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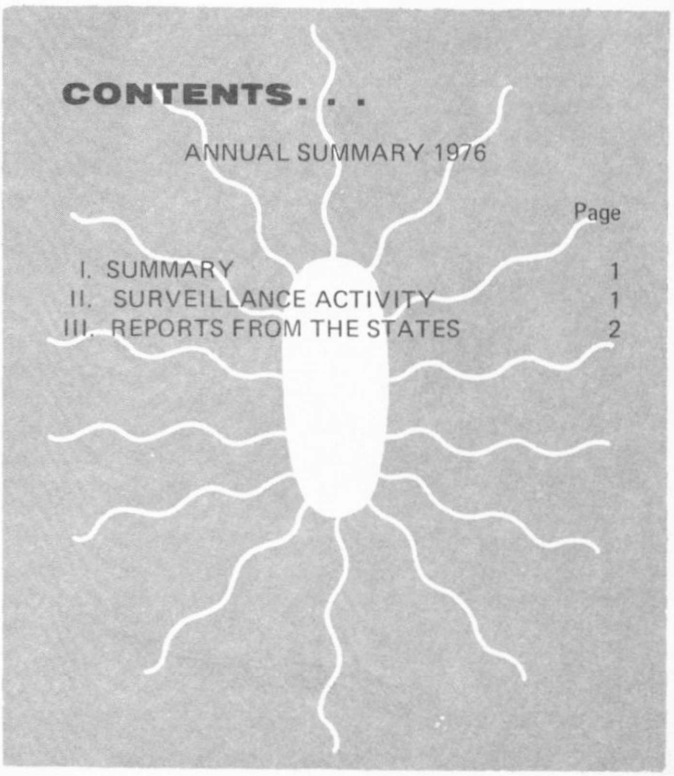
Annual Summary 1976
issued November 1977

CENTER FOR DISEASE CONTROL

SALMONELLA

SURVEILLANCE



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PREFACE

Summarized in this report is information received from state and city health departments, university and hospital laboratories, the U.S. Food and Drug Administration, the U.S. Department of Agriculture, 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:

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I. SUMMARY

In 1976, 23,285 isolations of Salmonella from humans were reported to CDC, a decrease of 160 isolations (0.7%) from the previous year. S. typhimurium (including S. typhimurium var. copenhagen), S. heidelberg, and S. agona were the first, second, and third most frequently isolated serotypes, respectively. The decrease in reported cases seen in the past 2 years reflects primarily the decreased activity of reporting centers, and not an actual decrease in the incidence of salmonellosis.

II. SURVEILLANCE ACTIVITY

This report (January 1, 1976-December 31, 1976) summarizes the results of the 15th year of the Salmonella Surveillance Activity established jointly by the Center for Disease Control and the Association of State and Territorial Epidemiologists and Laboratory Directors in 1962. The bulwark of the program is the weekly reporting of isolations of Salmonella by the 50 states, District of Columbia, U.S. Department of Agriculture, and U.S. Food and Drug Administration. The objectives of this surveillance have been to define endemic patterns of salmonellosis, particularly those with interstate ramifications, to provide health authorities and policy makers administrative guidelines, and to monitor control efforts.

The Salmonella Surveillance Activity solicits information on outbreaks and other aspects of human and nonhuman salmonellosis from health workers in the private sector and from officials at the local, state, and Federal level. Each week, or as received, reports of laboratory isolations from the 50 states are reviewed. These reports represent laboratory isolations of Salmonella without distinction as to whether they are from clinical or subclinical cases or chronic or convalescent carriers. Cases of salmonellosis not confirmed by culture are not included. These reports are analyzed by county, state, and serotype to determine whether a particular geographic area is experiencing an increase in the number of Salmonella isolations of a specific serotype for that particular period.

Many selective factors determine which Salmonella infections will be reported. Among these are the severity of infection, the epidemiologic circumstances surrounding the case, accessibility of the patient to a physician, the interest of the physician in obtaining a culture, and the availability and capability of the laboratory. Interpretations of these data are limited by the bias inherent in the data. For example, differences in geographic incidence and in ages of patients reported probably reflect "interest factors." Despite these limitations, certain observations are justified, and the data herein provide the basis for comparison with past and future results.

The decline in reported Salmonella isolates reflects in large part a diminished activity of reporting centers. In particular, budgetary restraints experienced by reference laboratories has led to a curtailment of serotyping efforts. Two major reporting centers, the State of Florida and the Beth Israel Hospital in New York State (a reference laboratory for northeastern states) have curtailed or ceased serotyping reference support for budgetary reasons during the past 3 years. The loss of just these 2 major reporting centers had a noticeable impact on national Salmonella statistics. Table 1 and Table 6 show that the total number of reported isolates declined in 1974, 1975, and 1976, following increases in 1972 and 1973. Table 1 also shows that half of the decline in reported isolates in 1974 and all of the decline in reported isolates in 1975 and 1976 can be attributed to the reduction in reporting from the Beth Israel Hospital and the State of Florida.

The data in Table 1 emphasize that the apparent incidence of salmonellosis depends on the vigor of surveillance activity. Also, Table 1 supports the belief that the actual incidence of salmonellosis in the United States is not decreasing, although the reported number of isolates for the past 2 years has decreased. The apparent decreasing incidence of salmonellosis is actually an indication of decreased reporting.

HEW Publication (CDC) No. 78-8219

Table 1

Decline in Total Reported Salmonella Isolates*

Reporting Center	1971	1972	1973	1974	1975	1976
New York-Beth Israel	500	591	741	645	158	0
Florida	1455	1669	1346	201	193	171
TOTAL	1955	2260	2087	846	351	171
Change from previous year		+305	-173	-1241	-495	-180
Percent change		+1.6%	-7.6%	-59.5%	-58.5%	-51.3%
U.S. TOTAL	25,694	26,110	26,693	23,838	23,445	23,285
Change (national) from previous year		+416 +1.6%	+583 +2.2%	-2855 -10.7%	-393 -1.6%	-160 -0.7%

*Correlated with diminished state and reference center activity

III. REPORTS FROM THE STATES

A. Human

Serotype Frequency. A total of 180 different Salmonella serotypes were identified and reported in 1976, representing a decrease of 18 from 1975. The 180 serotypes represent approximately 11% of the more than 1,700 known Salmonella serotypes and variants.

The 10 most frequently reported serotypes accounted for 16,747 (71.9%) of the 23,285 isolates reported in 1976 (Table 2).

Table 2

The 10 Most Frequently Isolated Serotypes from Human and Non-Human Sources, 1976*

HUMAN			Rank Last Year	NON-HUMAN		
Serotype	Number	Percent		Serotype	Number	Percent
1) typhimurium*	7847	33.7	1	1) typhimurium*	1125	20.7
2) heidelberg	1962	8.4	4	2) cholera-suis var kuzendorf	293	5.4
3) agona	1461	6.3	5	3) anatum	257	4.8
4) newport	1336	5.7	2	4) agona	223	4.1
5) enteritidis	1219	5.2	3	5) heidelberg	222	4.1
6) infantis	1014	4.4	6	6) enteritidis	167	3.0
7) saint-paul	545	2.3	7	7) johannesberg	157	2.9
8) typhi	529	2.3	8	8) saint-paul	148	2.7
9) oranienburg	460	2.0	9	9) infantis	146	2.7
10) muenchen	374	1.6	12	10) dublin	122	2.2
Total	16,747	71.9		Total	2858	52.8
Total (all serotypes)	23,285			Total (all serotypes)	5409	

*includes var copenhagen

Of these 10 serotypes, S. heidelberg showed the greatest increase for the second year in a row, with a 33.1% increase in the number of isolations reported since 1975. S. muenchen is new to the list.

Uncommon and Rare Serotypes. Of the 140 "uncommon" serotypes which were isolated and reported this year, noticeable increases in the number of isolates were found for S. agona (from 1,333 to 1,461) (Figure 1), S. berta (from 16 to 31), S. bovismorbificans (from 33 to 115), S. brandenberg (from 7 to 16), S. haardt (from 4 to 12), S. johannesburg (from 21 to 35), S. london (from 150 to 182), S. ohio (from 31 to 57), S. potsdam (from 1 to 4), S. thomasville (from 2 to 11), S. tucson (from 0 to 6), S. urbana (from 7 to 18), and S. wandsworth (from 0 to 4).

Fig. 1 ISOLATES OF *SALMONELLA AGONA* FROM HUMAN SOURCES, UNITED STATES, 1967-1976

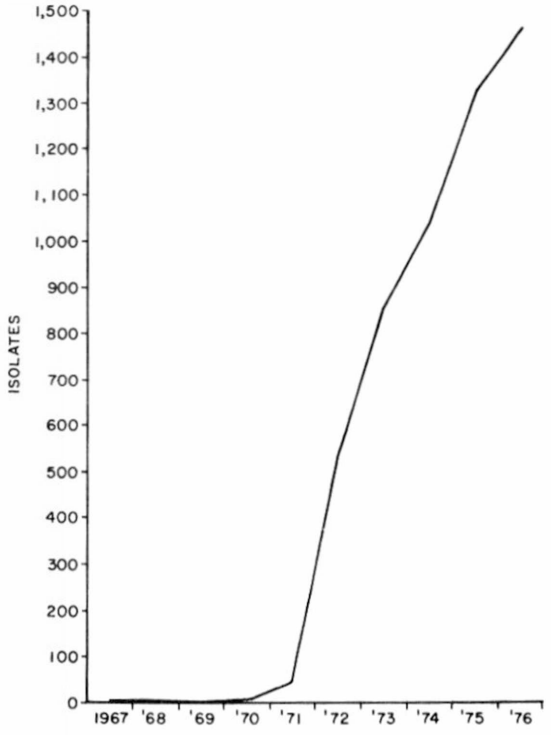


Fig. 2 REPORTED HUMAN ISOLATIONS OF *SALMONELLA*, UNITED STATES, 1963-1976

The number of isolates of S. agona continued to increase this year, as it has each year since the serotype was first reported to CDC in 1970. It now appears to be well established as an important endemic serotype.

The frequency of isolation of certain serotypes decreased noticeably in 1976: S. aberdeen (from 6 to 1), S. abony (from 13 to 3), S. adelaide (from 21 to 4), S. amager (from 9 to 3), S. amsterdam (from 11 to 1), S. california (from 11 to 4), S. eimsbuettel (from 8 to 2), S. kottbus (from 107 to 67), S. lomita (from 5 to 1), S. madelia (from 8 to 2), S. simsbury (from 8 to 1), S. singapore (from 24 to 13), and S. sundsvall (from 5 to 1).

Incidence. The annual incidence of reported isolations of Salmonella has remained approximately constant since 1963 (Figure 2). In 1976 the incidence of Salmonella infection continued to show a seasonal pattern, with the greatest number of isolations reported in the period July-November and the fewest in the period February-April (Figure 3).

Age and Sex Distribution. For 17,646 isolations in 1976, the ages of infected persons were reported; 11,285 (63.9%) were from persons less than 20 years of a age (Figure 4), (Table 3), and (Table 10).

This was a decrease of 0.9% for this age group compared with 1975. In 1976 the number of isolations per 100,000 population in each age group closely approximated that for the years 1963 through 1975.

In 1976 sex was specified for 23,116 persons from whom Salmonella was isolated; 11,658 (50.4%) were male and 11,458 (49.6%) were female. Table 3 shows this age-sex distribution. A similar age-sex distribution of persons in whom Salmonella infections were reported has been seen in the past 10 years and has been noted in other enteric diseases. This phenomenon is thought to be related to inherently greater susceptibility in males, particularly in infancy, and to disproportionately high exposure of adult females who are

more likely to have close contact with sick children. Once again, children less than 5 years of age had the highest incidence of salmonellosis (Figure 4). Children with diarrhea are more likely than adults to have a stool culture taken because of parental and physician concern.

Fig 3 REPORTED HUMAN ISOLATIONS OF SALMONELLA, UNITED STATES, 1966-1976

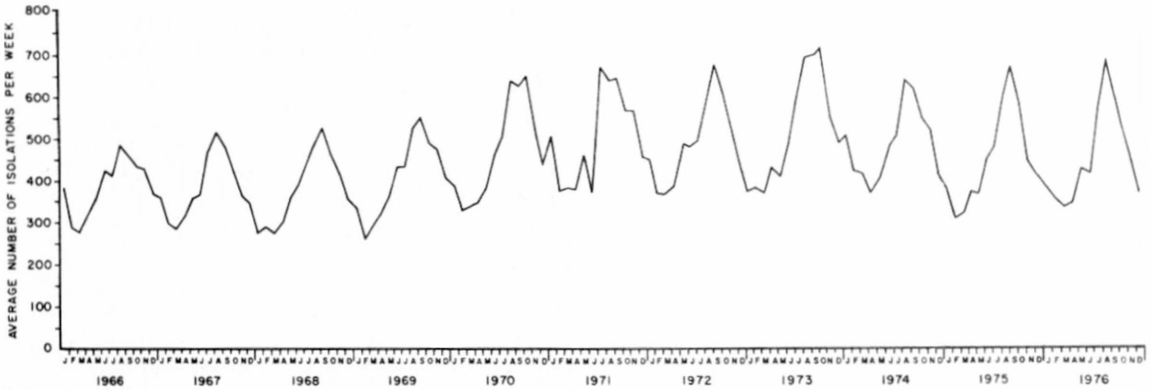
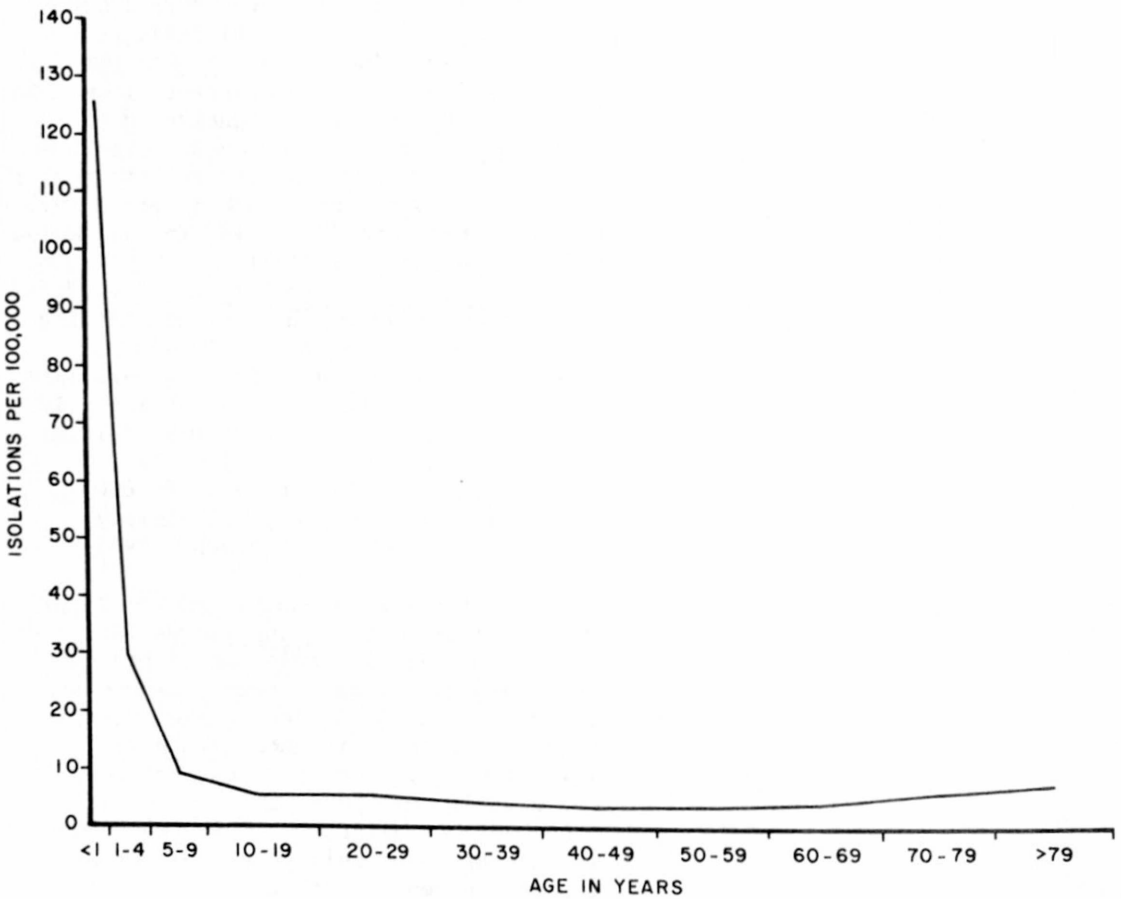


Fig. 4 RATE OF HUMAN ISOLATIONS OF SALMONELLA BY AGE GROUP, 1976



SOURCE: CURRENT POPULATION REPORTS, SERIES P25, NO. 529

Table 3

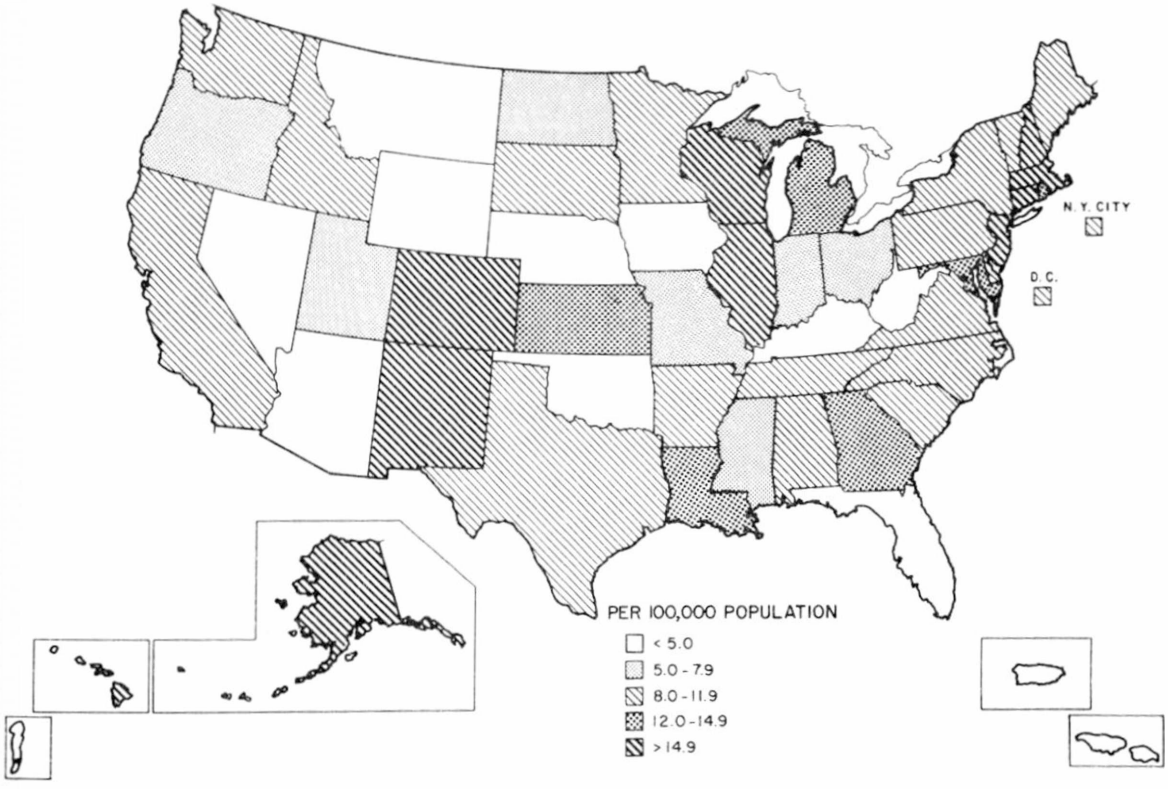
Age-Sex Distribution of Salmonella Strains Reported in 1976*

Age (years)	Male		Female		TOTAL
	Number	Percent	Number	Percent	
Less than 20	6087	54.0	5175	46.0	11,262
20 and over	2773	43.6	3582	56.4	6,355
Total	8860	50.3	8757	49.7	17,617

*excludes isolates where age or sex was not specified

Geographic Patterns. The geographic distribution of Salmonella isolations reported in 1976 appears in Figure 5.

Fig. 5 NUMBER OF HUMAN ISOLATIONS OF *SALMONELLA*, UNITED STATES, 1976



The incidence for the entire country was 10.8 per 100,000. Hawaii, as in past years, reported the highest incidence with 53.8 per 100,000. Other areas reporting incidence rates higher than 20.0 per 100,000 were Colorado (26.2), New Mexico (21.5), and Wisconsin (23.5).

Geographic variations among specific serotypes are seen in Tables 6 and 7. Several serotypes had definite regional patterns which have been observed in recent years. Hawaii reported 79 of 81 (97.5%) isolates of S. weltevreden, 52 of 192 (27.1%) isolates of S. panama, and 18 of 29 (62.1%) of S. oslo. The southern states of Louisiana, Texas, and Arkansas accounted for 435 of the 1,336 (32.6%) of S. newport isolates and 165 of 297 (55.6%) isolates of S. javiana. Georgia, Louisiana, and Texas had 81 of the 113 (71.7%) S. mississippi isolates. Connecticut, Massachusetts, New Jersey, and Pennsylvania had 93 of the 115 (80.9%) isolates of S. bovis-morbificans. California had 31 of the 59 (52.5%) isolates of S. siegburg. The reasons for these geographic characteristics are not clear.

Outbreaks. In 1976 there were 42 outbreaks of salmonellosis involving an estimated 1,915 persons reported to CDC (Table 4). Of the 1,915 persons, 571 (29.8%) were found to have positive cultures. Thus, only a small fraction (2.4%) of the reported human isolations of Salmonella in 1976 (23,285) were from reported outbreaks, an observation compatible with the belief that many outbreaks are never recognized or investigated. Approximately 4.9% of the ill persons were reported to have been hospitalized; the only deaths occurred in 4 nursing home patients with other serious diseases and were not reported as directly related to salmonellosis. In the years 1962-1976, 145 deaths were reported in 37,212 persons involved in 565 outbreaks for a case fatality ratio of 0.39%.

In 37 of the 42 outbreaks a probable vehicle of transmission was identified: 6 involved beef or beef products and 1 involved poultry. For comparison the mode of transmission in 500 human salmonellosis outbreaks from 1966-1975 is shown in Figure 6.

Table 4

This table lists investigated outbreaks of salmonellosis reported to CDC from various sources. Definitions of cases are not uniform from report to report. This listing should be considered neither comprehensive nor representative as most outbreaks are probably not reported to CDC.

State	Month	Location	Serotype	No. Ill	Mode of Transmission	Comment
Wisconsin	January	Eau Claire	typhimurium	119	Roast beef	University
Connecticut Massachusetts New Jersey	January		typhi	16	? Mashed potatoes	Interstate outbreak traced to NYC restaurant
New Jersey	March	Camden City	typhimurium	13	Person-to-person	Mental hospital
California	May	?	Group E	73	Turkey, dressing, squash	
California	May	Novato Marin Co.	heidelberg	7	Mexican food	
Oklahoma	May	Claremore Rogers Co.	copenhagen	29	Salad dressing	
Massachusetts	June	?	newport	9	Roast beef	
Minnesota	June	Twin cities	london	37	Prime rib, roast beef, ham	Restaurant
Pennsylvania	June	Elwyn Delaware Co.	heidelberg schwarzengrund	17	Food	Institution for retarded
Washington	June	Seattle King Co.	blockley	58	Food	Nursing/retirement home
Florida	June	Miami	typhi	8	Peruvian cheese and potato dish	Probable source--unknown carrier prepared the dish
Colorado	July	Throughout the state	heidelberg	339	Cheddar cheese	Food processor mishandled
Maine	July	Poland Springs Androscoggin	heidelberg	78	Food	July 4th weekend resort inn

CORRECTED

Table 4

This table lists investigated outbreaks of salmonellosis reported to CDC from various sources. Definitions of cases are not uniform from report to report. This listing should be considered neither comprehensive nor representative as most outbreaks are probably not reported to CDC.

State	Month	Location	Serotype	No. Ill	Mode of Transmission	Comment
Wisconsin	January	Eau Claire	typhimurium	119	Roast beef	University
Connecticut Massachusetts New Jersey	January		typhi	16	? Mashed potatoes	Interstate outbreak traced to NYC restaurant
Arizona	March	Pima City	poona	13	?	
New Jersey	March	Camden City	typhimurium	13	Person-to-person	Mental hospital
New York	March	Suffolk	typhimurium	700	Water	
Ohio	April	Stubenville	typhimurium	10	Person-to-person	Nosocomial
Pennsylvania	April	Greater Philadelphia	typhimurium	22	?	Mental hospital
Pennsylvania	April	Philadelphia	bovis-morbificans	12	?	Home for retarded children
California	May	?	Group E	73	Turkey, dressing, squash	
California	May	Novato Marin Co.	heidelberg	7	Mexican food	
Oklahoma	May	Claremore Rogers Co.	copenhagen	29	Salad dressing	
Arkansas	June	Sebastian Co.	typhi	4	?	Carrier
Massachusetts	June	?	newport	9	Roast beef	
Massachusetts	June		muenchen	35	Food	Wedding reception
Minnesota	June	Twin cities	london	37	Prime rib, roast beef, ham	Restaurant
Pennsylvania	June	Elwyn Delaware Co.	heidelberg schwarzengrund	17	Food	Institution

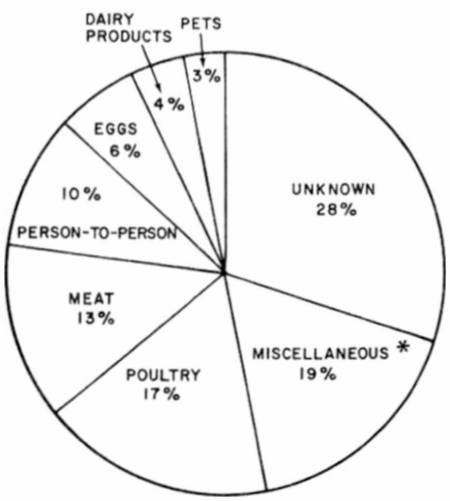
State	Month	Location	Serotype	No. Ill	Mode of Transmission	Comment
Maine	September	Vassalboro Kennebec Co.	typhimurium	24	Food	School
New Jersey	September	West Milford	typhimurium	18	Chicken casserole	
Pennsylvania	September	Concordville Delaware Co.	st. paul typhimurium	42	Potato salad	
New York	September	NYC Manhattan	enteritidis	15	Japanese food	
Missouri	September	St. Louis	thompson	15	Tuna and macaroni	Hospital
Illinois	? October	?	typhi	4	Food	Carrier had S. typhi with 2 phage types
Massachusetts	October	?	typhimurium	48	Food	Nursing home
Washington	October	Ellensburg Kittitas	heidelberg	24	Food	
Alabama	November	?	typhimurium	3	? person-to-person	Nursery school
California	November	Sunnyvale Santa Clara Co.	typhimurium	12	Food	Social hall - mobile home park
Connecticut	November	Danbury	typhimurium give	3	Food	Foodhandlers at restaurant had salmonella
California	December		infantis	4	Commercial diet supplement	Hospital
Hawaii	December		typhi	3	Korean food	Foodhandler in restaurant was a carrier

State	Month	Location	Serotype
Washington	June	Seattle King Co.	blockley
Florida	June	Miami	typhi
Arkansas	July		javiana
Colorado	July	Throughout the state	heidelberg
Maine	July	Poland Springs Androscoggin	heidelberg
Massachusetts	July	Worcester	bredeney
Michigan	July	Howell Livingston Co.	typhimurium
New Hampshire	July	?	typhimurium
New Jersey	July	Teaneck township	enteritidis san diego
Pennsylvania	July	Pittsburgh	minnesota
North Carolina	July	Mecklenburg, Inedell, Rowan, and Forsyth Cos.	enteritidis
Missouri	August	Adair Co.	newport
New York	August		st. paul
Washington	August	Goldendale Klickitat	typhimurium
Pennsylvania Massachusetts Connecticut New Jersey Delaware	August		bovis-morbificans

No. Ill	Mode of Transmission	Comment
58	Food	Nursing/retirement home
8	Peruvian cheese and potato dish	Probable source--unknown carrier prepared the dish
7	Water	Trailer camp
339	Cheddar cheese	Food processor mishandled
78	Food	July 4th weekend
4	2 person-to-person	S. bredeney isolated from 3 of 5 family members of index case
7	Homemade ice cream	
44	Food	Jail and nursing home
2	Corned beef	
2	Hospital	
? >8	Commercial sandwiches	
15	Hamburger	Restaurant
54	Turkey	Camp
27	Potato and macaroni salad	
21	Pre-cooked roast beef	Mishandling by food processor

Michigan	July	Howell Livingston Co.	typhimurium	7	Homemade ice cream	
New Hampshire	July	?	typhimurium	44	Food	Jail and nursing home
New Jersey	July	Teaneck Township	enteritidis san diego	2	Corned beef	
Washington	August	Golden Dale Klickitat	typhimurium	27	Potato and macaroni salad	
Pennsylvania Mass. Connecticut New Jersey Delaware	August		bovis-mor morbificans	21	Pre-cooked roast beef	Mishandling by food processor
Maine	September	Vassalboro Kennebec Co.	typhimurium	24	Food	School
New Jersey	September	West Milford	typhimurium	18	Chicken casserole	
Pennsylvania	September	Concord ville Delaware Co.	st. paul typhimurium	42	Potato salad	
New York	September	NYC Manhattan	enteritidis	15	Japanese food	
Missouri	September	St. Louis	thompson	15	Tuna and macaroni	Jewish Hospital
Mass.	October	?	typhimurium	48	Food	Nursing home
Washington	October	Ellensburg Kittitas	heidelberg	24	Food	
California	November	Sunnyvale Santa Clara Co.	typhimurium	12	Food	Social hall - mobile home park
Connecticut	November	Danbury	typhimurium and give	3	Food	Foodhandlers at restaurant had salmonella

Fig. 6 MODE OF TRANSMISSION IN 500 HUMAN SALMONELLOSIS OUTBREAKS, 1966 - 1975

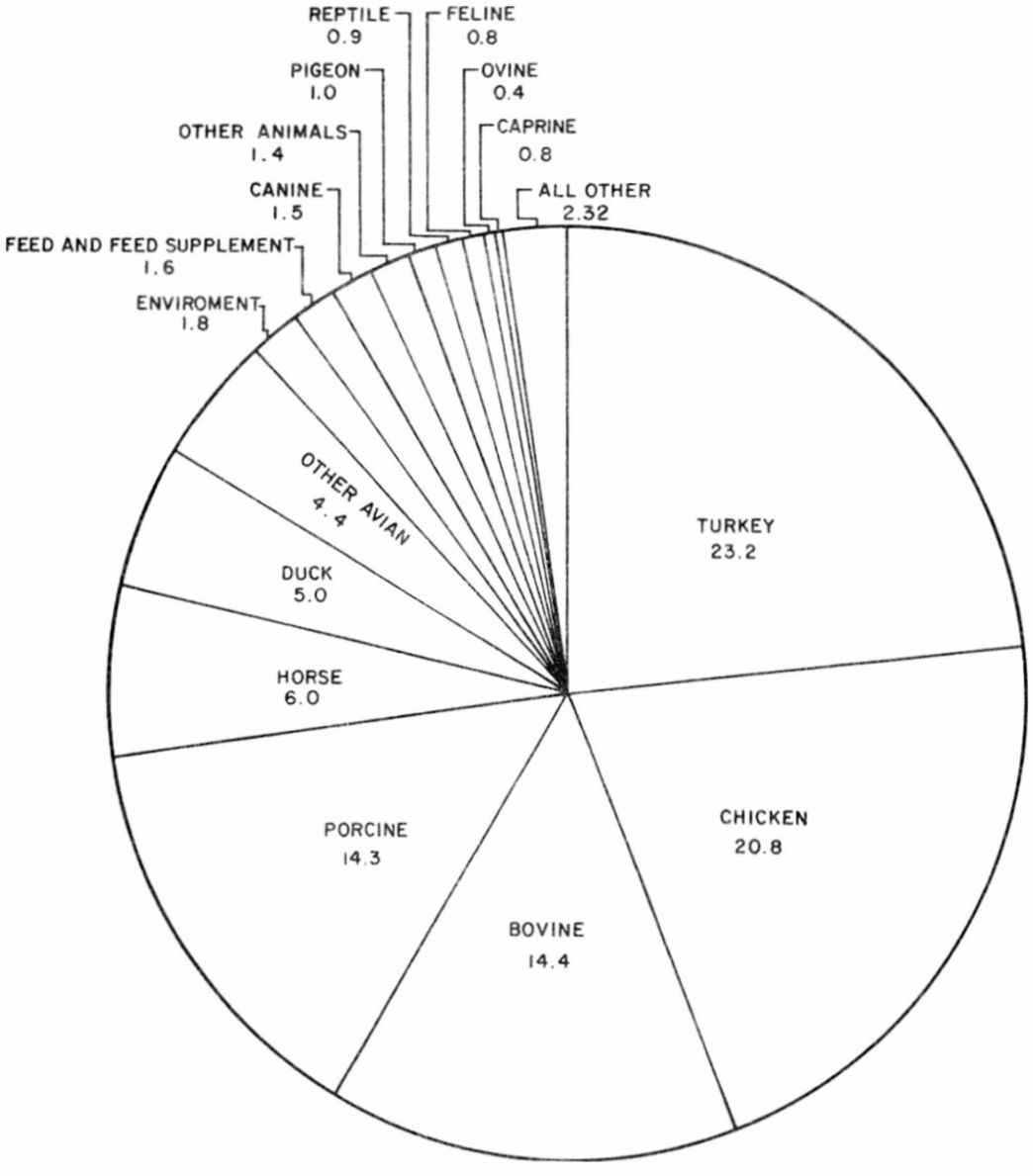


* INCLUDES OVER 50 VEHICLES WHICH INDIVIDUALLY CAUSED LESS THAN 3% OF OUTBREAKS

B. Nonhuman

This section of the Salmonella Surveillance Report is the result of the reinstitution of the cooperative state-federal Salmonella program sponsored by the U.S. Department of Agriculture. In 1976, 5,409 Salmonella isolates from nonhuman sources were reported to USDA and CDC (Table 7). The source of 3,806 nonhuman isolates reported to the USDA are shown in Figure 7.

Fig. 7 PERCENT OF 3806 NON-HUMAN *SALMONELLA* ISOLATIONS FROM THE INDICATED SOURCES IN THE UNITED STATES, 1976



The source of 1,291 isolates reported to the CDC is shown in Table 8 and Table 9. Forty-one percent of all nonhuman Salmonella isolates reported to both CDC and USDA were obtained from birds, and 31% from domestic animals.

Sources

The common serotypes isolated from domestic fowl and farm animals are shown in Table 5.

Table 5

Five Most Common Serotypes Isolated from
Domestic Fowl and Farm Animals in the United States, 1976

	Chicken		Turkey		Swine		Cattle	
Serotype	Number	Percent	Number	Percent	Number	Percent	Number	Percent
agona	55	7(5)			22	4.0(3)	10	1.8(5)
anatum			94	10.6(2)			24	4.3(4)
cholera-suis var. kunzendorf					282	51.7(1)		
derby					20	3.6(4)		
dublin							109	19.7(2)
enteritidis					11	2.0(5)		
heidelberg	80	10(3)	101	11.3(1)				
infantis	83	10.4(2)						
johannesburg	142	17.9(1)						
newport							29	5.2(3)
pullorum	56	7.0(4)						
saint paul			91	10.2(3)				
san diego			90	10.1(4)				
typhimurium and typhimurium var. copenhagen			88	9.9(5)	112	20.5(2)	298	54.0(1)
TOTAL	416	52	464	52	447	82	470	85
TOTAL (all serotypes)	792		886		545		551	

*rank shown in parentheses

Domestic Fowl. In 1976, 464 Salmonella isolations were reported from turkeys and 416 from chickens. S. heidelberg was the most commonly reported serotype from chickens with 80 (10%).

Domestic Animals. In 1976 the serotypes most often reported among the 545 isolations from swine were S. cholerae-suis (including var. kuzendorf) with 202 (51.7%) and S. typhimurium with 112 (20.5%).

The most commonly reported serotypes isolated from cattle in 1976 were S. typhimurium (including var. copenhagen) with 298 isolations (54.0%), S. dublin with 109 (19.7%), and S. newport with 29 (5.2%).

TABLE 6. COMMON SALMONELLAE REPORTED FROM HUMAN SOURCES, 1976

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	MD	ND	SD	NEB	KAN	DEL	MD	DC	VA	WVA	NC	SC	GA	FLA
anatum				10		7			11	24	9	3	1	17	8	5	3		3		2		7		6		4		7	1	8	2
bareilly						1			11	8	2	1	3	8	6		2						1		2		1				1	
blockley	1			13	6	5			23	16	8	18	4	3	12	22	9		3	1	1		2		7		2		14	2	8	
braenderup				1					7	2	2	6	1	29	1	20	1			2									3	1	2	1
bredeney	1			9		7			5	12	2	2		23	5	15	1	1	1						6		4		2	2	7	3
chester				5		1			2	16	9	2		1	1		7		4					1	1		3		4	2	1	
cholerae-suis k	1			1		3				1		1		6					1								3			1		
cubana				3		1				1	1		2		1				1						1							
derby			1	5		5			32	21	14	4	3	41	39	8	6	1	4		1				24		7		4		6	1
enteritidis	11	3	3	65	21	31	3		226	99	87	63	9	127	54	37	35	10	26	2	3		10		49	1	10	2	30	7	9	3
give				1		13			3		3	3		3		1	1	1	1										2			
heidelberg	29		3	68	1	47			86	74	107	33	31	145	99	59	12	8	22				14	5	56		52	1	98	16	31	3
indiana				3		1				5	3	2		1	3	2	1		1						3		2		1		5	
infantis		1	1	19	2	18	1		39	35	33	26	14	121	58	62	29	7	19	2	2		27	8	22		34	2	24	5	33	7
java				6		4			4	4	1	5	4	30	1	4	2		8	1			4	1	4		2				1	2
javiana				4		1			8	1	4		1	7	8	6	1		2	1			6	1	2					1	9	24
litchfield				8					9	8	3	1		6	4		4		4				1		1		6		2	4	10	
livingstone													1		3				2				2									
manhattan	1			3		4			16	9	44	3		20	11	13	3	1					1	1	2		1	1	5		3	1
miami				1						5				4	3	1	2	1									1		3	3	5	3
mississippi				1										1															4	2	28	
montevideo				10		3			13	8	6	7	3	23	16	8	9	1	1		1		2	1	12		15		7	4	11	1
muenchen		1		40		14			9	17	11	5	8	22	10	7	2	2	2				8		13		11		8	4	24	5
newington				2							6		2	3	2	3	1														1	
newport	3		3	63	5	17			25	53	39	22	18	47	24	41	6	4	42	2	3		38	4	16		10		37	18	62	17
oranienburg			2	10	3	12			16	7	12	9	7	29	11	12	5	3	6	2	5		8		12		7		8	7	18	28
panama				1		2			9	2	4	2	2	6	5	2	5	1	2						6		1		11		12	
paratyphi B			1	1					5			4		2					2						4				3		1	
reading			1	1					3	5	1			3		4	5	2					2	1					1		1	
saint-paul	2			40		14			59	16	39	22	4	32	52	10	11		3	1			3	4	15		15	2	15	4	5	3
san-diego	1			3		1			6	8	2	1		2	6	2	3	1	2						2		2		3	4	2	
schwarzengrund				6		4			7	5	17	1	1	12		2			2	2			1		4		4		4			
senftenberg	1					1			1	6	1	6		6	3	2	1				1		1		1		1					
tennessee				1		2			2	1	6	1		5													6	2			1	
thompson				2		4			7	15	7	14	3	21	8	8	15		47				4		6		4		6	1	4	1
typhi	3	2	1	30	1	11	13		35	15	12	19		34	13	1	13	1	8		1	2	1		3		5		14	3	6	24
typhimurium	31		21	463	35	245	8		428	454	591	264	130	566	462	468	111	17	111	10	33		102	15	183		184	30	260	62	193	29
typhimurium co	5			58	1	14				13					43			9					5	1						11		
weltevreden																1																
worthington				3					1		2			14	2	2	1	1		1					1				1		1	
TOTAL	90	7	37	960	75	493	25	–	1,108	966	1,088	550	252	1,420	974	828	307	72	330	27	53	2	250	43	464	1	397	40	581	165	509	158
ALL OTHER*	5	128	2	121	51	52	389	–	178	134	170	89	32	264	180	254	79	5	34	6	4	50	42	7	74	60	50	7	72	27	100	13
TOTAL	95	135	39	1,081	126	545	414	–	1,286	1,100	1,258	639	284	1,684	1,154	1,082	386	77	364	33	57	52	292	50	538	61	447	47	653	192	609	171

NOTE: NYA-NEW YORK, ALBANY; NYB-BETH ISRAEL HOSPITAL; NYC-NEW YORK CITY.
*SEE TABLE II.

TABLE 6. COMMON SALMONELLAE REPORTED FROM HUMAN SOURCES, 1976 – Continued

GEOGRAPHIC DIVISION AND REPORTING CENTER																				1976 TOTAL	PERCENT of 1976 TOTAL	1975 TOTAL	PERCENT of 1975 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	2	5			3		35				6		3			1	1	20	1	9	225	1.0	256	1.1	*anatum*
2	10	1		2	2	2										1		4		1	73	0.3	76	0.3	*bareilly*
4	7	3		1	3	2	9		1		1					9	3	29		1	252	1.1	238	1.0	*blockley*
	6	1		1	9		8				1							3			108	0.5	62	0.3	*braenderup*
	4	1			7	1	12		3		5		6			3	2	16		3	171	0.7	153	0.7	*bredeney*
	1				2						2						1	2			68	0.3	109	0.5	*chester*
	2	1			1													2	1		25	0.1	25	0.1	*cholerae-suis k*
									1									5		1	18	0.1	27	0.1	*cubana*
	4	3	6		2	1	12		1		4		5	1		5		55		26	352	1.5	418	1.8	*derby*
4	25	4		3	11	4	17	1	1	1	8		14	3		17	6	46	8	10	1,219	5.2	1,519	6.5	*enteritidis*
	1		3		3		18											4		3	64	0.3	106	0.5	*give*
7	35	46	9	4	35	6	90		1		359		18	3		49	19	167	8	6	1,962	8.4	1,474	6.3	*heidelberg*
1		2			3											3		3	2		47	0.2	30	0.1	*indiana*
12	37	23	3	3	20	1	54	1	2		7		20	3		23	10	131		13	1,014	4.4	1,194	5.0	*infantis*
	14	3	7	2	4		2		2									27			149	0.6	195	0.8	*java*
4	7	8	2	24	25	2	116				2		8			2	2	8			297	1.3	426	1.8	*javiana*
	3	5	1	1	8		4		1				1			1		6	1		103	0.4	159	0.7	*litchfield*
		1					1				1		1					10		1	23	0.1	19	0.1	*livingstone*
5					3	1	6				2		1	1		10	3	24		1	200	0.9	254	1.1	*manhattan*
		1					2											2			37	0.2	34	0.1	*miami*
	7	6	9		29	1	24											1			113	0.5	121	0.5	*mississippi*
3	5	7	2	1	13		27		2		8		5	8		5	3	61		9	321	1.4	308	1.3	*montevideo*
3	5	20		2	14	3	31				10		11			7	5	36		4	374	1.6	369	1.6	*muenchen*
					1											1	1	12		2	37	0.2	30	0.1	*newington*
2	35	25	17	52	97	23	286		1		28		20	2		12	2	95		20	1,336	5.7	1,550	6.6	*newport*
6	7	17	3	6	11	7	50		2		21		13			4		74			460	2.0	446	1.9	*oranienburg*
	2			1	4		21				4		6			1		28		52	192	0.8	161	0.7	*panama*
1		1					27		2		2		3			2		7		1	69	0.3	86	0.4	*paratyhpi B*
							1				1					2	3	2			39	0.2	97	0.4	*reading*
6	7	10	3	4	15	2	17		3		2		1	2		25	11	60	1	5	545	2.3	883	3.8	*saint-paul*
	7						13		2				2			4		20		1	100	0.4	135	0.6	*san-diego*
	7	1	1		7		2									2		2		4	98	0.4	107	0.5	*schwarzengrund*
2		1			2		3				4		1			1	2	14		1	63	0.3	187	0.8	*senftenberg*
					2		2							1				11			43	0.2	61	0.3	*tennessee*
1	2	7	1	3	3	1	4		6		2					3		30		6	246	1.1	331	1.4	*thompson*
	6		1	24	13	4	18	1	4				12	1		7	3	155	2	7	529	2.3	551	2.4	*typhi*
40	210	133	45	47	73	46	229	1	22		144		126	27		121	34	541	8	140	7,493	32.2	6,576	28.0	*typhimurium*
19				9	11	9	1		14		12		4				7	102		6	354	1.5	312	1.3	*typhimurium co*
							1													79	81	0.3	130	0.6	*weltevreden*
	31				3	1	2		1		1		1					18		4	62	0.3	62	0.3	*worthington*
123	459	336	113	190	439	117	1,145	4	72	1	637	–	282	52	–	321	118	1,833	32	416	18,962	81.4	19,277	82.2	TOTAL
15	45	47	15	39	89	17	262	23	9	4	39	251	77	11	25	54	29	502	30	61	4,323		4,168		ALL OTHER*
138	**504**	**383**	**128**	**229**	**528**	**134**	**1,407**	**27**	**81**	**5**	**676**	**251**	**359**	**63**	**25**	**375**	**147**	**2,335**	**62**	**477**	**23,285**		**23,445**		**TOTAL**

Table 7. Other Salmonellae Reported From Human Sources, 1976

SEROTYPE	REPORTING CENTER																								
	ALA	ALK	ARI	ARK	CAL	COL	CON	DEL	DC	FLA	GA	HAW	IDA	ILL	IND	IOW	KAN	KY	LA	ME	MD	MAS	MIC	MIN	MIS	MO
aberdeen												1														
abony														1	1							1				
adelaide				1	2																					
agona	20	7	15	12	188	10	18	4		3	46	12	2	143	13	4	31	1	28	2	46	47	115	25		22
alabama	1																									
alachua					3			1						2					1		1	1				
albany	1				9	3					3			8					2		3	1				
amager					1															1						
amsterdam														1												
arechavaleta											1											1	1			
austin																										
berta			1		5									5					5			5	3	1		
binza					1														1			3				
blegdam																					2					
bonariensis														1												
bornum																						2				
bovis-morbificans					8		19							2	2						1	18		1		
brandenburg					3		1				2			2								1				1
brazil																									1	
california										1	2								1							
carmel																										
carrau																							1			
cerro	1				1		2				2			6												1
chameleon																										
cholerae-suis	1										2										3	1				
clackamas																										
coeln																					1					
coley park																										
colorado	2																									
curaco																						1				
drypool					9									2									1			
dublin		1	3		41								1	2					1							
duesseldorf					1										1								1			1
durban														1												
durham																						1				
eastbourne						1		1			1										1					
edinburg			1		1																			1		
einsbuettel														1												
emek					1																					
flint										3																
florida																								1		
fretown																										
gaminara	1		1		2														7							
gatow				1																						
glorrup																							1	1		
haardt								1					1	9												
habana			1	1	14					1				3					1			3	1	1		
hadar																						1				
haifa					1																	1				
hartford	1			1							3			1					8		2	2	4			
houten																										
hvittingfoss																										
ibadan				3																						
inverness										2																
izumu					1														2							
liangi														1												
johannesburg					5		2				4			1	2			1				1	1	1		
kaapstad																										
kentucky	2		1		5									2		1						6				
kinshasa																						1				
kottbus			3		8		3					2			6			1		2	2	2	7	1	1	
krefeld																										
kuilsrivier																						1				
kuru	1																									
lanka												2														
larochelle				1																						
lexington			1											1											5	
lille					3																					
limete																										
lindenburg																								1		
loma-linda					2																					
lomita				1																						
london	7		9		22		1			1	2			18					3		4	3	11	32		
luciana																			1							
madella											1															
manila																										
marina																										
meleagridis					5							11		1	1		1		1							
menston																										
mikawashima														1												
minnesota	1		1		8	3	1							1												
mission	1																1						1			
molade											1															
monschaui																										
morehead																										
muenster				1	14						2			4					2							
new-brunswick					1									1	2											
new-haw																										
nienstedten							2							2												
nima														1								1	1			
norwich			1	9	2									1					3							
ohio	4				18							3		2			1	1	3			1	1	1	7	2
ordonez					2																		8			1
orion																										
oritamerin																										
oslo																										
paratyphi a					14	1					2	18		1												
paratyphi A v durazzo												1		1								3	1	2		1
paratyphi B v odense			1																							
paratyphi c					1													1								
pensacola																										
phoenix											2	1							1						1	
pomona					1									1												
poona			31		11	1								1	1				1		3		1			
portland											1															
potsdam					3																					
praha																										
putten																			1			1				
redlands																										
richmond					1												1									
rostock																										
roterberg												1														
rubidaw	2		2	7						2	2			1												
salinatis					3														5							
senjuen					1																					
saphra																										
shubra															1				3							
sirghurg					31																					
simsbury					1							3		2				1				2	2	1		
singapore					3							1														
sinthia																			1		1			1		
stanley					9							1		6										1		1
stanleyville																										
sundsvall					1																					
tokoradi																										
tallahasee																							1			
tel-el-kebir													1													
thielallee																										
thomasville														2										1		
tilene														1												
tucson			5								1										2					
uganda				1							1															
urbana					6									3					2			2	1			
velle												1														
virchow					1							1		1	1											
wandsworth					1									2							1					
weslaco																							1	1		
westhampton																							1			
wien	1				1																					
yolo																										
TOTAL	47	8	77	39	476	19	49	7	-	13	81	59	5	249	31	5	35	6	85	5	73	114	166	74	15	30
NOT TYPED*		22			26	20	3		60		19	2	4	15	1	-	7	9	4	-	1	7	14	5	-	4
TOTAL	47	30	77	39	502	39	52	7	60	13	100	61	9	264	32	5	42	15	89	5	74	121	180	79	15	34

*See Table

Table 7. Other Salmonellae Reported From Human Sources, 1976 – Continued

REPORTING CENTER																										1976 TOTAL	1975 TOTAL	SEROTYPE
MON	NEB	NEV	NH	NJ	NM	NYA	NYC	NC	ND	OHI	OKL	ORE	PA	RI	SC	SD	TEN	TEX	UTA	VT	VA	WAS	WVA	WIS	WYO			
																										1	6	*aberdeen*
																								1		3	13	*abony*
																										4	21	*adelaide*
	1			63			83	31		45	4	8	72	1	9	2	21	62	5		21	25		194		1461	1333	*agona*
																										1		*alabama*
				4			5	1					2								4					35	24	*alachua*
				4			1						1								2					34	48	*albany*
							1																			3	9	*amager*
																										1	11	*amsterdam*
																										2	2	*arechavaleta*
																										1	1	*austin*
	1							2					2					5			1	1		1		31	16	*berta*
																										12	7	*bonza*
																										2		*blegdam*
																										1	2	*bovingtonsis*
				2																						4	2	*bornum*
				14						2			42					2		1	1	2		2		115	33	*bovis-morbificans*
										1				1	1							1				16	7	*brandenburg*
																										1	1	*brazil*
																										4	11	*california*
							1																			1		*carmel*
										1																2	6	*carrau*
							1	1			1		2											1		20	25	*cerro*
							1																			1		*chameleon*
						2	4	11			3		1		3			1			1	1				34	28	*choleraesuis*
												1														1		*clackamas*
																										1	2	*coeln*
				1																		1				2		*coley park*
																										2	1	*colorado*
																										1		*cubana*
				2																				1		16	11	*dry pond*
				2			2											1	1			2				54	41	*dublin*
							1	4		3	2		1											1		18	19	*duesseldorf*
																										1	2	*durban*
																										1		*durham*
																										6	7	*eastbourne*
															1											4	2	*edinburg*
				1																						2	8	*eimsbuettel*
													1					1								3	1	*emek*
																						1				4	1	*flint*
																										1	4	*florida*
																		1								1	2	*freetown*
								1		1					2			5						1		21	20	*gaminara*
																		2								3	2	*gatow*
																		1								3		*glostrup*
			1																							12	4	*hardt*
				1				1		7			3			2	1	7						2		50	38	*habana*
													1													2		*hadar*
																										1	2	*haifa*
				3				3					1		1			3			1					34	39	*hartford*
																						1				1		*hincten*
																						1				1	1	*hottingfoss*
																										3	4	*ibadan*
																										5	4	*inverness*
								1																		2	3	*irumu*
																										2		*isangi*
				1			1	2		7			1				2					1	1	1		35	21	*johannesburg*
													1													1	2	*kaapstad*
								1		4			1				3						2			28	22	*kentucky*
																										3	2	*kinghasi*
			2	1			12						5				2				4			6		67	107	*kottbus*
																										1		*krefeld*
																										1		*kudriner*
																										1		*kuru*
																										2	2	*lanka*
																										6	4	*larochelle*
																		1								3	5	*lexington*
																										4		*lille*
																										1		*limete*
											4	1			3			2			2					12	19	*lindenburg*
												1														3	1	*loma linda*
				9			16	4		7	3		8				1	10			3	1	3	4		182	150	*london*
															1											1	1	*luciana*
																										2	8	*madelia*
			1															2								2	1	*manila*
							1														1					1	1	*marina*
													2								1					28	27	*meleagridis*
																										1		*menston*
																										1		*makuwshima*
												1	3					2	1			2		1		26	23	*minnesota*
							3																			2	1	*mission*
													1													4	4	*molade*
																										1		*monschaui*
				1																						1		*morehead*
							3	1		1			1													29	38	*muenster*
													1													4	8	*new-brunswick*
								1																		1		*new-haw*
				1																						9	10	*narrestedten*
																										1		*nima*
				2			3	3		2	3		4				10	3					2		1	46	49	*norwich*
							3											1								57	31	*ohio*
																										5	2	*rubis*
																					1					1	3	*siam*
															3											3	4	*singapore*
				4			2						1		1											29	21	*oslo*
				1		1	1						1					2								29	29	*paratyphi a*
				8																						1		*paratyphi A v durazzo*
																										2	1	*paratyphi B v odense*
							1																			2	1	*paratyphi c*
																	1				3					9	8	*pentacola*
																								2		2	1	*phoenix*
							2																			4	1	*pomona*
				3			2						1				2	16	1			3		1		80	75	*poona*
																						1				1	2	*portland*
				1																						4	1	*potsdam*
							1																			1		*praha*
																										2		*putten*
																										1		*redlands*
																		1								2	3	*richmond*
																		1								1		*rostock*
																										1		*roterberg*
								1							1			14								37	49	*rubislaw*
																										3		*salmatis*
																								1		2	4	*senftuen*
																		5								8	14	*saphra*
																										1		*shubra*
				1			7			1								8								59	53	*siegburg*
																										1	8	*sinsbury*
				1									5													13	24	*singapore*
				1																						1		*sinthia*
																						1				19	22	*stanley*
															1											1	3	*stanleyville*
																										1	5	*sundwall*
																										1		*tekoradi*
										1																1	4	*tallahassee*
													1													1		*tel-el-kebir*
																										1		*thiellier*
				1			4											3								11	2	*thomasville*
																										1		*tilene*
																										6		*tucson*
							1	2		3			2				2	1			2					20	19	*uganda*
			1															1						4		18	7	*urbana*
																										1		*uele*
				5			2						2											1		15	12	*virchow*
																										4		*wandsworth*
							1											1								2	3	*weslaco*
																										1	2	*westhampton*
												1														3	5	*warn*
																								1		1		*yoko*
–	2	–	3	128	–	3	166	71	–	89	17	13	170	2	27	4	42	176	8	1	43	47	6	226		3017	2849	TOTAL
23	48	25	125	6	251	386	12	1	6	–	–	16	–	49	–	–	3	86	3	1	2	7	1	28	4	1306	1319	NOT TYPED*
23	**50**	**25**	**128**	**134**	**251**	**389**	**178**	**72**	**6**	**89**	**17**	**29**	**170**	**51**	**27**	**4**	**45**	**262**	**11**	**2**	**50**	**54**	**7**	**254**	**4**	**4323**	**4168**	**TOTAL**

TABLE 8. COMMON SALMONELLAE REPORTED FROM NONHUMAN SOURCES, 1976

SEROTYPE	DOMESTIC ANIMALS AND THEIR ENVIRONMENT							ANIMAL FEEDS			
	CHICKENS	TURKEYS	SWINE	CATTLE	HORSES	OTHER	SUBTOTAL	TANKAGE	VEGETABLE PROTEIN	OTHER	SUBTOTAL
anatum	1		3	3		2	9				–
bareilly							–				–
blockley	1						1				–
braenderup						1	1				–
bredeney						1	1				–
chester						1	1				–
cholerae-suis k			10				10				–
cubana				21		1	22				–
derby			31	2		3	36				–
enteritidis			1			4	5				–
give						1	1	1			1
heidelberg				6	1	3	10				–
indiana							–				–
infantis	3			1		7	11	1			1
java					1	1	2				–
javiana							–				–
litchfield							–				–
livingstone			2	1			3	1			1
manhattan							–				–
miami							–			1	1
mississippi							–				–
montevideo				1			1	2			2
muenchen							–				–
newington				10			10				–
newport			1	2		2	5			1	1
oranienburg				2	1	2	5	7		5	12
panama			20	4			24				–
paratyphi B							–				–
reading							–				–
saint-paul						2	2			1	1
san-diego		1					1				–
schwarzengrund						2	2				–
senftenberg			1				1				–
tennessee							–				–
thompson						1	1				–
typhi							–				–
typhimurium	1		21	80	9	33	144				–
typhimurium co			1	10		4	15				–
weltevreden			2			7	9				–
worthington			4	3		1	8				–
TOTAL	6	1	97	146	12	79	341	12	–	8	20
ALL OTHER*	1	–	17	15	8	21	62	2	–	9	11
TOTAL	**7**	**1**	**114**	**161**	**20**	**100**	**403**	**14**	**–**	**17**	**31**

*See Table IV.

TABLE 8. COMMON SALMONELLAE REPORTED FROM NONHUMAN SOURCES, 1976 – Continued

WILD ANIMALS AND BIRDS	REPTILES AND ENVIRONMENT	HUMAN DIETARY ITEMS						MISCELLANEOUS	TOTAL	SEROTYPE
		EGGS AND PRODUCTS	POULTRY	RED MEAT	DAIRY PRODUCTS	OTHER	SUBTOTAL			
10	1			6		1	7	6	33	*anatum*
				1		1	2	7	9	*bareilly*
4							–		5	*blockley*
			1				1	1	3	*braenderup*
2	1						–	4	8	*bredeney*
1							–	1	3	*chester*
							–		10	*cholerae-suis k*
							–	2	24	*cubana*
1				14		1	15	8	60	*derby*
2			6	7	1	6	20	3	30	*enteritidis*
	3			1		1	2	1	8	*give*
25			4	5		2	11	3	49	*heidelberg*
3							–		3	*indiana*
1			2	1		1	4	27	44	*infantis*
							–	1	3	*java*
1	1						–		2	*javiana*
							–		–	*litchfield*
							–	2	6	*livingstone*
	2			2			2	1	5	*manhattan*
	1						–		2	*miami*
							–		–	*mississippi*
6			1	1			2	2	13	*montevideo*
	5						–		5	*muenchen*
1							–	3	15	*newington*
6	4			2		1	3	4	22	*newport*
2	1			2		1	3	1	24	*oranienburg*
2				21		1	22	12	60	*panama*
							–		–	*paratyphi B*
2							–	1	3	*reading*
4	1			1		2	3	10	21	*saint-paul*
2				1			1	1	5	*san-diego*
							–		2	*schwarzengrund*
1							–	4	6	*senftenberg*
1						1	1		2	*tennessee*
			2	2			4		5	*thompson*
							–		–	*typhi*
37	2		4	4	5	1	14	16	213	*typhimurium*
						1	1		16	*typhimurium co*
							–	35	44	*weltevreden*
4				1			1	1	14	*worthington*
118	22	–	20	72	6	21	119	157	777	TOTAL
61	14	1	7	13	3	30	54	55	257	ALL OTHER*
179	**36**	**1**	**27**	**85**	**9**	**51**	**173**	**212**	**1,034**	**TOTAL**

TABLE 9. OTHER SALMONELLAE REPORTED FROM NONHUMAN SOURCES, 1976

SEROTYPE	DOMESTIC ANIMALS AND THEIR ENVIRONMENT							ANIMAL FEEDS			
	CHICKENS	TURKEYS	SWINE	CATTLE	HORSES	OTHER	SUBTOTAL	TANKAGE	VEGETABLE PROTEIN	OTHER	SUBTOTAL
aberdeen					5		5			–	
aequatoria							–				–
agona			1			6	7			3	3
alachua						1	1				–
albany			1				1				–
amsterdam						2	2			2	2
berta							–				–
binza			2			1	3				–
bornum							–			1	1
california					1		1				–
cerro							–				–
cholerae-suis			3				3				–
drypool			3				3				–
dublin				8			8				–
eimsbuettel							–				–
gaminara							–				–
habana						3	3			1	1
hartford						1	1				–
hvittingfoss							–				–
inverness							–				–
kapemba							–				–
kentucky				1			1				–
lanka							–				–
lexington							–				–
lille				1			1			1	1
loma-linda						1	1				–
london							–				–
meleagridis							–				–
minnesota							–			1	1
mokola							–				–
muenster				1			1				–
new-brunswick		1					1				–
ohio							–			–	
olso							–				–
orion							–				–
paratyphi B v odense							–				–
pomona							–				–
poona						1	1				–
pullorum							–				–
redlands				1			1				–
rubislaw				1			1				–
ruigers							–				–
shomron							–				–
siegburg							–				–
stanley							–				–
tuindorp							–				–
typhi-suis			5				5				–
uganda						1	1				–
urbana							–				–
virchow							–				–
wien						1	1				–
wil							–				–
TOTAL	–	–	16	13	6	18	53	–	–	9	9
NOT TYPED*	1	–	1	2	2	3	9	2	–	–	2
TOTAL	1	–	17	15	8	21	62	2	–	9	11

*See Table VB.

TABLE 9. OTHER SALMONELLAE REPORTED FROM NONHUMAN SOURCES, 1976 – Continued

WILD ANIMALS AND BIRDS	REPTILES AND ENVIRONMENT	HUMAN DIETARY ITEMS						MISCELLANEOUS	TOTAL	SEROTYPE
		EGGS AND PRODUCTS	POULTRY	RED MEAT	DAIRY PRODUCTS	OTHER	SUBTOTAL			
	1						–		6	*aberdeen*
	1						–		1	*aequatoria*
5				4			4	21	40	*agona*
							–		1	*alachua*
4							–	6	11	*albany*
							–		4	*amsterdam*
							–	1	1	*berta*
1							–		4	*binza*
			1				1	2	4	*bornum*
							–		1	*california*
	1						–	1	2	*cerro*
							–		3	*cholerae-suis*
5							–		8	*drypool*
					1		1		9	*dublin*
4							–		4	*eimsbuettel*
	1						–	1	2	*gaminara*
1	1						–		6	*habana*
							–		1	*hartford*
	1						–		1	*hvittingfoss*
	2						–		2	*inverness*
1							–		1	*kapemba*
3					1		1		5	*kentucky*
						6	6		6	*lanka*
	1						–		2	*lexington*
							–		1	*lille*
18							–		19	*loma-linda*
				1			1		1	*london*
							–		1	*meleagridis*
					1		1		1	*minnesota*
						10	10	5	15	*mokola*
1			4			3	7	1	10	*muenster*
							–		1	*new-brunswick*
1				6			6		7	*ohio*
							–	1	1	*olso*
1						10	10		11	*orion*
							–	1	1	*paratyphi B v odense*
							–	2	2	*pomona*
							–		1	*poona*
2							–		2	*pullorum*
							–		1	*redlands*
3							–	3	7	*rubislaw*
	1						–		1	*ruigers*
		1	1				2		2	*shomron*
3							–		3	*siegburg*
							–	2	2	*stanley*
	1						–		1	*tuindorp*
							–		5	*typhi-suis*
				1			1		2	*uganda*
	1						–		1	*urbana*
						1	1		1	*virchow*
	1						–		1	*wien*
							–		1	*wil*
53	13	1	6	12	3	30	52	47	227	TOTAL
8	1	–	1	1	–	–	2	8	30	NOT TYPED*
61	**14**	**1**	**7**	**13**	**3**	**30**	**54**	**55**	**257**	**TOTAL**

Table 10. Age and Sex Distribution of Individuals from Whom Isolations of Salmonella were Reported, 1976

Age (years)	Sex		Unknown	Total	Percent	Cumulative Percent
	Male	Female				
<1 YEAR	2041	1751	14	3806	21.6	21.6
PERCENT	17.5	15.3				
1-4 YRS	2003	1662	4	3669	20.8	42.4
PERCENT	17.2	14.5				
5-9 YRS	876	738	3	1617	9.2	51.5
PERCENT	7.5	6.4				
10-19 YRS	1167	1024	1	2192	12.4	63.9
PERCENT	10.0	8.9				
20-29 YRS	929	1082	3	2014	11.4	75.4
PERCENT	8.0	9.4				
30-39 YRS	475	566	–	1041	5.9	81.3
PERCENT	4.1	4.9				
40-49 YRS	338	451	–	789	4.5	85.7
PERCENT	2.9	3.9				
50-59 YRS	314	482	1	797	4.5	90.2
PERCENT	2.7	4.2				
60-69 YRS	351	385	2	738	4.2	94.4
PERCENT	3.0	3.4				
70-79 YRS	247	371	–	618	3.5	97.9
PERCENT	2.1	3.2				
>79 YRS	119	245	1	365	2.1	100.0
PERCENT	1.0	2.1				
SUBTOTAL	8860	8757	29	17,646		
PERCENT	76.0	76.4				
CHILD (UNSPECIFIED)	43	26	9	78		
PERCENT	0.4	0.2				
ADULT (UNSPECIFIED)	31	60	12	103		
PERCENT	0.3	0.5				
UNKNOWN	2724	2615	119	5458		
PERCENT	23.4	22.8				
TOTAL	11,658	11,458	169	23,285		
PERCENT	100.00	100.00				

TABLE 11. SALMONELLA ISOLATIONS FROM HUMAN SOURCES BY SEROTYPE AND YEAR, 1970-1976

SEROTYPE	1970	1971	1972	1973	1974	1975	1976
aba			1	0	0		
abaetetuba				0	1		
aberdeen	2		1	0	3	6	1
abony	1	2	1	1	0	13	3
abortus-bovis	2	1		1	0		
adelaide	5	1	3	1	12	21	4
agama			1	1	0		
agbeni			1	1	0	1	
agona	4	44	524	864	1,037	1,333	1,461
akanji	1				0		
alabama							1
alachua	10	16	8	19	34	24	25
alamo						1	
albany	31	18	44	47	30	48	34
albuquerque					0	1	
allandale			1		0		
altona	1				0		
amager	5	4	2	3	3	9	3
amersfoort		1			0		
amounderness			1		0		
amsterdam	1	2	2	2	5	11	1
anatum	262	309	373	339	329	256	225
angers						1	
angola						1	
annedal						1	
arechavaleta	1	1	2	2	0	2	2
assen						1	
atlanta	17	19	17	4	2		
austin			1	2	1	1	1
azteca		2	1		0		
babelsberg	1				0		
bahrenfeld			1		1		
ball	1				0		
bareilly	72	51	79	13	82	76	73
bedford				1	0		
belem			1		1		
benfica	1		2	1	1		
bere					3		
berlin		1	2	1	1		
bern		1			1		
berta	70	101	48	24	17	16	31
bietri				1	0	2	
binza	9	11	11	5	13	7	12
birkenhead		1	1	1	1		
bispebjerg			1		0		
bleadon						1	
blegdam			1		0		2
blockley	660	586	452	317	292	238	252
bonaire		1			0		
bonariensis	1	3	1		0		1
bonn	1				0		
bornum			4		4	2	4
bousso			2		1	1	
bovis-morbificans	33	26	29	19	60	33	115
bradford	3	1	1		0		
braenderup	92	126	132	108	85	62	108
brandenburg	5	8	10	5	14	7	16
brazil						1	1
brazzaville						1	
bredeney	196	191	208	159	179	153	171
bristol	1	3			0		
brunei		1		2	0		
bukavu			1		0		
bukuru						1	
cairo			1		2	2	
california	32	13	24	18	18	11	4
cambridge		1			3	6	
canada				1	0		
canastel	1				0		

SEROTYPE	1970	1971	1972	1973	1974	1975	1976
carmel							1
canoga	1		1	1	1	4	
caracas	2				0		
carrau	5	5	2		3	6	2
cerro	23	23	19	25	24	25	20
chailey	3			1	0	3	
chameleon					0		1
charity	1				0		
chester	87	61	132	258	82	109	68
chincol					1		
chingola		1			1		
chittagong		2	1		0		
cholerae-suis	11	13	17	10	20	28	34
cholerae-suis v kunzendorf	24	24	25		20	25	25
christiansborg	1	1		1	0		
clackamas					2		1
claibornei	1	1			0	1	
clifton	1	2	4	1	0	1	
coeln	5				0	2	1
coleypark	1	1	4	2	0		2
colindale		2			0		
colorado	1	1	2	1	0	1	2
concord	5	1			1		
corvallis		1		2	1	1	
cubana	166	257	68	28	27	27	18
curacao							1
daressalaam						1	
daytona			1	2	1		
decatur		1	2		1		
degania	2				0		
denver		1	1	2	4	2	
derby	490	534	628	558	557	418	352
djakarta					1		
drypool	10	19	17	19	17	11	16
dublin	8	24	31	29	42	41	54
duesseldorf	14	7	20	23	24	19	18
duisburg			1	1	0		
durban		2	1	3	1	2	1
durham							1
ealing					1		
eastbourne	7	9	4	9	111	7	4
edinburg	1	2	1		0	2	4
eimsbuettel	21	19	28	23	10	8	2
elisabethville			2		0		
emek				1	1	1	3
enmastad			1	1	0		
enteritidis	2,504	2,249	1,690	1,461	1,431	1,519	1,219
eppendorf					1		
essen				1	1	2	
fayed	1				0		
flint	3				1	1	4
florida	1	4	2	1	1	4	1
freetown						2	1
fresno					0		
friedenau			1		0		
frintrop			1	1	0		
gallinarum	3	3	4	2	3	1	
gaminara	17	21	35	36	30	20	21
gatow	1	11		3	1	2	3
gatuni	1				1	1	
glansk				1	0		
georgia	1	2	1		3	1	
give	83	86	95	81	72	106	64
glostrup	1	1	1	1	1		3
goettingen				2	0	1	
gombe					2		
good	2			1	0	1	
grumpensis		5	4	2	3	3	

TABLE 11. SALMONELLA ISOLATIONS FROM HUMAN SOURCES BY SEROTYPE AND YEAR, 1970-1976 – Continued

SEROTYPE	1970	1971	1972	1973	1974	1975	1976
haardt						4	12
habana	6	17	19	23	20	38	50
haddon					1		
haifa	1	3	4	2	2	2	1
halmstad			2		0		
hadar							2
hamburg	1	1	1	1	0		
harmelen			1		0		
hartford	24	38	30	42	29	39	34
heidelberg	1,699	1,660	1,465	1,622	1,137	1,474	1,962
heilbron		1	6		0		
hidalgo				1	0		
hofit					1		
holcomb	1				0		
homosassa		1			0		
horsham		1			0		
houten		1			0		1
hvittingfoss		1	2	6	3	1	1
ibadan	8	12	8	10	22	4	3
indiana	109	107	154	74	64	30	47
infantis	1,214	1,421	1,657	1,376	1,283	1,194	1,014
inganda						1	
inverness	6	10	7	15	5	4	5
irumu	10	3	2	2	1	3	2
isangi			2	1	0		2
israel						1	
ituri		1	1	1	0		
jamaica	1				0		
jangwani			1		0		
java	459	584	464	325	202	195	149
javiana	420	516	563	549	400	426	297
joenkoeping						1	
johannesburg	7	5	19	16	34	21	35
kaapstad	3	11	17	11	5	2	1
kaduna						1	
kapemba						1	
kentucky	55	34	36	35	33	22	28
kibusi			1		0		
kingston			1		0	1	
kinshasa						2	3
kottbus	53	67	185	65	58	107	67
krefeld		3	3		0		1
kumasi	1				0		
kuilsrivier							1
kunduchi					1		
kuru				1	0		1
lanka			2		1	2	2
lansing	1				0		
larochelle		1	2	2	0	4	6
lexington	5	8	10	4	5	5	3
limete							1
lille		1		6	2		4
lindenburg	3	1	2	1	2	19	12
lindern					2		
litchfield	182	161	173	168	104	159	103
livingstone	30	59	53	26	31	19	23
loma-linda	4	3	3	9	4	7	3
lomita	20	13	5	3	0	5	1
london	26	64	88	177	227	150	182
lovelace	1				0		
luciana	2	1	2	4	5	1	1
madelia	1	4	9	7	3	8	2
maizenberg						1	
manchester	6	2	2	2	4	4	
manhattan	340	420	324	186	390	254	200
manila				2	1	1	2
maracaibo	1				0		
marina				1	0	1	1
maricopa			1		0		
matadi		2	3		0	1	
meleagridis	26	26	20	18	19	27	28
memphis				1	0		
mendoza					1		
menhaden					1		
menston				2	0		1
miami	71	94	88	61	45	34	37

SEROTYPE	1970	1971	1972	1973	1974	1975	1976
mikawashima	1	3	3	2	0		1
minneapolis	34	30	45	23	0	1	
minnesota					25	23	26
mishmar-haemek				1	1	0	
mission	1	4	3	3	5	1	2
mississippi	66	65	107	130	128	121	113
missouri			3		0	1	
mobeni			1		0		
molade	7	7	3	5	7	4	4
monschaui							1
montevideo	394	375	363	464	348	308	321
moscow					1		
muenchen	276	389	426	430	294	369	374
muenster	25	26	30	25	30	38	29
morehead							1
mundsburg						1	
nagoya						2	
napoli					0	4	
nchanga		1			0		
ness-ziona				1	0		
neuminster	1				0		
new-brunswick	5	6	35	7	7	8	4
newington	48	41	43	24	39	30	37
newlands		3			0		
new mexico			1	1	1	2	
newhaw							1
newport	1,700	1,722	2,201	2,058	1,634	1,550	1,336
nienstedten		1	1	3	2	10	9
nigeria		1			0		
norwich	22	31	37	34	51	49	46
nottingham	3			1	0	2	
nima							1
ohio	8	15	16	15	42	31	57
okerara						2	
onderstepoort		2	1		1		
oranienburg	399	412	621	399	507	446	460
ordonez	12	2	1	1	2	2	5
orion	6	2	3		2	3	1
oritamerin	1	3			9	4	3
oslo	27	43	23	60	43	21	29
othmarschen						1	
panama	236	286	229	342	265	161	192
papuana	1	1			0	1	
paratyphi A	5	14	10	20	30	29	29
paratyphi B	205	241	208	160	86	86	69
paratyphi B v odense					0	1	2
paratyphi A durazzo							1
paratyphi C	2		1		0	1	2
pensacola	9	9	9	12	10	8	9
phoenix			4	1	1	1	2
pomona	3	3	4	6	5	1	4
poona	93	97	95	141	82	75	80
portland				1	0	2	1
potsdam	4		9	3	1	1	4
praha	2				0		1
pullorum	5			3	2	3	
putten				4	0		2
ramat-gan	1				0		
reading	147	172	96	112	64	97	39
redlands			1		0		1
remo			2		2		
richmond	3	1	1	3	2	3	2
rostock							1
riogrande			2		0		
roodepoort						1	
rubislaw	27	29	31	58	43	49	37
rutgers	2	1					
roterberg							1
saint-paul	986	1,157	919	737	924	883	545
salford	7			1	0		
salinatis				1	0		3
san-diego	234	147	308	122	136	135	100
san-juan	2				3	4	2

TABLE 11. SALMONELLA ISOLATIONS FROM HUMAN SOURCES BY SEROTYPE AND YEAR, 1970-1976 – Continued

SEROTYPE	1970	1971	1972	1973	1974	1975	1976
saphra	15	14	11	12	21	14	8
sarajane				2	0		
schwarzengrund	56	85	58	71	77	107	98
seegefeld		1					
senftenberg	86	219	219	72	97	187	63
sendai				6	1		
serem ban						1	
shanghai						1	
shipley	1		1		0		
shubra	1				0		1
sinthia							1
siegburg	55	69	55	51	77	53	59
simsbury	9	8	6	11	6	8	1
singapore		1		4	6	24	13
sinstorf			2	3	1	2	
soahanina						1	
springs		1			0		
stanley	13	17	10	18	23	22	19
stanleyville					0		1
suberu	1				0		
sundsvall	1	2	4	2	1	5	1
takoradi				1	0		1
taksony	4	4	3	5	3	1	
tallahassee	8	5	17	1	4	4	1
tananarive			1		0		
tel-el-kebir			1	1	0		1
thielallee							1
tennessee	54	76	52	57	67	61	43
texas	1	1		1	0		
thomasville	7	3	16	2	6	2	11
thompson	958	834	675	533	400	331	246
tosamanga		1			0		
tilene							1
tournai			1		0		
tucson		1	1		0		6
tuebingen			1		0		
tuindorp					1	2	
typhi	533	583	535	680	582	551	529
typhi-murium	5,640	6,525	6,460	8,348	7,003	6,576	7,493
typhi-murium v copenhagen	277	353	278	259	340	312	354
uganda	4	4	13	13	16	19	20
umhlatazana			1		0		
uppsala	1				0		
urbana	59	53	29	14	12	7	18
usumbora				3	1		

SEROTYPE	1970	1971	1972	1973	1974	1975	1976
uzaramo	1				3		
vejle		2	1	3	0		1
victoria			1	1	2	1	
virchow	4	21	29	47	11	12	15
wandsowrth		1		1	1		4
wangata			1	1	0		
waycross						2	
wayne					1		
wassenaar		1	2	1	1	1	
weltevreden	104	151	112	118	144	130	81
weslaco	1	1	2	1	3	3	2
westerstede	3		2	1	0		
westhampton	2	7	6	1	1	2	1
wien					5	5	3
willemstad		3			0	1	
wingrove						1	
worthington	59	46	46	45	36	62	62
yoff						1	
yolo							1
54:z_4-z_{23}		1			0		
57:a,z_6		1			0		
Group A	1	5	1	3	6	4	2
Group B	397	359	438	626	637	743	778
Group C	17	31	36	21	24	20	12
Group C_1	111	86	95	102	79	103	86
Group C_2	132	106	110	100	126	94	130
Group D	111	75	61	76	92	111	100
Group E	20	37	20	24	26	29	17
Group E_1		1	3	1	1	6	7
Group E_2					0		2
Group E_3					1		
Group E_4		3	2		0		
Group F	4	7	2	2	0	1	2
Group G	20	22	11	10	8	13	10
Group H	2		1	4	4	2	2
Group I	2	3	1	2	5	3	2
Group L		1			0	1	
Group O	1	1	1	1	1	3	1
Group P		1			0		
Group R		2			0		1
Group W				1	0		
Unknown	438	450	409	181	148	185	154
TOTAL	**24,216**	**25,694**	**26,110**	**26,693**	**23,838**	**23,445**	**23,285**

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9/29/77