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COMMUNICABLE DISEA

SALMONELLA

SURVEILLANCE

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For the Month of June 1966

U. S. Department of Health, Education, and Welfare / Public Health Service

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 to:

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I. SUMMARY

We give our best wishes to Dr. Richard N. Collins, Chief of the Salmonella Unit for the past year, who has completed his 2-year assignment at the Communicable Disease Center. Dr. Collins has returned to Yale University School of Medicine to serve as a Senior Resident in the Department of Medicine. Dr. Albert R. Martin will assume duties as Chief of the Salmonella Unit.

This issue of the Salmonella Surveillance Report includes a recent recommendation by the Public Health Service Advisory Committee on Immunization Practices on the use of typhoid vaccine. In addition, there is an interesting recent report from the Food and Drug Administration concerning salmonella contamination of drug substances of animal origin.

During June, a total of 2,126 isolations of salmonellae from humans was reported, an average of 425 isolations per week. This represented an increase of 67 isolations over the weekly average for May, but a decrease of 10 recoveries from the weekly average during June 1965. The cumulative number of isolations reported for the first 6 months of 1966 was 8,877, 5.4 percent fewer than 9,388, the number recovered during the same period in 1965.

II. REPORTS OF ISOLATIONS FROM THE STATES

A. Human

The seven most frequently reported serotypes during June were:

Rank	Serotype	Number	Percent	Rank Last Month
1	S. typhi-murium and S. typhi-murium var. copenhagen	575	27.0	1
2	S. heidelberg	173	8.1	3
3	S. blockley	135	6.3	7
4	S. java	135	6.3	Not listed
5	S. infantis	131	6.2	4
6	S. enteritidis	114	5.4	2
7	S. newport	98	4.6	5
	Total	1,361	64.0	
	Total (all serotypes)	2,126		

S. blockley, which usually accounts for approximately 2 percent of all human isolations of salmonellae, represented 6.3 percent of the human isolations during June. There were 135 recoveries of S. blockley this month, 92 greater than the number of isolations reported in May and 115 greater than the number reported during June 1965. This abrupt increase was a result of an outbreak of S. blockley in a Massachusetts hospital. At present, epidemiological data are not available relating to the source of this outbreak.

S. java accounted for 6.3 percent of the human isolations during June, an increase over its usual 1 percent representation. This is the result of an interstate outbreak of salmonellosis in New York, New Jersey, and Pennsylvania caused by contaminated smoked fish. Reports of this investigation will be published in a future issue of the Surveillance Report.

The age-sex distribution of individuals reported as harboring salmonellae during June compared closely with past experience (Table III).

B. Nonhuman

There were 623 isolations of salmonellae from nonhuman sources during June, 110 greater than the May total. Thirty-six states reported isolations represented by 54 different serotypes.

The seven most frequently reported serotypes were:

Rank	Serotype	Predominant Source and Number	Number	Percent	Rank Last Month
1	S. typhi-murium and S. typhi-murium var. copenhagen	Turkey (27), Chicken (21) and Bovine (16)	98	15.7	1
2	S. heidelberg	Turkey (37) and Chicken (12)	61	9.8	2
3	S. new-brunswick	Powdered milk (42)	42	6.7	Not listed
4	S. schwarzengrund	Turkey (19) and Avian (4)	30	4.8	Not listed
5	S. saint-paul	Turkey (15) and Powdered milk (8)	29	4.7	Not listed
6	S. anatum	Turkey (13), Chicken (3) and Animal feed (3)	26	4.2	4
7	S. montevideo	Chicken (14)	26	4.2	5
	Total		312	50.1	
	Total (all serotypes)		623		

There were single isolations of seven serotypes: S. birmingham, S. corvallis, S. illinois, and S. orion from livestock feed in Louisiana; S. lexington from animal feed in Wisconsin; S. taksony from a turkey in Georgia; and S. urbana from a turtle in Ohio.

The most prominent nonhuman sources of salmonellae reported during June were turkeys, 186 (29.9 percent); chickens, 150 (24.1 percent); powdered milk, 65 (10.4 percent); livestock feed, 31 (5.0 percent); animal feed, 26 (4.2 percent).

III. CURRENT INVESTIGATIONS

A. Outbreak of Salmonellosis Related to Frozen Egg Products - Oregon. Reported by Monroe Holmes, D.V.M., M.P.H., Acting Director, Epidemiology Section, Oregon State Board of Health; Thomas L. Meador, M.D., City Health Officer, Portland City Bureau of Health; and S. Ben Werner, M.D., Epidemic Intelligence Service Officer.

Ninety cases of human illness due to Salmonella saint-paul have been identified in Oregon during the first 6 months of 1966. Approximately two thirds of these cases have been reported since May 1, 1966. This is a marked increase from the 8 isolates of this serotype reported during 1965 and the 15 isolates reported in 1964. More than 50 percent of the isolates are from Portland and the adjoining communities of Multnomah County, and almost all of the cases reside in the western third of Oregon.

Only 20 percent of the cases have been less than 5 years of age, and more than 50 percent have been greater than 19 years of age. This can be contrasted with the current national reporting of salmonella isolates in which a larger proportion of cases occur in the younger age groups (SSR Annual Summary 1965). There has been no sex predilection.

Information obtained about food eaten by the patients up to 3 days prior to their illness suggests that consumption of custard and cream-filled bakery products from at least 20 different bakeries in western Oregon is the factor in common to the cases. Fifteen of the bakeries are in the Portland area. Eggs are the basic ingredient in these bakery items, and visits to the involved bakeries indicate that frozen egg products from several different sources are implicated.

Investigation of one outbreak among women attending a club luncheon provided additional evidence regarding the source of S. saint-paul cases. Of the 81 women contacted who attended the luncheon, 18 (22 percent) became ill with symptoms of diarrhea, cramps, nausea, vomiting, and fever. The median incubation period was 31 hours, and the median duration of illness 4 days. Banana cream cake purchased at a commercial bakery was the only item eaten by a significant number of ill persons. In addition, this was the only food item taken home by the cateress after the luncheon. She and two family members developed a similar diarrheal illness one day after eating the cake. Salmonella saint-paul was isolated from the stool of 2 of the 18 involved women and the teen-aged son of the cateress 5 weeks after the luncheon. Salmonella saint-paul was also isolated from a piece of the same cream cake, which had been kept in the freezer of one of the club women following the luncheon.

One hundred thirty-seven samples were taken from 30-pound tins of frozen egg products from in-state and out-of-state processors by the Oregon State Department of Agriculture. The product of two egg processing plants producing unpasteurized eggs in Oregon and two other plants producing pasteurized eggs in California have been found positive for S. saint-paul. In addition, other salmonella serotypes have been cultured from the products of many egg processing plants.

Thus far, it has not been possible to trace the contaminated eggs back to specific farms or infected poultry flocks. Egg processors receive their eggs from a variety of sources, and the products of many farms are pooled in the production of a single lot. The eggs used in such an operation are generally derived from "checked eggs" or cracked eggs - those which cannot be certified as Grade A. Embargoes have been placed on all known contaminated lots, and the activities of one egg processing plant have been terminated.

Investigation of this widespread and important outbreak is continuing. Attention is also being directed at other food products which may be related to the increased number of many salmonella serotypes which have been recently noted.

B. Progress Report - Interstate Outbreak of Salmonellosis Related to Nonfat Dry Milk. Compiled by the Salmonella Unit from reports received by State Departments of Agriculture and Health, U.S. Department of Agriculture, and the Food and Drug Administration.

Since June 20, 1966, ten isolations of Salmonella new-brunswick from humans have been reported to the Salmonella Unit. To date information regarding possible contact of these patients with nonfat dry milk has been received for the following seven patients:

Isolation No.	Age	Sex	State	Exposure To INFDM
1	8 mo.	F	Oregon	Yes
2	21	M	Alabama	No
3	2	M	Massachusetts	Yes
4	2	M	Massachusetts	Yes
5	13 mo.	F	New York	Yes
6	?	M	Washington	Yes
7	?	F	Wisconsin	Uncertain

The remaining three cases are currently under investigation.

Investigation of dried milk products and the companies involved in their production has been continued. The following table summarizes the results of the investigations reported since June 20, 1966.

Serotype	Source	Location of Plants	Reporting Agency
S. new-brunswick	INFDM	Michigan	FDA
S. new-brunswick	Plant environment*	Minnesota	Minnesota Department of Agriculture
None isolated	INFDM	Kansas	FDA
None isolated	INFDM	Wyoming	Wyoming State Health Department
None isolated	INFDM	Multiple plants	Alabama State Health Department
None isolated	INFDM	Multiple plants	Georgia State Health Department

*Isolates from filter over air intake to dryer and from roof of the plant near the exhaust stack from the dryer.

Continued investigation of the problem is encouraged to insure that control measures instituted by the milk producing companies and the investigating agencies have been adequate to prevent further contamination.

IV. REPORTS FROM THE STATES

A. California

Epidemiologic Characteristics of Typhoid Fever in California in 1965. Reported by the Bureau of Communicable Diseases, California State Department of Health.

Epidemiologic data have been accumulated on 66 cases of typhoid fever occurring in California during the year 1965. Cases were reported in 21 of 51 counties in the state and were widely distributed geographically. As has been the pattern in previous years, cases were sporadic and often related to travel away from the United States or to contact with typhoid carriers. Twenty-seven patients acquired their infection

in other countries, 24 of these in Mexico. Thirteen persons apparently acquired infection from typhoid carriers, and two developed illness after contact with another case of typhoid fever. Eight persons were thought to have become infected after drinking contaminated water, with four of these possibly related to known sewage contamination of the city water supply in Madera, California.

Cases were almost equally distributed by sex (35 females and 31 males). Only 1 of 60 persons from whom history was available had had typhoid immunization in the past.

Additional data are summarized in the following tables.

Age Distribution of Typhoid Fever
California - 1965

Age (Years)	Number	%	Cumulative %
Under 1	0	0.0	0.0
1 - 4	19	28.8	28.8
5 - 9	14	21.2	50.0
10 - 19	10	15.1	65.1
20 - 29	10	15.1	80.2
30 - 39	4	6.1	86.3
40 - 49	4	6.1	92.4
50 - 59	4	6.1	98.5
60 - 69	1	1.5	100.0
70 - 79	0	0.0	100.0
80 +	0	0.0	100.0
Total	66		

Cases by Month of Onset

Month	Number	Month	Number
January	2	July	7
February	2	August	5
March	3	September	6
April	3	October	8
May	3	November	8
June	7	December	9
		Unknown	3

Isolations of S. typhi by Phage Type

Phage Type	No. of Isolations
Degraded Vi	20
E_1	12
C_1	6
B_2	5
35	3
C_4	2
A, D_4, D_9, F_1, J, O, V_1, 38	8 (1 each)
Unknown	10
Total	66

Editor's Comment: The pattern of typhoid cases in California is consistent with what is believed to be the predominant pattern in the United States. Though California differs somewhat because of its geographic proximity to Mexico, most typhoid cases in this country are related either to foreign travel or to sporadic contact with chronic typhoid carriers. Relatively few common-source outbreaks occur.

The summer and early fall peak, typical of the non-host-adapted salmonellae, is not as apparent among typhoid cases in California in 1965, but the total number of cases is small. The age distribution is similar to that for other salmonellae except for the absence of cases in the population under 1 year of age as would be expected from the epidemiologic pattern.

B. Washington

Salmonella in Headcheese. Reported by Donald R. Peterson, M.D., M.P.H., Director, Division of Epidemiology and Communicable Disease Control; Herb W. Anderson, B.S., R.S., Epidemiologic Assistant; Paul Bonin, M.A., Director of Laboratory Division; and Ray B. Watkins, D.V.M., M.P.H., Chief Veterinarian, Seattle-King County Department of Public Health.

In September 1965 and again in January 1966, cases of salmonellosis were traced to contaminated headcheese by the Seattle-King County Department of Public Health.

In one instance an elderly couple purchased headcheese from a neighborhood meat market on September 18. They ate the product the same day and 18 hours later developed febrile gastroenteritis. Salmonella cambridge, an uncommon serotype, and Salmonella typhi-murium were isolated from the stool culture of one of the patients, and Salmonella typhi-murium was isolated from the other. Only Salmonella anatum could be isolated from the unconsumed portion of headcheese remaining in the couple's refrigerator; however, S. cambridge was cultured from headcheese at the meat market from the same lot purchased by the couple. Salmonella derby was also isolated from this material.

During inspection of the processing plant, it was learned that headcheese was made from edible pork by-products, such as cheeks, snouts, tongues, and skins, and from soup stock, gelatin, spices, flavoring, and preservatives. Approximately 800 pounds of headcheese were processed by this plant 3 to 4 times each month. Plant equipment used for preparing headcheese had previously been used to precess raw meat products and had not been adequately disinfected. Samples taken from headcheese in the plant at the time of this investigation failed to yield salmonellae.

On January 3, 1966, Salmonella heidelberg was isolated from the stool culture of a 58-year-old man who had been hospitalized in December with symptoms of severe febrile gastroenteritis. He had eaten headcheese twice prior to the onset of his illness on December 9, 1965. Salmonella heidelberg was also isolated from the unconsumed portion of headcheese remaining in the refrigerator at the patient's home. Cultures taken from specimens at the same brand product obtained at a nearby delicatessen yielded S. heidelberg and S. derby.

Six loaves of headcheese were then selected at random at the processing plant, and S. heidelberg, S. derby, and S. anatum were cultures from five of these loaves. Four packages of headcheese which had been sliced and wrapped in the plant were recalled from a grocery store, and S. saint-paul, S. anatum, and S. eimsbuettel were cultured from these specimens. The samples represented headcheese from two separate production lots, which had been processed on December 14 and December 30, 1965.

Stool specimens were collected from plant employees and were negative for salmonellae. Further investigation in cooperation with the Washington State Department of Health revealed 11 other persons who had a similar salmonella infection and who had consumed the same brand of headcheese. It is suspected that the cases uncovered represent only a small proportion of the total probably infected by this contaminated product.

V. SPECIAL REPORTS

A. Recommendations of the Public Health Service Advisory Committee on Immunization Practices

The Public Health Service Advisory Committee on Immunization Practices meeting on May 16, 1966, issued the following recommendations on typhoid and paratyphoid A and B vaccines. (Reprinted from MMWR, Vol. 15, No. 29, July 23, 1966)

TYPHOID VACCINE

The incidence of typhoid fever in the United States has declined steadily for many years. At the present time, less then 500 cases are reported annually, and a continuing downward trend can be expected. Cases are sporadic and are primarily related to contact with carriers rather than to common source exposure. Recognizing this epidemiologic pattern of typhoid fever, re-definition of the role and use of typhoid vaccine is indicated.

Current Status of Typhoid Vaccine

Although typhoid vaccines have been employed for many decades, definitive evidence of their effectiveness has been accumulated only recently from well controlled field investigations. Several different preparations of typhoid vaccine have been shown to afford protection in approximately 70 to 90 percent of individuals immunized, depending in part on the degree of their subsequent exposure[1].

Recommendations for Vaccine Use

Routine typhoid immunization is not recommended in the United States. Selective immunization is, however, indicated in the following situations:

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[1]Cvjetanovic, B. and Uemura, K., The present status of field and laboratory studies of typhoid and paratyphoid vaccine. Bull. WHO 32:29-36, 1965.

1) Intimate exposure to a known typhoid carrier as would occur with continued household contact.
2) Community or institutional outbreaks of typhoid fever.
3) Foreign travel to areas where typhoid fever is endemic.

Although typhoid vaccine has been suggested for individuals attending summer camps and those in areas where flooding has occurred, there are no data to support the continuation of these practices.

Dosage and Schedule

On the basis of the field trials referred to above, the following dosages are recommended, employing the vaccines available in the USA:

Primary Immunization

Adults and children over 10 years
0.5 ml. subcutaneously on two occasions, separated by four or more weeks

Children 6 months to 10 years*
0.25 ml. subcutaneously on two occasions, separated by four or more weeks

In instances where there is insufficient time for the two doses to be administered at the time intervals specified, three doses of the same volume listed above may be given at weekly intervals.

Booster Immunization

Under conditions of continued or repeated exposure, a booster dose should be given at least every three years. Even if an interval greater than three years has elapsed since the prior immunization, a single booster injection should be sufficient.

The following alternative routes and dosages of booster immunization can be expected to give comparable antibody responses; generally less reaction follows the intradermal route.

Adults and Children over 10 years
0.5 ml. subcutaneously or 0.1 ml. intradermally

Children 6 months to 10 years*
0.25 ml. subcutaneously or 0.1 ml. intradermally

PARATYPHOID A AND B VACCINES

The effectiveness of paratyphoid A vaccine has never been established, and recent field trials have shown that available paratyphoid B vaccines were ineffective. In view of these data and recognizing that the paratyphoid A and B antigens when combined with typhoid vaccine may increase the occurrence of vaccine reactions, use of paratyphoid A and B vaccines is not recommended.

*Since febrile reaction in this age group are common following typhoid vaccination, an antipyretic may be indicated.

B. Salmonella Contamination of Drug Substances of Animal Origin. Reported by the United States Food and Drug Administration.

Thyroid powder for use in human drugs has been found contaminated with salmonellae by the Food and Drug Administration. Salmonella anatum was isolated from the product of a firm in Canada and another in the United States. Salmonella bareilly has been isolated from thyroid powder imported from Denmark. Contaminated lots were seized prior to their use in tablet making.

Further investigation in the United States led to the isolation of S. urbana from pancreatic hormone, S. anatum from pancreatic substance, S. derby from adrenal cortical substance, and S. newport and S. concord from lymphatic substance. Investigations are being continued.

VI. INTERNATIONAL

A. Belgium

Report of Isolations of Salmonella from Human Sources - Second Quarter 1966. Reported by E. van Oye, M.D., National Salmonella and Shigella Center of Belgium.

During the second quarter of 1966, 521 isolations of salmonella were typed from human sources. The five most common serotypes are shown in the table below.

Rank	Serotype	No. of Isolations	Percent
1	S. typhi-murium	357	68.5
2	S. panama	54	10.4
3	S. brandenberg	26	5.0
4	S. heidelberg	19	3.6
5	S. bredeney	12	2.3

The increase in isolations as compared to the first quarter of 1966 is consistent with the expected seasonal increase. Salmonella chicago, S. galiema, S. selandia, and S. weltevreden were isolated for the first time from humans.

B. Canada

Salmonellosis in Canada 1965 - Report of National Salmonella, Shigella, and Escherichia coli. Reference and Typing Center for Canada.

A total of 2,910 human isolations of salmonella, including 48 different serotypes, were reported by provincial and public health laboratories in Canada in 1965. This is an increase of 114 isolations or 4.1 percent over 1964. Following a rapid increase in the number of reported human isolations in recent years, a leveling was seen in 1964 and again in 1965. The seasonal peak of salmonellosis occurred in August and September as in the United States.

The ten most common serotypes isolated from man are shown in the following table.

Rank	Serotype	Number	Percent
1	S. typhi-murium	1,111	38.2
2	S. newport	418	14.4
3	S. heidelberg	248	8.5
4	S. thompson	181	6.2
5	S. saint-paul	157	5.4
6	S. infantis	139	4.8
7	S. typhi	100	3.4
8	S. blockley	83	2.8
9	S. montevideo	82	2.8
10	S. newington	70	2.4
	Total	2,589	88.9

S. newport, with 418 isolations, showed an increase of 147 percent over the 169 isolations reported in 1964. In addition, two neighboring provinces, Alberta and British Columbia, showed an increase in all salmonella isolations of 44 percent and 39 percent, respectively, as compared to the national increase of only 4.1 percent. Reasons for these changes are not known.

There were 1,037 isolates of salmonella from nonhuman sources reported to the National Salmonella Center in 1965. This is an increase of 11.6 percent over the 929 isolates reported in 1964. A total of 51 different serotypes were recovered. The ten most common serotypes isolated from nonhuman sources are shown below.

Rank	Serotype	Number	Percent
1	S. typhi-murium	231	22.3
2	S. infantis	151	14.6
3	S. saint-paul	143	13.8
4	S. blockley	93	9.0
5	S. montevideo	53	5.1
6	S. heidelberg	40	3.9
7	S. thompson	34	3.3
8	S. bareilly	34	3.3
9	S. oranienburg	33	3.2
10	S. san-diego	26	2.5
	Total	838	81.0

Turtles and turtle water received considerable attention during 1965. Eighty isolates, including 30 serotypes, were recovered from this source. There were several documented examples of salmonella infection in children resulting from handling contaminated turtles.

C. Netherlands

Report of Isolations of Salmonella from Human Sources - Fourth Quarter 1965. Reported from National Salmonella Center - Netherlands.

During the fourth quarter of 1965, a total of 1,155 isolations of salmonella from human sources were typed in the National Salmonella Center. The five most common serotypes isolated from humans are shown in the table on the following page.

Rank	Serotype	Number	Percent
1	S. typhi-murium	669	57.9
2	S. panama	234	20.3
3	S. stanley	66	5.7
4	S. paratyphi B	17	1.5
5	S. heidelberg	17	1.5

There were 1,163 isolations of salmonella from nonhuman sources during the same period of time. The most common nonhuman isolates were cattle, 387; meat and meat products, 192; sewage and surface water, 138; and pigs, 91.

VII. FOOD AND FEED SURVEILLANCE

A. Progress Report on Pilot Food and Feed Surveillance Program

Several samples of milk replacer (used to feed young calves), calf starter, nonfat dry milk, and meat were received by the Veterinary Public Health Laboratory and examined for salmonellae, shigellae, Escherichia coli, and coagulase positive staphylococci. From June 6 to June 29, 84 samples of milk replacer were received from seven states, representing nine brands. E. coli was isolated from 2 samples. Ten samples of calf starter were examined and 2 samples were found to contain E. coli. Ten samples of nonfat dry milk, representing eight brands, were found to be negative for all four organisms.

Seventy meat samples (40 headcheese, 20 pork roll, 4 salami, 3 Canadian bacon, 2 ham, and 1 luncheon meat) received from May 19 to June 30 were examined. Two samples of headcheese and 1 sample of salami were found to contain E. coli.

B. Salmonella Isolated from Nonhuman Sources in Illinois (1965)

Reported by Paul R. Schnurrenberger, D.V.M., Chief Public Health Veterinarian, Illinois Department of Public Health, and Harry R. Rhodes, Department of Veterinary Pathology and Hygiene, College of Veterinary Medicine, University of Illinois, from reports of Illinois Department of Agriculture, Peoria, Centralia, and Champaign-Urbana Laboratories.

A total of 104 salmonella isolations and 5 Arizona strains were reported from three Illinois laboratories during 1965 (Table VI). Fifteen serotypes were identified from animals and 11 from feed or feed ingredients. S. pullorum, S. typhi-murium, and S. cholerae-suis were the most frequently reported types. Salmonella typhi-murium, S. oranienburg, and S. thompson were isolated from both animals and feed products.

C. Salmonellosis in Young Calves.

Abstracted from an article by R. A. Robinson, New Zealand Veterinary Journal 14:33-39, 1966.

Four outbreaks of salmonellosis in young calves, aged 1 to 5 weeks, are described. The agent in all four outbreaks was S. typhi-murium. The organism was isolated from various body organs and was isolated from an open bag of buttermilk powder used as feed. Symptoms were acute diarrhea, and the mortality rate was up to 50 percent. Fecal swabs from the infected herds revealed 50 to 100 percent of the calves excreting S. typhi-murium. Results of treatment with sodium sulfadimidine (5 gm/day), furazolidone (0.5 gm/day), and sulfonamide-streptomycin mixture (5 gm/day) were equivocal. Prophylactic feeding of tetracycline was ineffective in preventing salmonellosis and appeared to cause S. typhi-murium to become increasingly resistant to tetracycline.

TABLE I

COMMON SALMONELLA SEROTYPES ISOLATED FROM HUMANS IN THE UNITED STATES DURING JUNE, 1966

SEROTYPE	GEOGRAPHIC DIVISION AND REPORTING CENTER																															SEROTYPE
	NEW ENGLAND							MIDDLE ATLANTIC					EAST NORTH CENTRAL						WEST NORTH CENTRAL							SOUTH ATLANTICA								
	ME	NH	VT	MASS	RI	CONN	TOTAL	NY-A	NY-BI	NY-C	NJ	PA	TOTAL	OHIO	IND	ILL	MICH	WIS	TOTAL	MINN	IOWA	MO	ND	SD	NEBR	KAN	TOTAL	DEL	MD	DC	VA	WV	NC	SC	GA	FLA	TOTAL	
anatum						1	1	4					4			3		1	4															7	anatum
bareilly														1					1															1	1	bareilly
berta				1			1																					1							1	berta
blockley				100			100			1		2	3	1	2	1	2		6	2						2	1	1				1		1	4	blockley
braenderup				1			1		1				1					2	2																	braenderup
bredeney				1			1				1		1				1		1																	bredeney
chester											1	1	2				2		2	3		1				4		2			1			1	4	chester
cholerae-suis v kun																																		1	1	cholerae-suis v kun
cubana				4			4							2					2						1	1				1				1	2	cubana
derby				2			2	3	2	2		14	21			1	2		3								2	1					1		4	derby
enteritidis				26		3	29	2	7	6		8	23	2	3	9	1	1	16	2	1	4				7	1	7		1	1		12	4	26	enteritidis
give								1					1																				1		1	give
heidelberg	1			11		1	13	7	3	7	5	14	36	1	4	12	10	5	32		4	3		3		10		7		1	11		5	14	38	heidelberg
indiana										11			11																					2	2	indiana
infantis				7		5	12	6	2	1		12	21	2	4	3	12	5	26	2	1	4				7	2	8		5	2		3		20	infantis
java						2	2	11	9	22	47	28	117			4		1	5																	java
javiana											2	2	4				1		1									1					1	9	11	javiana
kentucky											1	2	3																							kentucky
litchfield								1		2			3				1		1																	litchfield
livingstone																																				livingstone
manhattan				1			1	1	1				2								1					1			1		1				2	manhattan
meleagridis																																				meleagridis
miami									1				1									1				1								2	2	miami
mississippi																																	5		5	mississippi
montevideo				4			4	2	1		1	4	8				1		1	3						3		2						2	4	montevideo
muenchen									2			2	4			1		2	3									2		2			1	4	9	muenchen
newington				1			1			1			1				1		1																	newington
newport				3			3		3	4	4	4	15	7		4	2	3	16		1				1	2		3		3		5	2	12	25	newport
oranienburg				1			1	2		2		1	5	2			1	1	4			1				1							1	3	4	oranienburg
panama								4	2		1		7																							panama
paratyphi B				3			3			1	7		8	6	2		2		10																	paratyphi B
poona																																				poona
saint-paul				2		1	3	1	1	3	7	2	14	2		4			6	2						2		3		2		1		2	8	saint-paul
san-diego																																		1	1	san-diego
schwarzengrund																																		2	2	schwarzengrund
senftenberg						1	1										1		1																	senftenberg
tennessee				1			1				1	4	5			2	2		4			1				1										tennessee
thompson				4			4			4	1		5	3		8	1	9	21	1		2				3				2		1	2	2	7	thompson
typhi				2		1	3	4		1		3	8	5	2	3	1	3	14			3			1	4	4	1			10	1		7	19	typhi
typhi-murium	3	1		38	2	9	53	53	18	41	11	30	153	5	7	30	24	6	72	5	2	17				7	31	4	10	1	18	1	11		20	23	88	typhi-murium
typhi-murium v cop	3			8			11					3	3								1					1										typhi-murium v cop
urbana														1	1				2			1				1		1						1	2	urbana
weltevreden																																				weltevreden
worthington																																				worthington
untypable, group B		5		1			6		1				1	1					1										4						4	untypable, group B
untypable, group C1																																				untypable, group C1
untypable, group C2																																				untypable, group C2
untypable, group D																									1	1										untypable, group D
untypable, group E																																				untypable, group E
untypable or unknown				1			1																						2						2	untypable or unknown
Total Common	7	6	0	223	2	24	262	102	55	115	86	133	491	41	25	85	68	39	258	20	11	37	1	3	1	10	83	10	50	7	37	1	46	1	59	95	306	Total Common
Total Uncommon	0	0	0	4	0	0	4	1	1	2	1	5	10	1	0	2	2	3	8	0	0	0	0	0	0	0	0	0	2	1	2	0	0	0	5	7	17	Total Uncommon
Grand Total	7	6	0	227	2	24	266	103	56	117	87	138	501	42	25	87	70	42	266	20	11	37	1	3	1	10	83	10	52	8	39	1	46	1	64	102	323	Grand Total

New York (A-Albany, B-Beth Israel Hospital, 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 N.Y.-B.I. Beth Israel reported a total of 168 isolations for June.

TABLE I (Continued)
COMMON SALMONELLA SEROTYPES ISOLATED FROM HUMANS IN THE UNITED STATES DURING JUNE, 1966

SEROTYPE	GEOGRAPHIC DIVISION AND REPORTING CENTER																							TOTAL	PERCENT OF TOTAL	1966 CUM. TOTAL	PERCENT 1966 CUM. TOTAL	1965 TOTAL	PERCENT 1965 CUM. TOTAL	SEROTYPE
	EAST SOUTH CENTRAL					WEST SOUTH CENTRAL					MOUNTAIN								PACIFIC					OTHER						
	KY	TENN	ALA	MISS	TOTAL	ARK	LA	OKLA	TEX	TOTAL	MONT	IDA	WYO	COLO	NM	ARI	UTAH	NEV	TOTAL	WASH	ORE	CAL	ALAS	HAI	TOTAL	VI					
anatum						1	4			5		2		3					5			2		1	3		29	1.4	146	1.7	142	1.5	anatum
bareilly							1		1	2												1		1	1		5	.2	20	.2	51		bareilly
berta							1			1																	3	.1	19	.2	21		berta
blockley			2		2		2		1	3	1			2					3	6	1	5			12		135	6.3	319	3.6	148	1.6	blockley
braenderup		1			1				1	1																	6	.3	46	.5	47		braenderup
bredeney			1		1									1		1			2		1	5		4	9		13	.6	57	.6	63		bredeney
chester						1				1												2			2		17	.8	61	.7	63		chester
cholerae-suis v kun																											1	.1	14	.2	19		cholerae-suis v kun
cubana																					1	2			3		12	.6	87	1.0	87		cubana
derby			2		2			1		1												4		3	7		40	1.9	175	2.0	375	4.0	derby
enteritidis		1	2		3	1		1		2				1					1			7			7		114	5.4	578	6.5	444	4.7	enteritidis
give							1		2	3										1		1			2		7	.3	36	.4	62		give
heidelberg			2		2		3	1	1	5	1			2			12	2	17	3	2	10	2	3	20		173	8.1	723	8.1	737	7.9	heidelberg
indiana							2			2																	15	.7	42	.5	20		indiana
infantis			1		1		4	1	5	10				3			1		4	6	3	10		11	30		131	6.2	726	8.2	525	5.6	infantis
java			1		1		2	1		3												7			7		135	6.4	200	2.3	79		java
javiana			1		1	1	3		6	10												1			1		28	1.3	89	1.0	82		javiana
kentucky							1			1																	4	.2	9	.1	6		kentucky
litchfield																						1			1		5	.2	28	.3	45		litchfield
livingstone																						1			1		1	.1	11	.1			livingstone
manhattan	1				1		1	1		2																	9	.4	46	.5	46		manhattan
meleagridis																												.0	4	.0	113		meleagridis
miami		1			1																						5	.2	26	.3	42		miami
mississippi				1	1		2			2																	8	.4	21	.2	11		mississippi
montevideo		1			1		1			1												2			2		24	1.1	145	1.6	231	2.5	montevideo
muenchen							2		3	5												1			1		22	1.0	90	1.0	88	0.9	muenchen
newington														1					1			7		1	8		12	.6	23	.3	28		newington
newport			1		1		8		4	12				1		1			2			15		7	22		98	4.6	490	5.5	438	4.7	newport
oranienburg	2				2				3	3				2					2			1			1		23	1.1	208	2.3	275	2.9	oranienburg
panama	1				1		1		10	11										1		2		6	9		28	1.3	116	1.3	85		panama
paratyphi B	1				1				1	1	1								1	3					3		27	1.3	83	.9	99		paratyphi B
poona																				1		1			2		2	.1	18	.2	26		poona
saint-paul	1				1		3			3	1			1					2	2	44	9	3		58		97	4.6	333	3.8	341	3.6	saint-paul
san-diego									1	1				8					8	3	1	2			6		16	.8	55	.6	158	1.7	san-diego
schwarzengrund							1			1																	3	.1	23	.3	64		schwarzengrund
senftenberg			1		1																						3	.1	23	.3	30		senftenberg
tennessee																						2		1	3		14	.7	64	.7	114		tennessee
thompson							2			2										2	1	6		1	10		52	2.4	254	2.9	204	2.2	thompson
typhi		2			2	5	7	1	1	14					1			1	2	14		10		1	25		91	4.3	335	3.8	390	4.2	typhi
typhi-murium	5	10	4		19	4	10	3	20	37	2	3		8		2	2	2	19	5	22	49		8	84		556	26.2	2,432	27.4	2,883	30.7	typhi-murium
typhi-murium v cop							1		2	3		1							1								19	.9	72	.9	104	1.1	typhi-murium v cop
urbana																											5	.2	13	.1	14		urbana
weltevreden																								7	7		7	.3	16	.2			weltevreden
worthington																						2		1	3		3	.1	24	.3	20		worthington
untypable, group B						3				3					10				10		8	1			9		34	1.6	162	1.9	137		untypable, group B
untypable, group C1															8				8		1		1		2		10	.5	54	.6	35		untypable, group C1
untypable, group C2															1				1								1	.1	14	.2	31		untypable, group C2
untypable, group D						1				1					2	2			4	1					1		7	.3	22	.3	21		untypable, group D
untypable, group E																													6	.1	42		untypable, group E
untypable, or unknown																											3	.1	40	.5	63		untypable or unknown
Total Common	11	16	18	1	46	17	63	10	62	152	6	6	0	33	22	6	15	5	93	48	85	167	6	56	362	0	2,053	96.6	8,606	97.0	9,388		Total Common
Total Uncommon	0	7	1	0	8	0	4	0	1	5	0	0	0	3	1	0	0	0	4	0	12	3	1	1	17	0	73	3.4	271	3.0			Total Uncommon
Grand Total	11	23	19	1	54	17	67	10	63	157	6	6	0	36	23	6	15	5	97	48	97	170	7	57	379	0	2,126	100.0	8,877	100.0	9,388		Grand Total

TABLE II
UNCOMMON SALMONELLA SEROTYPES ISOLATED FROM HUMANS DURING 1966

SEROTYPE	REPORTING CENTER																														
	ALA	ALAS	ARI	ARK	CALIF	COLO	CONN	DEL	DC	FLA	GA	HAI	IDA	ILL	IND	IOWA	KAN	KY	LA	ME	MD	MASS	MICH	MINN	MISS	MO	MONT	NEBR	NEV	NH	NJ	NM
aberdeen					1																											
abortus-boris														2																		
alachua					1														1													
albany										2												1		1								
atlanta											7																					
austin																										1						
ball					2																											
binza										1									1					1								
bonaire					1																											
bonariensis														1																		
bovis-morbificans																			1													
bradford						1											1															
bradenburg											1																					
california					2						1			1					1													
carrau																			3													
cerro												2		1							1											
cholerae-suis						1																1										
colorado																			1													
concord																																
daytona										1																						
duesseldorf					1														2													
duisburg																																
eimsbuettel										2																						
fayed																																
gaminara																			2													
garoli																																
glostrup																					1											
grumpensis																																
haifa									1																							
hartford					2					4	1								1												1	
habana														1																		
ibadan																																
inverness																							1									
irumu						2																										
kaapstad						1																										
lanka					1																											
manchester						1																										
menston																	1															
minnesota																1																
mission										1																						
mjimwema																																
molade																																
muenster			1		1					3				2					1												1	
nagoya																																
new-brunswick	1	1			1		2			2	2				1						2	5	1	2								
newlands						1																										
norwich				1						1																						
ohio					6																											
orion																																
oritamerin																																
os																			3													
oslo					2							7					1															
paratyphi A					1																1											
paratyphi C						1																				1						
pomona																			1													
pullorum														9					1													
reading			1		6	1				1				14									2				1					
rubislaw					2														1			1										
siegburg					2																	1										
simsbury														1																		
stanley														1																		
stockholm																																
tallahassee										1																						
virchow																							3									
wassenaar																			1													
westerstede																																1
untypable, group G										1									1													1
untypable, group H																																
untypable, group O					2																											
Total	1	1	2	1	34	9	2	0	1	20	12	9	0	33	1	1	3	0	22	0	5	9	7	4	0	2	1	0	0	0	2	2

TABLE II (Continued)
UNCOMMON SALMONELLA SEROTYPES ISOLATED FROM HUMANS DURING 1966

REPORTING CENTER																					JUNE TOTAL	1966 CUM. TOTAL	MONTH LAST REPORTED	STATE LAST REPORTED	TOTAL PREVIOUSLY REPORTED TO SAL.SURV.UNIT 1962 - 1965	SEROTYPE
NY-A	NY-BI	NY-C	NC	ND	OHIO	OKLA	ORE	PA	RI	SC	SD	TENN	TEX	UTAH	VT	VA	VI	WASH	WV	WIS	WYO						
																						1	May 66	Cal	1	aberdeen
		1																				2	Jan 66	Ill	0	abortus-boris
																						3	May 66	Cal	21	alachua
																						4	Apr 66	Minn	15	albany
																					5	7	Jun 66	Ga	25	atlanta
																						1	Feb 66	Mo	1	austin
																						2	Jan 66	Cal	0	ball
1																						4	Apr 66	Fla-Minn	54	binza
																						1	Apr 66	Cal	0	bonaire
																					1	1	Jun 66	Ill	2	bonariensis
																						2	Feb 66	NY-A-La	44	bovis-morbificans
1																						2	Feb 66	Colo	2	bradford
																						1	Apr 66	Ga	10	brandenburg
																1					1	6	Jun 66	La	64	california
																						3	Jan 66	La	12	carrau
													2								1	6	Jun 66	Md	28	cerro
	3					1															1	6	Jun 66	NY-BI	61	cholerae-suis
																						1	Feb 66	La	8	colorado
		1																			1	1	Jun 66	NYC	4	concord
																					1	1	Jun 66	Fla	5	daytona
		1																				4	Feb 66	NYC	7	duesseldorf
																		2				2	Feb 66	Wash	1	duisburg
1												1									2	4	Jun 66	Fla	3	eimsbuettel
			5																			5	Mar 66	NC	6	fayed
																					1	2	Jun 66	La	20	gaminara
		1																				1	Mar 66	NYC	0	garoli
																						1	Apr 66	Md	1	glostrup
																1						1	Apr 66	Va	11	grumpensis
																					1	1	Jun 66	DC	3	haifa
							1													4		6	14	Jun 66	Cal-NJ Fla-Wisc	90	hartford
																					1	1	Jun 66	Ill	0	habana ★
													1								1	1	Jun 66	Tex	0	ibadan ★
																						1	Feb 66	Mich	13	inverness
																						2	May 66	Colo	108	irumu
																						1	Mar 66	Colo	3	kaapstad
																						1	Apr 66	Cal	0	lanka
																					1	1	Jun 66	Colo	5	manchester
																						1	Jan 66	Kan	14	menston
													1									2	Mar 66	Tex	40	minnesota
																						3	Mar 66	Fla	7	mission
1												2										1	Jan 66	NY-A	0	mjimwema
																				1		1	Feb 66	Wisc	0	molade
								5												1		8	15	Jun 66	Fla-La Pa-Wisc	26	muenster
																						1	May 66	Tex	1	nagoya
		1					2	1					1			2		3			12	29	Jun 66	Ala-Alas Md-Mass-Va NY-C-Ore	32	new-brunswick
																					1	1	Jun 66	Colo	0	newlands ★
		1			1		1					1	1									7	May 66	Ore-Tex	51	norwich
					1																2	7	Jun 66	Cal	13	ohio
					1																1	1	Jun 66	Ohio	7	orion
		1																				1	Mar 66	NY-C	0	oritamerin
																						3	Mar 66	La	0	os
																					1	10	Jun 66	Hai	15	oslo
																						2	May 66	Md	34	paratyphi A
																						1	Mar 66	Colo	7	paratyphi C
																						2	May 66	Md	4	pomona
																						10	Mar 66	La	4	pullorum
2							1	11				5						1			19	46	Jun 66	Colo-Mich NY-A Ore-Tenn	102	reading
																						4	Mar 66	La	42	rubislaw
												2	2								2	7	Jun 66	Tenn	19	siegburg
			1																			1	Apr 66	Ill	16	simsbury
			1			1																2	May 66	NC	26	stanley
								1														1	May 66	Ohio	0	stockholm
																					1	2	Jun 66	Fla	14	tallahassee
																						4	May 66	Ore	16	virchow
		1																				1	Apr 66	La	0	wassenaar
																						1	Mar 66	NY-C	5	westerstede
																					1	3	Jun 66	La		untypable, group G
																					1	1	Jun 66	NM		untypable, group H
																						2	Jan 66	Cal		untypable, group O
6	3	8	7	0	5	2	15	6	0	0	0	11	8	0	0	4	0	6	0	6	0	73	271				Total

*Not previously reported.

TABLE III

Age and Sex Distribution of Persons Reported as Harboring Salmonellae During June 1966

Age (Years)	Male	Female	Unknown	Total	%	Cumulative %
Under 1	126	105	2	233	16.4	16.4
1 - 4	204	175	2	381	26.8	43.2
5 - 9	96	87	1	184	13.0	56.2
10 - 19	75	55	3	133	9.4	65.6
20 - 29	55	60		115	8.1	73.7
30 - 39	34	34		68	4.8	78.5
40 - 49	46	49	1	96	6.8	85.3
50 - 59	29	42		71	5.0	90.3
60 - 69	34	36	1	71	5.0	95.3
70 - 79	19	26		45	3.2	98.5
80 +	11	12		23	1.6	100.1
Child (Unspec.)	7	6	2	15		
Adult (Unspec.)	11	21	1	33		
Unknown	295	337	26	658		
Total	1042	1045	39	2126		

TABLE IV

REPORTED NONHUMAN ISOLATES BY SEROTYPE AND SOURCE, *JUNE, 1966

SEROTYPE	fowl	poultry	chicken	turkey	duck	pigeon	domestic fowl environment	parrot	cockatoo	macaw	grackle	avain	equine	bovine	ovine	porcine	canine	guinea pig	monkey	tiger	animal, unknown	egg	egg yolk	powdered egg	frozen egg	egg meat	chicken meat	powdered milk	ice cream	cake	fish salad	smoked whitefish	smoked salmon	smoked sablefish	livestock feed	feather meal	bone meal/ meat scraps	animal feed, unknown	animal protein, unknown	turtle	snake	water	sewage	drinking water	river water	turtle water	turtle tank	isolette reservoir	lab stock culture	thyroid medicine	unknown	Total	6 Mos. Total	SEROTYPE
anatum			3	13										1								2						2							2			3												26	172	anatum
bareilly																																																			3	3	10	bareilly
binza			2																																2															4	35	binza
birmingham																																																			1	1	birmingham
blockley			13	7															1																																21	104	blockley
bredeney				1																																		1						2							4	30	bredeney
california			3	2																																		1													6	18	california
cerro																																					1			2												3	31	cerro
chester			2	15																																			1													18	60	chester
cholerae-suis v kun																3																																			3	53	cholerae-suis v kun
corvallis																																					1															1	2	corvallis
cubana				4																				1				2							1						1									9	41	cubana
derby				1												2																			1			2			2									8	78	derby
drypool																																			2																2	2	drypool
dublin																	1																							1											2	30	dublin
eimsbuettel			2													2	1											6							2	1	2	2												18	37	eimsbuettel
enteritidis			18	1	1									1		3																																			24	64	enteritidis
give				2																															1																3	25	give
heidelberg			12	37							1		2			1						1	2		4													1													61	328	heidelberg
illinois																																			1																1	2	illinois
indiana			2	2																																															4	23	indiana
infantis			10	2												1	3			2				2											1																22	156	infantis
java																															1	4	3	1					4												13	28	java
lexington																																						1													1	8	lexington
litchfield			7																																					4												7	15	litchfield
livingstone																																			3			6	1												10	56	livingstone
manhattan				1																																1							1							3	27	manhattan
minnesota				1																															1																2	32	minnesota
montevideo			14	2																						2									2		1	1						1						26	165	montevideo
muenchen			16	1										1						1																															19	40	muenchen
muenster				2																															1																3	15	muenster
new-brunswick																												42																								42	69	new-brunswick
newington			2	2			1																																											1	6	47	newington
newport			1	1				1						1																										1			2			1					8	61	newport
ohio																										2																									2	10	ohio
oranienburg																										1									1										2						5	120	oranienburg
orion																																			1																1	11	orion
panama			4																																																4	9	panama
poona			1																																																2	7	poona
pullorum		1	7									5											1																												13	38	pullorum
reading				3																					1	2																									7	21	reading
saint-paul			4	15																					1			8		1																				29	159	saint-paul
san-diego				2																																															2	68	san-diego
schwarzengrund			3	19								4									1																	2					1								30	75	schwarzengrund
senftenberg				2																								1									1													4	89	senftenberg
simsbury													2																																							2	6	simsbury
taksony				1																																																1	3	taksony
tennessee			1	6																								2																								9	69	tennessee
thomasville																																			2																	2	10	thomasville
thompson	1		6	6										1												1																										15	88	thompson
typhi-murium			13	25	2	1			2	1	1	8	6	15	1	1	2	1											1																			1	2			85	431	typhi-murium
typhi-murium v cop			8	2		1								1			1																																			13	105	typhi-murium v cop
urbana																																											1									1	4	urbana
worthington				2																															2		3													7	33	worthington
untypable group O																																			1																1	4	untypable group O
untypable				2																																															2	3	untypable
unknown																										1									1																2	9	unknown
Total	1	1	150	186	3	2	1	1	2	2	1	19	8	21	1	13	8	1	1	3	1	3	3	3	3	12	3	1	65	1	1	1	4	3	1	31	1	7	26	1	6	1	2	10	2	0	1	1	1	2	3	1	623	1,373	Total

Source: National Animal Disease Laboratory, Ames, Iowa,
Weekly Salmonella Surveillance Reports from Individual States and USFDA Div. of Microbiology, Washington, D.C.

*Includes May late Reports

TABLE V

REPORTED NONHUMAN ISOLATES BY SEROTYPE AND STATE, **JUNE 1966

SEROTYPE	ALA	ALAS	ARIZ	ARK	CALIF	COLO	CONN	DC	FLA	GA	ILL	IND	IOWA	KAN	KY	LA	MD	MICH	MINN	MISS	MO	NEB	NJ	NY-A*	NY-C*	NC	OHIO	OKLA	ORE	PA	SC	TEX	UTAH	VA	WASH	WISC	WYO	TOTAL	6 MOS. TOTAL	SEROTYPE
anatum				1	3						2	1	1		5	2			2		3						2	1						3				26	172	anatum
bareilly								1										2																				3	10	bareilly
binza									2							2																						4	35	binza
birmingham																1																						1	1	birmingham
blockley					1					2	1	3							2		1								3		1		1	1	1	4		21	104	blockley
bredeney																3													1										
california										1									2	2																	1	6	18	california
cerro																1				2																	3	31	cerro
chester													1		3				3								1									10	18	60	chester
cholerae-suis v kun					1				1			1																										3	53	cholerae-suis v kun
corvallis																1																						1	2	corvallis
cubana		1												1	4	1		1											1									9	41	cubana
derby																4			1		2						1											8	78	derby
drypool																2																						2	2	drypool
dublin					2																																	2	30	dublin
eimsbuettel	1						1					5				3			1	1								6									18	37	eimsbuettel
enteritidis										9		9							1							4								1			24	64	enteritidis
give																1													2								3	25	give
heidelberg	1			5	4					6		5							19				2	2			3		1				9	1		3	61	328	heidelberg
illinois																1																					1	2	illinois
indiana											1	3																									4	23	indiana
infantis		2			1	1				5		3			1	1	3		2		2									1							22	156	infantis
java					4																		1	1	4					3							13	28	java
lexington																																				1	1	8	lexington
litchfield									7																												7	15	litchfield
livingstone					1											3											6										10	56	livingstone
manhattan												1	1			1																					3	27	manhattan
minnesota				1												1																					2	32	minnesota
montevideo							1			13			1			4		1	3					2						1							26	165	montevideo
muenchen										16									2															1			19	40	muenchen
muenster										1						1					1																3	15	muenster
new-brunswick												7							33																2		42	69	new-brunswick
newington					3													1									1								1		6	47	newington
newport			1	1	2						1					2														1							8	61	newport
ohio																							1	1													2	10	ohio
oranienburg																3								1			1										5	120	oranienburg
orion																1																					1	11	orion
panama				4																																	4	9	panama
poona					1					1																											2	7	poona
pullorum																1	1					1					5				1				1	1	13	38	pullorum
reading												1	1																5								7	21	reading
saint-paul				4						1			1	8					7				1						2	1					4		29	159	saint-paul
san-diego																			1										1								2	68	san-diego
schwarzengrund					18							3							1		2	1					5										30	75	schwarzengrund
senftenberg																1			1		2																4	89	senftenberg
simsbury					2																																2	6	simsbury
taksony										1																											1	3	taksony
tennessee												1			1		2		4	1																	9	69	tennessee
thomasville																2																					2	10	thomasville
thompson									2	2		2						1											6					1	1		15	88	thompson
typhi-murium	1		8	1	29						1	3			5			1	13		2						8		4		3	1	2		3	85	431	typhi-murium
typhi-murium v cop				7															1		4											1				13	105	typhi-murium v cop
urbana																											1									1	4	urbana
worthington	1											3	1			2																					7	33	worthington
untypable group O																1																					1	4	untypable group O
untypable					2																																2	3	untypable
unknown																1													1								2	9	unknown
Total	4	3	9	24	74	1	2	1	12	58	6	51	7	9	19	47	6	7	99	6	19	2	5	7	4	4	34	7	27	7	2	3	12	12	2	30	1	623	3,373	Total

Source: National Animal Disease Laboratory, Ames, Iowa, Weekly Salmonella Surveillance Reports from Individual States, and USFDA, Division of Microbiology, Washington, D.C.

*NY-A (New York-Albany) NY-C (New York City)

** Includes May late Reports

TABLE V-A
OTHER SEROTYPES REPORTED DURING 1966
FROM NONHUMAN SOURCES

SEROTYPE	MONTH(S)	REPORTING CENTER(S)	NUMBER OF ISOLATIONS
abortus-bovis	Mar	La	1
adelaide	Mar	La	1
alachua	Jan-Mar	NJ(3)	
	Feb	Minn(5)	
	Feb	Pa(1)	
	Apr-May	Calif(7)	
	May	Ind(1)	17
alagbon	Mar	NJ	2
amagar	May	Ark	1
amsterdam	Jan	Ohio	1
babelsburg	Jan	Ind	1
berta	Feb	Ga(2)	
	May	Calif(1)	3
bovis-morbificans	Jan	Calif	1
bradford	Jan	NJ	1
braenderup	Jan-Feb	Ark(4)	
	Jan	Calif(1)	
	Jan	Miss(1)	
	Feb	Ala(1)	
	Feb	Tex(1)	
	Mar	Va(1)	
	Apr	Conn(1)	10
cambridge	Apr	La	1
caracus	Mar	La	1
carrau	Apr	Mass	2
champaign	Mar	La	2
cholerae-suis	Feb	Calif	1
colorado	Mar	NJ	1
eppendorf	Jan	NJ	1
fayed	Apr	La(1)	
	Apr	NC(1)	2
gallinarum	Jan-Mar	Tex(2)	
	Feb	Calif(1)	
	Feb	Minn(1)	
	Feb	Pa(2)	
	Feb	Wisc(1)	
	Mar	Va(1)	
	May	Ala(1)	9
grumpensis	Mar	La	1
habana	Apr	Md	1
halmstad	Mar	La	3
hamilton	Jan	La	1
hartford	Mar	Fla	1

TABLE V-A - Continued
OTHER SEROTYPES REPORTED DURING 1966
FROM NONHUMAN SOURCES

SEROTYPE	MONTH(S)	REPORTING CENTER(S)	NUMBER OF ISOLATIONS
johannesburg	Mar	Mich	1
keepstad	Mar	La	1
kentucky	Jan	Iowa(1)	
	Feb	Ill(1)	
	Feb-Mar	Minn(6)	
	Mar	NJ(1)	
	Mar	Wisc(1)	
	May	Ind(2)	12
kottbus	Feb	Ga	1
lille	Mar	NJ	1
manila	Jan	Ind(1)	
	Apr	Md(1)	2
meleagridis	Jan-Feb-Apr	Calif(4)	
	Feb-May	Wisc(2)	
	Mar	Ind(1)	
	Mar-May	La(2)	
	May	Minn(1)	10
miami	Feb	Calif(1)	
	Feb	Tex(1)	2
minneaspolis	May	Calif	1
mission	Mar	Ohio(1)	
	May	La(1)	2
mississippi	Mar	La	1
new-haw	Mar	NJ	1
oslo	Jan-Mar-May	Calif	5
paratyphi-B	Mar	Md(1)	
	Mar	Tex(1)	
	Apr-May	Ohio(3)	5
pharr	Jan	Mich	1
pomona	Mar	NJ	1
siegburg	Feb	Mich(2)	
	May	La(1)	3
stockholm	May	Ohio	1
tournai	Mar	NJ	1
tuebinger	Jan	Mich	1
typhi	Jan	Mo	1
typhi-suis	Feb-Mar	Calif(6)	
	Mar	Minn(1)	7
vejle	Apr	La	1
westhampton	Mar	Kan	1
Total			129

TABLE VI

Salmonellae Isolated from Nonhuman Sources in Illinois
1965

Source	Salmonella Serotype	Number
Avian - not specified	S. pullorum	29
	S. typhi-murium	1
Chicken	S. infantis	4
	S. blockley	1
	S. oranienburg	1
	S. typhi-murium	1
Turkey	S. typhi-murium	2
	Arizona 7:1,2,6	1
	Arizona 7:1,7,8	1
	S. chester	1
	S. pullorum	1
	Salmonella sp.	1
Pigeon	S. typhi-murium	1
Swine	S. cholerae-suis	16
	S. typhi-murium	5
	S. anatum	2
	S. derby	1
	S. enteritidis	1
	S. manhattan	1
	S. newington	1
	Salmonella sp.	1
Swine tissues	S. cholerae-suis	
	S. cholerae-suis var. kunzendorf	1
Cattle	S. typhi-murium	2
	S. heidelberg	1
Horse	S. thompson	1
	S. typhi-murium	1
Sheep	Arizona 26:30	1
	S. newport	1
	S. typhi-murium var. copenhagen	1
Canine	Salmonella sp.	2
Feline	S. typhi-murium	1
Rabbit	S. cholerae-suis	1
	Salmonella sp.	1

TABLE VI

(Continued)

Source	Salmonella Serotype	Number
Turtle	Arizona 20:23-21	1
	Arizona 26:33-31	1
Chicken feed	S. eimsbuettel	2
	S. montevideo	1
Feather meal scraps	S. bareilly	1
Meat scraps	S. binza	3
	S. oranienburg	2
	S. senftenberg	2
	S. cubana	1
	S. eimsbuettel	1
	S. montevideo	1
	S. muenchen	1
	S. schwarzengrund	1
	S. tennessee	1
	S. thompson	1
	S. typhi-murium	1

Figure 1.

REPORTED HUMAN ISOLATIONS OF SALMONELLA
IN THE UNITED STATES