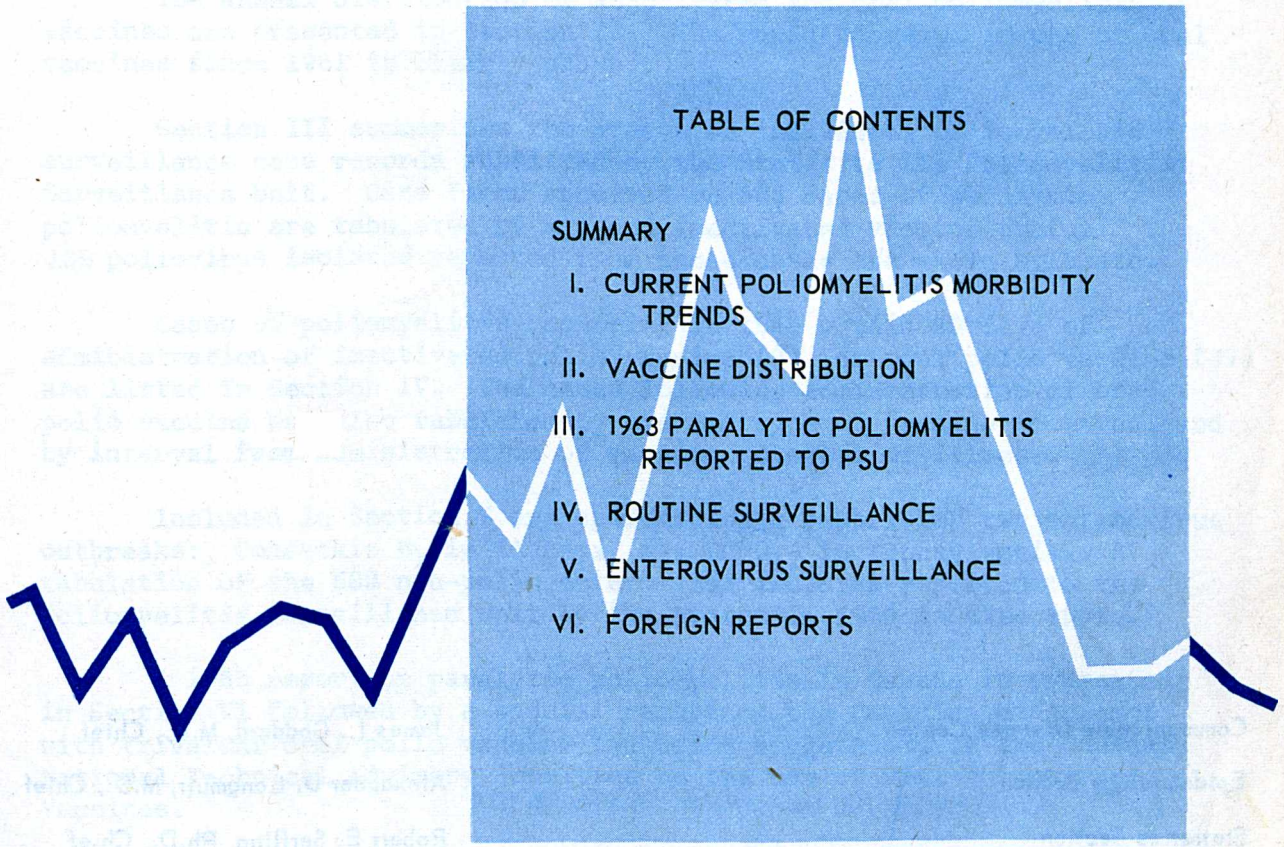
REPORT NO. 283
JANUARY 20, 1964

COMMUNICABLE DISEASE CENTER

POLIOMYELITIS

SURVEILLANCE



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

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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:
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SUMMARY

No cases of paralytic poliomyelitis were reported for the first two weeks of 1964. This marks the first time, since reporting of paralytic status began in 1951, that no paralytic cases were reported during a two week period.

For 1963, a preliminary total of 431 cases of poliomyelitis have been reported to the Communicable Disease Center. This marks the lowest number of cases ever to be reported in a single year since reporting was initiated in 1912, and is less than one-half the 910 cases reported in 1962, the previous low. Annual poliomyelitis incidence rates for the United States from 1935 to 1963 are tabulated and shown graphically in Section I.

The annual distribution of inactivated and oral poliomyelitis vaccines are presented in Section II. The rapid increase in use of oral vaccines since 1961 is clearly shown.

Section III summarizes the status of individual poliomyelitis surveillance case records submitted by the States to the Poliomyelitis Surveillance Unit. Case forms received on 303 cases of paralytic poliomyelitis are tabulated by age and inactivated vaccine status. The 169 poliovirus isolates reported from these cases are shown by State.

Cases of poliomyelitis occurring in 1963 within 30 days of administration of inactivated polio vaccine (3), or oral polio vaccine (37) are listed in Section IV. The cases following administration of oral polio vaccine are also tabulated by age and type of vaccine received, and by interval from administration of vaccine to onset of illness.

Included in Section V are epidemiologic reports of two enterovirus outbreaks: Coxsackie B_1 in Alabama, and $ECHO_{17}$ in Pennsylvania. A tabulation of the 583 non-polio enterovirus isolates reported to the Poliomyelitis Surveillance Unit by the States in 1963 is also shown.

A 1963 report on paralytic poliomyelitis in Canada is presented in Section VI followed by a special report on the Canadian experience with trivalent oral polio vaccine including suggestions of the Canadian National Technical Advisory Committee on the use of Oral Poliovirus Vaccines.

I. CURRENT POLIOMYELITIS MORBIDITY TRENDS

For the first two weeks of 1964, no cases of paralytic poliomyelitis were reported in the United States. This marks the first time, since reporting of paralytic status began in 1951, that there has been a two-week period in which no paralytic cases were reported. One case of nonparalytic poliomyelitis reported for the week ending January 11, represents the only case of poliomyelitis thus far in 1964.

The preliminary total of 431 cases reported in 1963 marks the lowest number of cases ever to be reported in any one year since reporting began in 1912, and is less than one-half the 910 cases reported in 1962, the previous low. Of the 431 cases, 258 (60%) occurred in six States: Pennsylvania (105); Alabama (53); Florida (37); Georgia (22); Virginia (21); Michigan (20) (See Table 1). Each of these States had outbreaks of poliomyelitis due to Type I poliovirus during 1963.

Annual poliomyelitis incidence rates are presented for the years 1935-1963 in the Figure shown on the following page. The peak year of 1952 yielded an attack rate of 37.2 per 100,000 population. The preliminary total for 1963 shows an attack rate of 0.2 per 100,000.

II. VACCINE DISTRIBUTION

The estimated annual distribution of inactivated and oral polio vaccines is shown graphically on page 5. The supporting figures are included below the graphs and the sources of the distribution data are presented below.*

Through October, 1963, there have been an estimated 455 million doses of inactivated vaccine distributed in the United States. The number of doses annually distributed has decreased each year since 1959.

Among the monovalent oral vaccines, there have been approximately 80 million doses of Type I, 66 million doses of Type II, and 67 million doses of Type III distributed through October, 1963. During 1963, a greater amount of Type III oral vaccine has been distributed as compared to Type I and Type II.

(Continued on Page 4.)

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* Sources of Distribution Data:

Inactivated Vaccine

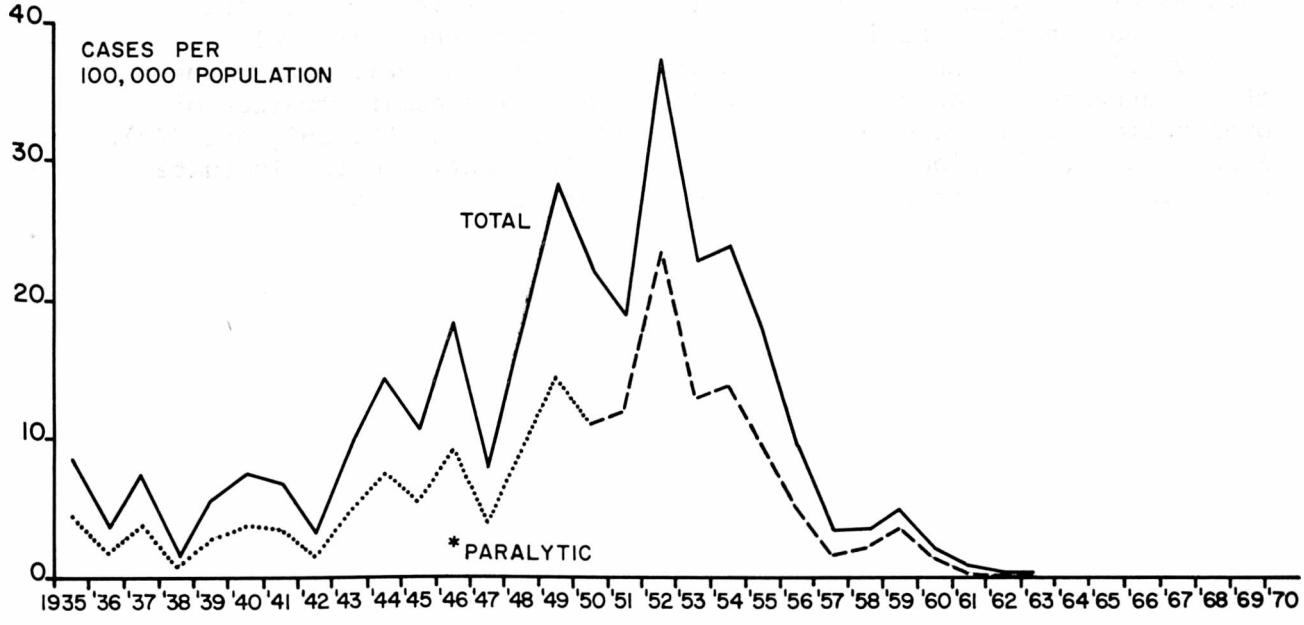
1954: Francis Vaccine Field Trials
April, 1955 - Sept., 1960: PHS Vaccine Agency, BSS
Sept., 1960 - April, 1962: National Foundation
May, 1962 - Oct., 1963: Biologic Surveillance Program, CDC

Oral Vaccine

Jan., 1960 - June, 1962: State Health Depts. and PHS Regional Offices
July, 1962 - Oct., 1963: Biologic Surveillance Program, CDC

Note: All figures should be considered estimates.

ANNUAL POLIOMYELITIS INCIDENCE RATES
UNITED STATES, 1935-1963



* PARALYTIC CASES PRIOR TO 1951 ASSUMED TO BE 50% OF TOTAL. SINCE 1951, CASES REPORTED AS UNSPECIFIED WERE PRORATED AMONG PARALYTIC AND NONPARALYTIC CASES.

Poliomyelitis Incidence by Paralytic Status, 1935-63

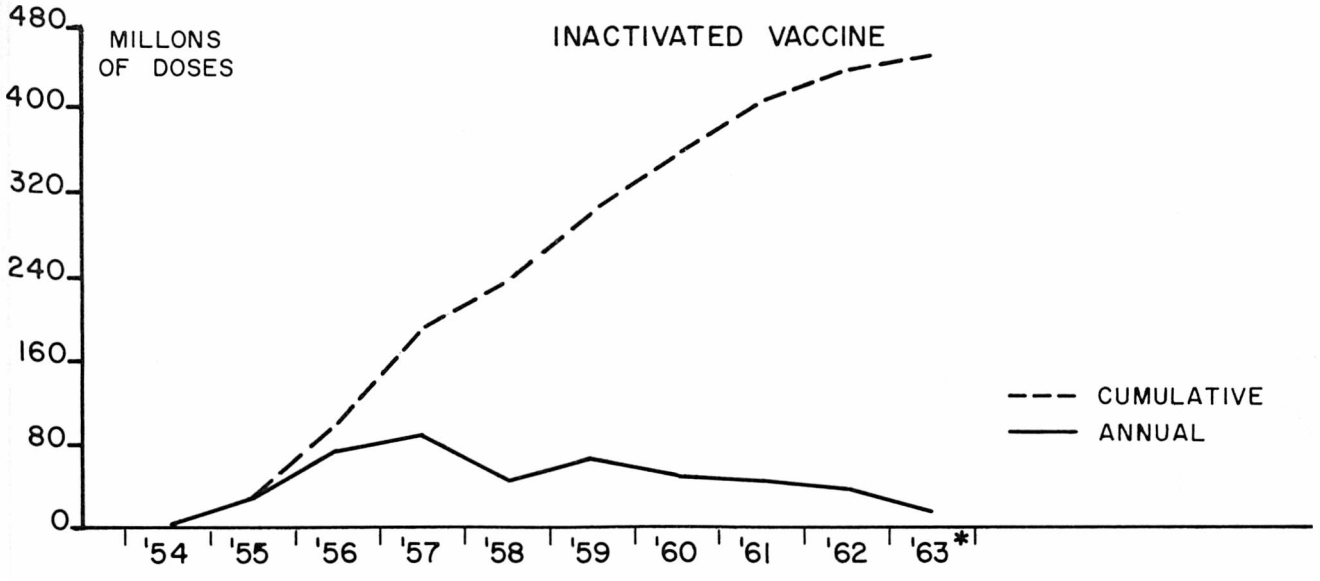
Year	Population(1) (000)	Total Cases	Attack Rate(2)	Year	Population(1) (000)	Total Cases	Attack Rate(2)	Year	Population(1) (000)	Total Cases	Attack Rate(2)
1935	127,250	10,839	8.5	1940	131,954	9,804	7.4	1945	132,481	13,624	10.3
1936	128,053	4,523	3.5	1941	133,121	9,086	6.8	1946	140,054	25,698	18.3
1937	128,825	9,514	7.4	1942	133,920	4,167	3.1	1947	143,446	10,827	7.5
1938	129,825	1,705	1.3	1943	134,245	12,450	9.3	1948	146,093	27,726	19.0
1939	130,880	7,343	5.6	1944	132,885	19,029	14.3	1949	148,665	42,033	28.3
								1950	151,863	33,300	21.9

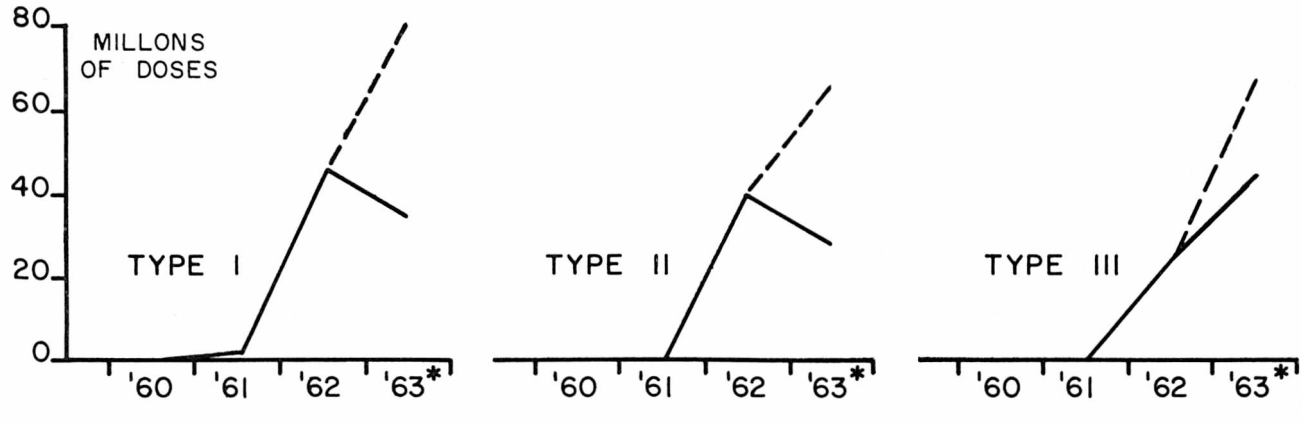
Year	Population (1) (000)	Paralytic Status: Paralytic	Nonparalytic	Unspecified	Total	Percent Paralytic (3)	Attack Rates (2): Paralytic (4)	Total
1951	153,383	10,037	5,470	12,879	28,386	64.7	12.0	18.5
1952	155,761	21,269	12,082	23,808	57,879	62.4	23.2	37.2
1953	158,312	15,648	12,144	7,800	35,592	56.3	12.7	22.5
1954	161,190	18,308	13,221	6,947	38,476	58.1	13.9	23.9
1955	164,302	13,850	12,453	2,682	28,985	52.7	9.3	17.5
1956	167,262	7,911	6,555	674	15,140	54.7	5.0	9.1
1957	170,295	2,499	2,826	160	5,485	46.9	1.5	3.2
1958	173,239	3,697	1,941	149	5,787	65.6	2.2	3.3
1959	176,511	6,289	2,045	91	8,425	75.5	3.6	4.8
1960	179,323	2,525	626	39	3,190	80.1	1.4	1.8
1961	182,953	988	305	19	1,312	76.4	0.5	0.7
1962	185,822	762	139	9	910	84.6	0.4	0.5
1963(5)	188,531	368	45	18	431	89.1	0.2	0.2

(1) Bureau of Census mid-year population estimates
(2) Per 100,000 population
(3) Percent paralytic of those with paralytic status specified
(4) Paralytic status reported since 1951; Paralytic attack rate includes cases reported as unspecified that were prorated among paralytic and nonparalytic cases
(5) Preliminary

The graphs on pages 6 through 8 depict monthly net distribution of the three types of monovalent oral vaccine since July 1962 by fiscal year. The estimated net distribution reflects the monthly distribution less recordable returned doses, whether produced by private concerns or State laboratories. Thus, as seen in November and December of 1962, returns exceeded distribution resulting in a negative number. This abrupt drop in distribution followed the Surgeon General's Oral Poliomyelitis Vaccine Advisory Committee's review of data concerning the occurrence of cases of poliomyelitis after the administration of oral poliomyelitis vaccine (See PSU Report Nos. 266, 268, 269, and 270). Subsequently, distribution of oral vaccine has continued to fluctuate according to the number of community programs in progress.

ESTIMATED ANNUAL DISTRIBUTION OF POLIOMYELITIS VACCINE



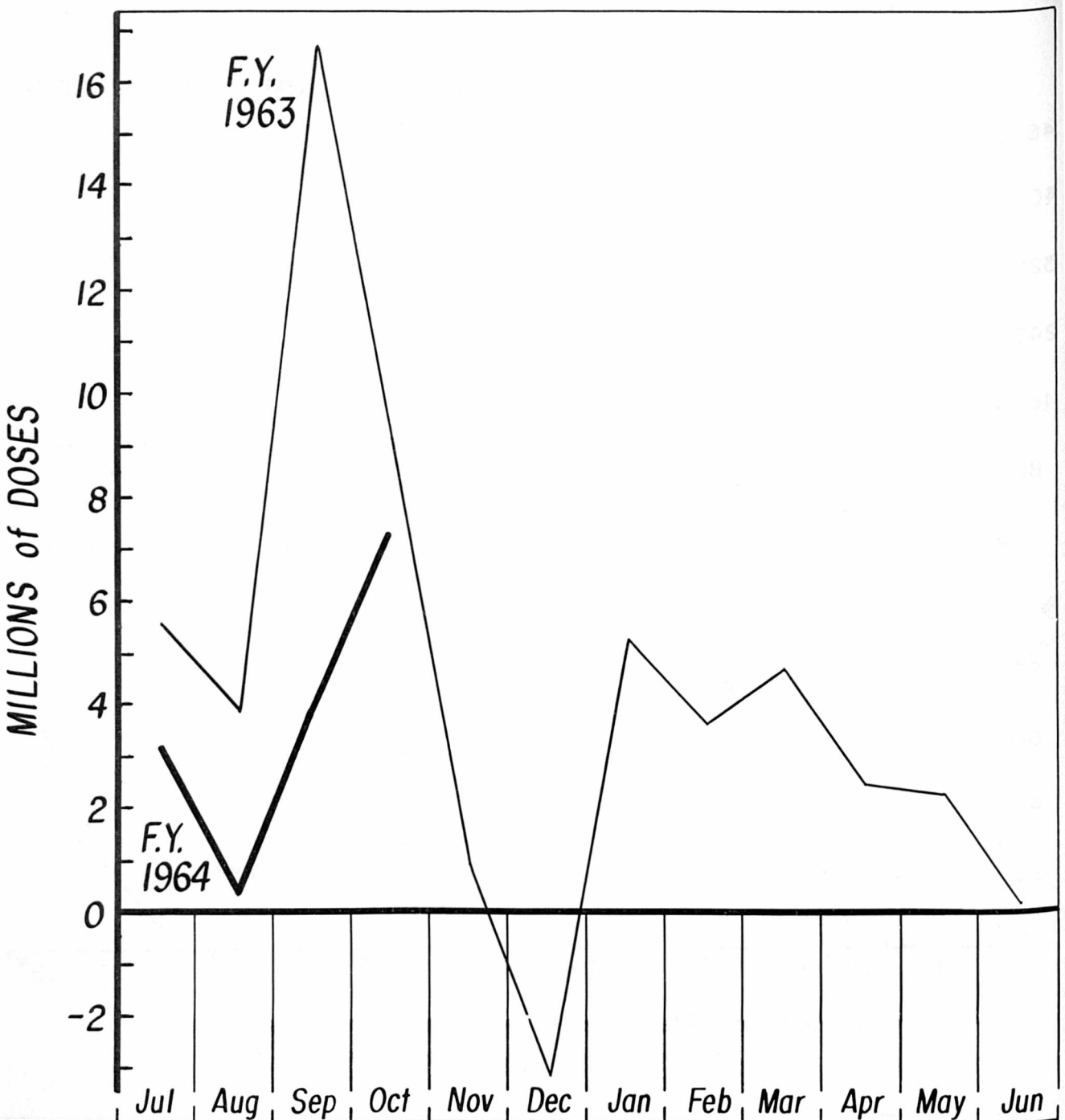


*Through October 1963

ESTIMATED DISTRIBUTION OF POLIOMYELITIS VACCINE
BY YEAR, UNITED STATES: 1954 - 1963
(THOUSANDS OF DOSES)

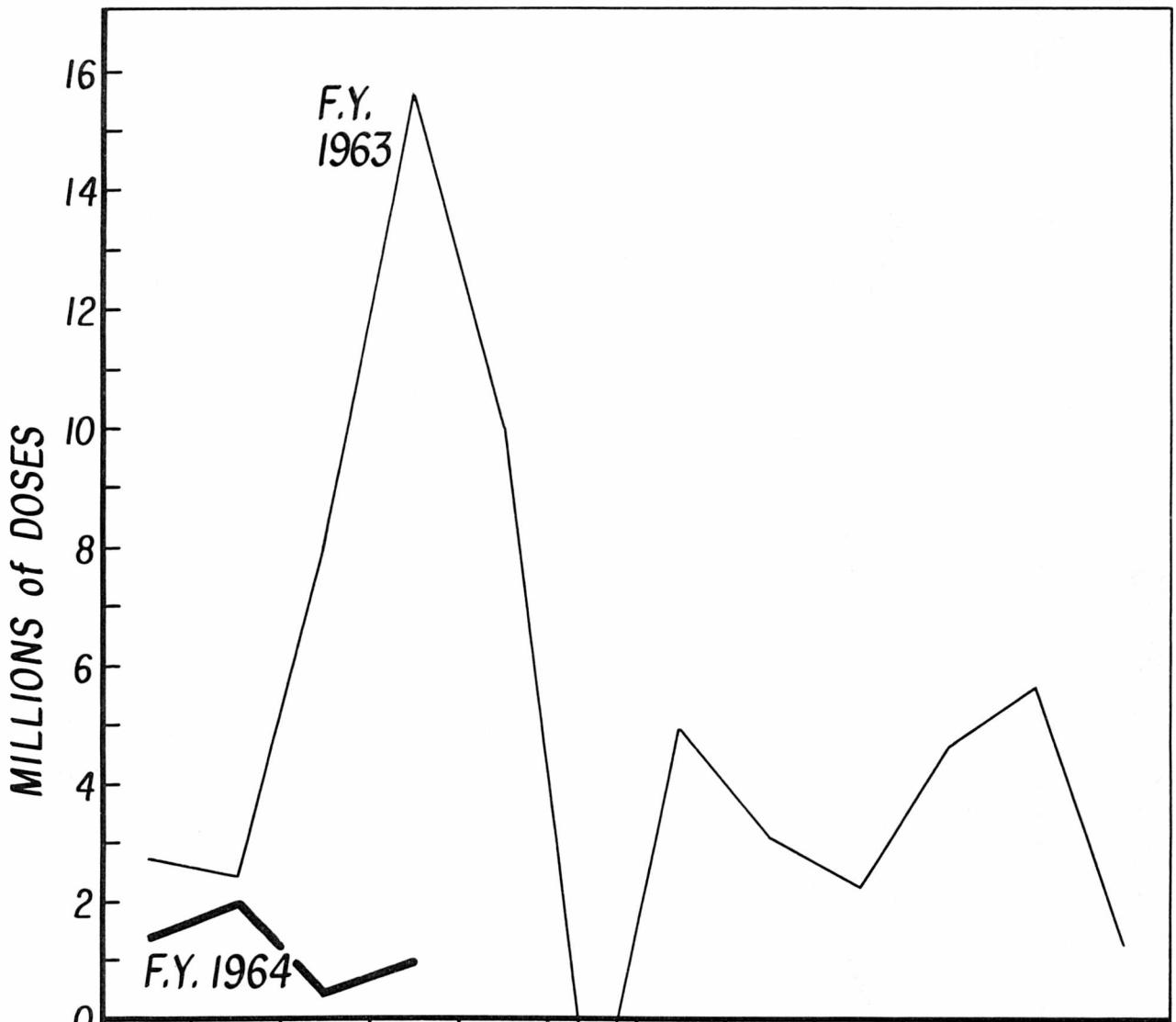
	Inactivated Vaccine		Oral Vaccine					
			Type I		Type II		Type III	
Year	Doses	Cumulative	Doses	Cumulative	Doses	Cumulative	Doses	Cumulative
1954	1296	1296						
1955	27657	28953						
1956	70566	99519						
1957	88246	187765						
1958	47055	234820						
1959	68048	302868						
1960	52250	355118	294	294	277	277	286	286
1961	45922	401040	1614	1908	199	476	495	781
1962	35817	436857	44568	46476	39379	39855	22687	23468
1963*	17700	454557	33158	79634	26581	66436	43303	66771

* Through October



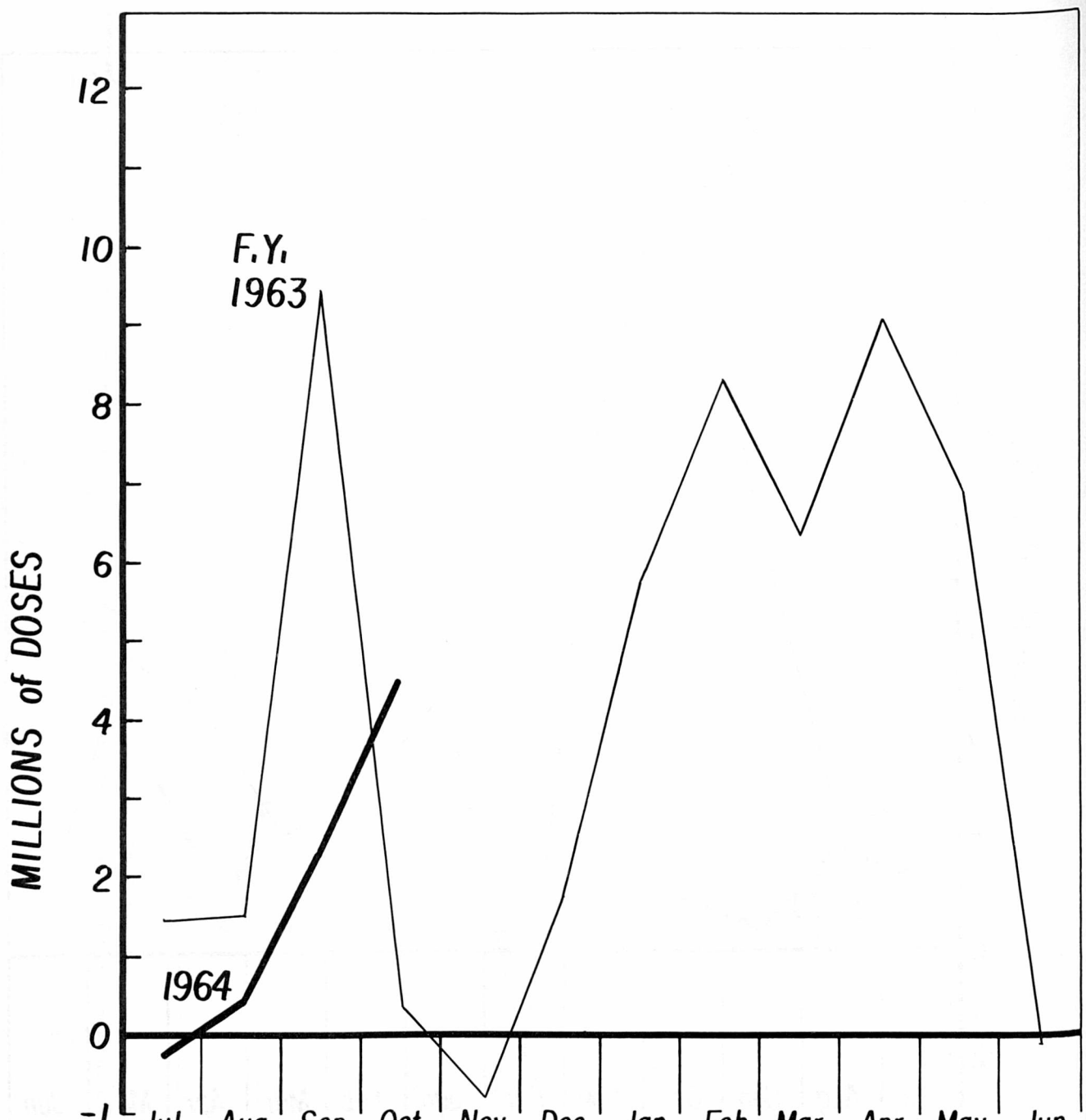
	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
F.Y. 1964	3,210,090	300,795	3,865,700	7,331,415								
F.Y. 1963	5,598,155	3,885,355	16,696,535	9,190,105	947,380	-3,179,215	5,285,130	3,611,820	4,697,950	2,476,120	2,266,355	112,525

POLIOMYELITIS VACCINE, LIVE ORAL, TYPE I



	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
F.Y. 1964	1,381,760	1,982,285	460,490	936,395								
F.Y. 1963	2,730,740	2,404,800	8,114,858	15,645,387	10,077,230	−2,005,590	4,937,360	3,086,000	2,262,710	4,614,095	5,633,765	1,287,095

POLIOMYELITIS VACCINE, LIVE ORAL, TYPE II



	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
F.Y. 1964	-238,405	429,040	2,261,745	4,507,200								
F.Y. 1963	1,437,785	1,496,905	9,477,020	355,785	-793,790	1,741,540	5,750,825	8,306,130	6,328,165	9,082,860	6,906,120	-31,465

POLIOMYELITIS VACCINE, LIVE ORAL, TYPE III

III. 1963 PARALYTIC POLIOMYELITIS REPORTED TO THE POLIOMYELITIS SURVEILLANCE UNIT

Of the 368 cases of paralytic poliomyelitis reported by weekly telegram in 1963, the Poliomyelitis Surveillance Unit has received individual case forms on 303 (82.3%) through January 10, 1964. As in past years, the 1963 case files will close on March 1, the date by which all 60-day follow-up reports should have been submitted. Additional laboratory reports may be added to the 1963 case forms until May 1, 1964. Due to continued excellent cooperation on the part of State epidemiologists, the percentage of cases with 60-day followups has increased each year as shown in the following table:

Individual Case Records Reported by States to PSU, 1958-62

Year	Total Telegraphic Reports	PSU Case Records		
		Preliminary Reports	60-Day Follow-up Reports	Percent 60-Day Follow-ups
1958	5,787	6,125	4,919	80.3
1959	8,425	8,635	7,523	87.1
1960	3,190	3,304	3,095	93.7
1961	1,312	1,356	1,284	94.7
1962	910	909	886	97.5

The status of 1963 PSU forms, as of January 10, is shown below by States who had reported at least 5 cases to the Morbidity and Mortality Weekly Report with 1963 onset.

Status of 1963 PSU Forms
By State*
(Through January 10, 1964)

State	No. of Cases Reported to MMWR	PSU Forms Received	60-Day Follow-ups Received
Alabama	52	51	30
Arkansas	5	3	3
California	18	12	10
Florida	37	5	5
Georgia	22	18	17
Illinois	17	13	8
Michigan	20	18	13
Mississippi	10	10	10
New York	11	11	9
North Carolina	6	3	3
Ohio	8	6	6
Pennsylvania	105	101	84
South Carolina	9	8	4
Tennessee	12	11	10
Texas	9	9	6
Virginia	21	17	3

* States reporting at least 5 cases with 1963 onset to the Morbidity and Mortality Weekly Report by telegram.

Through January 10, 1964, the Poliomyelitis Surveillance Unit has received the results of virological studies performed on specimens from 200 (66.0%) of the 303 cases of paralytic poliomyelitis reported on PSU forms. A total of 169 (84.5%) poliovirus isolates were obtained from the 200 cases. Of these, 135 are Type I; 7 are Type II; and 27 are Type III polioviruses.

Seventy-six percent of the Type I isolates have been reported from Alabama, Michigan, Pennsylvania and Virginia. Each of these States are known to have had Type I poliomyelitis outbreaks during 1963 (See PSU Report Nos. 279, 280, 281). Isolations are shown by State in the following table:

State	Total Paralytic Cases	Poliovirus Isolations I	II	III	Total Isolations
Alabama	46	13	0	0	13
Arizona	2	2	0	0	2
Arkansas	2	0	1*	1*	2
California	11	1	0	4	5
Connecticut	2	0	1	0	1
Florida	5	1	0	1	2
Georgia	17	0	0	3	3
Idaho	1	1	0	0	1
Illinois	13	5	0	0	5
Indiana	4	1	0	0	1
Louisiana	4	2	0	2	4
Maine	2	0	0	1	1
Massachusetts	2	1	0	1	2
Michigan	18	15	0	2	17
Minnesota	4	0	0	1	1
Mississippi	10	2	0	0	2
New Jersey	2	1	0	1	2
New Mexico	1	1	0	0	1
New York	6	1	1	1	3
North Carolina	2	1	0	0	1
Ohio	4	0	0	2	2
Pennsylvania	82	66	1	1	68
South Carolina	8	1	1	1	3
Tennessee	10	4	0	1	5
Texas	9	3	0	2	5
Virginia	15	8	0	0	8
Washington	2	1	1	0	2
West Virginia	4	0	1	2	3
Wisconsin	6	4	0	0	4
Other States	9	0	0	0	0
TOTAL	303	135	7*	27*	169
PERCENT		79.9	4.1	16.0	100.0

* Includes one patient from whom both Types II and III were isolated.

The inactivated vaccine status of the 303 paralytic cases is presented below by age group. One-half of the cases are under 5 years of age. Sixty-four percent of the 294 cases with known vaccination history were unvaccinated, whereas, only 9 percent had received 4 or more doses of inactivated vaccine.

1963 Paralytic Poliomyelitis by Age Group
and Inactivated Vaccination History Reported on PSU Forms
(PSU forms received through January 10, 1964)

Age Group	Doses of Inactivated Vaccine					TOTAL	Percent
	0V	1-2V	3V	4+V	Unk.		
0-4	108	24	10	6	3	151	49.8
5-9	27	11	10	12	1	61	20.1
10-14	19	2	6	5	1	33	10.9
15-19	5	5	1	1	1	13	4.3
20-29	15	1	5	1	1	23	7.6
30-39	8	2	2	1	0	13	4.3
40+	6	0	0	1	2	9	3.0
TOTAL	188	45	34	27	9	303	100.0
PERCENT Doses	63.9	15.3	11.6	9.2	-	100.0	

IV. ROUTINE SURVEILLANCE

A. Cases Occurring Within 30 Days Following Inactivated Vaccine

Three cases of paralytic poliomyelitis, occurring within 30 days following inactivated vaccine, have been reported on individual case forms to the Poliomyelitis Surveillance Unit for 1963. A line listing is presented below:

State	County	Age	Sex	Onset	Date Vacc.	Intv. (Days)	Doses IPV	Paralytic Status
Michigan	Monroe	3	F	4-28	4-23	5	4	P
Alabama	Lawrence	1	M	8-27	8-15	12	1	P
Virginia	Dinwiddie	1	F	9-7	8-28	10	1	P

B. Cases Occurring Within 30 Days Following Oral Vaccine

Through December 31, 1963, 37 cases of poliomyelitis (34 paralytic), occurring within 30 days following administration of oral vaccine, have been reported to the Poliomyelitis Surveillance Unit.

Eight of the 37 cases have been reported since the last issue of the PSU Report (No. 282, December 6, 1963). Seven of the 8 newly reported cases were paralytic and had received Type I vaccine. All but one of the Type I recipients were reported from epidemic areas. The 37 cases are presented in chronological order by onset of illness on the following page in a line listing of under 30-day OPV cases reported to the Poliomyelitis Surveillance Unit through December 31, 1963.

Under 30-day OPV Cases
Reported to PSU Through December 31, 1963

State	County	Age	Sex	Onset	Date Fed	Intv. (Days)	Type Fed	Doses IPV	Para. Status	Other Cases*
Calif.	Sacramento	38	M	1-24	1-13	11	III	0	P	0
Texas	Bexar	20	M	1-25	1-13	12	III	0	P	0
La.	Evangeline	10	M	2-14	2-10	4	I	Unk.	P	0
Calif.	Los Angeles	34	M	3-1	2-9	20	III	0	P	0
Idaho	Ada	47	M	3-12	3-10	2	I	0	P	0
Wash.	Yakima	61	F	3-17	3-3	14	I	0	P	0
Calif.	Shasta	2	M	3-26	3-10	16	III	3	P	0
Wisc.	Chippewa	18	M	3-26	3-16	10	I	Unk.	P	0
Calif.	Kings	10 mo.	M	4-1	3-10	22	III	0	P	0
La.	Rapides	4	M	4-14	4-7	7	I	5	P	0
Wisc.	LaCrosse	38	F	5-4	4-21	13	III	3	P	0
Maine	Kennebec	43	M	5-8	4-21	17	I	0	P	0
Minn.	Hennepin	19	M	5-27	5-13	14	III	0	P	0
Calif.	San Franisco	21	M	5-28	5-20	8	III	Unk.	P	0
Mass.	Middlesex	27	F	6-7	5-19	19	III	4	P	0
Pa.	Schuylkill	30	M	6-8	5-25	14	III	0	P	0
Tenn.	Montgomery	11 mo.	M	6-16	6-6	10	III	0	P	0
Pa.	Perry**	5	M	6-23	6-22	1	I	0	NP	0
Pa.	Cumberland**	9	M	6-23	6-22	1	I	0	P	13
Pa.	Perry**	12	M	6-24	6-22	2	I	0	P	0
Pa.	Cumberland**	4	M	6-26	6-22	4	I	0	NP	13
Pa.	Cumberland**	4	F	6-27	6-22	5	I	4	P	13
Pa.	Cumberland**	11	F	6-27	6-26	1	I	0	P	13
Pa.	Cumberland**	6	F	6-29	6-22	7	I	0	P	13
Pa.	Cumberland**	4	F	7-2	6-22	10	I	0	P	13
Ala.	Lawrence**	17 mo.	M	8-27	8-24	3	I	1	P	5
Minn.	Anoka	24	M	9-15	9-1	14	I	3	P	0
La.	Rapides	2	F	9-16	9-15	1	III	0	NP	0
Pa.	Luzerne	29	M	9-22	9-15	7	I	0	P	6
Mich.	Kent**	1	F	9-23	9-21	2	I	Unk.	P	6
Pa.	Philadelphia**	5	M	9-23	9-22	1	I	4	P	44
Pa.	Philadelphia**	11 mo.	F	9-24	9-22	2	I	0	P	44
Pa.	Philadelphia**	8	M	9-25	9-22	3	I	4	P	44
Mich.	Kent**	3	F	9-27	9-21	6	I	Unk.	P	6
N.J.	Burlington	41	F	9-30	9-22	8	I	Unk.	P	0
Pa.	Philadelphia **	8	F	9-30	9-22	8	I	4	P	44
Pa.	Delaware**	3	F	10-1	9-29	2	I	2	P	7

* Cases who did not receive OPV occurring in same county ± 3 months.

** Epidemic Areas where mass vaccination was employed; viz. Perry - Cumberland Counties, Pa. 77,000 doses Type I; Philadelphia (Metropolitan area) 1,500,000 Type I; Lawrence - Winston - Marion Counties, Ala. 35,764 Type I; Kent County, Mich. 348,000 Type I.

The paralytic cases are divided into epidemic and non-epidemic areas and are shown by interval from date of feeding to onset of illness in the table below. Seventeen of the 20 cases in non-epidemic areas occurred within 5-21 days after feeding. This compares to 9 of the 14 cases in epidemic areas occurring within 4 days following receipt of oral vaccine.

Under 30 Day OPV Paralytic Cases
By Interval (1963)

Interval	Number of Cases (non-epidemic areas)	Number of Cases (epidemic areas)
1-4 days	2	9
5-14 days	13	5
15-21 days	4	0
22-30 days	1	0
TOTAL	20	14

The following table presents the cases in non-epidemic areas by age and type of vaccine received. Six of the 9 cases receiving Type I oral vaccine and 7 of the 11 receiving Type III oral vaccine were 20 years of age or older. All 14 cases reported from epidemic areas were under 15 years of age.

Under 30 Day OPV Paralytic Cases by Age Group
and Type of Vaccine Received
(Excluding epidemic areas)

Age Group	Type of Oral Vaccine Received			Total
	I	II	III	
0-4	1	0	3	4
5-9	0	0	0	0
10-14	1	0	0	1
15-19	1	0	1	2
20-29	2	0	3	5
30-39	0	0	4	4
40+	4	0	0	4
TOTAL	9	0	11	20

V. ENTEROVIRUS SURVEILLANCE

A. Nation-wide Enterovirus Isolations

There have been 158 non-poliovirus isolations reported to the Poliomyelitis Surveillance Unit since the last issue of this report (PSU No. 282, December 6, 1963). A total of 583 isolations have now been reported thus far for 1963. These are tabulated by State and presented below. Coxsackie B_1 continues to be the most commonly reported isolate.

Non-poliovirus Isolations from 1963 Specimens

State	ECHO					Coxsackie						Total
	4	9	11	14	Other*	A_9	B_1	B_2	B_3	B_4	Other**	
Alabama	0	0	0	0	0	0	10	0	0	0	0	10
California	35	1	2	4	27	3	23	0	0	9	11	115
Connecticut	3	2	1	1	0	3	0	0	1	0	0	11
Georgia	1	0	0	0	0	0	4	0	0	0	1	6
Idaho	0	0	0	1	0	0	0	0	2	0	0	3
Illinois	0	4	0	0	6	7	17	1	1	2	4	42
Kansas	0	1	16	0	4	1	19	0	0	0	0	41
Kentucky	1	11	0	0	1	0	0	0	1	0	1	15
Louisiana	0	0	0	1	3	4	4	3	0	1	5	21
Maryland	0	4	0	0	0	0	0	1	0	5	0	10
Massachusetts	0	2	0	0	0	3	0	1	0	0	0	6
Michigan	2	7	0	1	6	4	4	0	0	0	0	24
Minnesota	0	4	6	10	3	6	12	0	0	5	0	46
Missouri	0	0	0	0	0	0	0	0	0	0	1	1
New Mexico	0	4	0	0	0	0	0	0	0	0	0	4
New York	5	24	0	2	3	29	2	2	0	1	8	76
Ohio	0	3	1	0	3	2	4	0	1	0	0	14
Oregon	0	4	0	0	2	1	0	0	0	0	0	7
Pennsylvania	1	1	4	0	16	0	4	8	0	6	17	57
South Carolina	1	0	0	0	0	0	0	0	0	0	0	1

(continued next page)

Non-poliovirus Isolations from 1963 Specimens (continued)

State	ECHO					Coxsackie						Total
	4	9	11	14	Other*	A_9	B_1	B_2	B_3	B_4	Other**	
Tennessee	0	0	0	0	5	1	3	0	1	0	0	10
Texas	0	7	0	0	1	5	9	2	1	2	0	27
Utah	0	0	1	0	0	1	0	0	0	2	0	4
Vermont	0	0	0	0	0	0	0	2	0	0	0	2
Virginia	0	0	0	0	0	0	1	0	0	1	0	2
Washington	0	8	0	1	0	3	0	1	0	1	0	14
Wisconsin	0	1	1	2	0	0	3	2	0	1	4	14
TOTAL	49	88	32	23	80	73	119	23	8	36	52	583

* ECHO virus isolations as follows: Calif.-$3E_2$, $1E_3$, $1E_5$, $1E_6$, $1E_8$ $2E_{10}$, $1E_{13}$, $4E_{17}$, $5E_{19}$, $1E_{22}$, $1E_{29}$, $6E_{31}$; Ill.-$2E_6$, $2E_8$, $2E_{25}$; Kansas-$2E_6$, $2E_8$; Ky.-$1E_{17}$; La.-$3E_{17}$; Mich.-$2E_6$, $2E_7$, $1E_{15}$, $1E_{22}$; Minn.-$2E_5$, $1E_6$; N.Y.-$1E_7$, $1E_{10}$, $1E_{23}$; Ohio-$1E_6$, $1E_8$, $1E_{15}$; Oregon-2 ECHO type not determined; Pa.-$2E_1$, $1E_6$, $1E_7$, $2E_8$, $6E_{17}$, $2E_{18}$, $2E_{27}$; Tenn.-$3E_5$, $2E_8$; Texas-$1E_5$

** Coxsackie virus isolations as follows: Calif.-$3A_6$, $1A_8$, $2A_{10}$, $5A_{16}$; Ga.-$1A_7$; Ill.-4B5; Kansas-$1B_5$; La.-$5A_2$; Mo.-$1B_5$; N.Y.-$1A_1$, $1A_3$, $1A_4$, $1A_5$, $3A_{23}$; Pa.-16 A untyped, 1 Coxsackie untyped; Wisconsin-4A untyped.

B. State Reports

1. Alabama - Epidemic Pleurodynia due to Coxsackie B_1 Virus

The following report of an investigation of an outbreak of pleurodynia is included with permission of Dr. W.H.Y. Smith, Director, Bureau of Preventable Diseases, Alabama State Health Department.

The Clinical Syndrome

During the last 3 weeks of July and first week of August the physicians of LaFayette (Pop. 2,605) estimated that 250 persons consulted them because of illness characterized by acute onset of severe pleuritic pain and fever. Pain was described variously as "gripping", "knifelike", and "catching" and was accentuated by sudden movement of the trunk or taking a deep breath. The location of the pain was characteristically along the costal margins and/or upper abdomen although aching pain in the back or limbs was noted in several cases. Most patients found the position of maximal comfort to be a somewhat stooped, motionless stance. In an attempt to minimize chest wall motion a shallow breathing pattern was adapted. In some cases the breathing efforts involved in carrying on a conversation were sufficient to produce sharp pain. Other frequently reported symptoms were marked malaise and headache which was non-throbbing in nature and not well localized. Vomiting was occassionally noted and one case of orchitis in an adult male was recorded. With few exceptions, illness lasted 2-7 days.

Six patients were hospitalized, one with clinical and ECG evidence of pericarditis. Many people with milder symptoms did not see a physician. Others had varying combinations of fever, headache, malaise, and abdominal discomfort without pleurodynia.

The physicians noted no increase in aseptic meningitis, diarrheal illness, exanthem or herpangina during July and August. However, 12 miles to the East in Lanett, Alabama, a pediatrician reported an outbreak of herpangina in June and July in which he estimated 200 children were affected by an illness lasting 2-5 days and characterized by high fever, anorexia and sore throat with numerous ulcerative lesions on the soft palate. No virus isolation was attempted.

The Investigation

With the exception of sporadic cases which continued to occur in August, the outbreak was largely over by the time an epidemiologic investigation was initiated. An attempt to get an accurate case count was made by: 1) interviewing the physicians in the area; 2) surveying the health records of all nearby businesses employing more than 50 persons (no unusual absenteeism was noted); 3) asking identified cases about contacts and other cases and 4) reviewing hospital records.

The physicians estimated that they had seen about 250 cases with acute onset of pleuritic pain and fever during the last 2 weeks of July and first week of August. Six patients required hospitalization, one with pericarditis. However, there was considerable variation in the physicians' opinions of the severity of illness and the population groups involved. While one felt that severe disability was limited to the young adult white male population, others stated that the syndrome was observed in Negroes as well and felt that there was no marked age or sex predilection. However, the physicians agreed that cases were limited to LaFayette residents, and in the 20-30% of their practices devoted to out of town patients, the syndrome was unusual. Because the physicians saw as many as 75 office patients per day, records were kept only on patients who were hospitalized. This meant that specific case identification was not possible for a large majority of cases.

However, because of an apparent greater severity of illness among young adult white males (5of the 6 hospitalized patients were among this group) and their availability for questioning through various civic groups, the case count among young adult white males was most complete. Therefore, this group was selected for further epidemiologic investigation.

Characteristics of the Epidemic Among Young Adult White Males

At least 15 white males between the ages of 25 and 34 living in LaFayette developed an acute illness characterized by pleuritic pain and fever during the period July 22 through August 3. Census figures (1960) indicate 120 persons of this age group living in LaFayette. Upon investigation it quickly became apparent that a majority of cases in this group had attended either the Rotary Club luncheon on July 19 or the Junior Chamber of Commerce (Jaycee) dinner on July 22 and had become ill 3-7 days following the meetings.

Information was collected on each case occurring among Jaycee or Rotary club members by 1) questionnaire including onset date, symptoms, contacts, etc. 2) hospital records 3) personal contact or 4) a combination of these three methods. In addition, a number of members who attended the meetings but did not become ill were interviewed. Seven of 19 (37%) Rotarians developed fever and pleuritic pain 3-7 days following the July 19 luncheon meeting at the LaFayette Community House. Another member was ill 3 days prior to the meeting but felt well enough on July 19 to attend. (See histogram 1A) Of 14 Rotarians who did not attend the meeting, none reported illness when polled at a subsequent meeting.

Of 14 Jaycees who attended a dinner meeting at the LaFayette Community House on July 22, 8 became ill 3 to 4 days following, one on the day subsequent to the meeting and one became ill 12 days after the meeting giving an overall attack rate of 71% (10/14). (See histogram 1B) The case who became ill on the day following the meeting had attended the Rotary Club meeting on 7/19. Four members who were absent from the meeting were reported by acquaintances to be in good health. This marked difference in attack rates between those who attended meetings and those who were absent suggests that in some way the illness was transmitted at the meetings. Both meetings were held at the LaFayette Community House which is a well-kept log building with a large social room and adjoining kitchen. It is used only for civic club meetings, town functions, and social occasions. The only other meal served there during the week ending September 26 was the Kiwanis Club luncheon on July 23. The secretary of the Kiwanis Club reported no excess absenteeism at subsequent meetings and knew of no illness among club members following the July 23 meeting.

The possibility of disease transmission by contaminated food at the meetings on July 19 and 22 was considered. Individual food histories were obtained from each Jaycee who was present at the July 22 meeting (see Table 1). Although the numbers are small, no food item is incriminated by the comparative attack rates. It was a longstanding managerial policy that no food served at one meal was served again at a subsequent meal, and careful questioning indicated that no exception was made for the meals in question. All items were prepared on the day of consumption and left-over food was given to the food hadnlers to take home. They reported no morbidity among their families.

The staff involved in the preparation of each meal consisted of the manager and either 2 or 3 Negro women who prepared and helped to serve the meal. The manager whose role was primarily that of hostess also helped in the serving of the meals at all three civic club meetings. She did not become ill and a stool culture taken on August 10 was negative. A diagram showing which meals each of the 5 food handlers helped to prepare is shown in Table 2. Two of the 3 food handlers who pariticipated in the July 19 meal developed symptoms of pleurodynia 2 days later. Since the incubation period appears to be 3-7 days it is probable that these women were already infected at the time of the meeting. In addition to preparing the meal, the foodhandlers served and cleared dishes while the Rotarians were seated at the table.

Food handler #3, who did not become ill, also helped to prepare the Jaycee meal on July 22, together with a new food handler #4. Both denied symptoms of pleurodynia or fever.

Food handler #1, who became symptomatic following the Rotary meal on July 19, felt well enough on July 23 to help in the preparation of the Kiwanis meal. She was assisted by another new food handler (#5) who denied subsequent illness.

Stool specimens could be obtained only from food handlers #1 and #2. Both had had pleurodynia and fever but the specimens were collected more than 2 weeks following onset of symptoms and no enterovirus was recovered. Unfortunately, food handler #3, the only one present at both the Rotary Club meeting and Jaycee meeting, did not submit a stool specimen. However, a subsequent blood specimen showed no neutralizing antibodies to Coxsackie B-1.

The possibility of person to person spread among civic club members who attended the meetings at the Community House was difficult to assess. The meetings lasted approximately 1 to 1½ hours. Extensive hand shaking and fraternization before and after the meal offered ample opportunity for fecal-oral and/or respiratory droplet spread. Washing facilities were not conveniently located and were not customarily used by those arriving at the Community House for a meal.

Case 1 on histogram 1A became ill on July 16 and was the index case in the outbreak among the Rotarians. Case 1 in histogram 1B is both a Jaycee and a Rotarian and attended both the meetings in question before developing clinical illness on July 23. He may have introduced the agent to the Jaycees. It would appear that direct person to person spread via respiratory droplet and/or fecal oral route is the most plausible explanation for the transmission of disease at the Community House meetings.

At the time of the investigation, secondary cases among families of the civic club members were uncommon. One Jaycee reported that 9 days after he developed pleurodynia, his 10 year old daughter developed chills, fever to 102°, headache, abdominal pain, and vomiting. Interview and questionnaires from the other Jaycees did not reveal other secondary cases. Information on secondary cases among families of Rotarians is incomplete.

In several other families which were not connected with the civic clubs, secondary cases were noted to occur at intervals from 1-7 days. During the latter part of August and September, the physicians in LaFayette noted that cases continued to occur among the children of the community.

Laboratory Data

Coxsackie B_1 virus was recovered in the Alabama State Laboratory from 3 of 4 stool specimens submitted on acutely ill members of the civic clubs. The patient whose stool was negative for virus, showed a persistently elevated neutralization titer (1:16) to Coxsackie B-1 in acute and convalescent sera.

In addition, studies were done on a hospitalized case (not a civic club member) who developed clinical and ECG evidence of pericarditis. Although no virus was recovered from a fecal specimen, a neutralizing antibody titer rise from 1:64 to 1:1024 was demonstrated in paired sera. Seven additional Coxsackie B-1 isolations were made at the CDC Enterovirus Laboratory from specimens submitted from cases during the recovery phase. Five of these were from individuals who did not have any direct connection with the civic clubs. They demonstrate secondary spread to a family contact in 2 cases, the presence of Coxsackie B_1 infection in a child in another case, and the presence of Coxsackie B-1 infection in various socioeconomic classes in the others. Thus it is clear that the virus was widespread throughout the community.

Comment

The apparent transmission of enterovirus among adults by casual person to person contact at 2 civic club meetinsg is unusual and worthy of note. The first Coxsackie virus to be associated with epidemic pleurodynia was Coxsackie group B serotype I which was isolated from a 14 year old boy who became ill in September 1948[1]. Subsequently Weller, Enders, et al[2] reexamined specimens collected during 1947 epidemic of pleurodynia in Boston and found the agent to be Coxsackie B_1. Since then epidemic pleurodynia has been associated with Coxsackie Group B viruses serotypes 2 through 5. However, since the isolations of Coxsackie B_1 in the late 1940's, this agent has not been reported in association with any large outbreaks of pleurodynia in this country until the LaFayette outbreak. In Europe, however, epidemic pleurodynia due to Coxsackie B_1 has occurred as recently as 1960 (Belgium).[3] The infrequent isolation of Coxsackie B_1 virus in the United States in recent years has generated a concern that outbreaks related to this agent may be expected with greater frequency. This concern is borne out by the increased reports of Coxsackie B_1 isolates by the States to CDC. Of 613 non-polio enterovirus isolates reported in 1962 (see PSU Report No. 275) 15 (2.4%) were Coxsackie B_1. In preliminary figures for 1963, Coxsackie B_1 isolates total 119 and represent 20.4% of the 583 non-polio enterovirus isolates reported to CDC.

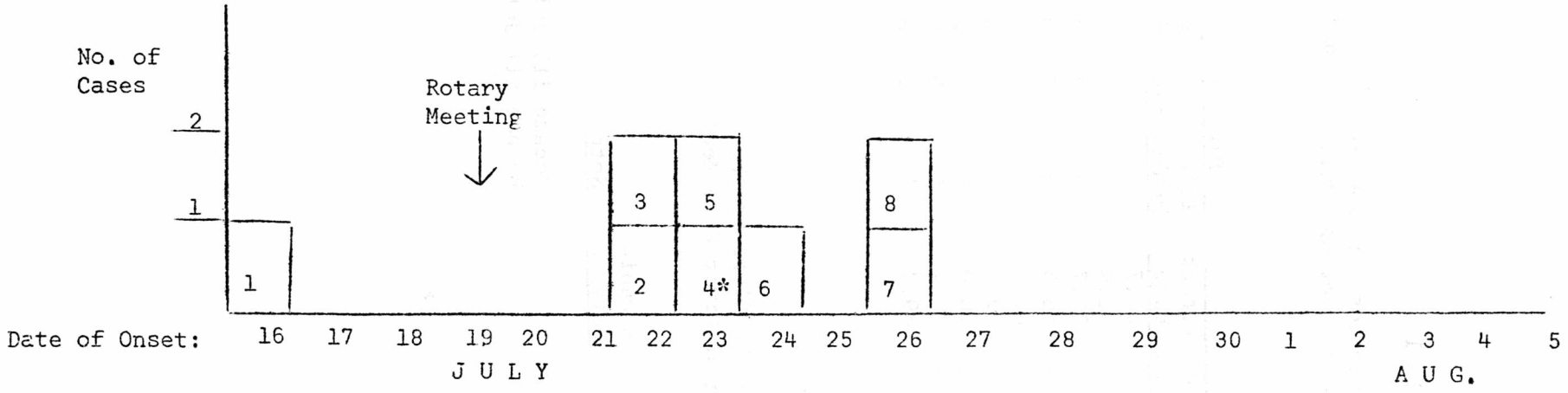
Summary

Epidemic pleurodynia and fever (Bornholm disease) due to Coxsackie B_1 virus occurred in LaFayette, Alabama during the last part of July and early August. The disease was widespread throughout the community and attack rates were as high as 125 per 1000 in the adult white male population. Among members of this group, the majority of those who became ill, did so 3-7 days following participation in either the Rotary Club or Junior Chamber of Commerce luncheon. It appears that person to person contact was responsible for transmission of disease at these meetings.

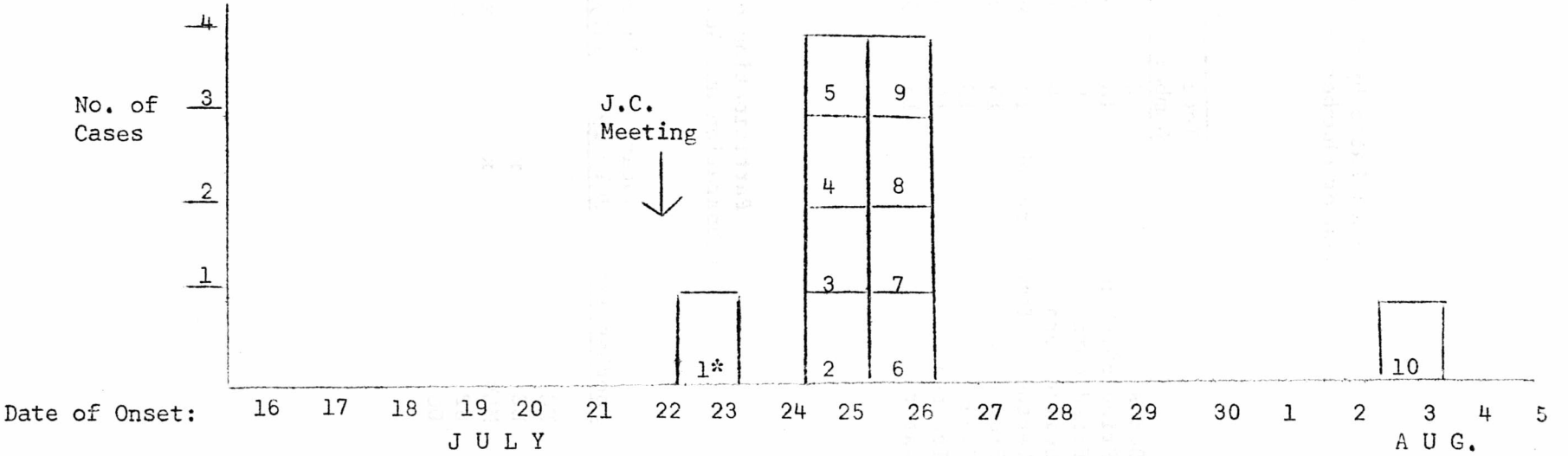
Preliminary totals for 1963 show that Coxsackie B_1 isolates represent 20.4% of the non-polio enterovirus isolates reported to CDC. This represents a sharp increase since 1962 when only 2.4% of the reported non-polio enterovirus isolates were Coxsackie B_1.

CASES OF PLEURODYNIA AMONG MEMBERS OF TWO CIVIC CLUBS BY
DATE OF ONSET OF PAIN - LaFayette, Alabama 1963

I A - Rotary Club



I B - Junior Chamber of Commerce



*Case 4 in the Rotary Club Histogram is the same individual as Case 1 in the Junior Chamber of Commerce histogram.

Table 1

Attack Rates by Food Histories for Meal Served
at Junior Chamber of Commerce Meeting, July 22, 1963

	Did Eat				Did Not Eat			
	Total Number	Sick	Not Sick	Attack Rate	Total Number	Sick	Not Sick	Attack Rate
Beans	12	8	4	66.7	2	2	0	100
Fried chicken	14	10	4	71.4	0	0	0	-
Fried corn	9	7	2	77.7	5	3	2	60
Boiled corn	9	5	4	55.5	5	5	0	100
Lettuce & Tomato salad	13	9	4	69.2	1	1	0	100
French bread	13	9	4	69.2	1	1	0	100
Cream pie	10	7	3	70.0	4	3	1	75
Ice tea	14	10	4	71.4	0	0	0	-
Water	13	9	4	69.2	1	1	0	100

Table 2

Participation of Foodhandlers in the
Preparation and Serving of Civic Club Meal

Foodhandler	Rotary July 19	Jaycee July 22	Kiwanis July 23	Note
FC	x		x	Became ill July 20
EC	x			Became ill July 20
MLB	x	x		
SP		x		
DC			x	

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1. Curnen, E.C., Shaw, E.W. and Melnick, J.L.: Disease resembling nonparalytic poliomyelitis associated with a virus pathogenic for infant mice. J.A.M.A. 141:894-901, 1949

2. Weller, T.H., Enders, J.F., Buckingham, M. and Finn, J.J. Jr.: The etiology of epidemic pleurodynia: A study of two viruses isolated from a typical outbreak. J. Immunol. 65:337-346, 1950

3. Delville, J.P., Pattyn, S.R. and Van de Keere, R.: Epidemic of Bornholm's disease caused by Coxsackie B type I virus in Shinkolobwe. Ann. Soc. Belg. Med. Trop. 40:327-30, Apr. 1960 (French)

2. Pennsylvania - Outbreak of Diarrhea due to $ECHO_{17}$

Dr. Edwin Brown, Chief, Division of Disease Control, Allegheny County, Pennsylvania, and Dr. W.D. Schrack, Jr., Director, Division of Communicable Disease, Pennsylvania State Health Department, report that in the early weeks of September, 1963, an outbreak of diarrhea and fever occurred in the pre-school unit of a juvenile institution in Allegheny County. A total of twenty children between the ages of 6 months and 4 years were affected by a self-limited illness lasting 9-20 days and characterized by greenish-yellow diarrhea (seldom over 5 stools per day), temperature elevation (100 degrees to 103.8 degrees F. rectally) and in three instances a transient erythematous rash. In addition, an 11 year old mentally retarded child became ill 7 days after entering the unit and 5 adults serving as attendants in the unit developed diarrheal illness. A histogram showing cases by date of onset is shown on the following page.

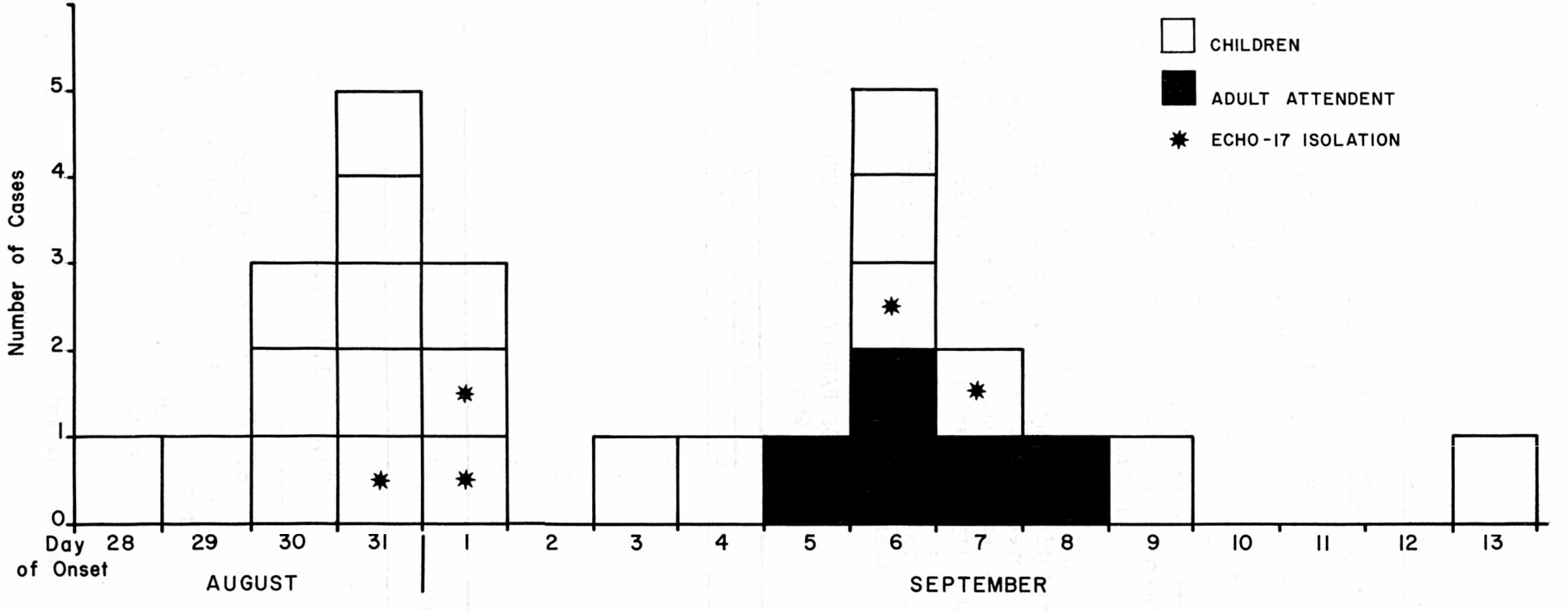
Two clear peaks of incidence are shown 6 days apart. This together with the occurrence of illness 7 days apart in one pair of siblings and the onset of illness in a child 7 days after entering the unit suggest an incubation period of 6-7 days. No index case could clearly be identified. Several children who were admitted during the first peak became ill immediately. It is probable that the virus was prevalent in the community at the time and was introduced into the unit by a new admission. The presence of $ECHO_{17}$ virus in the community was documented by the subsequent isolation from the son of a physician practicing in the area.

Of 41 pre-school children who spent at least 5 days in the unit during the period from August 28 through September 20, twenty, or almost half, became ill. Eleven of 15 children who entered the unit during this period became ill. All patients recovered uneventfully with supportive care.

Bacteriologic cultures for enteric pathogens were negative but $ECHO_{17}$ virus was isolated from 5 rectal swabs taken from patients with typical illnesses. Additional laboratory studies are being done on sera collected from patients and attendants at the unit.

OUTBREAK OF DIARRHEA ASSOCIATED WITH ECHO-17 VIRUS IN A JUVENILE INSTITUTION: CASES BY DATE OF ONSET

ALLEGHENY COUNTY, PA. 1963



VI. FOREIGN REPORTS

A. 1963 Polio in Canada

To the week ending December 28, 118 cases of paralytic poliomyelitis have been reported in Canada. For the same period in 1962, 89 cases were reported. One-hundred seven cases or 90.7 per cent of the total reported cases have occurred in the Province of Quebec. Seven cases have been reported from New Brunswick, two cases from Alberta and one case each from the provinces of Ontario and Saskatchewan. A total of 16 deaths have been reported so far; 15 of these have occurred in the Province of Quebec, and another in the Province of Alberta.

Individual case reports have been received on 64 of the 118 cases of paralytic poliomyelitis. An analysis by age group and vaccination status reveals that 78 per cent of the cases had no Salk vaccination, while 18 per cent had received the full 3 or more doses of Salk vaccine. The majority of cases have occurred in the 10 to 19 year age group and the 5 to 9 year age group with 33 and 31 per cent of the cases respectively. This is closely followed by the preschool (0-4) children with 20.3 per cent of the cases.

CASES OF PARALYTIC POLIOMYELITIS - CANADA, 1963
by Age Group and Inactivated Vaccination Status

	Doses of Inactivated Vaccine (Salk)						
Age Group	0	1	2	3+	Unknown	Total	Percent
0-4	9	-	-	2	2	13	20.3
5-9	15	1	-	3	1	20	31.3
10-19	15	-	-	6	-	21	32.8
20+	8	-	1	-	1	10	15.6
Total	47	1	1	11	4	64	100
Percent doses	78.3	1.7	1.7	18.3	-	100	

Note: The age distribution of the Canadian cases differs considerably for the United States experience in 1963. Whereas 50 percent of the U.S. cases fall in the 0-4 age group, only one-fifth of the Canadian cases are in the same age group. In both countries approximately 20 per cent of paralytic cases had received 3 or more doses of inactivated polio vaccine.

(from Canadian Epidemiological Bulletin - Vol. 7, No. 11; November 1963)

B. Summary of Canadian Experience with Oral Polio Vaccine

The following summary of the Canadian experience with trivalent oral poliovirus vaccine in 1962 was received from Dr. E.W.R. Best, Chief, Epidemiology Division, Department of National Health and Welfare, Ottawa, Canada.

Summary

1. Between April and July 1962 nearly four million people were fed live oral poliovirus vaccine in seven Canadian provinces.

2. Thirty-one cases of disease of the nervous system reported in the period of 60 days following feeding with or contact exposure to trivalent Sabin live oral poliovirus vaccine were reviewed.

3. Amongst those fed vaccine there were four cases of residual paralytic disease, an incidence of about one residual paralytic case per million fed. Two of these were Indian infants, the other two were adults. None had received the recommended series of injections with Salk vaccine. Type III vaccine-like poliovirus was isolated from each of the four cases. In one, Type II vaccine-like poliovirus was also recovered, and in another a reovirus.

4. Eleven other persons who had been fed vaccine developed neurological diseases without residual paralysis, which may have been causally related to the vaccine.

5. Only five cases of paralytic disease were reported in persons who had not been fed vaccine, but who were in contact with vaccinees in non-epidemic areas. Of these, four cases were considered to have some probability of causal relation to the vaccine.

6. The Committee concluded that the administration of trivalent live oral poliovirus vaccine (Sabin) probably entails a small degree of risk which seems to be associated mostly with the Type III component. It was recognized, however, that an accurate assessment of the magnitude of the possible risk could only be made after more extensive experience with the vaccine in many regions and at times when the circulation of wild enteroviruses are at a minimum. It was also recognized that the efficacy of oral poliovirus vaccine for the control of paralytic poliomyelitis is so great that a very small risk associated with its use is justified.

The Committee therefore recommended in November, 1962, that the use of trivalent, live oral poliovirus vaccine (Sabin) be resumed subject to certain restrictions; and that surveillance over vaccination programs be continued to assess the safety and efficacy of the vaccine.

A second report from the same office summarizing the 1963 Canadian experience with trivalent Oral Polio Vaccine and offering general recommendations as to its use is reproduced in toto on the following pages.

1. Introduction: Use of Sabin Vaccine in 1963

The National Technical Advisory Committee on Live Poliovirus Vaccines met in Ottawa on September 16, 17 and 18, 1963, and considered progress reports on the use of live poliovirus vaccine of the Sabin type in Newfoundland, Quebec, Saskatchewan, and Alberta.

In addition, the Committee reviewed recent experience in New Zealand, Australia, England and Wales, West Germany, and the United States of America. Several members reported on the recent IXth European Symposium on Poliomyelitis and Allied Diseases, held in Stockholm from September 1 to 4, 1963.

From the reports of provincial representatives who attended the Ottawa meeting, it appeared that in 1963 (to September 17), over 900,000 persons were fed trivalent Sabin vaccine in non-epidemic areas. Over 400,000 of these persons received a second dose in 1963. The great majority of those fed had previously had Salk or Sabin vaccine.

The Committee analyzed several cases of neurological disease with onset within sixty days of feeding the vaccine, and the findings are summarized in the attached Table I.

The Committee found no evidence that severe, persistent, paralytic disease could be attributed to the Sabin vaccine programs of 1963. A number of cases of neurological disorder presented a considerable diagnostic problem, as will be seen from Table I.

2. General Conclusions on Safety, Efficacy and Usefulness of Sabin Vaccine

Safety

2.1 It has been established that Sabin vaccine has a very high order of safety, and this is based on the feeding of over 70 million people in North America, mostly with monovalent products.

It is agreed, however, that there is a very small risk of developing paralytic illness as a complication. This risk is mainly to adults over the age of 30 years who have not previously been immunized either with Salk or Sabin vaccine.

2.2 The chief source of infection to adults is the reservoir of wild polioviruses in children. Sabin vaccine provides the means virtually to eliminate wild polioviruses from this reservoir.

If mass feeding programs reach a high proportion of infants, pre-school and school age children, the need for immunization of adults is reduced.

Efficacy

2.3 The use of Sabin vaccine has been highly effective in Canada and other countries in controlling epidemics promptly, and reducing the circulation of wild polioviruses in the community.

Usefulness

2.4 The Committee is convinced of the great practical advantages of Sabin vaccine, and urges that it be introduced into regular elective vaccination programs for children as soon as possible.

2.5 The Committee considers that Sabin poliovirus vaccine is the only practical weapon for use in epidemics. The simplicity of administration permits rapid introduction into a population and wide coverage of susceptibles.

3. General Recommendations for Use of Sabin Vaccine

3.1 In Canada, trivalent Sabin vaccine should continue to be used in preference to monovalent or bivalent vaccines for both epidemic and elective use.

3.2 Community-wide Sabin vaccine programs should be planned and supervised by Health Departments.

3.3 Sabin vaccine should be distributed through Health Departments, for the time being, for three main reasons:

- First, Health Departments are best able to co-ordinate and organize local feeding programs at an appropriate season.

- Second, it is considered that Health Departments are best equipped to meet the requirement that Sabin vaccine, because of its unstable nature, should be kept in deep freezers until immediately before use.

- Finally, Health Departments are best equipped to see that the periodic tests on potency which are necessary for this vaccine under prolonged storage are in fact carried out.

3.4 The maintenance of individual records for each person fed Sabin vaccine is highly desirable.

3.5 Surveillance procedures should be carried out as with other immunizing agents. Complications should be reported and investigated as appropriate. No special surveillance procedures appear to be necessary any longer, except in areas where special problems of differential diagnosis arise, as for example in Western Canada at time of seasonal prevalence of Western equine encephalitis.

3.6 Virus diagnostic facilities still require improvement in parts of Canada, as has been emphasized by experience in 1963, when the laboratory results were mostly incomplete. Procedures for rapid laboratory diagnosis should be readily available to Health Departments using Sabin vaccine. Even more important are arrangements to ensure that suitable samples are taken and sent to a laboratory.

3.7 Special virological studies should be encouraged in neurological diseases similar to poliomyelitis, especially illnesses described by clinicians as "neuritis", Guillain-Barré syndrome, or encephalomyelitis.

3.8 Persons fed Sabin vaccine should be in good general health, as is the case with any other immunizing agent. Deliberate simultaneous administration of another live viral vaccine (e.g., vaccinia, yellow fever) should be avoided.

4. Use of Sabin Vaccine in Epidemics

4.1 At the present time, the appearance of even one or two cases of paralytic illness in a Canadian community justifies vigorous efforts to prevent further spread.

4.2 All epidemiological contacts of the first cases of poliomyelitis in a community should be fed Sabin vaccine immediately, in an effort to stop further spread.

4.3 Depending on the size of the community, and other epidemiological considerations, it will often be desirable to conduct a mass vaccination campaign with Sabin vaccine as soon as possible. Vaccine should be offered to all, regardless of age or Salk vaccine status, and regardless of recommendations made for elective immunization, and given in section 5 below.

5. Use of Sabin Vaccine in Regular Elective Immunization Programs

5.1 Sabin vaccine should be rapidly introduced into regular elective immunization procedures for children. Initially, mass programs should be conducted in all communities in Canada which have not previously had such programs. These should be conducted in non-epidemic months, and be directed to school and pre-school children and infants. These categories constitute the main reservoir of wild poliovirus infection.

Such programs should be repeated at least once at an interval of not less than six weeks.

After two such mass programs in a community, Sabin vaccine should be introduced into routine immunization schedules, for the present as a supplement to Salk vaccine. At such time, it will be necessary to consider the release of Sabin vaccine to private physicians. Eventually, Salk vaccine will probably be largely replaced by Sabin vaccine.

5.2 For adults who have not previously been immunized, the vaccine of choice is Salk vaccine. Except for those at special risk, Sabin vaccine should not be used for initial immunization of adults. Adults who specially request Sabin vaccine for initial elective immunization should be advised of the balance of risks.

Elective adult immunization programs are of secondary importance to, and should not interfere with, immunization programs directed to eliminate the virus from children, as recommended in sub-section 5.1.

5.3 Persons with a high risk of exposure to wild poliovirus, such as those planning travel to countries in which poliomyelitis infection is prevalent, should be fed Sabin vaccine. If time permits, prior use of Salk vaccine is desirable if such persons are adults.

5.4 Persons who are unusually susceptible to wild poliovirus, such as pregnant women, should, regardless of age, be routinely protected first with Salk vaccine and only later with Sabin.

5.5 Guide to Routine Use of Sabin Vaccine

Category of Person	Sabin Vaccine Recommended	Prior Salk Vaccine Recommended
Infants (under 1 year)	Yes	Yes(1)
Pre-school children	Yes	Not essential
School children	Yes	Not essential
Adults with high risk of exposure to wild poliovirus	Yes(2)	Not essential
Pregnant women	Yes	Yes(3)

(1) Prior Salk vaccine is recommended for the present, in order not to disturb existing immunization programs with combined antigens.

(2) For adults with a low risk of exposure to wild poliovirus, initial immunization with Salk vaccine is recommended.

(3) Prior Salk vaccine is recommended as a general precaution.

(Reference: Canadian Epidemiological Bulletin, Vol. 7, November 1963 - Parts 1 and 2, Epidemiology Division, Department of National Health and Welfare, Ottawa, Canada.)

TABLE I

CASES OF NEUROLOGICAL DISORDER FOLLOWING FEEDING OF TRIVALENT SABIN VACCINE
CANADA, January 1 to September 17, 1963

Code No.	Age	Sex	Salk Doses	Onset of Illness	Fed Vaccine	Interval (days)	Virus Isol. from Stool	Markers of Virus Isolate	Date	Serology I	Serology II	Serology III	Clinical Features	Final Decision
(a) Cases with possible association (VACCINEES)														
9	36	M	3	30/1	28/1 (M.D. also exposed by contact)	2	neg.	–		N.T.*			Gastro enteritis followed in 10 days by left foot-drop lasting 7 weeks	Possible paralytic polio. Direct association improbable. Contact association possible. No laboratory evidence.
13	41	F	3	28/1	22/1	6	neg.	–	6/2 8/2	538 480	135 80	855 960	Weakness both arms and shoulders; C.S.F. cells 0, Pr. 17.	Shoulder girdle neuritis. Etiology not determined. Causal association improbable.
12	35	F	3	16/2	11/2	5	N.T.	–		N.T.			Aseptic meningitis; C.S.F. 198 cells	Causal association improbable.
5	2½	F	3+	30/3	6/3	24	neg.	–	23/4	256	64	256	Temporary muscle weakness	Minor illness. Causal association improbable.
6	3½	M	3+	16/4	13/3	34	neg.	–	24/4	1024	1024	1024	Transient muscle weakness	Minor illness. Causal association improbable.
(b) Cases with possible association (CONTACTS)														
14	11	M	2	3/2	24/1	10	neg.	–		N.T.			Right foot drop; C.S.F. – 1 cell, Pr. 18 mgm.	Transient paralysis. Etiology unknown. Association improbable.
15	2	F	4	16/2	1/2	15	entero-virus not polio	–		N.T.			Paresis left leg; C.S.F. – 1 cell, Pr. 12.5	Transient paralysis. Etiology unknown. Association improbable.

*NT = Not tested

TABLE I (Cont'd)

Code No.	Age	Sex	Salk Doses	Onset of Illness	Fed Vaccine	Interval (days)	Virus Isol. from Stool	Markers of Virus Isolate	Date	Serology I	Serology II	Serology III	Clinical Features	Final Decision
(c) Cases with no association (VACCINEES)														
8	6	M	4	26/1	25/1	1	Polio I	Vaccine-like	–	0	16	64	C.S.F. 12,000 cells, lymphs. 98%	Lymphocytic meningitis. Not poliomyelitis. No association.
10	14	F	4	23/1 for paralytic illness	21/1	fed after onset of resp. illness	neg.	–	30/1 4/2	256 256	181 362	<8 <8	Weakness both legs, with preceding respiratory illness. Cold aggl. high titre	Guillain-Barré. No association.
11	10	F	4	14/2	21/1	24	neg.	–					Mastoiditis; masked bacterial meningitis	No association.
(d) Cases with no association (CONTACTS)														
2	53	M	0	1/6	?–Community contact	Approx. 84	Polio I	Wild strain	10/6 24/6	64 256	256 1024	neg. neg.	Paralysis both arms & legs, & trunk muscles. 1 dose Sabin, in 1962.	Wild poliomyelitis infection. No evidence of causal association.
3	19	F	3+	29/3	Classroom contact	14-22	neg.	–	2/4 4/7	1024 1024	256 256	1024 256	Spastic, then flaccid paralysis arms & legs C.S.F. lymphs-25, Pr. 40; 1 dose Sabin, 1962	Encephalomyelitis. No association.
4	20	F	3+	6/4	Community contact	Approx. 22	neg.	–		N.T.			Coma, brain damage. Mental retardation.	Herpes meningoencephalitis. No association.
(e) Cases with insufficient information														
1	2	M	N/K	12/5	30/4	12				N.T.			Paralysis both legs C.S.F. 5 cells, Pr. 237	Guillain-Barré (tentative)
7	21/12	M	N/K	8/4	N/K		neg.	–					Facial palsy. Muscle weakness. C.S.F. "normal"	Insufficient data.

* NT = Not tested

CURRENT U.S. POLIO INCIDENCE
Compared with selected years

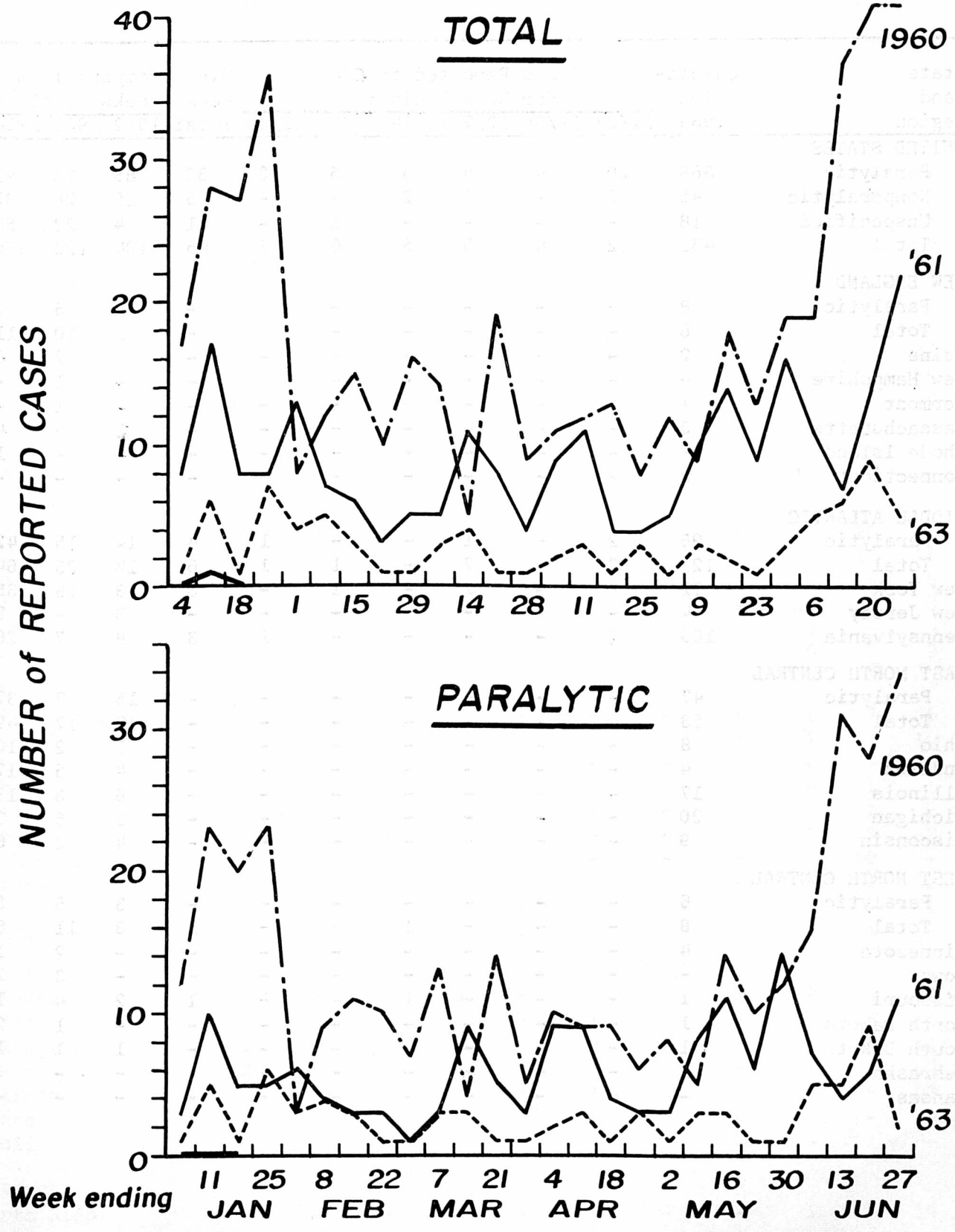


Table 1

TREND OF 1963 POLIOMYELITIS INCIDENCE

State and Region	Cumulative 1963	Cases Reported to CDC For Week Ending: 11/23	11/30	12/7	12/14	12/21	12/28	Six Week Total	Comparable Six Weeks Totals in 1962	1961	1960
UNITED STATES											
Paralytic	368	20	4	4	3	5	3	39	85	73	191
Nonparalytic	45	2	-	1	2	-	-	5	15	28	35
Unspecified	18	-	-	-	-	1	-	1	4	22	50
Total	431	22	4	5	5	6	3	45	104	123	276
NEW ENGLAND											
Paralytic	8	-	-	-	-	-	-	-	1	5	9
Total	8	-	-	-	-	-	-	-	1	10	11
Maine	2	-	-	-	-	-	-	-	-	2	6
New Hampshire	-	-	-	-	-	-	-	-	-	1	-
Vermont	1	-	-	-	-	-	-	-	-	1	-
Massachusetts	3	-	-	-	-	-	-	-	1	6	4
Rhode Island	-	-	-	-	-	-	-	-	-	-	1
Connecticut	2	-	-	-	-	-	-	-	-	-	-
MIDDLE ATLANTIC											
Paralytic	96	2	-	1	-	-	1	4	14	15	42
Total	121	2	-	2	-	1	1	6	14	25	64
New York	12	-	-	2	-	1	-	3	3	18	35
New Jersey	4	-	-	-	-	-	-	-	3	-	3
Pennsylvania	105	2	-	-	-	-	1	3	8	7	26
EAST NORTH CENTRAL											
Paralytic	47	-	-	-	-	-	-	-	15	7	37
Total	58	-	-	-	-	-	-	-	17	17	49
Ohio	8	-	-	-	-	-	-	-	1	2	10
Indiana	4	-	-	-	-	-	-	-	4	5	17
Illinois	17	-	-	-	-	-	-	-	6	3	13
Michigan	20	-	-	-	-	-	-	-	2	5	3
Wisconsin	9	-	-	-	-	-	-	-	4	2	6
WEST NORTH CENTRAL											
Paralytic	6	-	-	-	-	-	-	-	3	5	5
Total	8	-	-	-	1	-	-	1	3	11	8
Minnesota	4	-	-	-	-	-	-	-	-	2	1
Iowa	-	-	-	-	-	-	-	-	-	3	2
Missouri	1	-	-	-	1	-	-	1	2	4	1
North Dakota	1	-	-	-	-	-	-	-	-	1	2
South Dakota	1	-	-	-	-	-	-	-	1	1	1
Nebraska	1	-	-	-	-	-	-	-	-	-	1
Kansas	-	-	-	-	-	-	-	-	-	-	-

Table 1 (Continued)

State and Region	Cumulative 1963	Cases Reported to CDC For Week Ending: 11/23	11/30	12/7	12/14	12/21	12/28	Six Week Total	Comparable Six Weeks Totals in 1962	1961	1960
SOUTH ATLANTIC											
Paralytic	89	17	3	1	2	2	1	26	9	10	40
Total	102	19	3	1	2	2	1	28	10	12	46
Delaware	1	-	-	-	-	-	-	-	-	-	-
Maryland	1	-	-	-	-	-	-	-	-	4	13
D.C.	1	-	-	-	-	-	-	-	-	-	-
Virginia	21	3	-	-	-	-	-	3	-	1	15
West Virginia	4	-	-	-	1	-	-	1	7	3	5
North Carolina	6	1	-	-	-	1	-	2	-	-	4
South Carolina	9	1	-	-	-	1	-	2	-	-	3
Georgia	22	-	-	-	1	-	-	1	3	-	3
Florida	37	14	3	1	-	-	1	19	-	4	3
EAST SOUTH CENTRAL											
Paralytic	69	1	1	-	-	1	1	4	12	4	13
Total	75	1	1	-	-	1	1	4	14	4	34
Kentucky	-	-	-	-	-	-	-	-	2	-	20
Tennessee	12	-	1	-	-	1	-	2	2	-	9
Alabama	53	-	-	-	-	-	-	-	1	1	1
Mississippi	10	1	-	-	-	-	1	2	9	3	4
WEST SOUTH CENTRAL											
Paralytic	28	-	-	1	-	1	-	2	22	10	15
Total	29	-	-	1	-	1	-	2	32	12	18
Arkansas	5	-	-	-	-	-	-	-	4	3	6
Louisiana	14	-	-	-	-	-	-	-	10	2	3
Oklahoma	1	-	-	-	-	-	-	-	9	-	-
Texas	9	-	-	1	-	1	-	2	9	7	9
MOUNTAIN											
Paralytic	5	-	-	-	1	-	-	1	1	7	5
Total	7	-	-	-	2	-	-	2	2	17	10
Montana	-	-	-	-	-	-	-	-	-	-	3
Idaho	1	-	-	-	-	-	-	-	-	1	1
Wyoming	-	-	-	-	-	-	-	-	-	1	2
Colorado	1	-	-	-	1	-	-	1	1	3	2
New Mexico	1	-	-	-	-	-	-	-	-	10	-
Arizona	3	-	-	-	-	-	-	-	1	1	1
Utah	-	-	-	-	-	-	-	-	-	-	1
Nevada	1	-	-	-	1	-	-	1	-	1	-
PACIFIC											
Paralytic	20	-	-	1	-	1	-	2	8	10	25
Total	23	-	-	1	-	1	-	2	11	15	36
Washington	2	-	-	-	-	-	-	-	-	6	11
Oregon	2	-	-	-	-	-	-	-	1	-	2
California	19	-	-	1	-	1	-	2	10	8	23
Alaska	-	-	-	-	-	-	-	-	-	-	-
Hawaii	-	-	-	-	-	-	-	-	-	1	-
TERRITORY											
Puerto Rico	5	-	-	-	-	-	-	-	1	-	14

Key to all disease surveillance activities are those in each State who serve the function as State epidemiologists. Responsible for the collection, interpretation and transmission of data and epidemiological information from their individual States, the State epidemiologists perform a most vital role. Their major contributions to the evolution of this report are gratefully acknowledged.

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