberg	2	6	1			1	10	5		2	7
tennessee	3	3					6	2		3	5
thompson	21	8		1			30	6		1	7
typhi							–				–
typhimurium	12	10	11	25	3	8	69	7			7
typhimurium v cop	6		3	1		6	16				–
weltevreden							–				–
worthington	3	3					6	8		2	10
TOTAL	160	184	82	37	6	25	494	107	–	17	124
ALL OTHER*	19	15	2	11	–	3	50	57	–	11	68
TOTAL	179	199	84	48	6	28	544	164	–	28	192

* See Table IV

TABLE III – Continued

WILD ANIMALS AND BIRDS	REPTILES AND ENVIRONMENT	HUMAN DIETARY ITEMS						MISCELLANEOUS	TOTAL	CUMULATIVE TOTAL	SEROTYPE
		EGGS AND PRODUCTS	POULTRY	RED MEAT	DAIRY PRODUCTS	OTHER	SUBTOTAL				
		2		1			3		37	57	*anatum*
							–		1	6	*bareilly*
			1				1		16	20	*blockley*
							–		–	–	*braenderup*
							–	1	18	32	*bredeney*
							–		3	4	*chester*
							–		44	89	*cholerae-suis v kun*
							–		12	17	*cubana*
1				1			1	1	18	26	*derby*
		3					3	1	23	32	*enteritidis*
							–		1	4	*give*
3							–	1	106	167	*heidelberg*
							–		1	2	*indiana*
							–		18	30	*infantis*
	1						–		1	4	*java*
						1	1		1	1	*javiana*
							–		1	2	*litchfield*
							–		5	20	*livingstone*
							–		4	6	*manhattan*
							–		–	–	*miami*
							–		–	–	*mississippi*
1					1	3	4		36	61	*montevideo*
		3					3		12	15	*muenchen*
							–		5	9	*newington*
1		1				7	8	1	22	39	*newport*
							–		5	11	*oranienburg*
1							–		1	2	*panama*
							–		–	–	*paratyphi B*
							–		8	15	*reading*
		1					1	1	55	78	*saint-paul*
	1						–		27	31	*san-diego*
							–		4	7	*schwarzengrund*
							–	5	22	27	*senftenberg*
							–	1	12	19	*tennessee*
		1			1	3	5		42	64	*thompson*
							–		–	–	*typhi*
8		5					5	1	90	165	*typhimurium*
1							–	2	19	42	*typhimurium v cop*
							–		–	–	*weltevreden*
					1		1		17	22	*worthington*
16	2	16	1	2	3	14	36	15	687	1,126	TOTAL
4	3	1	–	–	–	2	3	2	130	290	ALL OTHER*
20	5	17	1	2	3	16	39	17	817	1,416	TOTAL

TABLE IV. OTHER SALMONELLAE REPORTED FROM NONHUMAN SOURCES, FEBRUARY 1969

SEROTYPE	DOMESTIC ANIMALS AND THEIR ENVIRONMENT							ANIMAL FEEDS			
	CHICKENS	TURKEYS	SWINE	CATTLE	HORSES	OTHER	SUBTOTAL	TANKAGE	VEGETABLE PROTEIN	OTHER	SUBTOTAL
agbeni							–				–
alachua	1	2		1			4	2			2
albany	2	2					4				–
alsterdorf							–	1			1
amager	1						1				–
binza							–	6			6
bornum							–	1			1
bovis-morbificans							–				–
california	4						4	1			1
cerro						1	1	4			4
chameleon							–				–
cholerae-suis			1				1				–
drypool							–	2			2
dublin				5			5				–
eimsbuettel	1	3		1		1	6	4		2	6
gallinarum	2						2				–
grumpensis							–	1			1
illinois							–	1		1	2
johannesburg							–	3			3
kentucky	1						1	7		2	9
lexington							–			1	1
manila							–	1			1
meleagridis							–	3			3
michigan							–				–
minnesota		4	1				5	17		3	20
pomona							–				–
pullorum	4						4				–
saphra							–				–
siegburg		1					1	1			1
simsbury		1					1				–
taksony		1					1				–
thomasville	2			1			3				–
uganda				1			1				–
westhampton						1	1	2			2
zega							–				–
TOTAL	18	14	2	9	–	3	46	57	–	9	66
NOT TYPED*	1	1	–	2	–	–	4	–	–	2	2
TOTAL	19	15	2	11	–	3	50	57	–	11	68

*See Table V-B

TABLE IV – Continued

WILD ANIMALS AND BIRDS	REPTILES AND ENVIRONMENT	HUMAN DIETARY ITEMS						MISCELLANEOUS	TOTAL	CUMULATIVE TOTAL	SEROTYPE
		EGGS AND PRODUCTS	POULTRY	RED MEAT	DAIRY PRODUCTS	OTHER	SUBTOTAL				
1							–		1	1	*agbeni*
							–		6	11	*alachua*
							–		4	10	*albany*
							–		1	1	*alsterdorf*
							–		1	1	*amager*
							–		6	10	*binza*
							–		1	1	*bornum*
2							–		2	2	*bovis-morbificans*
							–	1	6	6	*california*
							–		5	9	*cerro*
	1						–		1	1	*chameleon*
							–		1	3	*cholerae-suis*
							–		2	8	*drypool*
							–		5	20	*dublin*
							–	1	13	31	*eimsbuettel*
							–		2	4	*gallinarum*
							–		1	1	*grumpensis*
							–		2	3	*illinois*
							–		3	4	*johannesburg*
							–		10	17	*kentucky*
							–		1	2	*lexington*
							–		1	1	*manila*
							–		3	33	*meleagridis*
1							–		1	1	*michigan*
							–		25	33	*minnesota*
	1						–		1	1	*pomona*
							–		4	6	*pullorum*
						2	2		2	2	*saphra*
		1					1		3	14	*siegburg*
							–		1	2	*simsbury*
							–		1	2	*taksony*
							–		3	3	*thomasville*
							–		1	1	*uganda*
							–		3	3	*westhampton*
	1						–		1	1	*zega*
4	3	1	–	–	–	2	3	2	124	264	TOTAL
–	–	–	–	–	–	–	–	–	6	26	NOT TYPED*
4	3	1	–	–	–	2	3	2	130	290	TOTAL

TABLE V. SALMONELLAE REPORTED BY GROUP IDENTIFICATION ONLY, FEBRUARY 1969

A. HUMAN SOURCES

REPORTING CENTER	GROUP														TOTAL
	B		C		C1		C2		D		O		UNK		
ALASKA	1				2				1						4
ARKANSAS					1				1						2
CALIFORNIA	1														1
DISTRICT OF COLUMBIA	2								2						4
FLORIDA									1						1
IOWA	1														1
MISSISSIPPI	1				1										2
NEW HAMPSHIRE	1														1
NEW MEXICO	1				2										3
NEW YORK-A													30		30
NEW YORK-C													1		1
NORTH DAKOTA													1		1
OREGON									1						1
RHODE ISLAND	1								1						2
TEXAS	1						1		1				3		6
VERMONT													2		2
WEST VIRGINIA			1												1
WISCONSIN	2														2
TOTAL	12		1		6		1		8		–		37		65

B. NONHUMAN SOURCES

SOURCES	GROUP														TOTAL
	B		C		C1		C2		D		O		UNK		
DOMESTIC ANIMALS AND THEIR ENVIRONMENT	2										1		1		4
ANIMAL FEEDS													2		2
WILD ANIMALS AND BIRDS															–
REPTILES AND ENVIRONMENT															–
HUMAN DIETARY ITEMS															–
MISCELLANEOUS															–
TOTAL	2		–		–		–		–		1		3		6

STATE EPIDEMIOLOGISTS AND STATE LABORATORY DIRECTORS

Key to all disease surveillance activities are the physicians who serve as State epidemiologists. They are responsible for collecting, interpreting, and transmitting data and epidemiological information from their individual States; their contributions to this report are gratefully acknowledged. In addition, valuable contributions are made by State Laboratory Directors; we are indebted to them for their valuable support.

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