REPORT NO. 248

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COMMUNICABLE DISEASE CENTER

POLIOMYELITIS

SURVEILLANCE

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U. S. DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE
PUBLIC HEALTH SERVICE

PREFACE

Summarized in this report is information received from State Health Departments, university investigators, virology laboratories 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: Chief, Poliomyelitis Surveillance Unit, Communicable Disease Center, Atlanta 22, Georgia.

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SUMMARY

The low incidence of poliomyelitis during the forty-eighth week reflects expected seasonal diminution. Only one State, Massachusetts, reported more than two cases. Special comment is made on this situation.

The results of the 1961 Vaccination Survey performed in collaboration with the Bureau of the Census are presented in Section 3. Since 1960, in the population under 20 an overall increase of 10 percent is evident in the 4+ inoculation group. Thus, approximately 50 percent of the population under 20 have completed the basic series of 3 injections and booster 4th.

The enterovirus isolations reported this year by the CDC Kansas City Field Station are presented in Section 4.

A preliminary report has been received concerning the poliomyelitis outbreak in Santiago, Chile, and is included in Section 5.

1. CURRENT POLIOMYELITIS MORBIDITY TRENDS

The national incidence of poliomyelitis as reported during the forty-eighth week is low, as befits the season and previous experience this year. A total of 15 cases, 11 paralytic, for the week ending December 2 is to be compared to 19 cases, 9 paralytic, for the previous week. The forty-eighth week in 1960, on the other hand, brought reports of 56 cases, 45 paralytic.

Comparative cumulative totals for the past five years and six week totals through the forty-eighth week are presented below.

Cumulative Cases of Poliomyelitis 43rd Through 48th Week for Past Five Years

	1961	1960	1959	1958	1957
Paralytic	817	2182	5468	2950	2095
Total	1263	3121	8243	5775	5809

Six Week Totals (43rd through 48th Week) for Past Five Years

	1961	1960	1959	1958	1957
Paralytic	126	332	759	650	257
Total	184	441	1039	1031	424

Only 10 of the 50 reporting States accounted for the current week's cases. Massachusetts reported 3 cases, and Wisconsin, Missouri, and Colorado 2 cases each. Single case reports accounted for the rest.

2. REPORTS

A. Massachusetts

Dr. Nicholas Fiumara reports that five cases of poliomyelitis occurred in the State during November. Four of these cases were reported from the community of Brockton and occurred within a ten day period, as shown below.

Age	Race	Sex	Onset Date	Paralytic Status	Vaccination History (IPV)
8	W	F	11-17	P	3V
9*	W	M	11-28	NP	2V
7*	W	M	11-28	P	0V
7**	W	M	11-28	NP	0V

* Siblings.
** Playmate of siblings.

The last date of onset for a case from this city was on November 28, 1961. Two of the four cases occurred within one family, and another occurred in a playmate of the two. All reported cases were under ten years of age and only one had received as many as three doses of inactivated vaccine.

B. Colorado

According to Dr. Cecil S. Mollohan, Epidemiologist, Colorado State Department of Public Health, both Colorado cases reported this week are paralytic and reside in Delta County. Both patients were unvaccinated and had onsets in early November as shown below. No contact history has been elicited.

Initials	Age	Race	Sex	Onset Date	Vaccination History (IPV)
N. L.	6	W	M	11-2	0V
P. J. E.	30	W	F	11-7	0V

The patients were hospitalized in Grand Junction, Colorado, and apparently the 6 year old boy has shown complete recovery. Some residual paralysis may still be evident at 60 days in the other case. Laboratory study of specimens submitted on both patients is underway.

3. POLIOMYELITIS VACCINATION SURVEY RESULTS

In collaboration with the Communicable Disease Center, the National Vital Statistics Division has been technically responsible during the past several years for estimates, derived from yearly sample surveys, of the national population's participation in the Salk poliomyelitis inoculation program. The estimates are based on national household sample surveys conducted by the Bureau of the Census as a supplement annually since 1957 to the Current Population Survey.*

According to the results derived from the National Poliomyelitis Vaccination Survey conducted in September 1961 (Table 4A), 38 percent of the population under 60 years of age, or more than 59 million persons, have not received any Salk polio vaccine inoculations. Of the population under 60 years, about 46 percent have received less than 3 inoculations (i.e., two, one, or no inoculations) while 32 percent have received 4 or more inoculations.

The study reveals variations between children and adults in polio inoculation status. Only 12 percent of persons under 20 years of age have not received any inoculations, while the corresponding percent for persons from 20 to 59 years of age is about 60. Also, in the group under 20 years a smaller proportion have 3 or less inoculations, i.e., 21 percent, compared to 67 percent of the 20 to 59 age group.

The 1961 data also reveal substantial variations between specified age groups of the population under 60 years. School children within the ages 5 to 14 years have the highest level of participation in the inoculation program. Of these children, only 7 percent have received no inoculations and 13 percent have received less than 3 inoculations, while 60 percent have received 4 or more inoculations. Of the pre-school children in the age group 1 to 4, 13 percent have received no inoculations, 26 percent have received less than 3 inoculations, and 42 percent have received 4 or more inoculations. Participation levels for teenagers 15 to 19 years old are comparable to those for pre-school children. Of the infants under 1 year, 45 percent are reported as having no inoculations. Within the broad

* The Current Population Survey uses a probability sample design covering the noninstitutionalized civilian population of the United States. The sample is spread over 330 sample areas comprising 638 counties and independent cities with coverage of about 35,000 households.

age group 20 to 59, the highest proportion of persons with less than 3 inoculations (93 percent) is in the 50 to 59 age group, and the lowest proportion (48 percent) is in the 20 to 29 age group.

During the past twelve month period (September 1960 to September 1961), the proportion of persons under 60 years with at least 1 inoculation has increased by about 2 percentage points from 60 to 62 percent (Table 4B). The gain was 4 percentage points in the proportion with 3 or more inoculations and 7 percentage points in the proportion with 4 or more inoculations. Compared to the adult population 20 to 59 years, the population under 20 years had smaller gains in the proportion with 1 or more and 3 or more inoculations, but had substantially larger gains in the proportion with 4 or more inoculations.

For the population under 20 years, the largest annual gains were registered for the group 15 to 19 years. Children under 5 years had the smallest gains overall, particularly in the proportion with 4 or more inoculations. Differences among the age groups 20 to 59 years in the proportions inoculated during the past 12 months show no particular trends except that in the proportion with 4 or more inoculations the gains decline with advancing age.

TABLE 4A

POLIOMYELITIS VACCINATION STATUS OF THE CIVILIAN NONINSTITUTIONAL POPULATION UNDER 60 YEARS, BY AGE: UNITED STATES, SEPTEMBER 1961

Age (Years)	Population (000's)	Distribution by Number of Inoculations Received (000's) 1 or more Inoculations					No Inoculations
		Total	4+	3	2	1	
Total, Under 60--	157,910	98,255	50,335	34,356	9,393	4,171	59,655
Under 20-------	72,405	63,835	36,005	20,889	4,848	2,093	8,570
Under 1 ---	4,304	2,367	148	848	808	563	1,937
1-4 -------	16,767	14,605	7,012	5,430	1,543	620	2,162
1 -------	4,167	3,464	926	1,656	632	250	703
2 -------	4,192	3,644	1,746	1,398	363	137	548
3 -------	4,203	3,715	2,072	1,242	292	109	488
4 -------	4,205	3,782	2,268	1,134	256	124	423
5-9 -------	19,749	18,440	12,175	4,915	947	403	1,309
10-14 -----	18,024	16,857	10,471	5,281	812	293	1,167
15-19 -----	13,561	11,426	5,957	4,406	804	259	2,135
20-59 ---------	85,505	34,630	14,475	13,525	4,551	2,079	50,875
20-29 -----	21,094	13,407	5,897	5,156	1,728	626	7,687
30-39 -----	23,470	12,870	5,653	4,902	1,591	724	10,600
40-49 -----	22,525	6,473	2,384	2,645	918	526	16,052
50-59 -----	18,416	1,880	541	822	314	203	16,536
		PERCENT					
Total, Under 60--	100.0	62.2	31.9	21.8	5.9	2.6	37.8
Under 20-------	100.0	88.2	49.7	28.8	6.7	2.9	11.8
Under 1 ---	100.0	55.0	3.4	19.7	18.8	13.1	45.0
1-4 -------	100.0	87.1	42.0	32.3	9.2	3.7	12.9
1 -------	100.0	83.1	22.2	39.7	15.2	6.0	16.9
2 -------	100.0	86.9	41.6	33.3	8.7	3.3	13.1
3 -------	100.0	88.4	49.3	29.6	7.0	2.6	11.6
4 -------	100.0	89.9	53.9	27.0	6.1	3.0	10.1
5-9 -------	100.0	93.4	61.6	24.9	4.8	2.0	6.6
10-14 -----	100.0	93.5	58.1	29.3	4.5	1.6	6.5
15-19 -----	100.0	84.3	43.9	32.5	5.9	1.9	15.7
20-59 ---------	100.0	40.5	16.9	15.8	5.3	2.4	59.5
20-29 -----	100.0	63.6	28.0	24.4	8.2	3.0	36.4
30-39 -----	100.0	54.8	24.1	20.9	6.8	3.1	45.2
40-49 -----	100.0	28.7	10.6	11.7	4.1	2.3	71.3
50-59 -----	100.0	10.2	2.9	4.5	1.7	1.1	89.8

TABLE 4B

INCREASE IN THE PROPORTION OF THE CIVILIAN NONINSTITUTIONAL POPULATION BY AGE PARTICIPATING IN THE POLIOMYELITIS VACCINATION PROGRAM: UNITED STATES SEPTEMBER 1960 TO SEPTEMBER 1961

Age (Years)	Percent of Population Vaccinated					
	4 or More Inoculations		3 or More Inoculations		1 or More Inoculations	
	1960	Change* 1960-61	1960	Change* 1960-61	1960	Change* 1960-61
Total, Under 60--	24.6	7.3	50.2	3.5	59.8	2.4
Under 20-------	39.6	10.1	75.3	3.2	86.7	1.5
Under 1----	2.7	0.7	20.5	2.6	54.8	0.2
1-4 -------	34.6	7.4	72.2	2.1	86.6	0.5
5-9 -------	50.6	11.0	83.9	2.6	92.3	1.1
10-14 -----	47.1	11.0	85.4	2.0	92.7	0.8
15-19 -----	31.5	12.4	71.0	5.4	80.6	3.7
20-59 ---------	12.1	4.8	29.3	3.4	37.4	3.1
20-29 -----	20.5	7.5	49.3	3.1	61.3	2.3
30-39 -----	17.8	6.3	41.0	4.0	51.5	3.3
40-49 -----	6.7	3.9	17.6	4.7	23.8	4.9
50-59 -----	1.8	1.1	5.4	2.0	8.2	2.0

* Equal to the difference between the percent vaccinated in 1961 minus the percent vaccinated in 1960.

4. ENTEROVIRUS SURVEILLANCE

A preliminary report of enterovirus isolates obtained from specimens submitted to the CDC Kansas City Field Station has been received from Dr. Tom D. Y. Chin, Chief, Enteric and Respiratory Virus Diseases Investigations Unit.

"This report represents results of virus isolations on specimens submitted to this laboratory from various areas in the United States this year. Although a majority of these specimens have been processed, over 50 percent of the isolations have not yet been specifically identified. Most of these specimens have been screened for presence of poliovirus. So far, poliovirus has not been identified from any of the specimens submitted.

"To date, a cytopathogenic agent (virus) has been isolated from a total of 256 patients (Table 4). One hundred and ten (43 percent) of the isolates were identified as Coxsackie B5 virus. Of the remaining 146 isolates, one has been identified as Coxsackie virus type B4 and one as Coxsackie virus type B2; the remaining 144 agents have not yet been identified, although many of them are probably Coxsackie viruses.

"In Iowa, specimens from a total of 475 individuals were submitted. A virus was isolated from 91 persons. Forty-four of the agents were identified as Coxsackie virus B5; one has been identified as Coxsackie virus B2 and one as Coxsackie B4. The remaining 45 agents have not yet been identified. Interestingly Coxsackie B5 isolates have been obtained from several patients in Des Moines who exhibited stomatitis clinically.

"Twenty-nine of the 50 agents isolated from North Dakota (mainly Garrison and Minot) were Coxsackie virus B5; the remaining 21 agents have not yet been identified.

"Specimens of various types from 291 persons were submitted in connection with the Rhode Island aseptic meningitis study. A virus was isolated from 108 persons, 36 of whom had Coxsackie virus B5. The remaining 72 agents have not yet been identified.

"Specimens from 62 patients were also submitted to this laboratory from the greater Kansas City area. An agent was isolated from five patients, one of whom had Coxsackie virus B5 infection. Ten specimens were also submitted from Nebraska, two of which were positive. The identity of these two agents is not yet known."

TABLE 4

Enterovirus Isolates
Reported by CDC Kansas City Field Station

Locality	No. of Patients	No. Positive	Coxsackie B-5	Other Types or Unidentified
Total Iowa	475	91	44	47
Fort Dodge, Iowa	318	53	27	26*
Des Moines, Iowa	65	14	5	9
Spencer, Iowa	14	6	3	3
Other areas	78	18	9	9
North Dakota	116	50	29	21
Nebraska	10	2	0	2
Rhode Island	291	108	36	72
Kansas City Area				
Missouri	46	4	1	3
Kansas	16	1	0	1
GRAND TOTAL	954	256	110	146*

* One Coxsackie B2, one Coxsackie B4.

5. FOREIGN REPORT - CHILE

The City and Province of Santiago (pop. 2.2 million), Chile, is the scene of a sizable epidemic of poliomyelitis. Through the 47th week in 1961 a preliminary total of 298 paralytic cases has been reported in Santiago, and since the 40th week (approximate onset of 1961-62 season in Chile) 215 paralytic cases have been reported. The table below presents weekly reporting figures compared with corresponding weekly reports of previous years. The ominous build-up of paralytic cases so early in the season is clearly evident.

	Report Week							
Year	40	41	42	43	44	45	46	47
1961	3	1	7	12	31	33	39	83
1960	3	1	2	2	0	2	2	3
1959	5	4	10	10	4	3	17	11

Epidemic poliomyelitis was first recognized in Santiago in 1950. Sporadic occurrence was noted then until 1955-56 when a type I epidemic accounted for 610 paralytic cases (Santiago attack rate 31.1 per 100,000). Since then, only an endemic occurrence has been noted until this October.

Preliminary age data available on 169 cases and 15 deaths reported November 1-24 show predominantly an infantile age distribution. As shown in the following table, over 80 percent of these patients were 2 years old or younger.

Age	Cases	Deaths
<1	51	5
1	59	5
2	26	1
3	9	1
4	7	1
5-9	9	0
10+	3	1
Unk.	3	1
Total	169	15

Virologic study of several cases occurring during October-November has yielded sixteen poliovirus isolates, twelve type I and four type III.

The Chilean National Health Service has requested the United States for aid in halting this severe epidemic. On November 25, 100,000 doses of type I oral poliovaccine from the CDC epidemic reserve were flown to Santiago. Accompanying the vaccine was a CDC team composed of Dr. A. M. Holguin and Mr. Leo Morris to assist in medical and administrative planning. They are working closely with Dr. José Manuel Borgoñio of the Epidemiology Division.

The National Health Service plans to offer oral vaccine to all children from 3 months through 7 years of age in a mass vaccination program beginning December 5. The vaccine is being administered on sugar cubes in approximately 140 dispensing stations throughout the City and Province. An additional shipment of 200,000 doses is also being requested to satisfy the expected demand. The National Health Service also asked for hot pack sets, chest respirators, and rocking beds, and the National Foundation has generously provided these.

Further progress reports on this epidemic and results of the mass immunization program will be included in future PSU Reports.

FIGURE 1

CURRENT U.S. POLIO INCIDENCE

COMPARED WITH YEARS 1955-1960, April-December, by week

PROVISIONAL DATA SUPPLIED BY NATIONAL OFFICE OF VITAL STATISTICS
AND COMMUNICABLE DISEASE CENTER

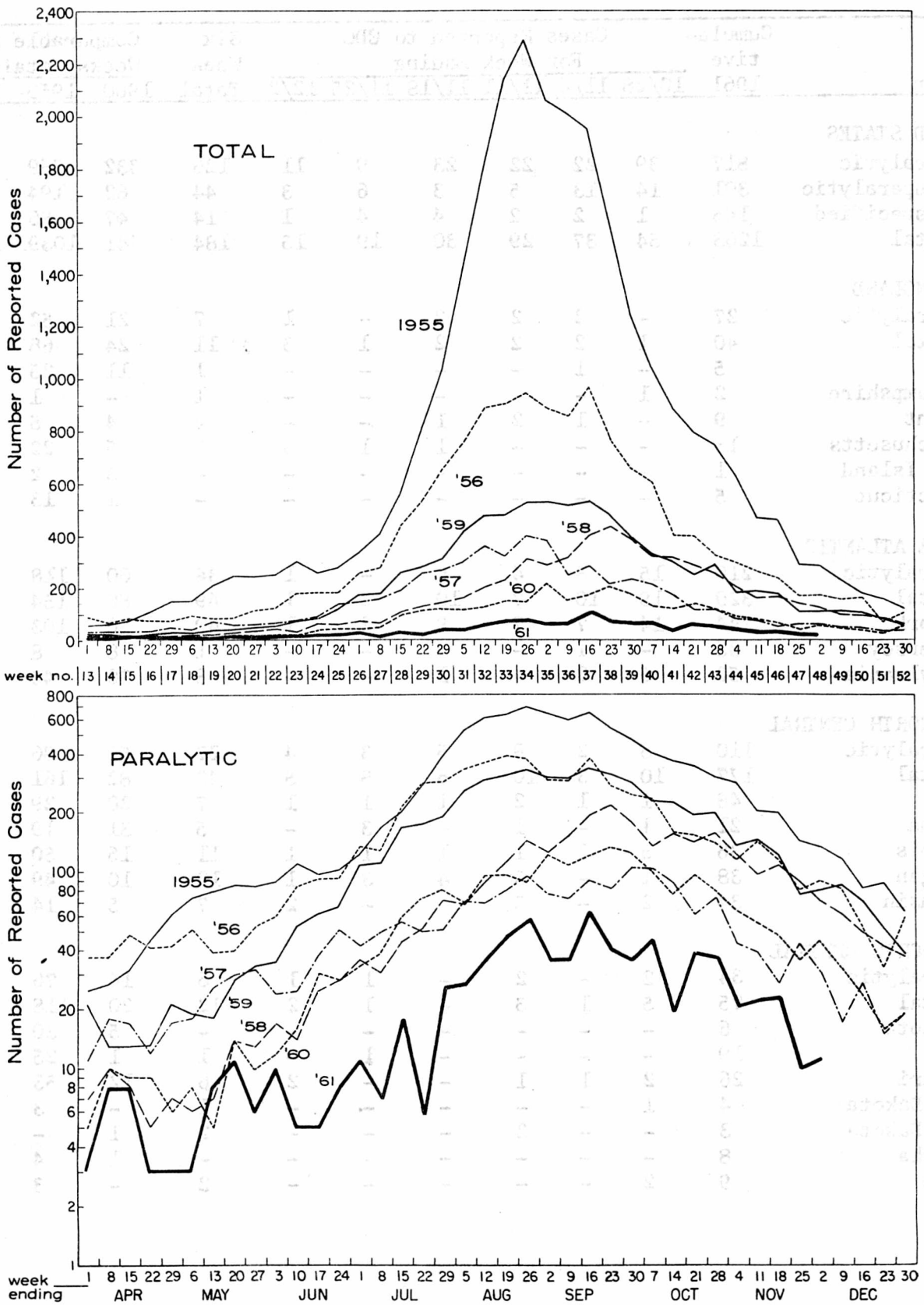

Table 1

TREND OF 1961 POLIOMYELITIS INCIDENCE

State and Region	Cumulative 1961	Cases Reported to CDC For Week Ending 10/28	11/4	11/11	11/18	11/25	12/2	Six Week Total	Comparable Six Weeks Totals in 1960	1959	1958
UNITED STATES											
Paralytic	817	39	22	22	23	9	11	126	332	759	650
Nonparalytic	301	14	13	5	3	6	3	44	62	194	231
Unspecified	145	1	2	2	4	4	1	14	47	86	150
Total	1263	54	37	29	30	19	15	184	441	1039	1031
NEW ENGLAND											
Paralytic	27	-	2	2	2	-	1	7	21	52	8
Total	40	1	2	2	2	1	3	11	24	68	9
Maine	5	-	1	-	-	-	-	1	11	25	2
New Hampshire	2	1	-	-	-	-	-	1	-	1	-
Vermont	9	-	1	2	1	-	-	4	4	5	1
Massachusetts	18	-	-	-	1	1	3	5	5	22	2
Rhode Island	1	-	-	-	-	-	-	-	3	2	-
Connecticut	5	-	-	-	-	-	-	-	1	13	4
MIDDLE ATLANTIC											
Paralytic	218	15	8	4	6	-	1	34	60	118	61
Total	329	19	10	7	10	2	1	49	80	154	104
New York	244	14	7	7	9	2	1	40	36	103	50
New Jersey	35	-	1	-	-	-	-	1	8	8	29
Pennsylvania	50	5	2	-	1	-	-	8	36	43	25
EAST NORTH CENTRAL											
Paralytic	110	5	2	8	5	3	4	27	59	96	155
Total	177	10	3	10	6	8	5	42	82	161	337
Ohio	48	1	1	2	1	1	1	7	20	29	70
Indiana	21	1	-	1	-	3	-	5	31	19	38
Illinois	36	5	2	1	1	1	1	11	16	50	40
Michigan	38	1	-	3	4	3	1	12	10	49	180
Wisconsin	34	2	-	3	-	-	2	7	5	14	9
WEST NORTH CENTRAL											
Paralytic	34	2	-	2	-	1	1	6	14	76	67
Total	75	5	1	3	-	1	2	12	20	118	90
Minnesota	6	-	-	-	-	-	-	-	5	30	6
Iowa	19	-	-	-	-	1	-	1	1	25	9
Missouri	26	2	1	1	-	-	2	6	12	53	60
North Dakota	4	1	-	-	-	-	-	1	-	3	1
South Dakota	3	-	-	2	-	-	-	2	1	-	7
Nebraska	8	-	-	-	-	-	-	-	1	4	7
Kansas	9	2	-	-	-	-	-	2	-	3	-

Table 1 (Continued)

State and Region	Cumulative 1961	Cases Reported to CDC For Week Ending 10/28	11/4	11/11	11/18	11/25	12/2	Six Week Total	Comparable Six Weeks Totals in 1960	1959	1958
SOUTH ATLANTIC											
Paralytic	157	8	2	2	6	2	1	21	83	137	100
Total	214	8	11	2	6	2	1	30	99	169	147
Delaware	2	-	-	-	-	-	-	-	-	1	5
Maryland	41	3	9	-	2	-	-	14	25	6	11
D. C.	3	-	-	-	-	1	-	1	3	-	-
Virginia	12	1	-	-	-	-	-	1	21	30	29
West Virginia	33	1	1	-	1	-	1	4	16	25	37
North Carolina	21	-	-	-	-	-	-	-	12	46	12
South Carolina	34	1	-	-	1	-	-	2	7	14	12
Georgia	30	2	-	-	-	-	-	2	6	24	16
Florida	38	-	1	2	2	1	-	6	9	23	25
EAST SOUTH CENTRAL											
Paralytic	49	2	3	1	-	-	-	6	23	76	56
Total	85	3	3	1	1	-	-	8	40	100	79
Kentucky	27	-	-	-	-	-	-	-	13	20	30
Tennessee	22	2	-	-	-	-	-	2	14	50	19
Alabama	11	-	1	1	-	-	-	2	2	17	21
Mississippi	25	1	2	-	1	-	-	4	11	13	9
WEST SOUTH CENTRAL											
Paralytic	84	1	2	2	4	1	-	10	24	47	117
Total	151	2	3	2	5	1	-	13	29	69	144
Arkansas	21	1	1	1	-	1	-	4	3	17	8
Louisiana	54	1	1	1	3	-	-	6	3	18	7
Oklahoma	4	-	-	-	-	-	-	-	1	13	5
Texas	72	-	1	-	2	-	-	3	22	21	124
MOUNTAIN											
Paralytic	28	-	-	1	-	-	2	3	13	14	15
Total	47	-	-	1	-	-	2	3	25	28	39
Montana	4	-	-	-	-	-	-	-	5	5	6
Idaho	14	-	-	-	-	-	-	-	3	2	1
Wyoming	-	-	-	-	-	-	-	-	2	-	8
Colorado	10	-	-	1	-	-	2	3	6	2	2
New Mexico	3	-	-	-	-	-	-	-	2	6	11
Arizona	8	-	-	-	-	-	-	-	5	8	10
Utah	8	-	-	-	-	-	-	-	2	3	-
Nevada	-	-	-	-	-	-	-	-	-	2	1
PACIFIC											
Paralytic	110	6	3	-	-	2	1	12	35	143	71
Total	145	6	4	1	-	4	1	16	42	172	82
Washington	30	2	2	-	-	4	1	9	6	36	4
Oregon	17	-	1	-	-	-	-	1	4	31	4
California	93	4	-	1	-	-	-	5	31	96	70
Alaska	-	-	-	-	-	-	-	-	-	9	-
Hawaii	5	-	1	-	-	-	-	1	1	-	4
TERRITORY											
Puerto Rico	7	1	-	-	-	-	-	1	32	-	1