REPORT NO. 55
DECEMBER 2, 1966

COMMUNICABLE DISEASE CENTER

SALMONELLA

SURVEILLANCE

TABLE OF CONTENTS

For the month of October 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:

Communicable Disease Center, Atlanta, Georgia 30333, Attention: Chief, Salmonella Unit.

TABLE OF CONTENTS

I. SUMMARY

This issue of the Salmonella Surveillance Report includes progress reports on salmonella contamination of powdered milk and carmine dye and discussions of outbreaks in three states. In addition, summaries of salmonella isolations from Australia for the second and third quarters 1966 and for the Netherlands for the first and second quarters 1966 are included.

In October 1966, 1,721 isolations of salmonellae were reported from humans, an average of 430 isolations per week. This number represents a decrease of 26 (5.7 percent) from the weekly average of September 1966 and a decrease of 48 (10.0 percent) from the weekly average of October 1965. The cumulative number of isolations reported for the first ten months of 1966 (16,460) represents a decrease of 5.9 percent from the total number of isolations reported during this same period in 1965 (17,495).

Reports of 713 nonhuman isolations of salmonellae were received during October, an increase of 167 (30.6 percent) over September 1966.

II. REPORTS OF ISOLATIONS FROM THE STATES

A. Human

The seven most frequently reported serotypes during October were:

Rank	Serotype	Number	Percent	Rank Last Month
1	S. typhi-murium and S. typhi-murium var. copenhagen	525	30.5	1
2	S. heidelberg	140	8.1	2
3	S. newport	129	7.5	5
4	S. enteritidis	104	6.0	3
5	S. infantis	91	5.3	4
6	S. typhi	70	4.1	Not Listed
7	S. saint-paul	56	3.3	6
	Total	1,115	64.8	
	Total (all serotypes)	1,721		

The age and sex distribution (Table III) was similar to that of previous months.

B. Nonhuman

Thirty-seven states reported nonhuman isolations, represented by 58 different serotypes.

The seven most frequently reported serotypes during October were:

Rank	Serotype	Predominant Source and Number	Number	Percent	Rank Last Month
1	S. heidelberg	Turkeys (95) and Chickens (14)	113	15.8	2
2	S. typhi-murium and S. typhi-murium var. copenhagen	Chickens (17) and Bovine (15)	60	8.4	1
3	S. montevideo	Frozen eggs (23) and Chickens (11)	53	7.4	6
4	S. infantis	Chickens (17) and Porcine (11)	49	6.9	4
5	S. thompson	Chickens (16)	28	3.9	Not Listed
6	S. schwarzengrund	Turkeys (19)	27	3.8	Not Listed
7	S. saint-paul	Chickens (18)	26	3.6	5
	Total		356	49.8	
	Total (all serotypes)		713		

The most prominent nonhuman sources of salmonellae reported during October were turkeys, 218 (30.6 percent); chickens, 128 (18.0 percent); livestock feed, 47 (6.6 percent); frozen eggs, 44 (6.2 percent); porcine, 41 (5.8 percent); animal feed, 33 (4.6 percent); and bovine, 20 (2.8 percent). Salmonella heidelberg was the most prevalent serotype this month because of 66 reported isolations from turkeys in Minnesota.

III. CURRENT INVESTIGATIONS

A. Progress Report - Interstate Outbreak of Salmonellosis Related to Nonfat Dry Milk
Compiled by the Salmonella Unit from data received from the U.S. Department of Agriculture and the U.S. Food and Drug Administration.

Previous issues of the Salmonella Surveillance Report (Nos. 47, 49, 51, 53) have contained information concerning contamination of nonfat dry milk with multiple salmonella serotypes. During that time several dry milk products were recalled from the market because of salmonella contamination. During the month of November, Borden's Starlac and Kroger's instant nonfat dry milk were also recalled. The contaminating serotypes of the Borden product were Salmonella binza and S. worthington, while S. cubana was found in the Kroger product.

The Dairy Division, Consumer and Marketing Service, U.S. Department of Agriculture, has continued its salmonella testing of milk-drying plants. In September and October 1966, 1,618 samples from 44 plants were tested for salmonellae. The results showed 2 positive samples of nonfat dry milk and 17 positive environmental samples. The following table summarizes results of positive samples obtained over the past 8 months and not previously reported in the Salmonella Surveillance Report.

Serotype	Samples and Source	State
S. oranienburg	1 plant environment	Iowa
S. heidelberg	1 plant environment	Iowa
S. heidelberg	1 NDM	Iowa
S. montevideo	2 NDM	Iowa
S. tennessee	1 NDM	Idaho
S. montevideo	9 NDM	Minnesota
S. senftenberg	1 NDM	Minnesota
S. tennessee	1 environment	Minnesota
S. heidelberg	1 NDM	South Dakota
S. orion	1 environment	Wisconsin
S. montevideo	4 NDM	Wisconsin

B. Progress Report - Salmonella cubana Infections Associated with Carmine Dye
Compiled by the Salmonella Unit from data received from the Ohio State Department of Health and the U.S. Food and Drug Administration.

Three new cases of hospital-acquired Salmonella cubana infections due to ingestion of carmine dye as a diagnostic material have been reported by Dr. Ralph A. Masterson of the Ohio State Department of Health. The patients were all infants hospitalized at a pediatric center, and all developed symptoms within a week after consuming capsules of the dye. One infant received four capsules, one received three, and the last received only one capsule.

Though contamination of carmine dye with S. cubana was initially discovered through use of the dye as a clinical diagnostic aid, the vast majority of carmine manufactured in this country is used to color foods, cosmetics, and drugs. Extensive sampling of products containing carmine dye has been undertaken by the U.S. Food and Drug Administration, many State health laboratories, and the Communicable Disease Center. To date, several products have been found to contain S. cubana.

Food Products Containing Carmine Dye and Contaminated with Salmonella cubana

Product	Manufacturer
Carmine stock solution	J. O. Welch Company
Pink summer coating	Merckens Company
Rainbow peach coating	Merckens Company
Rainbow yellow coating	Merckens Company
Kiddy Pops	Fanny Farmer
Raspberry Creams	Fanny Farmer
Candy	Helen Grace Company
Remembrance Chocolates	Miss Saylor's
Chocolates and Pastels	Miss Saylor's
Party Wafers	Miss Saylor's
Master Chocolates	Miss Saylor's
Candy Mints	Saunders Candy Company
Hostens Thin Mints	Hooper's Confections, Inc.
Paprika Mix	(One lot only - being recalled by California firm)
Meat Binder	(Being recalled within state by Illinois firm)
Meat Preservative	(Being recalled within state by Illinois firm)
Peppermint Ice	(Being recalled within state by California firm)

The source of contamination for all the candies can be traced to a stock coloring material containing carmine. No contamination of drugs or cosmetics has yet been reported. All the contaminated products, as well as the dye itself, have been recalled from the market. Examination of carmine-containing products will continue, and findings will be reported in future issues of the Salmonella Surveillance Report. Numerous food samples containing red coloring material have recently been examined by the Veterinary Public Health Laboratory of the Communicable Disease Center. The results are listed in the Food and Feed Surveillance Section of this report.

Editor's Comment: Human illness has not been traced to carmine other than that used in hospitals for diagnostic tests. This is not surprising in light of the large number of food, drug, and cosmetic products which are colored red. Only a small portion of these contain carmine. It is hoped that an association between human illness and carmine-containing products will be sought and reported to the Salmonella Unit, CDC.

IV. REPORTS FROM THE STATES

A. New York

Hospital Outbreak of Salmonella typhi-murium
Reported by Matthew A. Vassallo, M.D., County Health Commissioner, New York.

An outbreak of febrile gastroenteritis, involving over 1,000 patients and employees, occurred at a mental hospital in New York this summer. Typical symptoms included fever from 102° to 104°, nausea, vomiting, cramps, and diarrhea. Severity of illness varied considerably. Four deaths were attributed to the outbreak. Stool cultures from many of the patients were positive for S. typhi-murium. The cases began on July 20, 1966, peaked the following day, and then continued to occur sporadically for the next 2 weeks. Over 90 percent of the cases occurred during the first 3 days of the outbreak.

Health authorities learned that all the persons who became ill had eaten in the dining room served by one kitchen. This kitchen was the largest in the hospital, and the attack rate for those who ate in the dining room was estimated at 33 percent. The investigators reasoned that the infecting vehicle must have been food consumed July 18 or 19. Accordingly, bacteriological examination was performed on samples of foods served on these days, as well as numerous environmental samples from the kitchen. All the samples tested were negative except one. A sample of powdered milk taken from an opened bag was positive for S. typhi-murium. Other bags of the same lot were tested but did not contain salmonellae. Powdered milk had been used extensively in many of the foods prepared in the kitchen, and the investigators felt that it was a likely cause of the outbreak.

Editor's Comment: While a contaminated food item such as powdered milk seems a possible cause for such an extensive and explosive outbreak, particularly if handled in such a way as to promote bacterial multiplication, it is impossible to definitely incriminate any vehicle on the basis of one positive culture and in the absence of food histories.

B. Massachusetts

Hospital Outbreak of Salmonella blockley

Leonard J. Morse, M.D., Director, Section of Infectious Diseases, Saint Vincent Hospital; G. Foard McGinnes, M.D., Commissioner of Public Health, Worcester, Massachusetts; and A. Daniel Rubenstein, M.D., Commissioner of Hospitals, Commonwealth of Massachusetts Department of Public Health.

Between May 27 and June 16, 1966, 167 cases of infection due to Salmonella blockley were reported at a Massachusetts hospital. The peak incidence occurred during the first 10 days in June. Approximately 40 percent of those infected experienced mild fever and transient symptoms of enteritis. The remainder of the patients were asymptomatic and were identified only as a result of rectal swab cultures taken from all dietary, nursing, and house officer personnel after the outbreak began. During the height of the epidemic, 50 percent of the rectal swab cultures were positive for S. blockley in the nursing and dietary groups. Epidemiologic investigation suggested that ice cream made on May 24 from frozen, unpasteurized egg yolks (5 pounds per 5 gallons) might have been the vehicle of infection. The ice cream was placed in a new hardening machine used for the first time, but after approximately 3 hours it was recognized that the machine was not operating. The ice cream was then placed in the old unit for effective refrigeration. Although samples of egg yolk and ice cream were not available for culture, three 5-pound cans of unpasteurized, frozen egg yolks were available for laboratory study. Multiple specimens yielded abundant bacterial growth with the predominant organisms being Escherichia coli, Aerobacter, and Proteus species. In one of the cans, S. anatum was identified.

The high incidence of infected personnel and the relatively short time period of the outbreak support the hypothesis that a common food was probably responsible. Few cases occurred in hospital employees in the maintenance and research departments; most of these people customarily carry their own lunches and do not patronize the hospital cafeteria. It was felt that the outbreak was due to the use of contaminated frozen, unpasteurized egg yolks which had been allowed to incubate in the nonfunctioning ice cream machine. The measures used to halt this institutional infection were primarily geared toward education and intensified personal hygiene. There were no associated or subsequent cases of S. blockley infection in the community.

C. Idaho

Outbreak of Salmonella typhi-murium Due to Contaminated Raw Milk

Reported by Alvin Holterman, Sanitarian, and John Mather, M.D., Division of Preventive Medicine, Idaho Department of Health.

An outbreak of gastroenteritis due to raw milk contaminated with Salmonella typhi-murium and involving 11 persons in 5 families occurred in late January and early February 1966. The farmer responsible for the milk was not in the business of selling raw milk but gave his surplus to relatives and friends. The exact method by which the milk was contaminated is unknown, but several possibilities are apparent. The farmer responsible was busy throughout the winter making trips to a beef cattle feeding lot several miles from his farm. Apparently, 16 calves were in the feed lot and 3 died between January 1 and January 15 from diarrheal disease. Fecal specimens were taken from 6 of the calves 5 weeks after recovery from the illness; 1 was positive for S. typhi-murium. The farmer admitted that he often worked late in the evening with the calves while they were ill, and after returning home, had neglected to wash his hands prior to milking. The milk was collected in open buckets and then poured into large wide-mouthed jars. In addition to the possible contamination of the milk from the farmer's hands, manure and other barnyard materials could have easily fallen into the bucket during the milking process. The milk was cooled very slowly after the collection. It took more than 2 hours to bring the milk temperature down to 40° F., thus allowing considerable incubation time for bacterial growth.

V. SPECIAL REPORTS

NONE

VI. INTERNATIONAL

A. Australia

Report of Isolations of Salmonellae from Human and Nonhuman Sources in Australia, Second and Third Quarters 1966
Reported by Helen McDonald, B.Sc., Salmonella Reference Laboratory, Institute of Medical and Veterinary Science, Adelaide, Australia.

During the second quarter of 1966, 480 isolations of salmonellae were typed in the Salmonella Reference Laboratory. Of these 95 were from human sources, 238 from animals, and 147 from miscellaneous sources, including meat. In the third quarter, 377 isolations were typed, including 63 from human sources, 143 from animals, and 101 from miscellaneous sources. The most frequently isolated serotypes from humans during the two quarters are listed below.

Second Quarter

Rank	Serotype	Number of Isolations	Percent
1	S. typhi-murium	44	46.3
2	S. chester	7	7.4
3	S. anatum	5	5.3
4	S. bovis-morbificans	4	4.2

Third Quarter

Rank	Serotype	Number of Isolations	Percent
1	S. typhi-murium	23	36.5
2	S. chester	5	7.9
	S. oranienburg	5	7.9
4	S. enteritidis	3	4.6
	S. typhi	3	4.6

The most common nonhuman sources were bovine, meat, egg products, porcine, chickens, and soil. Salmonella kinondoni, S. sofia, S. lansing, S. kimberley, and S. schleissheim were isolated for the first time in Australia.

B. Netherlands

Reports of Isolations of Salmonellae, First and Second Quarters 1966
Reported from the National Salmonella Center, Netherlands.

During the first quarter of 1966, a total of 524 human and 1,215 nonhuman isolations of salmonellae were typed, and during the second quarter 1,215 human and 987 nonhuman isolations were typed by the National Salmonella Center. The five most common serotypes isolated from humans are listed below.

First Quarter

Rank	Serotype	Number of Isolations	Percent
1	S. typhi-murium	275	52.5
2	S. panama	104	19.8
3	S. stanley	36	6.9
4	S. newport	15	2.9
5	S. anatum	13	2.5
	S. typhi	13	2.5

Second Quarter

Rank	Serotype	Number of Isolations	Percent
1	S. typhi-murium	530	43.6
2	S. stanley	318	26.2
3	S. panama	113	9.3
4	S. newport	31	2.6
5	S. bovis-morbificans	28	2.3

The most common sources for nonhuman isolations were meat and meat products, cattle, pigs, fowl, and sewage and surface water.

VII. FOOD AND FEED SURVEILLANCE

A. Progress Report on Food Surveillance

Forty-three beef samples were received from three states and examined for salmonellae, shigellae, E. coli, and coagulase-positive staphylococci. The results in Table VII show 12 samples positive for coagulase-positive staphylococci, 15 samples positive for E. coli, and 1 sample positive for salmonellae. The salmonella isolate was serotyped as S. blockley.

Recently salmonellae have been isolated from carmine, a red dye extracted from the cochineal insect. This dye is commonly used as a food coloring, resulting in a potential hazard when foods are colored with this product. Carmine is not usually listed by name as a food ingredient but is designated only as food coloring. One hundred seventy-six food samples containing red coloring were received by the Veterinary Public Health Laboratory and examined for salmonellae, shigellae, coagulase-positive staphylococci, and E. coli. The samples were soft drink mix, 38; gelatin dessert, 24; liquid food coloring, 16; food decorations, 26; candy, 31; liquid drink, 5; cake icing, 3; meat preservatives, 3; lipstick, 2; and miscellaneous food products, 18.

Coagulase-positive staphylococci were isolated from 1 sample, liquid drink. The drink ingredients were carbonated water, sugar, artificial flavor and color, and citric acid. Salmonella cubana was isolated from 1 sample of meat preservative from Illinois. The product contained salt, dextrose, bicarbonate of soda, sodium benzoate, ascorbic acid, sodium citrate, monosodium glutamate, paprika, and carmine. This meat preservative product is labeled for use "as an oxidant to preserve meat and meat color in which it is used." Other samples were negative for these four organisms.

B. Summary of Food and Drug Cultures by the U.S. Food and Drug Administration

A summary of data on foods and drugs examined for salmonellae in the U.S. Food and Drug Administration Field Districts for the fiscal years 1965 and 1966 has been received. These reports indicate a substantial increase in the number of samples examined for salmonellae in fiscal year 1966 compared with 1965. However, the number of samples containing salmonellae did not increase proportionally. Most of the increase was attributed to the greater attention to nonfat dry milk and egg products. The findings in the 19 different categories of food are given in the following table.

Foods and Drugs Analyzed for Salmonella by Field Districts of the U.S. Food and Drug Administration

Type of Product	1965 Samples Examined		1966 Samples Examined	
	Number	Positive	Number	Positive
Eggs and egg-containing foods	382	127	595	141
Yeast and yeast products	107	27	57	7
Bakery products (without egg)	29	0	19	0
Fish products	25	0	62	2
Fruit	2	0	2	0
Nuts	25	0	23	0
Ice Balls, Pink Elephants	0	0	13	0
Teething rings, pacifiers	0	0	14	0
Drugs	2	0	74	16
Salads	3	0	7	0
Dairy products	1	0	664	40
Grains	19	0	3	0
Drinks	2	0	10	0
Vegetables	10	0	9	0
Meats	7	0	14	0
Animal feed	2	0	8	4
Salad dressing	2	0	9	0
Candy syrups	4	0	1	0
Miscellaneous	3	0	4	0
Totals	625	154	1588	210

Seventy-five kinds of food were represented, of which 8 were found to contain salmonellae. The positive foods included eggs and egg-containing foods, nonfat dry milk, dried yeast, thyroid and other drugs of animal origin, meat and bone meal, and smoked fish and fish meal.

C. Supplement - List of Organizations Concerned with Salmonellae in Foods or Feeds - International

A conference on the Destruction of Salmonellae was held in Albany, California, March 9 through 11, 1966, by the U.S. Department of Agriculture in cooperation with the Western State Experiment Stations. It was organized by Dr. Hans Lineweaver (U.S. Department of Agriculture) and Dr. A. W. Brant (University of California, Davis) under the guidance of Dr. M. J. Copley, Director of the Department's Western Regional Research Laboratory. One of the sessions dealt with national and international activities on salmonellae in food. For this session, Dr. John Ayres prepared a list of national and international laboratories concerned with salmonellosis.

We have added to the international portion of this list and included this supplement for use as reference by the recipients of the Salmonella Surveillance Report. It is recognized that this list is by no means complete. Therefore, if you are aware of omissions, please send the names and location of the organization and the name of the principal investigator to the attention of Mildred M. Galton, Veterinary Public Health Laboratory, Communicable Disease Center, Atlanta, Georgia 30333.

When additional data is received, a supplement to the list will be distributed.

Organizations Concerned with Salmonellae in Foods

International

Country	Investigators	Organization
Africa (South)	Dr. Ben Jansen	Director of Veterinary Services Onderstepoort
Argentina	Dr. Boris Szyfres	Director, Centro Panamericano de Zoonosis Buenos Aires
Australia	Dr. Nancy Atkinson	University of Adelaide Department of Bacteriology Adelaide
	Mrs. Helen K. McDonald	Salmonella Reference Laboratory Institute of Medical and Veterinary Science Adelaide
	Dr. N. Kovacs	Public Health Laboratories Royal Perth Hospital Perth, W. Australia
Austria	Dr. Doz DDr. F. Petuely	Bundesanstalt fur Lebenmittel Untersuchung, Wien 9 Kinderspitalgasse 15
Belgium	Dr. E. L. van Oye	Institut d'Hygiene et d'Epidemiologie Brussels
Brazil	Prof. Dacio de Almeida Christovao	School of Hygiene and Public Health University of Sao Paulo Sao Paulo

Country	Investigators	Organization
Bulgaria	Frau Ing. Nadescha Dimitrowa	Institut fur Fleischwirtschaft Sofia
Canada	Dr. E. T. Bynoe	Chief, Bacteriological Laboratories Laboratory of Hygiene Department of National Health and Welfare Ottawa, Ontario
	Dr. F. S. Thatcher	Head, Microbiology Section Food and Drug Directorate Department of National Health and Welfare Ottawa, Ontario
Ceylon	Dr. C. L. Wisidagama	Municipal Veterinary Surgeon Colombo Municipal Council Colombo
Chile	Dr. Enrique Mora	Professor of Public Health School of Veterinary Medicine University of Chile Santiago
Costa Rica	Dr. Fred Payne Dr. Henri de la Cruz	Program Coordinator Food Microbiologist International Center for Medical Research and Training San Jose
Czechoslovakia	Ing. Milan Pazlor	Central Research Institute of Food Industry Prague
	Dr. Dobromila Matejovska	National Reference Laboratory for Salmonella Typing Prague
Denmark	Dr. V. Biering-Sorenson	Chief Veterinarian Royal Veterinary and Agricultural College Rengsted
		State Serum Institute Copenhagen
		State Veterinary Service Laboratories Copenhagen
		Danish Meat Products Laboratories Copenhagen
East Germany	Dr. Stellmacher	Staatl. Vet. Med. Prufungsinstitut Berlin 4
	Dr. Med. Gunter Fuchs	Hygiene Institut der TH und Medizineschen Akademie, Dresden

Country	Investigators	Organization
East Germany (Continued)	Dr. J. Kiesewalter	Zentrallaboratorium, fur bakterielle Darminfektionen, beim Institut fur Serum-und Impfstoffprufung Institusteil Potsdam Potsdam
Egypt	Dr. Ahmed El Take Shehata	Food Technology Department University of Alexandria Alexandria
	Dr. Hassan Kamel El-Mansoury	High Institut of Public Health Alexandria
England	Dr. Betty C. Hobbs Dr. Joan Taylor	Food Hygiene Laboratory Salmonella Reference Laboratory Central Public Health Laboratory Collindale Avenue London, N.W.9
	Dr. W. Sojka	Salmonella and Enteric Laboratory Central Veterinary Laboratory Weybridge, New Haw
France	Dr. L. Le Minor	Centres des Salmonellae de l'Institut Pasteur de Paris
	Dr. R. Buttiaux	Laboratory of Experimental Hygiene Pasteur Institute Lille
	Dr. Moquot	Director, Institut Nationale de la Recherche Agronomique Jouy-en-Joses, Seine-at-Oise
Germany (West)	Dr. M. Bischof, Director Dr. R. Rohde	Hygienisches Institut Salmonella-Zantrale 2 Hamburg 36, Groch-Fock Wall 15/17
	Prof. N. G. Seidel	Bezerks-Hygiene Institut Berlin c.2
	Dr. H.P.R. Seeliger	Hygiene-Institut Rheinische Friedrich-Wilhelms Institute Bonn
	Dr. D. Schimmel	Duetsche Akademie der Landwertschaft-wissenschaften Berlin
	Dr. Siegfried Hoffman	Federal Health Office Berlin

Country	Investigator	Organization
Guatemala	Dr. Olsina Narcyz	Food Microbiologist Institute of Nutrition for Central America and Panama Guatemala City
Hungary	Dr. G. Nagy	Director Central Food Research Institute Budapest
	Dr. J. Takacs	Head, Central Laboratory of Veterinary Meat Control Service Budapest
	Dr. Nikodemus	Institute of Nutrition Budapest
India	Dr. D. K. Murty	Deputy Director, Microbiology National Institute of Communicable Disease Delhi 6
	Dr. B. R. Baliga	Director of Meat and Fish Technology Central Food Technological Research Institute Mysore
Israel	W. Silberstein	Government Central Labs. National Salmonella Centre of Israel Ministry of Health Jerusalem
Italy	Prof. Dr. Gianfranco Tiecco	Institute Superiore di Sonita Laboratori di Veterinaria Rome
	Dr. C. Cominazzini	Provincial Institute of Hygiene via Mossotti 4, Novara
Japan	Dr. Hideo Fukumi Dr. Ruchi Sakazaki	Department of Bacteriology National Institute of Health Tokyo
	Dr. Hiroo Iida	Hokkaido Institute of Public Health Epidemiology Section South 2, West 15, Sapporo
Mexico	Dr. Jorge Olarte	Hospital Infantil de Mexico Mexico, D. F.
	Dr. Gerardo Varela	Instituto de Salubridad y Enfermedades Tropicales Mexico, D. F.

Country	Investigator	Organization
Mexico (Continued)	Dr. Adolfo Perez-Miravete	Dept. of Microbiology, Escuela Nacionel de Clencias Biotogicas Institute Politecnico Nacional Mexico, D. F.
Netherlands	Dr. E. H. Kampelmacher	Laboratory for Zoonoses, Rijks Institut Voor de Volksgezondheid Sterrenbos 1, Utrecht
	Dr. D.A.A. Mossel	Laboratory of Bacteriology Central Institute for Nutrition and Food Research T.N.O. 48 Utrechseweg, Zeist
New Zealand	Dr. R. A. Robinson	Kuakura Research Center Private Bag, Hamilton
	Dr. P. M. Nottingham	Meat Ind. Res. Institute of New Zealand Wellington
Northern Ireland	Dr. D. J. Stewart	Agricultural Bacteriology Department Queens University Belfast
Norway	Dr. Stelnar Hauge	Institute of Food Hygiene The Veterinary College of Norway Oslo 4
Peru	Dr. Manuel Moro Sommo	Co-Director, Instituto Veterinario de Investigaciones Tropicales Y de Altura Universidad Nacional Mayor de San Marcos Apartado 2036, Lima
	Dr. Fernando Quevedo	Centro Latin Americano de Bacteriologia Alimentaria Universidad Nacional Mayor de San Marcos Apartado 5653, Lima
Poland	Dr. Burzynska Dr. Lachowicz Dr. Krauss	State Institute of Hygiene Warsaw
	Dr. Zenon Buczowski	Institute of Marine Medicine Gdanks
Scotland	Dr. J. R. Hawthorne	University of Glasgow Glasgow
	Dr. J. M. Shewan	Torry Research Station Aberdeen
Spain	Dr. Rodrigo Pozo-Lora J. Millan	Dept. de Zootecnia Facultad de Vet. Cordoba

Country	Investigator	Organization
Sweden	Dr. Hans-Jorgen Hansen	Statens Veterinarmedicinska Anstait Stockholm 50
	Dr. H. Lundbeck	National Bacteriology Laboratory Box 764 Stockholm
Switzerland	Dr. Hans Fey	Veterinar-Bakteriologisches Institute der Universitat Bern
	Prof. Dr. Knapp	Institut fur Hygiene and Bakteriologie Bern
Uruguay	Dr. Cira A. Peluffo	Instituto de Higiene Montevideo
U.S.S.R.	Dr. N. P. Nedfedjeva	Laboratory of Microbiology Institute of Nutrition Academy of Medical Sciences Moscow
	Dr. Kielso	National Salmonella Center Institute of Epidemiology Moscow
World Health Organization	Dr. Martin Kaplan Dr. M. Abdussalam	Division of Communicable Diseases 1211 Geneve-Suisse Geneva
	Dr. P. Yekutiel	Global Epidemiological Surveillance Division of Communicable Diseases 1211 Geneve-Suisse Geneve
Yugoslavia	Dr. Vanja Est.	Central Institute of Hygiene Ljubijana

Figure 1.

REPORTED HUMAN ISOLATIONS OF SALMONELLA
IN THE UNITED STATES

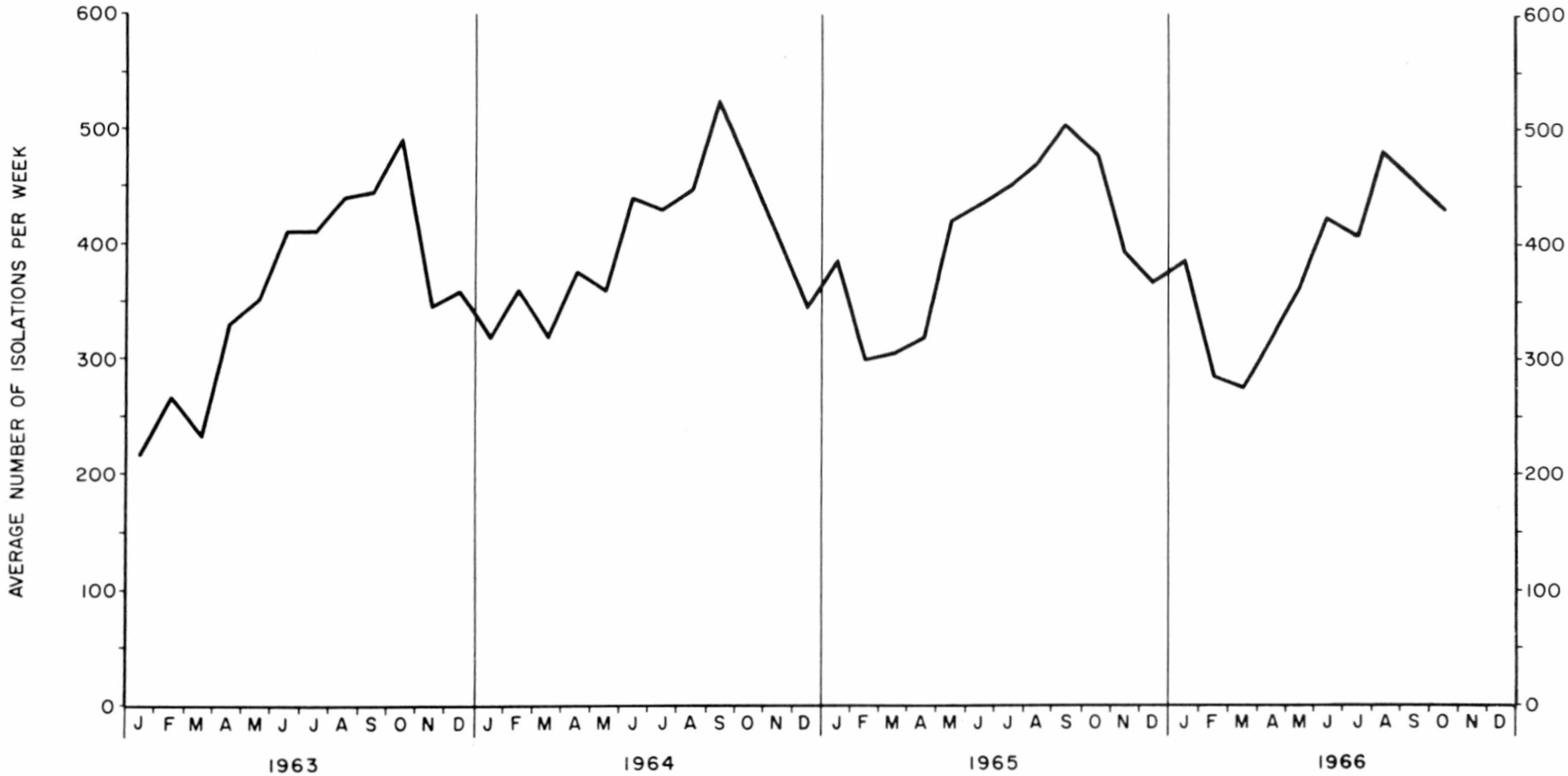

TABLE 1
COMMON SALMONELLA SEROTYPES ISOLATED FROM HUMANS IN THE UNITED STATES DURING OCTOBER, 1966

GEOGRAPHIC DIVISION AND REPORTING CENTER

SEROTYPE	NEW ENGLAND							MIDDLE ATLANTIC						EAST NORTH CENTRAL					
	ME	NH	VT	MASS	RI	CONN	TOT	NY-A	NY-BI	NY-C	NJ	PA	TOT	OHIO	IND	ILL	MICH	WIS	TOT
anatum				10			10	2			1		3		1	3			4
bareilly														1					1
berta																	1		1
blockley				5		2	7				5	1	6		1	1	4		6
braenderup																			
bredeney				1	1		2					1	1			2			2
chester											1	1	2				1		1
cholerae-suis v kun																			
cubana								1					1	2		1			3
derby				9			9			3		2	5		1	2	1		4
enteritidis				20		6	26	5	3	5	4	11	28	1	2	7	10	2	22
give																			
heidelberg				5			5	4	2	9	5	3	23	3	5	8	12	6	34
indiana																1			1
infantis				16		3	19	7	1	4	1		13	1	1	7	6	1	16
java								3		1		1	5			3			3
javiana																			
kentucky												1	1						
litchfield				3			3				1		1			3		1	4
livingstone									1				1						
manhattan										1		3	4				2		2
meleagridis											1		1						
miami																			
mississippi																			
montevideo				1			1		2	4		2	8	1					1
muenchen				2			2		2	2			4	1		1			2
newington																			
newport				2			2		1	2	5	3	11	1		6		3	10
oranienburg				3		2	5	1					1		1	2			3
panama				1			1				31		31			1	1		2
paratyphi B	1			1			2												
poona																			
saint-paul				1	1	2	4	2		5	3		10	1		10			11
san-diego																			
schwarzengrund																			
senftenberg				1			1					1	1				1		1
tennessee				1			1										1	2	3
thompson				1			1	3	1	1	2		7	2			5	3	10
typhi	1			1			2	3		2	1	3	9	5		4		1	10
typhi-murium	4		3	38	6	7	58	39	7	22	9	14	91	24	8	63	17	10	122
typhi-murium v cop				5		1	6				1		1				2		2
urbana										1			1					3	3
weltevreden																			
worthington																1			1
untypable, group B	4	4			3		11			1			1						
untypable, group C1				1		1	2												
untypable, group C2		2					2												
untypable, group D		1					1												
untypable, group E																			
untypable or unknown																		2	2
Total Common	10	7	3	128	11	24	183	70	20	63	71	47	271	43	20	126	64	34	287
Total Uncommon	0	0	0	1	0	6	7	6	0	3	1	0	10	2	0	2	6	0	10
Grand Total	10	7	3	129	11	30	190	76	20	66	72	47	281	45	20	128	70	34	297

WEST NORTH CENTRAL								SOUTH ATLANTIC										SEROTYPE
MINN	IOWA	MO	ND	SD	NEBR	KAN	TOT	DEL	MD	DC	VA	WV	NC	SC	GA	FLA	TOT	
		2					2				1		1			1	3	anatum
															1		1	bareilly
									1							1	2	berta
						2	2		3						1	4	8	blockley
													1				1	braenderup
1							1											bredeney
1		1					2		1								1	chester
		1					1											cholerae-suis v kun
																		cubana
									1				1		2	1	5	derby
	1	1				1	3	1	4	2	6		3		4		20	enteritidis
																		give
7		2				1	10		6	2	3		7		5	3	26	heidelberg
									1								1	indiana
1	1	1				7	10		1		6		2		4	3	16	infantis
1							1		1				1				2	java
															2	14	16	javiana
																1	1	kentucky
																3	3	litchfield
																		livingstone
															1		1	manhattan
																1	1	meleagridis
															1	3	4	miami
															1		1	mississippi
		1					1		1							3	4	montevideo
2		1					3				2					5	7	muenchen
																		newington
2						3	5	1	1		1	1	1		8	23	36	newport
		1					1								1	6	7	oranienburg
			1			4	5				2				1		3	panama
1							1		1							3	4	paratyphi B
																		poona
1						1	2		2		2				5	8	17	saint-paul
																		san-diego
																		schwarzengrund
											1						1	senftenberg
																1	1	tennessee
2							2	1	1			5	3		4		14	thompson
2		2				1	5		3		4		1	3	1	4	16	typhi
6	1	8				15	30	2	9	3	10	3	3		16	12	58	typhi-murium
																		typhi-murium v cop
																		urbana
																		weltevreden
																		worthington
					2		2			4				1			5	untypable, group B
										1							1	untypable, group C1
										2				2			4	untypable, group C2
																		untypable, group D
																		untypable, group E
			2				2			2							2	untypable or unknown
27	3	21	3	0	2	35	91	5	37	16	38	9	24	6	58	100	293	Total Common
0	0	0	0	0	0	0	0	0	4	0	3	0	3	0	1	6	17	Total Uncommon
27	3	21	3	0	2	35	91	5	41	16	41	9	27	6	59	106	310	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 105 isolations for October.

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

SEROTYPE	GEOGRAPHIC DIVISION AND REPORTING CENTER																										OCT. TOTAL	% OF TOTAL	1966 CUM. TOTAL	% OF 1966 CUM. TOTAL	1965 CUM. TOTAL	% OF 1965 CUM. TOTAL	SEROTYPE
	EAST SOUTH CENTRAL					WEST SOUTH CENTRAL					MOUNTAIN									PACIFIC						OTHER							
	KY	TENN	ALA	MISS	TOT	ARK	LA	OKLA	TEX	TOT	MONT	IDA	WYO	COLO	NM	ARIZ	UTAH	NEV	TOT	WASH	ORE	CAL	ALAS	HAW	TOT	VI							
anatum							4			4						2			2			1			1		29	1.7	262	1.6	254	1.5	anatum
bareilly							1		3	4																	6	0.3	65	0.4	92	0.5	bareilly
berta																											3	0.2	30	0.2	33	0.2	berta
blockley							5		2	7				1					1		1			1	2		39	2.3	493	3.0	315	1.8	blockley
braenderup		1			1																						2	0.1	87	0.5	68	0.4	braenderup
bredeney																				1					1		7	0.4	103	0.6	124	0.7	bredeney
chester																				1					1		7	0.4	93	0.6	98	0.6	chester
cholerae-suis v kun																											1	0.1	22	0.1	31	0.2	cholerae-suis v kun
cubana														1		1			2								6	0.3	122	0.7	124	0.7	cubana
derby							1			1												3		2	5		29	1.7	326	2.0	549	3.1	derby
enteritidis			1		1										1				1			3			3		104	6.0	1,030	6.3	897	5.1	enteritidis
give							1	1		2																	2	0.1	66	0.4	102	0.6	give
heidelberg	1	6			7	2	8		2	12	1			2	6	1	2		12	3		8			11		140	8.1	1,377	8.4	1,346	7.7	heidelberg
indiana															1				1								3	0.2	59	0.4	17	0.1	indiana
infantis							2			2				1					1	3	2	6		3	14		91	5.3	1,152	7.0	956	5.5	infantis
java		1			1		2			2												4		1	5		19	1.1	305	1.9	155	0.9	java
javiana			1		1	7	8		11	26						2			2								45	2.6	222	1.3	270	1.5	javiana
kentucky							1			1														4	4		7	0.4	24	0.1	13	0.1	kentucky
litchfield							2			2												1			1		14	0.8	68	0.4	76	0.4	litchfield
livingstone															1				1					2	2		4	0.2	23	0.1	24	0.1	livingstone
manhattan																						2			2		9	0.5	93	0.6	102	0.6	manhattan
meleagridis																											2	0.1	6	0.0	139	0.8	meleagridis
miami															1				1								5	0.3	62	0.4	80	0.5	miami
mississippi							2			2																	3	0.2	41	0.2	32	0.2	mississippi
montevideo						1	1		1	3				1		1	1		3			5		3	8		29	1.7	278	1.7	390	2.2	montevideo
muenchen			1	1	2		3		1	4						2			2			1			1		27	1.6	179	1.1	188	1.1	muenchen
newington			1		1		1			1												1		1	2		4	0.2	38	0.2	49	0.3	newington
newport		3	1		4	7	23	1	18	49						2			2			6		4	10		129	7.5	1,016	6.2	1,016	5.8	newport
oranienburg	1	2			3		2		2	4												1		1	2		26	1.5	337	2.0	522	3.0	oranienburg
panama																1			1			2		3	5		48	2.8	240	1.5	203	1.2	panama
paratyphi B									1	1												1			1		9	0.5	124	0.8	157	0.9	paratyphi B
poona																						2			2		2	0.1	31	0.2	40	0.2	poona
saint-paul		1			1		2			2							1		1		3	2		3	8		56	3.3	600	3.6	637	3.6	saint-paul
san-diego																						1			1		1	0.1	110	0.7	217	1.2	san-diego
schwarzengrund							2			2							2		2								4	0.2	53	0.3	86	0.5	schwarzengrund
senftenberg							3		1	4					1				1			1		1	2		11	0.6	57	0.3	63	0.4	senftenberg
tennessee												2		1		1			4								9	0.5	108	0.7	163	0.9	tennessee
thompson		1			1															2		1			3		38	2.2	493	3.0	486	2.8	thompson
typhi	5	3			8	1	6	1		8					1				1	2	1	8			11		70	4.1	580	3.5	612	3.5	typhi
typhi-murium	3	8	1		12	5	11	3	15	34	14	2		15	5		5		41	11	6	47		2	66		512	29.8	4,697	28.5	5,494	31.4	typhi-murium
typhi-murium v cop							4			4																	13	0.8	139	0.8	159	0.9	typhi-murium v cop
urbana																						1			1		5	0.3	24	0.1	29	0.2	urbana
weltevreden																								5	5		5	0.3	34	0.2	29	0.2	weltevreden
worthington																											1	0.1	31	0.2	35	0.2	worthington
untypable, group B							2			2					6				6		1	1			2		29	1.7	296	1.8	246	1.4	untypable, group B
untypable, group C1				1	1	1				1					5				5								10	0.6	97	0.6	75	0.4	untypable, group C1
untypable, group C2						4				4					4				4				1		1		15	0.9	55	0.3	53	0.3	untypable, group C2
untypable, group D						2				2					1				1				1		1		5	0.3	48	0.3	33	0.2	untypable, group D
untypable, group E															2				2								2	0.1	12	0.1	47	0.3	untypable, group E
untypable or unknown				1	1																1				1		8	0.5	68	0.4	99	0.6	untypable or unknown
Total Common	10	26	6	3	45	30	97	6	57	190	15	4	0	22	35	13	11	0	100	23	15	109	2	36	185		1,645	95.6	15,876	96.5	17,495	100.0	Total Common
Total Uncommon	0	0	0	0	0	0	5	0	8	13	0	0	0	0	2	0	0	0	2	2	0	13	0	2	17		76	4.4	584	3.5			Total Uncommon
Grand Total	10	26	6	3	45	30	102	6	65	203	15	4	0	22	37	13	11	0	102	25	15	122	2	38	202		1,721	100.0	16,460	100.0	17,495	100.0	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																											
abony																																
abortus-bovis														2																		
agama																	1															
alachua					1					1									1													
albany					3					2									1			2		1								
amager											1																1					
arechavaleta																							1									
arkansas																			1													
atlanta											14																					
austin																										1						
ball					2																											
berlin																																
binza					4	1				2								1	2		3	1		2							1	
boniare					1																											
bonariensis														1																		
bovis-morbificans		1			1					1				1					1				1									
bradford						2											1														1	
brandenburg							1				1																					
california					2					1	2			1	1				6													
carrau																			3													
cerro												3		1			1				2											
chailey					5																											
cholerae-suis					1	1																1										
coleypark										2																						
colorado																			1													
concord																																
corvallis														1																		
daytona										1																						
drypool											1																					
dublin					3																											
duesseldorf					1			1											2												1	
duisburg																																
eimsbuettel										2									1				2									
fayed																																
gallinarum																																
gaminara										1									5													
garoli																																
glostrup														1							1											
grumpensis																																
habana														1									1									
haifa									1		1																					
hartford					2		1			8	1			3					1			1	1	1							1	
ibadon																																
inverness														1										1								
irumu						2																				1						
kaapstad						1																										
kottbus																																
lanka					1																											
loma-linda																																
lomita																																
lucina										1																						
madelia										1																						
manchester						1									1																	
menston																	2															
minneapolis																																
minnesota					2											1																
mission										2																						
mjimwema																																
molade																																
muenster			1		2					4				2					1												1	
nagoya																																
new-brunswick	1	2			2		5			4	2				1						2	5	2	2								
new-haw																			8													
newlands						1																										
nienstedten																																
norwich				1		1				2									4							1						
ohio					7																		2									
orion																																
oritamerin																																
os																			3													
oslo					4							15					1															
papuana																																
paratyphi-A					3																1											
paratyphi-B v. odense																							2									
paratyphi-C						1																										
pomona					2														1							1						
potsdam					1																											
pullorum														9					1													
reading			1		14	2	1	3		1				17				4		2			3	2			1				2	
remo																																
rubislaw					2					5									11			1										
saphra																																
sarajane																																
sendai																																1
seremban									2																							
siegburg					2														1				1								1	
simsbury														1								1										1
soahanina																																
stanley										2				2																		
stockholm																																
sundsvall														1																		
tallahassee										2																						
texas															1																	
thomasville														1																		
virchow																							3									
wassenaar																			1				1									
welasco											1																					
westerstede										4																						
westhampton										1																						
untypable group A																																1
untypable group G										1									1													2
untypable group H																																1
untypable group O					3																											
Total	1	3	2	1	72	13	8	4	3	51	24	18	0	46	4	1	6	5	57	2	9	12	20	9	0	4	2	0	0	0	8	6

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

REPORTING CENTER																						OCT. 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						1	1	Oct 66	Va	2	abony
																							2	Jan 66	Ill	0	abortus-bovis
																							1	Jul 66	Kan	0	agama
		1																					4	Sep 66	Fla	21	alachua
																						1	9	Oct 66	Cal	15	albany
																							2	Sep 66	Mont	51	amager
																						1	1	Oct 66	Mich	1	arechavaleta
																							1	Jul 66	La	1	arkansas
																						1	14	Oct 66	Ga	25	atlanta
																							1	Feb 66	Mo	1	austin
																							2	Jun 66	Cal	0	ball
								2															2	Aug 66	Pa	0	berlin
1								1														5	19	Oct 66	Cal-Md-Mass	54	binza
																							1	Apr 66	Cal	0	boniare
																							1	Jun 66	Ill	2	bonariensis
3																		2				3	11	Oct 66	Ill-NYA	44	bovis-morbificans
																							4	Jul 66	Colo-NJ	2	bradford
																						1	2	Oct 66	Conn	10	brandenburg
																1						1	14	Oct 66	Fla	64	california
													1										4	Aug 66	Tex	12	carrau
												2	1									1	10	Oct 66	Md	28	cerro
																1						1	6	Oct 66	Va	1	chailey
	3	2			1																	3	9	Oct 66	Cal-NYC	66	cholerae-suis
																							2	Aug 66	Fla	0	coleypark
																							1	Feb 66	La	8	colorado
		1																					1	Jun 66	NYC	4	concord
																							1	Aug 66	Ill	3	corvallis
																							1	Jun 66	Fla	5	daytona
		1																					2	Sep 66	Ga-NYC	0	drypool
																						1	3	Oct 66	Cal	8	dublin
		1																					6	Sep 66	Dela-NJ	7	duesseldorf
					2													2					4	Aug 66	Ohio	8	duisburg
1			7									1	2									3	16	Oct 66	Mich-Tex	3	eimsbuettel
			9																			1	9	Oct 66	NC	6	fayed
	1																						1	Sep 66	NYBI	3	gallinarum
		1											1										8	Sep 66	Fla-NYC	20	gaminara
		1																					1	Mar 66	NYC	0	garoli
																							2	Aug 66	Ill	1	glostrup
																1							1	Apr 66	Va	11	grumpensis
		1																					3	Jul 66	Mich-NYC	0	habana
																							2	Aug 66	Ga	3	haifa
			1		1	1														4		2	27	Oct 66	Conn-Fla	90	hartford
													2									1	2	Oct 66	Tex	0	ibadon
																							2	Aug 66	Ill	13	inverness
4	1																						8	Sep 66	Mo-NYBI	108	irumu
																							1	Mar 66	Colo	3	kaapstad
1																							1	Aug 66	NYA	14	kottbus
																							1	Apr 66	Cal	0	lanka
						1	1																2	Sep 66	Ore	17	loma-linda
2																						2	2	Oct 66	NYA	7	lomita
																							1	Jul 66	Fla	3	luciana
																							1	Aug 66	Fla	6	madelia
																							2	Jul 66	Ind	5	manchester
																							2	Jul 66	Kan	14	menston
1																						1	1	Oct 66	NYA	1	minneapolis
													2										5	Sep 66	Tex	40	minnesota
												2											4	Sep 66	Fla	7	mission
1																							1	Jan 66	NYA	0	mjimwema
																				1			1	Feb 66	Wisc	0	molade
								5												1		1	17	Oct 66	Cal	26	muenster
													1										1	May 66	Tex	1	nagoya
3		1					2	1								2		4		1		3	42	Oct 66	Conn	32	new-brunswick
																						1	8	Oct 66	La	2	new-haw
																							1	Jun 66	Colo	0	newlands
														1									1	Sep 66	Utah	0	nienstedten
		1			1	1	1					3	5									4	21	Oct 66	La-Tex	51	norwich
					3																	4	12	Oct 66	Mich-Ohio	13	ohio
					3																		3	Jul 66	Ohio	7	orion
		1																					1	Mar 66	NYC	0	oritamerin
																							3	Mar 66	La	0	os
																						2	20	Oct 66	Hai	15	oslo
													1									1	1	Oct 66	Tex	0	papuana
																						2	4	Oct 66	Cal	34	paratyphi-A
																							2	Jul 66	Mich	1	paratyphi-B v. odense
																							1	Mar 66	Colo	7	paratyphi-C
																						2	4	Oct 66	Cal	4	pomona
																						1	1	Oct 66	Cal	1	potsdam
																							10	May 66	La	4	pullorum
7			2			1	15					6	2					4		2		9	92	Oct 66	Cal-Conn-NYA-NC Tex-Wash	102	reading
																1						1	1	Oct 66	Va	2	remo
						1						1	5									4	26	Oct 66	Fla-La-Tex	42	rubislaw
													7									2	7	Oct 66	Tex	19	saphra
					2																		2	Jul 66	Ohio	1	sarajane
																						1	1	Oct 66	NM	1	sendai
																							2	Aug 66	DC	0	seremban
1												2	2									1	10	Oct 66	NJ	19	siegburg
																						1	3	Oct 66	NM	16	simsbury
													1										1	Aug 66	Tex	0	soahanina
			1																			1	5	Oct 66	Fla	26	stanley
					1																		1	May 66	Ohio	0	stockholm
													1										2	Aug 66	Ill-Tex	4	sundsvall
			1																				3	Jul 66	Fla	14	tallahassee
																							1	Sep 66	Ind	0	texas
		1																				2	2	Oct 66	Ill-NYC	17	thomasville
							1																4	May 66	Ore	16	virchow
																						1	2	Oct 66	Mich	0	wassenaar
																							1	Jul 66	Ga	2	welasco
		1																					5	Sep 66	Fla	5	westerstede
																						1	1	Oct 66	Fla		westhampton
																							1	Jul 66	NM		untypable group A
																							4	Jul 66	NM		untypable group C
																							1	Jun 66	NM		untypable group H
																						1	3	Oct 66	Cal		untypable group O
25	5	14	21	0	14	5	20	9	0	0	0	17	34	1	0	7	0	12	0	9	0	76	584				Total

TABLE III

Age and Sex Distribution of Individuals Reported as Harboring Salmonellae During October 1966

Age (Years)	Male	Female	Unknown	Total	%	Cumulative %
Under 1	98	123	7	228	19.8	19.8
1 - 4	154	149	2	305	26.4	46.2
5 - 9	66	71	1	138	12.0	58.2
10 - 19	50	55		105	9.1	67.3
20 - 29	36	64	1	101	8.8	76.1
30 - 39	29	22	1	52	4.5	80.6
40 - 49	16	52		68	5.9	86.5
50 - 59	31	29		60	5.2	91.7
60 - 69	19	26		45	3.9	95.6
70 - 79	16	21		37	3.2	98.8
80 +	4	11		15	1.3	100.1
Child (Unspec.)	6	15	6	27		
Adult (Unspec.)	6	23		29		
Unknown	253	219	39	511		
Total	784	880	57	1721		
% of Total	47.1	52.9				

TABLE IV
REPORTED NONHUMAN ISOLATES BY SEROTYPE AND SOURCE, *OCTOBER, 1966

SEROTYPE	chicken	turkey	duck	chicken droppings	mynah bird	pheasant	quail	avian droppings	avian	equine	bovine	ovine	porcine	canine	feline	rabbit	monkey	mink	elephant
alachua																			
amager	1												1						
anatum	1	8																	
bareilly	1																		
binza							1												
blockley	9	11				1													
braenderup																			
bredeney	1	1																	
california		1																	
cerro	3																		
champaign																			
chester		14																	
cholerae-suis v kun													13						
cubana	1																		
derby		2											1					1	
drypool																			
eimsbuettel	3																		
enteritidis	4	1									1		1						
gallinarum	3																		
give	2																		
halmstad																			
heidelberg	14	95																	
indiana	1								1										
infantis	17	4										1	11						
java					1				3				1						
kentucky	2																		
lexington																			
livingstone																			
manhattan	1	1																	
manila																			
minnesota																			
mississippi																			
montevideo	11	3																	
muenchen	1	1					1						1						
muenster	3																		
new-brunswick																			
newington	1																		
newport											1		1		1				
oranienburg								1											
orion																			
panama	1	2																	
paratyphi-B																			
poona	1																		
pullorum	5																		
reading	1	6																	
saint-paul	3	18											2			1			
san-diego		11																	
schwarzengrund	2	19												1					
senftenberg		4																	
siegburg	2																		
simsbury																			
tennessee		1		1							1								
thomasville																			
thompson	16	3									1		1						
typhi-murium	14	8							1	4	13		5	2	1		1	1	1
typhi-murium v cop	3		1								2		1						
urbana																			
worthington		1											2	1					
untypable group B											1								
untypable group C1																			
untypable group E																			
untypable group O		3																	
unknown																			
Total	128	218	1	1	1	1	2	1	5	4	20	1	41	4	2	1	1	2	1

SEROTYPE	animal, unknown	egg	egg yolk	powdered egg	frozen egg	powdered egg yolk	egg meat	chocolate drink mix	dry milk	broth	poultry feed	livestock feed	bone meal/ meat scraps	animal feed, unknown	fish meal	corn feed	animal protein feed	turtle	fish	turtle environment	sewage
alachua									2												
amager																					
anatum						4							1	4							1
bareilly														1							
binza												1	1								
blockley										1											
braenderup							1					1									
bredeney													1	1							1
california												1									
cerro											2		1								
champaign												2									
chester																					
cholerae-suis v kun																					
cubana									6					3							
derby														1							
drypool												1									
eimsbuettel												9	2	2							2
enteritidis							1														
gallinarum																					
give												1									
halmstad												1									
heidelberg		1												1							1
indiana																					
infantis		1		5										5						1	1
java																		1			
kentucky											1	1									
lexington												2									
livingstone														2		1	1				
manhattan																					
manila												1									
minnesota											1	1									
mississippi												1									
montevideo				3	23	2						2	3	4							
muenchen																					
muenster																					
new-brunswick									4			2									
newington												1									1
newport																			1		
oranienburg												1	1	2				1			
orion																					
panama																					
paratyphi-B																		1			
poona	1																				
pullorum																					
reading																					
saint-paul																					
san-diego																					
schwarzengrund			1									1						1			
senftenberg												4	1	2							
siegburg					21							1									
simsbury														1							
tennessee								16	1			2		1							
thomasville																					
thompson		2					3					2									
typhi-murium																					
typhi-murium v cop																					
urbana													1								
worthington												7		3	1						
untypable group B																		1	1	1	
untypable group C1																				1	
untypable group E												1									
untypable group O																					
unknown				3																	
Total	1	4	1	11	44	6	5	16	13	1	4	47	12	33	1	1	1	5	2	3	7

SEROTYPE	turtle water	alligator water	sawdust	sewer swab	milk drying plant	meat binder	thyroid powder/tablet	carmine dye	pepsin	dust	unknown	Total	10 Mos. Total
alachua												2	26
amager												2	4
anatum							3				1	23	314
bareilly												2	25
binza												3	49
blockley												22	177
braenderup												2	17
bredeney	1			1							1	8	58
california												2	28
cerro												6	57
champaign												2	4
chester												14	119
cholerae-suis v kun												13	86
cubana						1		9			3	23	119
derby							1		1			7	144
drypool												1	7
eimsbuettel												18	115
enteritidis												8	85
gallinarum												3	15
give							1					4	41
halmstad												1	5
heidelberg											1	113	629
indiana												2	34
infantis							1				2	49	287
java	1		1				1					9	49
kentucky												4	33
lexington												2	10
livingstone												4	73
manhattan												2	35
manila							3					4	9
minnesota												2	42
mississippi												1	2
montevideo											2	53	296
muenchen												4	55
muenster												3	20
new-brunswick												6	83
newington												3	64
newport	1						3					8	109
oranienburg	1	1			1						1	10	165
orion					1							1	13
panama												3	21
paratyphi-B	1											2	8
poona							2					4	15
pullorum												5	56
reading												7	33
saint-paul							1			1		26	262
san-diego												11	95
schwarzengrund											2	27	201
senftenberg											2	13	156
siegburg												24	34
simsbury												1	8
tennessee												23	171
thomasville											1	1	27
thompson												28	183
typhi-murium											2	53	732
typhi-murium v cop												7	170
urbana	1											2	13
worthington												15	80
untypable group B	1											5	16
untypable group C1	1											2	2
untypable group E												1	1
untypable group O											1	4	8
unknown												3	27
Total	8	1	1	1	2	1	16	9	1	1	19	713	6,006

*Includes September late reports.

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

TABLE V

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

SEROTYPE	ALA	ARK	CAL	COLO	CONN	DELA	DC	FLA	GA	IDA	ILL	IND	IOWA	KAN	KY	LA	MD	MICH	MINN	MISS	MO	NEB	NJ	NY-A	NC	OHIO	ORE	PA	RI	SC	TENN	TEX	UTAH	VA	WASH	WVa	WISC	TOTAL	10 MOS. TOTAL	SEROTYPE
alachua												2																										2	26	alachua
amager		1								1																												2	4	amager
anatum			3						1		1	2				1			5				2			7							1					23	314	anatum
bareilly																				1						1												2	25	bareilly
binza												1				1					1																	3	49	binza
blockley		2	2						3		2		2					1		1	1						1								1		6	22	177	blockley
braenderup					1											1																						2	17	braenderup
bredeney			1								2	1				2			1										1									8	58	bredeney
california																1			1																			2	28	california
cerro		3									1									2																		6	57	cerro
champaign																2																						2	4	champaign
chester																			2																		12	14	119	chester
cholerae-suis v kun			1									2									4									5		1						13	86	cholerae-suis v kun
cubana												2						5	1	1				5		6									3			23	119	cubana
derby											1								1		1		1										1		1		1	7	144	derby
drypool																1																						1	7	drypool
eimsbuettel		1									1		2			11				2								1										18	115	eimsbuettel
enteritidis		1	1									3							1		1												1					8	85	enteritidis
gallinarum									1				1										1															3	15	gallinarum
give		1	1													1		1																				4	41	give
halmstad																1																						1	5	halmstad
heidelberg	1	3	13		1				3			2	1			1	3		67		1										1		15				1	113	629	heidelberg
indiana												1														1												2	34	indiana
infantis		2	7						2		6	3		4	1	1					6	10	1		1										3	2		49	287	infantis
java			2					5										1		1																		9	49	java
kentucky		1														1	1			1																		4	33	kentucky
lexington																2																						2	10	lexington
livingstone																							2			2												4	73	livingstone
manhattan		1	1																																			2	35	manhattan
manila												3				1																						4	9	manila
minnesota																1				1																		2	42	minnesota
mississippi																																		1				1	2	mississippi
montevideo									10		4	1	1			2		23	3		4					3	1						1					53	296	montevideo
muenchen			1									1								1	1																	4	55	muenchen
muenster		1							1											1																		3	20	muenster
new-brunswick												1							3															2				6	83	new-brunswick
newington			1													2																						3	64	newington
newport			1								1	2								1			1				1					1						8	109	newport
oranienburg											2					1			1				1			3	2											10	165	oranienburg
orion											1																											1	13	orion
panama		2																			1																	3	21	panama
paratyphi-B																											1								1			2	8	paratyphi-B
poona			1															2				1																4	15	poona
pullorum																												1									4	5	56	pullorum
reading												1	4														1								1			7	33	reading
saint-paul		1	4										3						2	1			1							1			3				10	26	262	saint-paul
san-diego			5										1						1		1						3											11	95	san-diego
schwarzengrund			18		1				1			3				1			2																		1	27	201	schwarzengrund
senftenberg				1							1		1			4			6																			13	156	senftenberg
siegburg		2														1		21																				24	34	siegburg
simsbury				1																																		1	8	simsbury
tennessee											2	1				2			17																		1	23	171	tennessee
thomasville																			1																			1	27	thomasville
thompson		8	2			1	2	1				1				2	2		2						1								4		2			28	183	thompson
typhi-murium	1		12	1				4	4		2	3	1						6		4			1		2		1						8			3	53	732	typhi-murium
typhi-murium v cop												2												1				1									3	7	170	typhi-murium v cop
urbana											1																1											2	13	urbana
worthington				1				3				1	1			7							1														1	15	80	worthington
untypable group B			1																								4											5	16	untypable group B
untypable group C1																											2											2	2	untypable group C1
untypable group E																1																						1	1	untypable group E
untypable group O			4																																			4	8	untypable group O
unknown																					3																	3	27	unknown
Total	2	30	82	4	3	1	2	13	26	1	28	39	18	4	1	52	6	54	123	14	29	11	11	7	2	25	17	4	1	6	1	2	26	11	12	2	43	713	6,006	Total

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

*Includes September late reports.
NYA = New York-Albany

TABLE VI
OTHER SEROTYPES REPORTING DURING 1966
FROM NONHUMAN SOURCES

SEROTYPE	MONTH(S)	REPORTING CENTER(S)	NUMBER OF ISOLATIONS
abortus-bovis	Mar	La	1
adelaide	Mar	La	1
alagbon	Mar	NJ	2
albany	Aug	Miss(1)	
	Sep	Md(1)	2
amsterdam	Jan	Ohio	1
babelsbury	Jan	Ind	1
berta	Feb	Ga(2)	
	May	Cal(1)	3
birmingham	Jun	La	1
bovis-morbificans	Jan	Cal(1)	
	Aug	DC(2)	3
bradford	Jan	NJ	1
cambridge	Apr	La	1
caracas	Mar	La	1
carrau	Apr	Mass	2
cholerae-suis	Feb	Cal(1)	
	Aug	Miss(2)	3
colorado	Mar	NJ	1
corvallis	Apr-Jun	La	2
dublin	Jan-Feb-Mar-Apr-May-Jun-Jul	Cal(26)	
	Jan-Mar-Apr-Aug	Utah(6)	32
emek	Jul	Tex	1
eppendorf	Jan	NJ	1
fayed	Apr	La(1)	
	Apr	NC(1)	2
gaminara	Jul	La(1)	
	Aug	Tex(1)	2
grumpensis	Mar-Jul-Aug	La	5
habana	Apr	Md	1
hamilton	Jan	La	1
hartford	Mar	Fla	1
illinois	Mar-Sep	Minn(2)	
	Jun-Sep	La(2)	
	Jul	Cal(2)	6
javiana	Jul	Cal(1)	
	Sep	La(1)	2
johannesburg	Mar	Mich(1)	
	Sep	Ark(1)	
	Sep	NJ(1)	3
kaapstad	Mar	La	1
kottbus	Feb	Ga	1

TABLE VI (Continued)
OTHER SEROTYPES REPORTING DURING 1966
FROM NONHUMAN SOURCES

SEROTYPE	MONTH(S)	REPORTING CENTER(S)	NUMBER OF ISOLATIONS
lille	Mar	NJ	1
litchfield	Apr	Cal(1)	
	May	Conn(4)	
	May	Ga(1)	
	May	Kan(2)	
	Jun-Jul	Fla(9)	
	Jul	Ohio(1)	
	Jul	Wash(1)	19
madelia	Jul	SC(1)	
	Aug	Cal(1)	2
meleagridis	Jan-Feb-Apr	Cal(4)	
	Feb-May-Jul	Wisc(3)	
	Mar-Aug	Ind(2)	
	Mar-May	La(2)	
	May	Minn(1)	12
menston	Sep	Kan	1
miami	Feb	Cal(1)	
	Feb	Tex(1)	
	Jul	Fla(1)	
	Jul	Wash(1)	4
mikawashima	Jul	Ind	2
minneapolis	May	Cal	1
mission	Mar	Ohio(1)	
	May	La(1)	2
new-haw	Mar	NJ	1
norwich	Jul	Conn(1)	
	Jul	Mich(1)	
	Aug	Okla(2)	4
ohio	Feb	Iowa(7)	
	Feb	Minn(1)	
	Jun	NJ(1)	
	Jun	NYA(1)	10
oslo	Jan-Mar-May	Cal	5
pharr	Jan	Mich	1
pomona	Mar	NJ	1
portland	Jul	Wash	1
rubislaw	Jul	Conn(1)	
	Jul	La(2)	
	Aug	Ind(1)	4
seremban	Aug	Kan	1
stockholm	May	Ohio	1
taksony	Feb-Aug	Cal(2)	
	Apr	Md(1)	
	Jun	Ga(1)	4
teddington	Aug	La	1
tournai	Mar	NJ	1
tuebinger	Jan	Mich	1
typhi	Jan	Mo	1
typhi-suis	Feb-Mar	Cal(6)	
	Mar	Minn(1)	7
vejle	Apr	La	1
waycross	Sep	Minn	1
westhampton	Mar	Kan	1
Total			176

TABLE VII

Results of Examinations of Meat Samples for Salmonellae, Coagulase-Positive Staphylococci, *E. coli*, and Shigellae

State	Total Number Samples	Total Number Brands	Type Sample	Number Samples	Number Brands	Salmo-nellae	Shi-gellae	*E. coli*	Coag.-Pos. Staph
North Carolina	25	14	Beef frankfurters	2	2	0	0	0	0
			Dried beef	2	2	0	0	0	0
			Corned beef	4	4	0	0	1	0
			Breakfast beef sausage	1	1	0	0	1	1
			Chopped beef sirloin	3	3	0	0	2	3
			Chili	2	2	0	0	1	1
			Chopped beef tenderloin	1	1	0	0	0	1
			Beef bologna	2	2	0	0	0	0
			Ground round steak	1	1	1*	0	1	1
			Smoked sliced beef	2	2	0	0	0	0
			Ground beef	3	2	0	0	3	3
			Breaded beef	1	1	0	0	0	0
			Beef bacon	1	1	0	0	0	1
			Total	25		1	0	9	11
Colorado	9	7	Ground beef	6	4	0	0	2	1
			Frankfurters	1	1	0	0	0	0
			Chopped beef sirloin	1	1	0	0	1	0
			Chicken, beef, cereal patties	1	1	0	0	0	0
			Total	9		0	0	3	1
Michigan	9	7	Beef frankfurters	3	3	0	0	1	0
			Beef pie	2	1	0	0	1	0
			Beef patties	2	1	0	0	0	0
			Ground beef	2	2	0	0	1	0
			Total	9		0	0	3	0

*<u>S. blockley</u>