FOR ADMINISTRATIVE USE ONLY
NOT FOR PUBLICATION

PUBLIC HEALTH SERVICE, BSS(CH), CDC - Atlanta

May 31, 1966

SHIGELLA SURVEILLANCE

FIRST QUARTER 1966

Report No. 10
50 Participating States

PREFACE

This report summarizes data voluntarily reported from participating state, territorial, and city health departments. Much of the information is preliminary.

Communicable Disease Center	Dr. David J. Sencer, Chief
Epidemiology Branch	Dr. Alexander D. Langmuir, Chief
Investigations Section	Dr. Philip S. Brachman, Chief Dr. Theodore C. Eickhoff, Deputy Chief Dr. John R. Boring, Assistant Chief
Shigella Surveillance Unit	Dr. Eugene J. Gangarosa, Chief Dr. Edward R. Eichner Dr. Read F. McGehee Mr. James B. Goldsby, Statistician

In collaboration with

Dr. William H. Ewing, Chief
Enteric Bacteriology Unit
Laboratory Branch

TABLE OF CONTENTS

I Current Trends and Developments

A study with far-reaching implications which may contribute to the development of a shigella vaccine was reported by Formal et al. in the Journal of Bacteriology, May 1965. In this study the apparent loss of virulence of an Escherichia coli-Shigella flexneri hybrid strain developed by mating was demonstrated. The parent shigella strain caused a fatal enteric infection when fed to starved guinea pigs, and signs of dysentery followed its oral administration to monkeys. It invaded the mucosa, induced a severe inflammatory reaction in the lamina propria progressing to ulceration, and resulted in death of animals. The avirulent hybrid retained its ability to penetrate the intestinal epithelium but lost its capacity to replicate within the intestinal mucosa, and the challenged animals survived. Similar hybrid strains may prove useful in vaccines for human use. This is only one step in what may be a long journey on the road to the development of a vaccine.

II Introduction

Fifty-three reporting centers are now participating in the Shigella Surveillance Program. These include all 50 states as well as New York City, the District of Columbia, and the Virgin Islands.

III Summary

A total of 2,099 human shigella isolations were reported from the 53 reporting centers during the first quarter of 1966. This represents a 13.6 per cent decrease from the 2,429 isolations reported during the fourth quarter of 1965 (52 reporting centers), which was an increase of 8.1 per cent over the 2,248 isolations reported during the third quarter (52 reporting centers).

During January, February, and March, 70.2 per cent of shigella isolations were reported from children under 10 years of age, as compared with 66.7 per cent during the fourth quarter of 1965. As in the fourth quarter of 1965, no sex predilection for shigella was apparent during this quarter. In contrast to the past, no large predominance of males among the less than 5-year age groups was observed.

The most frequently isolated serotypes during the first quarter of 1966 continue to be Shigella sonnei and Shigella flexneri 2a. Regional differences continue to follow the same pattern (see Figure 1 and Table I).

Because of a large food-borne outbreak of shigellosis at an elementary school, involving children from ages 5 to 11 years in Hawaii during February, Shigella flexneri 2a increased from 13.0 per cent of all isolations reported during the fourth quarter of 1965 to 20.3 per cent during the first quarter of 1966. In the outbreak a total of 164 children, 4 teachers and 4 food handlers were ill.

IV Reported Isolations

A. Human

1. General Incidence (17 states reporting since January 1964)

Seventeen states have been reporting shigella isolations since January 1964. A seasonal pattern was demonstrated both in 1964 and 1965 with the high incidence period being August through October in both years. The period of low incidence was winter and early spring (Figure 2).

During the first quarter of 1966, a total of 1,006 isolations were reported from these 17 states, as compared with 1,106 in the same states during the fourth quarter of 1965.

However, the data for the first quarter of this year were biased upward by the common-source food-borne epidemic of shigellosis in Hawaii, mentioned above. This is shown in Figure 2 during the month of February. Otherwise, the number of isolations is as expected based on past experience.

The age and sex distribution of isolates from all reporting centers during the first quarter of 1966 demonstrated a pattern which was not consistent with past experience, as the predominance of males in the less than 5-year age groups was not seen (Table III). However, the predominance of isolations among children less than 10 years of age (70.2 per cent) was a finding that was consistent with past experience. Another consistency was the fact that almost 40 per cent of the isolations were reported from children between the ages of 1 and 4 years.

2. Serotype Frequencies

During the first quarter of 1966, 22 serotypes were reported from 53 reporting centers, compared with 18 from 52 centers during the previous quarter. The difference is due primarily to the introduction of six new S. boydii serotypes which were not previously reported to the Shigella Surveillance Unit. Of these, California reported three. (California started reporting during the first quarter of 1966.) The six most frequently reported serotypes were:

	First Quarter 1966			Previous Quarter	
Rank	Serotype	Number	Per cent	Rank	Per cent
1	S. sonnei	773	36.8	1	37.4
2	S. flexneri 2	657	31.2	2	24.4
3	S. flexneri 3	212	10.0	3	10.1
4	S. flexneri 4	99	7.7	4	5.9
5	S. flexneri 6	83	4.0	5	5.5
6	S. flexneri 1	77	3.6	6	3.2

In previous quarters these six strains have been the six most common and have accounted for over 85 per cent of all isolations. Shigella sonnei and Shigella flexneri 2 have always been the two most common. Positions three through six have been occupied by S. flexneri 1, 3, 4, & 6 in varying order. Members of the S. dysenteriae and S. boydii groups are rare, as is S. flexneri 5.

Table II shows the relative importance of the various serotypes, calculated on the basis of data compiled since the beginning of the Shigella Surveillance Program in October 1963. A total of 17,032 isolations have been reported during the 30-month period. In Table II the isolations in each of the unspecified categories have been distributed in their subgroups in the same proportions as the completely specified isolations of that group. These figures in Table II are called the "calculated number," and from these are derived a "calculated per cent" for each serotype. This probably gives a reasonably accurate approximation of the relative frequencies of at least the more common shigella serotypes in the United States. The six most common serotypes determined by the outlined method over the 30-month period were:

Rank	Serotype	"Calculated Number"	"Calculated Per cent"
1	S. sonnei	6,417	37.7
2	S. flexneri 2a	4,567	26.8
3	S. flexneri 3a	1,705	10.0
4	S. flexneri 6	1,033	6.1
5	S. flexneri 4a	1,030	6.0
6	S. flexneri 2b	698	4.1

Once again, the six most common serotypes accounted for 90 per cent of all isolations, and these six serotypes were either S. sonnei or in the S. flexneri group.

A regional difference has been found to exist in shigella isolations, with a significantly higher percentage of S. flexneri isolations in the South as compared to the North. No difference exists when comparing Northeast and Northwest. Data compiled during the first quarter of 1966 present no exception to this phenomenon (see Figure 1). In southern states, S. flexneri have accounted for about three-fourths of all shigella isolations. The ratio of S. flexneri to S. sonnei isolations during the first quarter of 1966 was highest in the Southwest, 4.29, and lowest in the Northwest, 0.35, (see Figure 1).

Since S. flexneri has an apparent seasonal pattern and is reported more commonly from the southern states, the reported incidence of shigella isolations from the southern states demonstrates a seasonal pattern which is discernible by inspection of Figure 3. This was less conspicuous for northern states. Figure 3 was constructed on the basis of only 15 states. This was done so that 1966 and 1965 data could be compared with 1964, when only 17 states were reporting. Of these 17, Alaska and Hawaii were excluded because they are not contiguous with the continental United States.

Of the 2,099 isolations reported in the United States during the first quarter of 1966, 528 (25.2 per cent) represented isolations from families with other members of the same family positive for shigella. This is consistent with past experience.

B. Nonhuman

A total of 38 isolations of shigella were reported during the first quarter of 1966, as summarized in the table below:

Serotype	Number of Isolations	Reporting Center	Source
S. flexneri (unspecified)	5	Wisc.	Monkeys
S. flexneri 2a	1	Conn.	Monkey
S. flexneri 2b	1	Texas	Lab stock culture
S. flexneri 3	11	Md.	Monkeys
S. flexneri 3a	1	Texas	Lab stock culture
S. flexneri 4	2	Ill.	Monkeys
S. flexneri 4a	2	Texas	Lab stock cultures
S. sonnei	15	Conn. (5)	Monkeys
		Mo. (2)	Imported plastic "ice balls"
		V.I. (6)	Monkeys
		Texas (2)	Imported plastic "ice ball" (1)
			Unknown animal (1)
	38		

V Current Investigations

A. Shigella Contamination of Fowl Products - A Follow-up Report (see report #9). Reported by Dr. C. S. Mollohan, Chief, Section of Epidemiology, and Dr. W. Michael Cross, EIS Officer, Colorado State Department of Public Health.

During 1965, a total of 17 shigella isolates representing six serotypes from various fowl-associated sources was reported over an 8-month period from Colorado. Seven of these came from one hennery in Denver. In December 1965, a team from Epidemiology Branch, Communicable Disease Center, and the state, visited the hennery and conducted a culture survey which included cloacal swabs from hens, cultures from eggs, feed, water, and machinery, and various environmental cultures. None of the 288 cultures revealed shigellae. During the following months, periodic culture surveys of the

same hennery have been continued, approximately twice monthly. At each survey, samples are taken from all feed ingredients (meat, bone meal, soy bean meal, corn, alfalfa, milo, oyster shells, USP salt, vitamin and mineral mixtures), and from the finished feed product. Also cultured each time are a dozen grade A eggs, liquid whole eggs before and after pasteurization, and the water that is used to wash the eggs. Despite these efforts, no additional shigellae have been isolated. Surveillance of this hennery continues.

B. Shigellosis Due to Shigella dysenteriae 2 at an Illinois School and Colony for the Mentally Retarded. Reported by Dr. Norman J. Rose, Chief, Bureau of Epidemiology, Illinois Department of Public Health; Dr. W. M. Talbert, Regional Health Officer, Illinois Department of Public Health; Dr. Edward R. Eichner, EIS Officer, Mr. Wallis DeWitt, Bacteriologist, and Miss Pam Terry, Bacteriologist, Laboratory Services Unit, Investigations Section, Epidemiology Branch, Communicable Disease Center.

Description of the Institution

The institution is a large complex consisting of 31 cottages on two campuses, housing 4,409 patients of all ages and degrees of retardation. There are 1,400 employees, 12 physicians, and about 500 "working students," who help care for the more retarded patients. Population of the cottages ranges from 35 to 479, with an average of 142 patients per cottage. The cottages are all discrete units, with no intermingling of patients from one cottage to another.

The Outbreak

All 14 isolations of the organism, S. dysenteriae 2, were from one cottage, Nursery I, which contained 139 patients, and was one of the two cottages with children under 6 years of age. On March 12, a 2½-year-old boy became ill with diarrhea and fever. On March 15, his stool culture was reported as positive for S. dysenteriae 2, and approximately 50 patients in the cottage were cultured. This survey yielded 10 more isolations; only 4 of these patients were symptomatic. During the next 2 weeks, three additional symptomatic cases developed (see epidemic curve, Figure 4), making a total of 14 isolations and eight symptomatic cases (see Table IV). The index case died 1 week after the onset of his illness; however, this death occurred after a period of considerable clinical improvement, and, since there was no autopsy, the cause of death cannot be determined.

The infected children were scattered in several different rooms in the cottage. One working girl in the cottage had a positive stool culture, but not all of the infected children were exposed to her. Thus, although the pattern is consistent with person-to-person spread (cases occurred over a 16-day period), no one person can be implicated. This is not surprising, since the children in the cottage mixed freely together. There was no evidence for a common-source epidemic.

The 14 infected patients were isolated and treated with antibiotics (Furoxone, terramycin and/or chloramphenicol). All other children in the cottage, all working girls, and all nurses were given prophylactic antibiotics (terramycin and/or Furoxone), although the efficacy of chemoprophylaxis in shigellosis has not been established.

Status of Shigellosis at the Institution in the Past

A review of laboratory isolations from 1954 to the present revealed that there had been 68 prior isolations of this same organism, S. dysenteriae 2. These have occurred in several of the cottages. In 1954 there was a small outbreak in Nursery I, in which nine cases occurred in a period of a few weeks; but there had been no further isolations of this organism from this cottage until the current outbreak.

Bacteriologic Survey

On April 5 and 6, all patients and working girls in Nursery I were cultured. Rectal swabs were streaked directly onto eosin methylene blue (EMB), shigella-salmonella (SS), and xylose lysine desoxycholate (XLD) agar. Suspect colonies were picked to triple sugar iron (TSI) agar and those with compatible reactions were tested for motility, fermentation in glucose, and for agglutination with shigella antisera. None of the cultures from those in the cottage yielded shigellae.

Discussion

The S. dysenteriae 2, or Schmitz's bacillus, is rarely reported in the United States. Until the present outbreak, only 29 isolations had been reported since the onset of the Shigella Surveillance Program, in the fall of 1963. Seventeen of these 29 isolations have been from two counties in Illinois, in both of which there are institutions for the retarded. Recent inquiries in the surrounding area in which the present institution is located revealed no other isolations of S. dysenteriae 2. This epidemic adds 14 more isolations to the record. There has been only one other S. dysenteriae 2 isolation this year (March), from California.

The bacteriologic survey did not detect any carriers, possibly because of the recent use of chemoprophylaxis in all personnel and patients. However, careful surveillance of this cottage will be continued by the staff of the institution.

VI Reports from the States

A. Shigellosis in Seattle, Washington. Reported by Dr. Donald Peterson, Seattle/King County Health Department; and Dr. Phillip H. Jones, Medical Epidemiologist, Washington State Department of Health.

Beginning in October 1965, and continuing into April 1966, there have been 64 isolations of S. sonnei among 21 families in the Seattle/King County area. This represents an increase of shigella isolations for this area, when compared with recent years. This epidemic is quite unusual in several respects. The families involved have been primarily middle class, white families (one family was Oriental, none were Negro). They have been widely scattered throughout the city of Seattle and its suburbs. In addition, 39 per cent of the family index cases were 20 years or older.

Each family was interviewed about possible common-exposure factors, including food items, school and church attendance, shopping center use, occupation, baby sitters, personal acquaintance of other cases, and identity of reporting physician. No common factors were noted. The source of the epidemic has not been identified. Although the epidemic appears to be subsiding, cases are still being reported; two more families became ill during the first 2 weeks of April.

Such an unusual epidemic pattern suggests a food-borne source. It is hoped that continued surveillance and investigation will reveal the vehicle.

TABLE I
SHIGELLA SEROTYPES ISOLATED FROM HUMANS
FIRST QUARTER, 1966

NORTHEAST

Serotype	Conn.	Del.	D.C.	Ill.	Ind.	Iowa	Ky.	Me.	Md.	Mass.	Mich.	Minn.	Mo.	N.H.	N.J.	N.Y. State	N.Y. City	Ohio	Pa.	R.I.	Vt.	Va.	W. Va.	Wisc.	North-east Total
A. S. dysenteriae																									
1																									
2				13																					13
3																									
4																									
5																									
6																									
7																									
8																									
9																									
10																									
3373-50																									
variant R																									
unspecified																1									1
Total				13												1									14
B. S. flexneri unspecified			1		5	12				3	1		5			5	32	1				1		1	67
1 unspecified																									
1a	1			4																					5
1b																									
2 unspecified									28		5	9						11	1				3		57
2a	3			45							8					1									57
2b															1										1
3 unspecified				19					10		2							1					1		33
3a																1									1
3b																									
3c																									
4 unspecified									2			6						2							10
4a				1																					1
4b				1							1					4									6
5				3																					3
6				2					5		5														12
variant X																									
variant Y																									
variant R																									
Total	4		1	75	5	12			45	3	22	15	5		1	11	32	15	1			1	4	1	253
C. S. boydii																									
1																									
2																									
3																									
4													1												1
5																									
6																									
7																									
8																									
9													1												1
10																									
11																									
12																									
13																									
14				1																					1
15																									
3615-53																									
2710-54																									
1621-54																									
2044-54																									
variant R																									
unspecified																									
Total				1									2												3
D. S. sonnei	8		6	39	15	3			37	11	24	3	6		3	33	46	10	22					6	272
untypable																									
unknown			9																					1	10
Total	12		16	128	20	15			82	14	46	18	13		4	45	78	25	23			1	4	8	552

NORTHWEST

Serotype	Colo.	Idaho	Kans.	Mont.	Nebr.	Nev.	N.D.	Ore.	S.D.	Utah	Wash.	Wyo.	North-west Total	North Total
A. S. dysenteriae														
1														
2			1										1	14
3														
4														
5														
6														
7														
8														
9														
10														
3373-50														
variant R														
unspecified														1
Total			1										1	15
B. S. flexneri unspecified	1	2						11	2		1	1	18	85
1 unspecified														
1a	2			4		2							8	13
1b	7		7										14	14
2 unspecified										1	9		10	67
2a	1		5	4		2	9						21	78
2b	1												1	2
3 unspecified	5									3			8	41
3a				1									1	2
3b														
3c														
4 unspecified											1		1	11
4a	1												1	2
4b														6
5														3
6	6									2			8	20
variant X														
variant Y														
variant R														
Total	24	2	12	9		4	9	11	2	6	11	1	91	344
C. S. boydii														
1														
2														
3														
4								1					1	2
5														
6														
7														
8														
9														1
10														
11														
12														
13														
14														1
15														
3615-53														
2710-54														
1621-54														
2044-54														
variant R														
unspecified														
Total								1					1	4
D. S. sonnei	35	33	5	4				49		9	125	2	262	534
untypable														
unknown														10
Total	59	35	18	13		4	9	61	2	15	136	3	355	907

SOUTHEAST / SOUTHWEST

Serotype	Ala.	Ark.	Fla.	Ga.	La.	Miss.	N.C.	S.C.	Tenn.	South-east Total	Ariz.	N.M.	Okla.	Texas	South-west Total	South Total
A. S. dysenteriae																
1																
2																
3														2	2	2
4																
5																
6																
7																
8																
9																
10																
3373-50																
variant R																
unspecified					1					1						1
Total					1					1				2	2	3
B. S. flexneri unspecified	3	1	1			2	7			14	1	2	21		24	38
1 unspecified			1	12					3	16		1			1	17
1a					1					1	2				2	3
1b		1								1	2			12	14	15
2 unspecified			53	36					27	116		22			22	138
2a		4			17					21	9			41	50	71
2b					2					2	2			12	14	16
3 unspecified			22	25					11	58	1	18			19	77
3a		4			10					14				43	43	57
3b														4	4	4
3c		2			1					3						3
4 unspecified			6						4	10	1	14			15	25
4a		5			1					6	2			32	34	40
4b																
5					2					2		2			2	4
6		1	2	3	3				5	14	9	8		9	26	40
variant X																
variant Y																
variant R																
Total	3	18	85	76	37	2	7		50	278	29	67	21	153	270	548
C. S. boydii																
1																
2														2	2	2
3																
4																
5														1	1	1
6																
7																
8																
9																
10																
11																
12																
13																
14																
15																
3615-53																
2710-54																
1621-54																
2044-54																
variant R																
unspecified												2			2	2
Total												2		3	5	5
D. S. sonnei	1	6	36	18	25	2	7		17	112	6	7	5	45	63	175
untypable																
unknown																
Total	4	24	121	94	63	4	14		67	391	35	76	26	203	340	731

OTHER / TOTALS

Serotype	Alaska	Calif.*	Hawaii	Virgin Islands	Other Total	Total	Percent of Total	Previous Total: Total	Previous Total: Percent of Total	1965: Total	1965: Percent of Total	Serotype
A. S. dysenteriae												A. S. dysenteriae
1								1	.04	1	0.01	1
2		1		1	2	16	.8	4	.2	11	0.1	2
3		3			3	5	.2	3	.1	7	0.1	3
4												4
5												5
6												6
7												7
8												8
9												9
10												10
3373-50												3373-50
variant R												variant R
unspecified						2	.1			12	0.2	unspecified
Total		4		1	5	23	1.1	9	.4	31	0.4	Total
B. S. flexneri unspecified						123	5.9	261	10.7	871	11.0	B. S. flexneri unspecified
1 unspecified						17	.8	32	1.3	102	1.3	1 unspecified
1a		8			8	24	1.1	23	.9	126	1.6	1a
1b		5	2		7	36	1.7	22	.9	72	0.9	1b
2 unspecified						205	9.8	254	10.5	1,032	13.0	2 unspecified
2a		57	220		277	426	20.3	314	13.0	804	10.1	2a
2b		8			8	26	1.2	28	1.2	130	1.6	2b
3 unspecified		20	7	1	28	146	7.0	168	6.9	636	8.0	3 unspecified
3a						59	2.8	63	2.6	157	2.0	3a
3b						4	.2	9	.4	19	0.2	3b
3c						3	.1	7	.3	29	0.4	3c
4 unspecified						36	1.7	47	1.9	219	2.8	4 unspecified
4a		13	1		14	56	2.7	93	3.8	278	3.5	4a
4b		1			1	7	3.3	4	.2	14	0.2	4b
5		4			4	11	.5	11	.5	30	0.4	5
6	3	20			23	83	4.0	135	5.6	359	4.5	6
variant X												variant X
variant Y										15	0.2	variant Y
variant R												variant R
Total	3	136	230	1	370	1,262	60.1	1,471	60.6	4,893	61.6	Total
C. S. boydii												C. S. boydii
1								1	.04	1	0.01	1
2		9			9	11	.5	6	.2	30	0.4	2
3												3
4		1			1	3	.1	1	04	1	0.01	4
5						1	.05					5
6										1	0.01	6
7		1			1	1	.05					7
8										1	0.01	8
9						1	.0					9
10		9			9	9	.4					10
11		1			1	1	.05					11
12										1	0.01	12
13												13
14						1	.05					14
15												15
3615-53												3615-53
2710-54												2710-54
1621-54												1621-54
2044-54												2044-54
variant R												variant R
unspecified						2	.1	14	.6	30	0.4	unspecified
Total		21			21	30	1.4	22	.9	65	0.8	Total
D. S. sonnei		39	23	2	64	773	36.8	912	37.6	2,879	36.2	D. S. sonnei
untypable		1			1	1	.05			1	0.01	untypable
unknown						10	.5	15	.6	76	1.0	unknown
Total	3	201	253	4	461	2,099		2,429		7,944		Total

*Since California falls into two regions it is considered as "OTHER" for tabulating purposes.

TABLE II

CUMULATIVE SHIGELLA SEROTYPE FREQUENCIES
Based on all Isolations Reported from Fourth Quarter 1963 Through First Quarter 1966

	Number Reported	*Calculated Number	*Calculated Per cent	Rank
A. S. dysenteriae				
1	1	1	0.01	19
2	45	62	0.4	14
3	15	21	0.1	15
4				
5				
6	1	1	0.01	19
unspecified	22			
B. S. flexneri				
1a	186	414	2.4	7
1b	145	323	1.9	8
1 unspecified	275			
2a	1589	4567	26.8	2
2b	243	698	4.1	6
2 unspecified	2498			
3a	277	1705	10.0	3
3b	26	160	0.9	10
3c	46	283	1.7	9
3 unspecified	1418			
4a	407	1030	6.0	5
4b	33	83	0.5	12
4 unspecified	475			
5	54	65	0.4	13
6	850	1033	6.1	4
variant y	17	21	0.1	15
unspecified	1756			
C. S. boydii				
1	1	2	0.01	18
2	61	103	0.6	11
3				
4	7	12	0.07	17
5	1	2	0.01	18
6	1	2	0.01	18
7	1	2	0.01	18
8	1	2	0.01	18
9	1	2	0.01	18
10	9	15	0.08	16
11	1	2	0.01	18
12	1	2	0.01	18
14	1	2	0.01	18
unspecified	61			
D. S. sonnei	6363	6417	37.7	1
Untypable	2			
Unknown	141			
Total	17,032	17,032		

* Calculated Number and Per cent are derived by applying the unspecified isolations in each group to that group in the same proportion as the known isolations of that group.

TABLE III

Age and Sex Distribution of Individuals Reported as Harboring Shigella in the United States During the First Quarter of 1966

Age (years)	Male	Female	Unknown	Total	Per cent	Cumulative Per cent
Under 1	52	42		94	7.9	7.9
1-4	232	231	1	464	39.3	47.2
5-9	138	134		272	23.0	70.2
10-19	73	71	2	146	12.4	82.6
20-29	33	59		92	7.8	90.4
30-39	20	33	1	54	4.6	95.0
40-49	12	6	1	18	1.5	96.5
50-59	11	12		23	1.9	98.4
60-69	4	2		6	.5	98.9
70-79	2	6		8	.7	99.6
80+	1	3		4	.3	99.9
Child (unspec.)	16	9	157	182		
Adult (unspec.)	15	7	7	29		
Unknown	232	222	252	706		
Total	841	837	421	2099		
Per cent of Total	50.1	49.9				

TABLE IV

Clinical Data from the Patients with *S. dysenteriae 2*

Name	Age (years)	Sex	Date adm.	Date onset	Date of 1st Pos. culture	Symptoms	Antibiotics	Remarks
J.J.	2½	M	1-66	3-12-66	3-15-66	Fever diarrhea (4+)	Chloramphenicol	Death 3-18, after apparent improvement. No autopsy
R.M.	3	M	9-65	3-15-66	3-18-66	Fever, diarrhea	Chloramphenicol Terramycin Furoxone	
D.B.	6	M	1-64	3-15-66	3-18-66	None	Terramycin	Picked up on routine survey
W.R.	3	M	11-65	3-15-66	3-18-66	Fever, diarrhea	Chloramphenicol Furoxone Terramycin	
R.C.	3	F	11-65	3-15-66	3-18-66	Fever, diarrhea	Chloramphenicol Terramycin Furoxone	
T.F.	5	M	3-65	3-15-66	3-18-66	None	Chloramphenicol Terramycin Furoxone	
C.H.	19	F	3-63	3-15-66	3-18-66	None	Terramycin	Working girl
A.J.	3	F	1-66	3-15-66	3-18-66	None	Terramycin Furoxone	
J.K.	11	F	6-57	3-15-66	3-18-66	None	Terramycin Furoxone	Pos. in past for *Sh. sonnei*, *Salmonella montevideo*, and strongyloides
L.O.	5	F	12-65	3-15-66	3-18-66	None	Chloramphenicol Terramycin Furoxone	

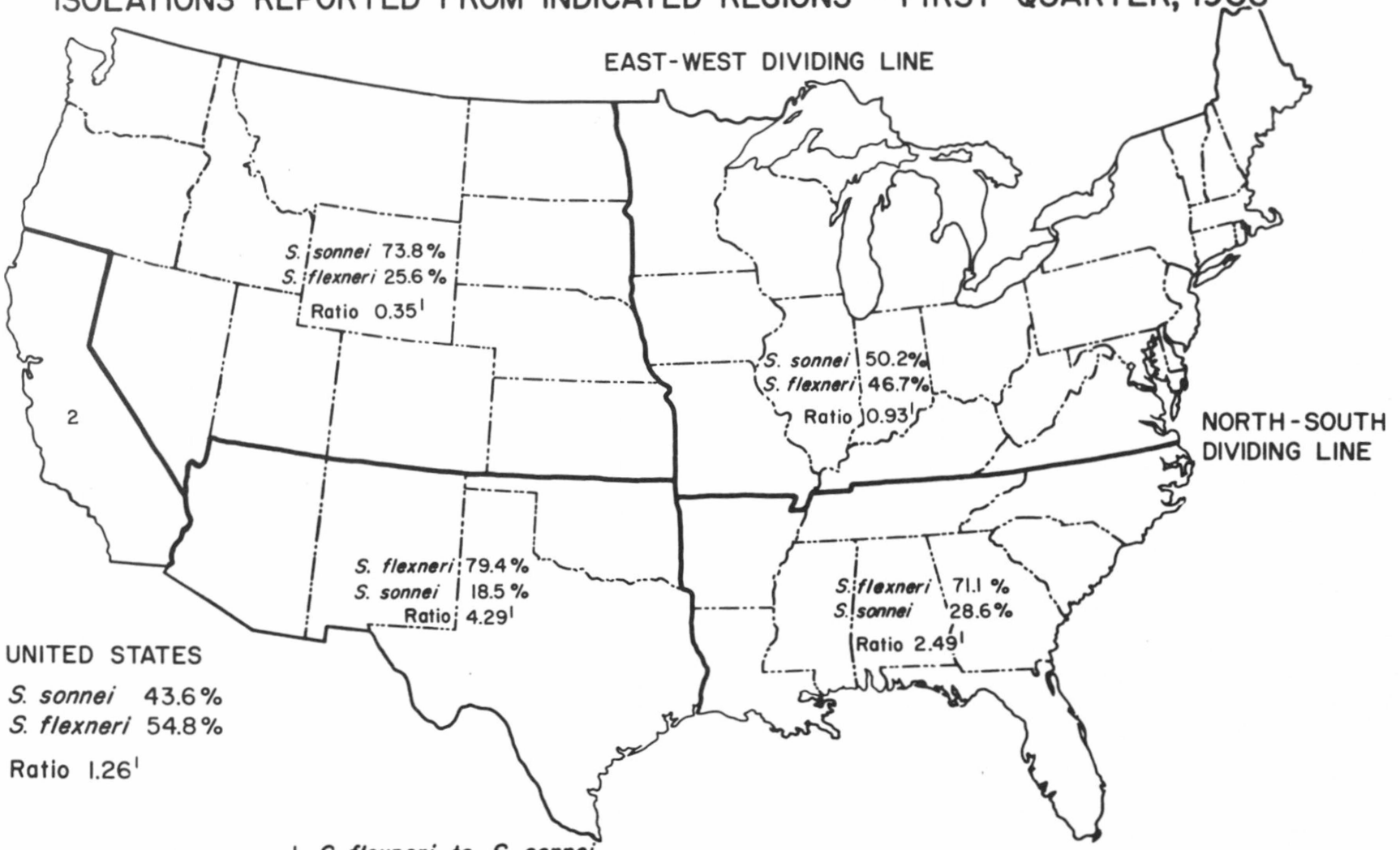
Name	Age (years)	Sex	Date adm.	Date onset
R.P.	5	M	12-65	3-15-66
G.T.	4	M	12-65	3-17-66
T.C.	3	M	11-65	3-21-66
G.S.	5	M	12-65	3-28-66

TABLE IV continued

Date of 1st Pos. culture	Symptoms	Antibiotics	Remarks
3-18-66	Fever, diarrhea	Chloramphenicol Terramycin Furoxone	
3-21-66	Diarrhea only	Terramycin Furoxone	
3-24-66	Diarrhea only	Terramycin Furoxone	
3-31-66	Diarrhea only	Terramycin	

Figure 1

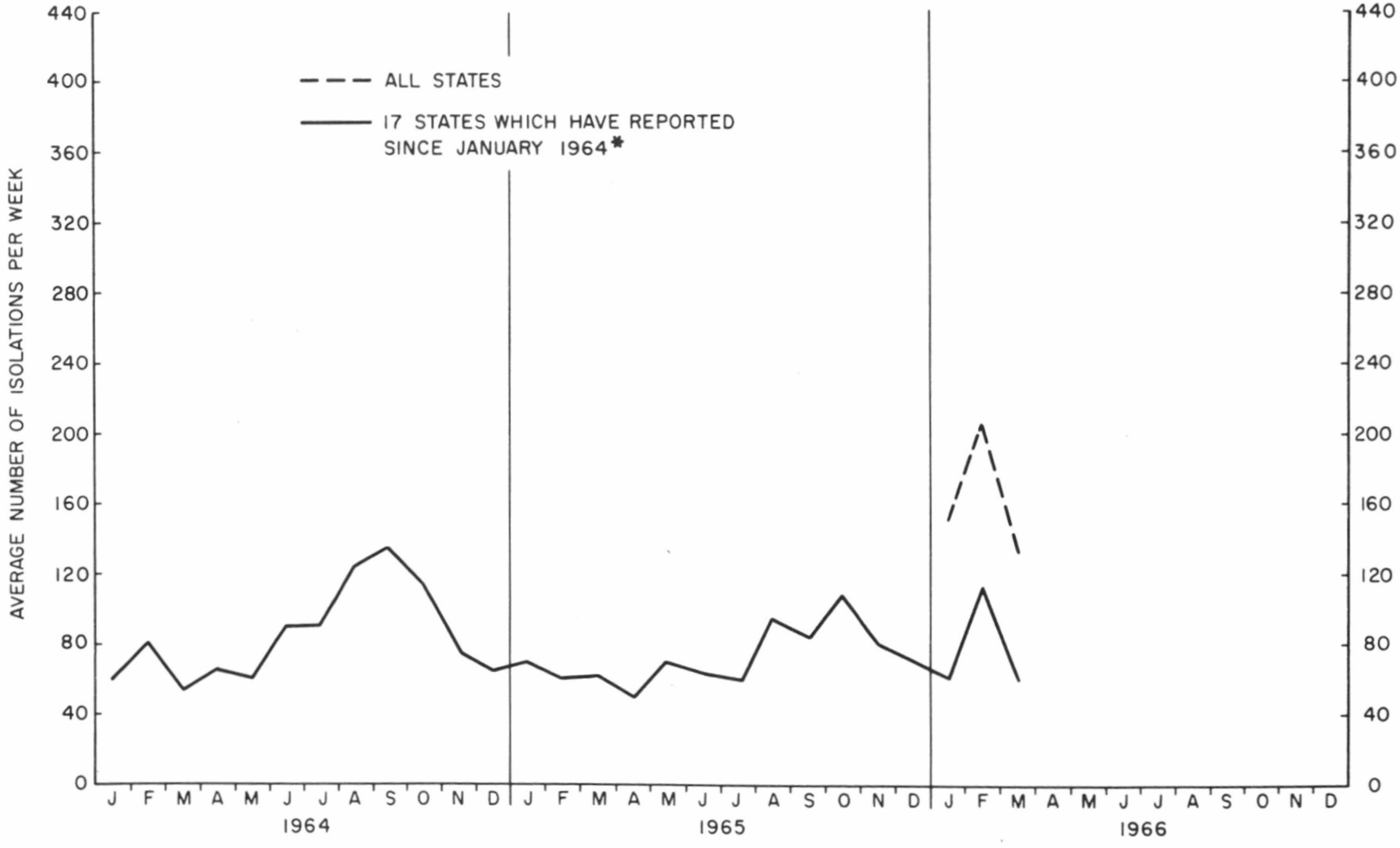
PERCENTAGE *S. flexneri and S. sonnei* OF TOTAL SHIGELLA ISOLATIONS REPORTED FROM INDICATED REGIONS - FIRST QUARTER, 1966



1. *S. flexneri to S. sonnei.*
2. CALIFORNIA IS EXCLUDED BECAUSE IT OVERLAPS TWO REGIONS.

Figure 2.

REPORT ISOLATIONS OF SHIGELLA IN THE UNITED STATES

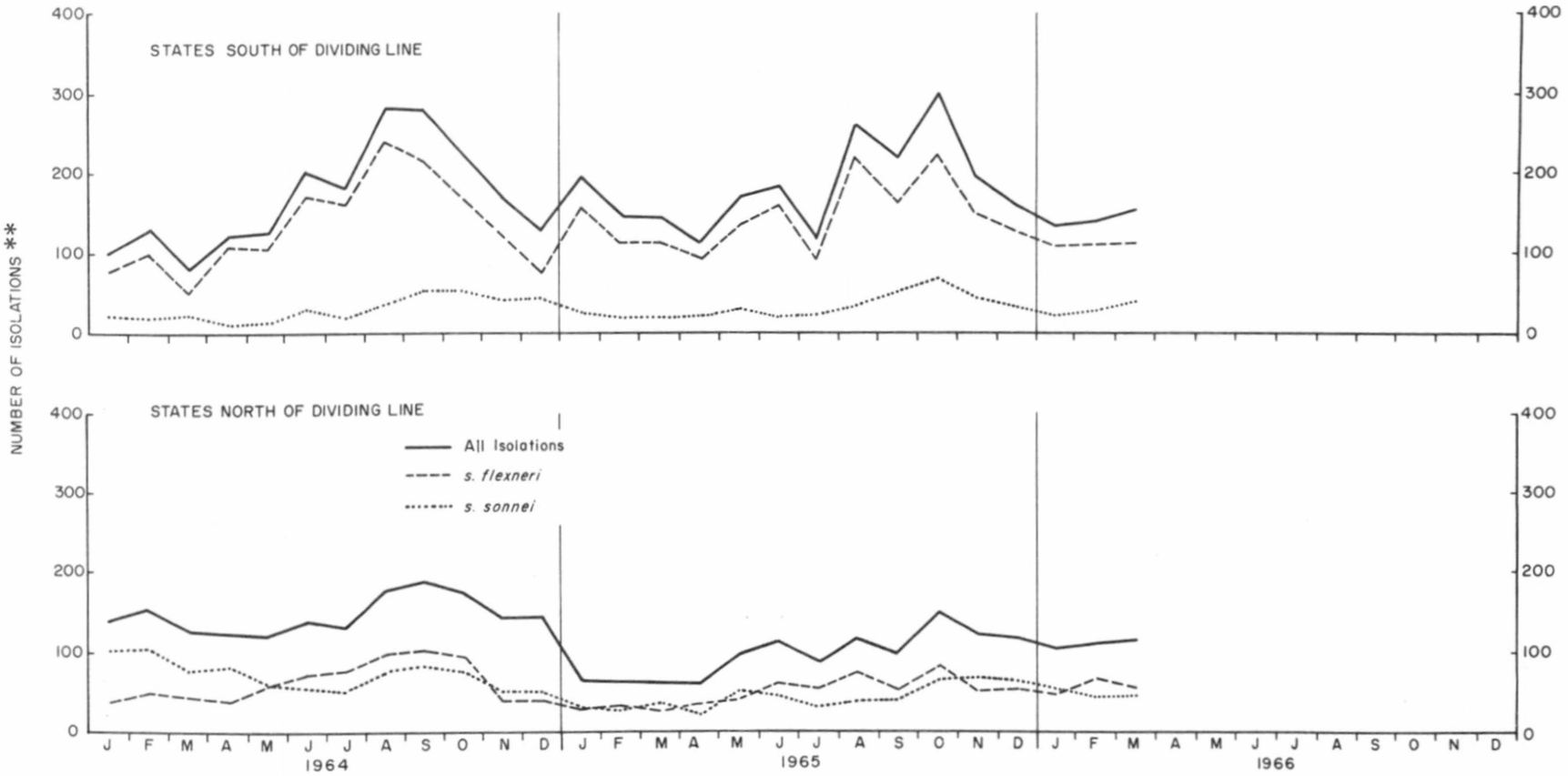


*ALASKA, ARIZONA, HAWAII, ILLINOIS, KANSAS, MARYLAND, NEW JERSEY, NEW MEXICO, NORTH CAROLINA, NORTH DAKOTA, OHIO, OKLAHOMA, OREGON, SOUTH DAKOTA, TENNESSEE, TEXAS AND VERMONT.

Figure 3

SEASONAL DISTRIBUTION OF SHIGELLA ISOLATIONS BY SEROTYPE AND REGION

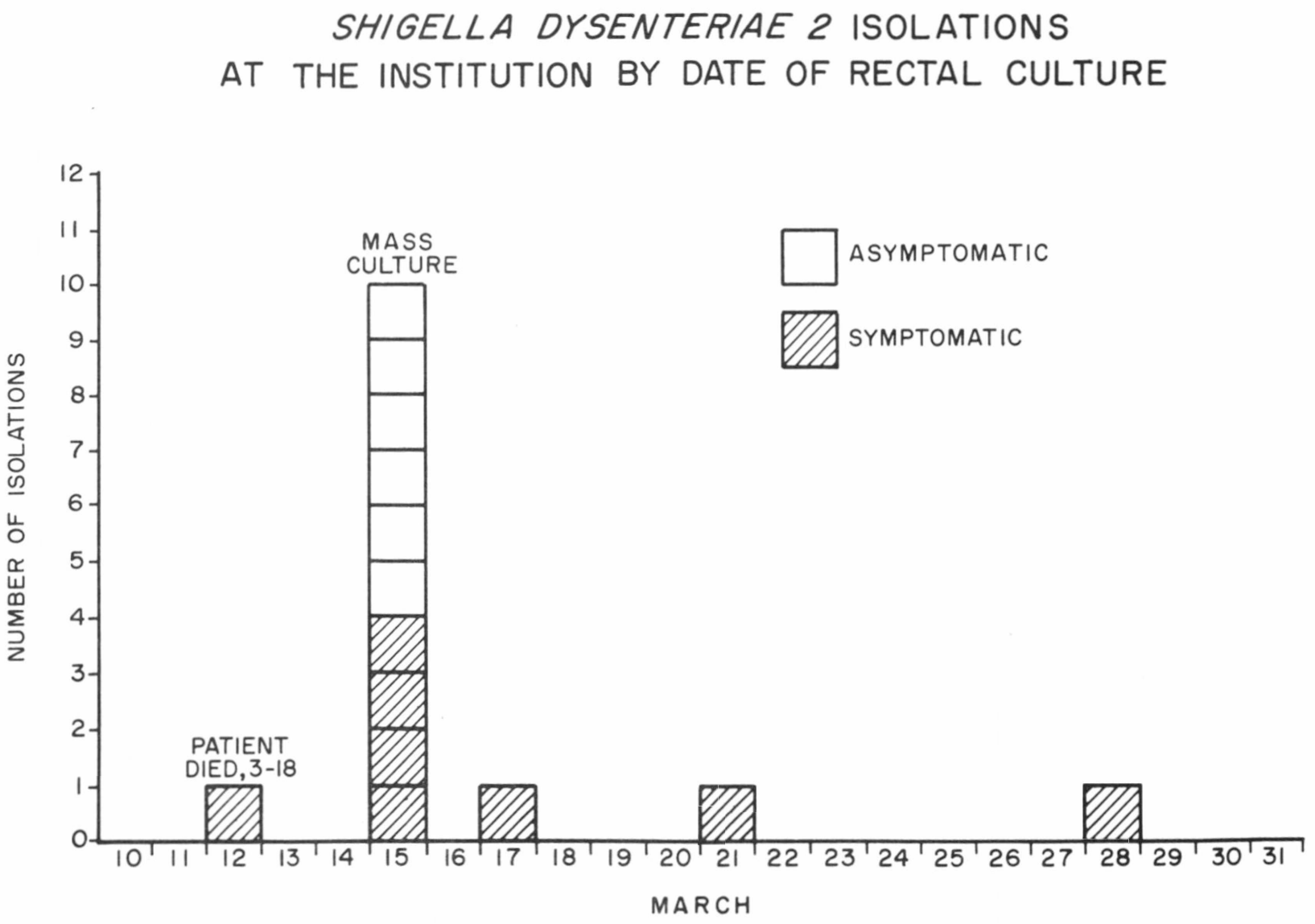
15 STATES WHICH HAVE REPORTED SINCE JANUARY 1964*



* ARIZONA, ILLINOIS, KANSAS, MARYLAND, NEW JERSEY, NEW MEXICO, NORTH CAROLINA, NORTH DAKOTA, OHIO, OKLAHOMA, OREGON, SOUTH DAKOTA, TENNESSEE, TEXAS AND VERMONT.

** ADJUSTED TO 4-WEEK MONTHS.

Figure 4.


SHIGELLA DYSENTERIAE 2 ISOLATIONS
AT THE INSTITUTION BY DATE OF RECTAL CULTURE
NUMBER OF ISOLATIONS
0
1
2
3
4
5
6
7
8
9
10
11
12
MASS CULTURE
PATIENT DIED, 3-18
ASYMPTOMATIC
SYMPTOMATIC
10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
MARCH