REPORT NO. 52
SEPTEMBER 1, 1966

COMMUNICABLE DISEASE CENTER

SALMONELLA

SURVEILLANCE

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For the month of July 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

During July 1,630 isolations of salmonellae from humans were reported, an average of 408 recoveries per week. This represented a decrease of 17 from the weekly average during June 1966 and a decrease of 42 from the weekly average during July 1965. The cumulative number of isolations reported for the first 7 months of 1966 (10,508) is 6.0 percent fewer than the number of isolations reported during the same period in 1965 (11,180). The seasonal pattern remained similar to that observed in 1965 (Figure 1).

II. REPORTS OF ISOLATIONS FROM THE STATES

A. Human

The seven most frequently reported serotypes during July were:

Rank	Serotype	Number	Percent	Rank Last Month
1	S. typhi-murium and S. typhi-murium var. copenhagen	464	28.5	1
2	S. heidelberg	163	10.0	2
3	S. enteritidis	111	6.8	6
4	S. newport	96	5.9	7
5	S. infantis	90	5.5	5
6	S. saint-paul	70	4.3	Not listed
7	S. thompson	59	3.6	Not listed
	Total	1,053	64.6	
	Total (all serotypes)	1,630		

The age-sex distribution (Table III) remained consistent with past experience.

B. Nonhuman

Reports of 511 nonhuman isolations of salmonellae were received during July. This is an 18.0 percent decrease from the 623 isolations reported in June 1966 and a 33.6 percent decrease from the 769 isolates reported during July 1965.

The seven most common serotypes reported in July were:

Rank	Serotype	Predominant Source and Number	Number	Percent	Rank Last Month
1	S. typhi-murium and S. typhi-murium var. copenhagen	Chickens (19), Turkeys (9), and Bovine (9)	77	15.1	1
2	S. heidelberg	Chickens (17) and Turkeys (14)	40	7.8	2
3	S. anatum	Turkeys (16)	33	6.4	6
4	S. schwarzengrund	Turkeys (31)	32	6.3	4
5	S. tennessee	Powdered eggs (8) and Powdered milk (6)	26	5.1	Not listed
6	S. montevideo	Powdered milk (6)	24	4.7	7
7	S. saint-paul	Turkeys (9)	22	4.3	5
	Total		254	49.7	
	Total (all serotypes)		511		

The four most common nunhuman sources in July were turkeys, 126 (24.7 percent); chickens, 89 (17.4 percent), livestock feed, 43 (8.4 percent); and powdered milk, 33 (6.4 percent). (Table IV).

III. CURRENT INVESTIGATIONS

NONE

IV. REPORTS FROM THE STATES

NONE

V. SPECIAL REPORTS

NONE

VI. INTERNATIONAL

NONE

VII. FOOD AND FEED SURVEILLANCE

A. Progress Report on Pilot Food and Feed Surveillance Program

From July 7 to August 4, 186 samples of cocoa products, representing 18 brands from 7 states, were received by the Veterinary Public Health Laboratory and studied for the presence of salmonellae, shigellae, coagulase positive staphylococci, and Escherichia coli. These products require no cooking and are ready to drink after mixing with water or milk. In addition to cocoa, most of the products contained nonfat dry milk, sugar, salt, and flavoring. Some of the products also contained corn syrup, malt, soy flour, whey, sodium caseinate, phosphates, and vitamin supplements. E. coli was isolated from 3 samples, but all samples were negative for salmonellae, shigellae, and coagulase positive staphylococci. Fifteen samples of nonfat dry milk were found negative for salmonellae, shigellae, E. coli, and coagulase positive staphylococci. Two baby milk replacement foods were found negative for salmonellae. Two hundred ten feed samples received from Washington State during May and June were studied for the presence of salmonellae and 5 were found positive. Salmonella anatum was isolated from 2 samples, and S. tennessee, S. typhi-murium, and S. muenchen were each isolated from 1 sample.

B. Abstracts

(1) Sur la Presence de Salmonella dans les Grenouilles Destinees a la Consommation Humaine. Abstracted from an article by J. Pantaleon and R. Rosset, Annales de l'Institut Pasteur de Lille 15:225-227, 1964.

The authors suggest that the sanitary inspection of frogs for human consumption require a bacteriological control. This was a result of the finding that frogs, like other cold-blooded animals, represent important reservoirs and dangerous vectors of salmonella. Salmonellae were isolated from 31 of 164 samples of diverse origin. Thirteen serotypes were involved. Isolations from frogs from southern Asia were particularly frequent.

(2) Effect of Various Concentrations of Brilliant Green and Bile Salts on Salmonellae and other Microorganisms. Abstracted from an article by V. Richard Miller and George J. Banwart, Applied Microbiology 13:77-80, 1965.

A study of the inhibitory effect of 24 different combinations of brilliant green and bile salt concentrations was conducted, using seven species of microorganisms capable of fermenting mannitol (Salmonella montevideo, S. oranienburg, S. derby, Aerobacter aerogenes, Escherichia coli, Staphylococcus aureus, and Proteus rettgeri). The results indicated an interaction of brilliant green and bile salts on several microorganisms. The inhibition of the organisms by brilliant green was decreased as the concentration of bile salts was increased. Staphylococcus aureus, E. coli, and P. rettgeri were greatly inhibited by most combinations of brilliant green and bile salts studied, but Aerobacter aerogenes generally followed a pattern of growth similar to that of the three species of salmonellae.

TABLE I
COMMON SALMONELLA SEROTYPES ISOLATED FROM HUMANS IN THE UNITED STATES DURING JULY, 1966

SEROTYPE	GEOGRAPHIC DIVISION AND REPORTING CENTER																																SEROTYPE
	NEW ENGLAND							MIDDLE ATLANTIC						EAST NORTH CENTRAL						WEST NORTH CENTRAL							SOUTH ATLANTIC									
	ME	NH	VT	MASS	RI	CONN	TOT	NY-A	NY-BI	NY-C	NJ	PA	TOT	OHIO	IND	ILL	MICH	WIS	TOT	MINN	IOWA	MO	ND	SD	NEBR	KAN	TOT	DEL	MD	DC	VA	WV	NC	SC	GA	FLA	TOT	
anatum						2	2	4					4			2			2									1							2	3	anatum
bareilly				1			1																												1	1	bareilly
berta																												1								1	berta
blockley	1			3	1		5	2	1	2	1		6	2		4	1		7							2	2		1						4	5	blockley
braenderup				2			2		1				1					1	1																		braenderup
bredeney				1			1		1				1			1			1							1	1										bredeney
chester											1		1			1	1		2																1	1	chester
cholerae-suis v kun																	1		1																		cholerae-suis v kun
cubana				1			1													1						1	2		1		1					2	cubana
derby				2			2	2	2	2		4	10			2			2									1		2		3		2		8	derby
enteritidis				5		1	6	4	54	4	1	3	66	4		4	4	2	14			6		1		7		6		1		1		6	2	16	enteritidis
give											5	2	7																		1				1	give
heidelberg				8		2	10	4	6	8	3	18	39	1	4	22	20	2	49	3		3				2	8	9	2	3		4		3	3	24	heidelberg
indiana										3			3		1	1			2												1				1	indiana
infantis				4		1	5	9	1	4	2	2	18		2	2	9	2	15	4	1	2	1			1	9	3	3	1		2		3	2	14	infantis
java								2		3	2	24	31			2			2			1				1								2	2	java
javiana				1			1					1	1																				2	5	7	javiana
kentucky																						1				1											kentucky
litchfield									1				1																	1					1	2	litchfield
livingstone																																					livingstone
manhattan									1	2			3					1	1									1	1							2	manhattan
meleagridis																																					meleagridis
miami																																	2	3	5	miami
mississippi																																	1		1	mississippi
montevideo								1	3	2	3	2	11	1		2	1		4									1			1			1	3	montevideo
muenchen									1	1			2							1						1	2	1		2		1		2	2	8	muenchen
newington								1					1			1			1																	newington
newport				1		2	3	1	2		4	1	8			2	3	1	6	2		2				3	7	1	1			1		2	15	20	newport
oranienburg				1			1	6			1		7		2		2	1	5			2				2	4	1				1			1	3	oranienburg
panama						1	1			2	1		3			1			1	1				1			2										panama
paratyphi B									1	1			2				6		6									1							1	paratyphi B
poona				1			1									1			1																	poona
saint-paul	1			2			3			5	1	1	7	1	2	6	1		10	3	1	1				5		2				1			4	7	saint-paul
san-diego				1			1									1			1																		san-diego
schwarzengrund																													1						2	3	schwarzengrund
senftenberg										1			1			1			1												1		2			3	senftenberg
tennessee				7			7					1	1				2	1	3												1					1	tennessee
thompson						1	1		5	2	3	1	11			5	11	20	36	1			1			2					2				3	5	thompson
typhi				1			1	3			1	1	5	2	1	1			4			4									6	4	1	4	18	typhi
typhi-murium	7			41	2	7	57	39	12	28	10	20	109	6	6	25	18	8	63	5	3	9	3			9	29	4	6		9	2	10		13	21	65	typhi-murium
typhi-murium v cop	1			1			2										2		2																		typhi-murium v cop
urbana																	1		1																1	1	urbana
weltevreden																																					weltevreden
worthington																	1		1																		worthington
untypable, group B						1	1																			1	1		2				1			3	untypable, group B
untypable, group C1					1		1																														untypable, group C1
untypable, group C2																													1							1	untypable, group C2
untypable, group D																													1							1	untypable, group D
untypable, group E																					1					1											untypable, group E
untypable or unknown																																					untypable or unknown
Total Common	10	0	0	84	4	18	116	78	92	70	39	81	360	17	18	87	84	39	245	21	6	31	5	2	0	23	88	5	37	14	20	4	35	5	39	80	239	Total Common
Total Uncommon	0	0	0	2	0	1	3	8	0	1	2	0	11	6	2	4	3	3	18	1	0	0	0	0	0	2	3	0	0	1	0	0	0	0	3	6	10	Total Uncommon
Grand Total	10	0	0	86	4	19	119	86	92	71	41	81	371	23	20	91	87	42	263	22	6	31	5	2	0	25	91	5	37	15	20	4	35	5	42	86	249	Grand Total

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

*The Beth-Israel Salmonella Typing Center in New York is a reference laboratory and processes many Cultures from other states which are assigned to the respective states although reported by N.Y. - B.I. Beth-Israel reported a total of 196 isolations for July.

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

SEROTYPE	GEOGRAPHIC DIVISION AND REPORTING CENTER																							OTHER	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											
	KY	TENN	ALA	MISS	TOT	ARK	LA	OKLA	TEX	TOT	MONT	IDA	WYO	COLO	NM	ARI	UTAH	NEV	TOT	WASH	ORE	CAL	ALAS	HAI	TOT	VI					
anatum			1		1		2		1	3		1					3	1	5	1		5		1	7		27	1.6	173	1.6	157		anatum
bareilly																											2	.1	22	.2	61		bareilly
berta												1							1								2	.1	21	.2			berta
blockley						1	5		1	7												6			6		38	2.3	357	3.4	180	1.6	blockley
braenderup		2			2																						6	.4	52	.5	49		braenderup
bredeney																						2		2	4		8	.5	65	.6	72		bredeney
chester																	2		2								6	.4	67	.6	72		chester
cholerae-suis v kun																											1	.1	15	.1			cholerae-suis v kun
cubana																						3			3		8	.5	95	.9	97		cubana
derby		1			1		1			1										2		1		1	4		28	1.7	203	1.9	432	3.9	derby
enteritidis																						2			2		111	6.8	689	6.6	548	4.9	enteritidis
give																						1			1		9	.6	45	.4	71		give
heidelberg							2	1	3	6	1			3		4	5		13	5	2	5		2	14		163	10.0	886	8.4	873	7.8	heidelberg
indiana							2			2																	8	.5	50	.5	21		indiana
infantis		1			1	2			2	4				6		1			7	2	2	9		4	17		90	5.5	816	7.8	605	5.4	infantis
java							1			1												3			3		40	2.4	240	2.3	89		java
javiana			1		1	2	2		5	9						2			2								21	1.3	110	1.0	123		javiana
kentucky																											1	.1	10	.1			kentucky
litchfield																						1			1		4	.2	32	.3	51		litchfield
livingstone																								1	1		1	.1	12	.1	17		livingstone
manhattan																											6	.4	52	.5	59		manhattan
meleagridis																													4	.0	132		meleagridis
miami																											5	.3	31	.3	47		miami
mississippi				1	1		3		1	4																	6	.4	27	.3	17		mississippi
montevideo			1		1			1	1	2												1		1	2		23	1.4	168	1.6	260	2.3	montevideo
muenchen	1	1			2											5			5			4			4		23	1.4	113	1.1	113		muenchen
newington																						2			2		4	.2	27	.3	32		newington
newport		2			2	3	2	3	19	27	1					2	1		4			14		5	19		96	5.9	586	5.6	547	4.9	newport
oranienburg				1	1				8	8						2			2		1	3			4		35	2.1	243	2.3	323	2.9	oranienburg
panama							1		1	2										1		3		8	12		21	1.3	137	1.3	107		panama
paratyphi B																											9	.6	92	.9	106		paratyphi B
poona																						1			1		3	.2	21	.2	30		poona
saint-paul	1				1				1	1										2	30	3		1	36		70	4.3	403	3.8	422	3.8	saint-paul
san-diego									2	2							6		6		5	1			6		16	1.0	71	.7	181		san-diego
schwarzengrund							3			3												1		1	2		8	.5	31	.3	69		schwarzengrund
senftenberg						1	1	1	1	4												2			2		11	.6	34	.3	33		senftenberg
tennessee									1	1										1	1	1			3		16	1.0	80	.8	126		tennessee
thompson							3	1		4																	59	3.6	313	3.0	267		thompson
typhi							2	3	3	8						1			1	2	3	9		1	15		56	3.4	391	3.7	466	4.0	typhi
typhi-murium	2	6	1	1	10	6	8	5	19	38	3			3			3		9	13	11	50		3	77		457	28.0	2,889	27.5	3,486	31.2	typhi-murium
typhi-murium v cop							2			2		1							1								7	.4	84	.8	120		typhi-murium v cop
urbana																	1		1								3	.2	16	.2			urbana
weltevreden																								3	3		3	.2	19	.2	15		weltevreden
worthington																											1	.1	25	.2	24		worthington
untypable, group B				2	2	4	1			5					7				7		10				10		29	1.8	194	1.8	162		untypable, group B
untypable, group C1						1	1			2					2				2								5	.3	59	.6	42		untypable, group C1
untypable, group C2				1	1	4				4					2				2								8	.5	22	.2	37		untypable, group C2
untypable, group D						2				2																	3	.2	25	.2	23		untypable, group D
untypable, group E																											1	.1	7	.1	44		untypable, group E
untypable or unknown							1			1																	1	.1	41	.4	73		untypable or unknown
Total Common	4	13	4	6	27	26	43	15	69	153	5	3	0	12	11	17	21	1	70	29	65	133	0	34	261		1,559	95.7	10,165	96.7			Total Common
Total Uncommon	1	2	0	0	3	0	4	1	1	6	0	0	0	1	2	0	0	0	3	3	2	7	2	0	14		71	4.3	342	3.3			Total Uncommon
Grand Total	5	15	4	6	30	26	47	16	70	159	5	3	0	13	13	17	21	1	73	32	67	140	2	34	275		1,630	100.0	10,507	100.0	11,180		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	N.J	NM
aberdeen					1																										
abortus-bovis														2																	
agama																	1														
alachua					1														1												
albany					1					2												1		1							
amager											1																				
arkansas																			1												
atlanta											8																				
austin																										1					
ball					2																										
binza					1					1									1					1							1	
bonaire					1																										
bonariensis														1																	
bovis-morbificans		1																	1												
bradford						2											1													1	
brandenburg											1																				
california					2						1			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																			4												
garoli																															
glostrup																					1										
grumpensis																															
habana														1									1								
haifa									1																						
hartford					2					4	1			2					1			1		1						1	
ibadan																															
inverness																							1								
irumu						2																									
kaapstad						1																									
lanka					1																										
loma-linda																															
luciana										1																					
manchester						1									1																
menston																	2														
minnesota					1											1															
mission										1																					
mjimwema																															
molade																															
muenster			1		1					3				2					1											1	
nagoya																															
new-brunswick	1	2			2		2			2	2				1						2	5	1	2							
newlands						1																									
norwich				1			1			2																					
ohio					6																										
orion																															
oritamerin																															
os																			3												
oslo					3							7					1														
paratyphi A					1																1										
paratyphi B-v, odense																							2								
paratyphi C						1																									
pomona																			1							1					
pullorum														9					1												
reading			1		8	1				1				15				1					2				1				
rubislaw					2														1			1									
saphra																															
sarajane																															
seremban									1																						
siegburg					2														1			1									
simsbury														1								1									
stanley										1				2																	
stockholm																															
tallahassee										2																					
virchow																							3								
wassenaar									-										1												
weslaco											1																				
westerstede										2																					
untypable, group A																															1
untypable, group G										1									1												2
untypable, group H																															1
untypable, group O					2																										
Total	1	3	2	1	41	10	3	0	2	26	15	9	0	37	3	1	5	1	26	0	5	11	10	5	0	2	1	0	0	0	4	4

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

REPORTING CENTER																					JULY 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
																							2	Jan 66	Ill	0	abortus-bovis
		1																				1	1	Jul 66	Kan	0	agama
																							3	May 66	Cal	21	alachua
																						1	5	Jul 66	Cal	15	albany
																						1	1	Jul 66	Ga	51	amager
																						1	1	Jul 66	La	1	arkansas
																						1	8	Jul 66	Ga	25	atlanta
																							1	Feb 66	Mo	1	austin
																							2	Jan 66	Cal	0	ball
1																						2	6	Jul 66	Cal-NJ	54	binza
																							1	Apr 66	Cal	0	bonaire
1																							1	Jun 66	Ill	2	bonariensis
																		1				2	4	Jul 66	Alas-Wash	44	bovis-morbificans
																						2	4	Jul 66	Colo-NJ	2	bradford
																1							1	Apr 66	Ga	10	brandenburg
																						1	7	Jul 66	Ind	64	california
																							3	Jan 66	La	12	carrau
	3				1								2										6	Jun 66	Md	28	cerro
																							6	Jun 66	NY-BI	61	cholerae-suis
		1																					1	Feb 66	La	8	colorado
																							1	Jun 66	NY-C	4	concord
		1																					1	Jun 66	Fla	5	daytona
																							4	Feb 66	NY-C	7	duesseldorf
					1													2				1	3	Jul 66	Ohio	1	duisburg
1												1											4	Jun 66	Fla	3	eimsbuettel
			5																				5	Mar 66	NC	6	fayed
		1																				2	4	Jul 66	La	20	gaminara
																							1	Mar 66	NY-C	0	garoli
																							1	Apr 66	Md	1	glostrup
		1														1							1	Apr 66	Va	11	grumpensis
																						2	3	Jul 66	Mich-NY-C	0	habana
																							1	Jun 66	DC	3	haifa
					1	1														4		5	19	Jul 66	Ill-Mass-Minn-Ohio	90	hartford
													1										1	Jun 66	Tex	0	ibadan
4																							1	Feb 66	Mich	13	inverness
																						4	6	Jul 66	NY-A	108	irumu
																							1	Mar 66	Colo	3	kaapstad
						1																	1	Apr 66	Cal	0	lanka
																						1	1	Jul 66	Okla	17	loma-linda
																						1	1	Jul 66	Fla	2	luciana
																						1	2	Jul 66	Ind	5	manchester
																						1	2	Jul 66	Kan	14	menston
													1									1	3	Jul 66	Cal	40	minnesota
												2											3	Mar 66	Fla	7	mission
1																				1			1	Jan 66	NY-A	0	mjimwema
																				1			1	Feb 66	Wisc	0	molade
								5												1			15	Jun 66	Fla-La	26	muenster
		1					2	1					1				2	4		1		4	1	May 66	Tex	1	nagoya
																							33	Jul 66	Alas-Cal-Wash-Wisc	32	new-brunswick
																							1	Jun 66	Colo	0	newlands
		1			1		1					2	1									3	10	Jul 66	Conn-Fla-Tenn	51	norwich
					1																		7	Jun 66	Cal	13	ohio
					3																	2	3	Jul 66	Ohio	7	orion
		1																					1	Mar 66	NY-C	0	oritamerin
																							3	Mar 66	La	0	os
																						1	11	Jul 66	Cal	15	oslo
																							2	May 66	Md	34	paratyphi A
																						2	2	Jul 66	Mich	1	paratyphi B-v, odense
																							1	Mar 66	Colo	7	paratyphi C
																							2	May 66	Mo	4	pomona
																							10	May 66	La	4	pullorum
6							1	13				6						2		2		14	60	Jul 66	Ill-Cal-Ky-NY-A-Ore-Tenn-Wash-Wisc	102	reading
													1										4	Mar 66	La	42	rubislaw
																						1	1	Jul 66	Tex	19	saphra
					2																	2	2	Jul 66	Ohio	1	sarajane
												2	2									1	1	Jul 66	DC	0	seremban
			1																			1	8	Jul 66	La	19	siegburg
																						1	2	Jul 66	Mass	16	simsbury
																						2	4	Jul 66	Fla-Ill	26	stanley
					1																		1	May 66	Ohio	0	stockholm
			1					1														1	3	Jul 66	Fla	14	tallahassee
																							4	May 66	Ore	16	virchow
																							1	Apr 66	La	0	wassenaar
																						1	1	Jul 66	Ga	2	weslaco
		1																				2	3	Jul 66	Fla	5	westerstede
																						1	1	Jul 66	NM		untypable, group A
																						1	4	Jul 66	NM		untypable, group G
																							1	Jun 66	NM		untypable, group H
																							2	Jan 66	Cal		untypable, group O
14	3	9	7	0	11	3	17	6	0	0	0	13	9	0	0	4	0	9	0	9	0	71	342				Total

TABLE III

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

Age (Years)	Male	Female	Unknown	Total	%	Cumulative %
Under 1	80	85	1	166	15.9	15.9
1 - 4	141	129		270	25.8	41.7
5 - 9	81	55	1	137	13.1	54.8
10 - 19	59	50	2	111	10.6	65.4
20 - 29	23	56		79	7.6	73.0
30 - 39	31	40		71	6.8	79.8
40 - 49	25	33		58	5.5	85.3
50 - 59	29	35		64	6.1	91.4
60 - 69	16	31		47	4.5	95.9
70 - 79	14	19		33	3.2	99.1
80 +	5	5		10	1.0	100.1
Child (Unspec.)	6	5	10	21		
Adult (Unspec.)	10	26	1	37		
Unknown	257	252	17	526		
Total	777	821	32	1630		
% of Total	48.6	51.4				

TABLE IV

REPORTED NONHUMAN ISOLATES BY SEROTYPE AND SOURCE, *JULY 1966

SEROTYPE	poultry	chicken	turkey	duck	canary	parrot	jungle fowl	pheasant	quail	chukar	finch	waxwing	sea gull	equine	bovine	ovine	porcine	canine	gorilla	mink	antelope	egg	egg yolk	powdered egg	frozen egg	egg meat	headcheese	chocolate eclair filling	powdered milk	smoked salmon	sablefish	tomato juice	cheese	bone meal, poultry feed	poultry feed, unknown	livestock feed	bone meal/ meat scraps	animal feed, unknown	turtle	snake	sewage	river water	turtle water	sewer	thyroid powder	pancreatin	unknown	Total	7 Mos. Total	SEROTYPE
amager		1																																													1	2	amager
anatum		2	16	1			1										1									4										1	2				1				4			33	205	anatum
bareilly																																											1					1	11	bareilly
binza			1																																												1	36	binza
blockley		6	2						1						1			1																										3				14	118	blockley
braenderup																					3			2																								5	15	braenderup
bredeney		1													1																					1					1						6	36	bredeney
california	1	2																																													3	21	california
cerro																																				1												1	32	cerro
chester		2	12																																	1	1											16	76	chester
cholerae-suis v kun																8																															8	61	cholerae-suis v kun
cubana			1																										8							2											11	52	cubana
derby			1										1								1									1						1		1									6	84	derby
dublin															1																																1	31	dublin
eimsbuettel																										2			6					2		6											16	53	eimsbuettel
emek																																						1										1	1	emek
enteritidis		1		1											1																																3	67	enteritidis
gallinarum		1																																													1	2	11	gallinarum
gaminara																																																1	1	gaminara
give																	1																			1										1	3	28	give
grumpensis																																				3												3	4	grumpensis
halmstad																																						1										1	4	halmstad
heidelberg		17	14					1								1	1				1																										5	40	368	heidelberg
illinois															2																																	2	4	illinois
indiana			1																																													1	24	indiana
infantis		9	1																1																1	1	1			1						1	17	173	infantis
java																													1	1	1	1							1							6	34	java
javiana																																				1												1	1	javiana
kentucky																																				3												3	15	kentucky
litchfield		2	1																																													4	19	litchfield
livingstone																1																				1		1										4	60	livingstone
madelia																1																																1	1	madelia
manhattan			2																																														3	30	manhattan
meleagridis			1																																														1	11	meleagridis
miami																	1																																2	4	miami
mikawashima			2																																														2	2	mikawashima
montevideo		4	3																						4				6							3	3	1										24	189	montevideo
muenchen		1	1																																													6	46	muenchen
muenster																																																1	16	muenster
new-brunswick																													7																			7	76	new-brunswick
newington			1																																														1	48	newington
newport			3											1				2																			1			1								8	69	newport
norwich																				1																													2	2	norwich
oranienburg		1																																				2		1									5	125	oranienburg
orion																																						1										1	12	orion
paratyphi-B																																												1				1	6	paratyphi-B
portland																																												1				1	1	portland
pullorum		3																																															3	41	pullorum
reading			1																				1		1																							3	24	reading
rubislaw																																				1				1									3	3	rubislaw
saint-paul		4	9												2		1								1	1											1									3	22	181	saint-paul
san-diego			2																																													3	71	san-diego
schwarzengrund			31						1																												4	2	1									32	107	schwarzengrund
senftenberg			5																																		4	2	1									12	101	senftenberg
tennessee		1	3												1									8		1		6								3	2	1									26	95	tennessee
thomasville																																				11												11	21	thomasville
thompson		11	1														1							2	4																				1	1		17	105	thompson
typhi-murium		10	8		2	1			2		4	1		4	8		3	1		2		1			4														1						14	66	497	typhi-murium
typhi-murium v cop		9	1												1																																11	117	typhi-murium v cop
urbana																																										3					1	4	8	urbana
worthington		1	2					2							3		1									3		1																			2	9	42	worthington
untypable group B																																															2	6	10	untypable group B
unknown																																				1		1										2	11	unknown
Total	1	89	126	2	2	1	1	3	3	1	4	1	1	5	22	1	17	6	1	3	1	5	1	10	12	4	7	1	33	2	1	1	1	2	1	43	18	9	7	1	5	1	18	5	4	1	27	511	3,884	Total

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

*Includes June late reports

TABLE V

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

SEROTYPE	ALA	ARIZ	ARK	CAL	CONN	DC	FLA	GA	IDA	ILL	IND	IOWA	KAN	KY	LA	MD	MICH	MINN	MISS	MO	MONT	NEB	NJ	NC	OHIO	OKLA	ORE	PA	SC	TENN	TEX	UTAH	VA	WASH	WISC	TOTAL	7 MOS. TOTAL	SEROTYPE
amager			1																																1	2	amager
anatum			4	5		3		1	1	2	1			5	1			3					1	1									4	1	33	205	anatum
bareilly																																	1		1	11	bareilly
binza			1																																1	36	binza
blockley		1	2							1		1					1										2						5	1	14	118	blockley
braenderup					5																														5	15	braenderup
bredeney				1						1					2																		2		6	36	bredeney
california								1											1																3	21	california
cerro																			1																1	32	cerro
chester											1			2				3							1									9	16	76	chester
cholerae-suis v kun											5				1											1						1			8	61	cholerae-suis v kun
cubana											9				2																				11	52	cubana
derby								1							1			1							1								1		6	84	derby
dublin				1																															1	31	dublin
eimsbuettel								2							6											6							2		16	53	eimsbuettel
emek																															1				1	1	emek
enteritidis											1	1												1											3	67	enteritidis
gallinarum			1	1																															2	11	gallinarum
gaminara															1																				1	1	gaminara
give				1						1																									3	28	give
grumpensis															3																				3	4	grumpensis
halmstad															1																				1	4	halmstad
heidelberg	1		1	2				19			1							2					2		2				1		1		5	3	40	368	heidelberg
illinois				2																															2	4	illinois
indiana																												1							1	24	indiana
infantis			4	2				2		2	1				2								1				1	1		1					17	173	infantis
java				1																								5							6	34	java
javiana															1																				1	1	javiana
kentucky															3																				3	15	kentucky
litchfield							2																		1										4	19	litchfield
livingstone				1											2																1				4	60	livingstone
madelia																													1						1	1	madelia
manhattan				2											1																				3	30	manhattan
meleagridis																																		1	1	11	meleagridis
miami							1																										1		2	4	miami
mikawashima											2																								2	2	mikawashima
montevideo				1	1			3		2	1				4		1	5					1								4			1	24	189	montevideo
muenchen			1	1							3																						1		6	46	muenchen
muenster																																	1		1	16	muenster
new-brunswick											5						2																		7	76	new-brunswick
newington											1																								1	48	newington
newport			1										3	2	1			1																	8	69	newport
norwich					1												1																		2	2	norwich
oranienburg										3					1			1																	5	125	oranienburg
orion																		1																	1	12	orion
paratyphi-B																																	1		1	6	paratyphi-B
portland																																	1		1	1	portland
pullorum																				1														2	3	41	pullorum
reading																											2							1	3	24	reading
rubislaw					1										2																				3	3	rubislaw
saint-paul		2	2	3								1						1					1				4	3				1		3	1	22	181	saint-paul
san-diego																		2																1	3	71	san-diego
schwarzengrund				29							1									1					1										32	107	schwarzengrund
senftenberg										2		1			4			4																1	12	101	senftenberg
tennessee				9				1						1	4	4		6																1	26	95	tennessee
thomasville															11																				11	21	thomasville
thompson			7					1			2				1									2										4		17	105	thompson
typhi-murium		2	3	32	1		1	1		1	3			1	1	1		1			1		1		1		7				5		1	1	1	66	497	typhi-murium
typhi-murium v cop			5					1			2					1							1											1	1	11	117	typhi-murium v cop
urbana																	2					1												1	4	8	urbana
worthington			1	5							1																2								9	42	worthington
untypable group B				2																							4								6	10	untypable group B
unknown															1										1										2	11	unknown
Total	1	5	34	101	9	3	4	33	1	15	37	4	3	11	60	6	7	31	2	2	1	1	8	4	8	7	22	10	1	2	13	2	2	38	23	511	3,884	Total

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

*Includes June late reports.

TABLE VI

OTHER SEROTYPES REPORTED DURING 1966 FROM NONHUMAN SOURCES

SEROTYPE	MONTH(S)	REPORTING CENTER(S)	NUMBER OF ISOLATIONS
abortis-bovis	Mar	La	1
adelaide	Mar	La	1
alachua	Jan-Mar	NJ(3)	
	Feb	Minn(5)	
	Feb	Pa(1)	
	Apr-May	Cal(7)	
	May	Ind(1)	17
alagbon	Mar	NJ	2
amsterdam	Jan	Ohio	1
babelsburg	Jan	Ind	1
berta	Feb	Ga(2)	
	May	Cal(1)	3
birmingham	Jun	La	1
bovis-morbificans	Jan	Cal	1
bradford	Jan	NJ	1
cambridge	Apr	La	1
caracus	Mar	La	1
carrau	Apr	Mass	2
champaign	Mar	La	2
cholerae-suis	Feb	Cal	1
colorado	Mar	NJ	1
corvallis	Apr-Jun	La	2
drypool	Jun	La	2
eppendorf	Jan	NJ	1
fayed	Apr	La(1)	
	Apr	NC(1)	2
habana	Apr	Md	1
hamilton	Jan	La	1
hartford	Mar	Fla	1
johannesburg	Mar	Mich	1
kaapstad	Mar	La	1
kootbus	Feb	Ga	1
lexington	Jan	Cal(1)	
	Mar-May	La(3)	
	Mar	NJ(2)	
	May	Minn(1)	
	Jun	Wisc(1)	8
lille	Mar	NJ	1
manila	Jan	Ind(1)	
	Apr	Md(1)	2
minneapolis	May	Cal	1

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

SEROTYPE	MONTH(S)	REPORTING CENTER(S)	NUMBER OF ISOLATIONS
minnesota	Jan-Apr-May	Cal(6)	
	Mar	Ga(1)	
	Mar-Apr-May-Jun	La(20)	
	Mar	Ohio(1)	
	Apr	NJ(2)	
	May	Mo(1)	
	Jun	Ark(1)	32
mission	Mar	Ohio(1)	
	May	La(1)	2
mississippi	Mar	La	1
new-haw	Mar	NJ	1
ohio	Feb	Iowa(7)	
	Feb	Minn(1)	
	Jun	NJ(1)	
	Jun	NY-A(1)	10
oslo	Jan-Mar-May	Cal	5
panama	Feb	Tex(2)	
	Mar	Cal(1)	
	Apr	Wisc(1)	
	May	NH(1)	
	Jun	Ark(4)	9
pharr	Jan	Mich	1
pomona	Mar	NJ	1
poona	Mar-May-Jun	Cal(4)	
	Mar	Md(1)	
	May	La(1)	
	Jun	Ga(1)	7
siegburg	Feb	Mich(2)	
	May	La(1)	3
simsbury	Jan	Ind(1)	
	Feb-Mar-Jun	Cal(4)	
	Mar	NJ(1)	6
stockholm	May	Ohio	1
taksony	Feb	Cal(1)	
	Apr	Md(1)	
	Jun	Ga(1)	3
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
westhampton	Mar	Kan	1
Total			156

Figure 1.

REPORTED HUMAN ISOLATIONS OF SALMONELLA
IN THE UNITED STATES