



POLIOMYELITIS SURVEILLANCE REPORT

FOR ADMINISTRATIVE USE

REPORT NO. 219

December 9, 1960

Table of Contents

SUMMARY

1. CURRENT POLIOMYELITIS MORBIDITY TRENDS
2. REPORTS
3. 1960 POLIOMYELITIS CASES REPORTED TO PSU
4. ROUTINE POLIOMYELITIS SURVEILLANCE



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SPECIAL NOTE

This report is intended for the information and administrative use of those involved in the investigation and control of poliomyelitis and polio-like diseases. It presents a summary of provisional information reported to CDC from State Health Departments, the National Office of Vital Statistics, Virology Laboratories, Epidemic Intelligence Service Officers, and other pertinent sources. Since much of the information is preliminary in nature, confirmation and final interpretation should be determined in consultation with the original investigators prior to any further use of the material.

SUMMARY

A moderate increase in total and paralytic poliomyelitis was recorded in the National Office of Vital Statistics during the 48th week ending December 3, with reporting of 54 cases, 43 paralytic. All Regions reported slight increases, but no new outbreaks have occurred.

A further report of the severe epidemic which occurred in Puerto Rico this year, and a brief analysis of the current Canadian experience in poliomyelitis are presented.

Also included is a summary of correlated paralytic cases vaccinated within 30 days of disease onset.

During this season of low incidence the Poliomyelitis Surveillance Report will be published intermittently.

1. CURRENT POLIOMYELITIS MORBIDITY TRENDS

A total of 54 cases of poliomyelitis, 43 paralytic, was reported to the National Office of Vital Statistics during the 48th week ending December 3. These represent moderate increases over reports received last week, but as shown in Figure I, total and paralytic reports continue to approach the seasonal low point.

The table below compares the current cumulative total and paralytic cases to date with similar figures of recent years and shows the decrease in reporting evident this year. Paralytic cases remain above those in 1957, however. This is emphasized in the lower half of Figure I which indicates the increased weekly reporting since mid-July.

POLIOMYELITIS (CUMULATED WEEKLY) THROUGH
THE 48th WEEK FOR PAST FIVE YEARS

	<u>1960</u>	<u>1959</u>	<u>1958</u>	<u>1957</u>	<u>1956</u>
Paralytic	2,167	5,468	2,950	2,095	6,541
Total	3,124	8,243	5,775	5,809	15,109

The moderate increases in reporting this week are reflected in most of the 9 National Regions. Delayed reports and scattered disease incidence in Ohio, Virginia, and New York account for the largest state increases.

2. REPORTS

A. Puerto Rico

Dr. Manuel Feliberti and Dr. Luis Minardi of the Bureau of Acute Communicable Disease Control, Puerto Rico Department of Health, now have preliminary data on a total of 497 cases of poliomyelitis occurring in Puerto Rico thus far in 1960. Of these cases 491 are paralytic and 6 non-paralytic. However, physicians tend not to report

non-paralytic cases to the health department in many instances. Currently, Mr. Leo Morris, Statistician, Polio Surveillance Unit, is assisting the Bureau epidemiologists in the collection of 60-day clinical evaluations of this large epidemic group.

The epidemic has been extremely widespread with 69 of the 77 Puerto Rican municipalities having had at least one polio case. Municipalities with the greatest incidence include San Juan, Rio Piedras, and Ponce each with approximately 50 cases, and rates range as high as 99 cases per 100,000 in Orocovis. Of the total 497 cases, 296 or 59.6 percent are males. There have been 32 fatalities for a case-fatality rate of 6.4 percent.

In the following table the cases are presented by age according to vaccination status:

Age Group	Doses of Vaccine					Total	%
	0	1	2	3	Unk		
<1	77	5	6	3	6	97	19.5
1	102	6	3	4	6	121	24.3
2	71	3	3	1	6	84	16.9
3	56	11	3	3	2	75	15.1
4	40	1	3	4	1	49	9.9
0-4	346	26	18	15	21	426	85.7
5-9	42	2	7	8	2	61	12.3
10-14	2	0	1	0	1	4	0.8
15+	6	0	0	0	0	6	1.2
Total	396	28	26	23	24	497	-
%V	83.7	5.9	5.5	4.9	-	-	-

There has been a great preponderance of cases in young children, 85.7 percent under 5 years, including 60.7 percent of cases 2 years of age or younger. Only 2% of the patients have been 10 or older. Furthermore, 83.7 percent of the cases had no Salk vaccine and only 4.9 percent had 3 or more doses. Clearly, this epidemic primarily involved unvaccinated infants and toddlers.

A detailed account of the 1960 Puerto Rico epidemic, based on the 60-day follow-up of cases will appear in a subsequent Poliomyelitis Surveillance Report.

B. Canada

According to Dr. E. W. R. Best, Chief, Epidemiology Branch, a total of 780 cases has been reported in Canada through November 26, 1960. Since the peak reporting week in late August when 60 cases were reported, there has been a gradually declining trend of disease incidence through the most recent week of November 26 when 15 cases were reported. No new outbreaks of disease have occurred, and most of the late season incidence has been scattered.

The following table examines the incidence and attack rates in the 12 Canadian Provinces.

PARALYTIC POLIOMYELITIS IN CANADA
Through November 26, 1960

Province	Paralytic Cases	Population*	Rate/100,000
Newfoundland	46	459,000	10.0
Prince Edward II.	1	103,000	1.0
Nova Scotia	9	723,000	1.2
New Brunswick	50	600,000	8.3
Quebec	224	5,106,000	4.4
Ontario	37	6,089,000	0.6
Manitoba	12	899,000	1.3
Saskatchewan	49	910,000	5.4
Alberta	186	1,283,000	14.5
British Columbia	166	1,606,000	10.3
Yukon	-	14,000	-
Northwest Territories	-	22,000	-
*TOTAL	780	17,814,000	4.4

*1960 Estimate

In contrast to the epidemic year of 1959 when poliomyelitis was concentrated largely in the eastern Province of Quebec, the highest attack rates this year are suffered by the western Provinces, Alberta and British Columbia. Over 25% of cases have occurred in Quebec, however, a fact not reflected by the rate in this populous Province. Newfoundland continues with a high rate, though much lower now than last year.

Individual case forms similar to those used in this country are collected and studied by the Epidemiology Division. Detailed information has been received for 653 of the 780 cases reported (84%), and an analysis of these cases by age and vaccination status is presented below. The proportions of vaccinated and unvaccinated bear a striking resemblance to similarly analyzed cases in the United States (Section 3).

PARALYTIC POLIOMYELITIS REPORTED IN CANADA
Through November 12, 1960

Age Group	Vaccination Status					Total
	0	1	2	3+	Unk	
0-4	145	23	20	47	17	252
5-9	72	5	15	57	21	170
10-19	46	5	3	31	11	96
20+	100	7	10	13	3	133
Unk	2	-	-	-	-	2
Total	365	40	48	148	57	653
Percent Doses	60.7	6.7	8.0	24.6	-	100.0

Reports of poliovirus isolations from 6 of the 12 Provinces are summarized below. Again the percent distribution of poliovirus in these areas clearly parallels that in the United States where in preliminary and scattered reports type I virus has accounted for 74.4% of virus isolations, type II 0.4%, and type III 25.2% (See PSU #218).

POLIOVIRUS ISOLATIONS IN CANADA
Through November 26, 1960

Province	Type I Isolations	Type II Isolations	Type III Isolations	TOTAL
Newfoundland	6	-	-	6
Quebec	11	1	31	43
Ontario	13	-	3	16
Manitoba	4	-	4	8
Alberta	53	-	6	59
British Columbia	34	-	6	40
Total	121	1	50	172
Percent Isolates	70.3	0.6	29.1	100.0

A total of 71 fatalities have been recorded, and of these 53 (75%) have been reported on detailed forms. These data are presented below with corresponding age-specific case fatality rates.

POLIOMYELITIS FATALITIES IN CANADA
Through November 12, 1960

Age Group	Deaths	Cases	Case Fatality Rate (%)
0-4	19	252	7.5
5-9	6	170	3.5
10-19	10	96	10.4
20+	18	133	13.5
Unk	18	-	-
Total	71	653	10.9

Approximately 75% of the fatal cases reported on individual forms had been unvaccinated, and only 13% had received 3 or more doses of Salk vaccine.

3. 1960 POLIOMYELITIS CASES REPORTED ON PSU FORMS

A total of 121 case reports on individual forms, 95 paralytic, was received by the Poliomyelitis Surveillance Unit during the week ending November 26. This brings the yearly total to 2519 cases, 1946 paralytic constituting approximately 82% of total cases and 92% of paralytic cases reported to the National Office of Vital Statistics.

Table 3 presents an age-group and vaccination analysis of the cases reported to PSU.

TABLE 3
POLIOMYELITIS CASES BY PARALYTIC STATUS, AGE GROUP
AND VACCINATION HISTORY REPORTED ON PSU FORMS
(Through November 26, 1960)

Age Group	Paralytic					Unk	Tot
	Doses of Vaccine						
	0	1	2	3	4+		
0-4	476	89	103	111	44	35	858
5-9	188	29	47	114	54	17	449
10-14	42	14	12	55	26	9	158
15-19	60	8	7	17	4	6	102
20-29	146	18	13	15	10	7	209
30-39	90	7	8	9	5	3	122
40+	41	-	-	1	-	4	46
Unk.	2	-	-	-	-	-	2
Total	1045	165	190	323	143	81	1946
PERCENT DOSES	56.0	8.8	10.2	17.3	7.7	-	100.0

Age Group	Nonparalytic					Unk	Tot
	Doses of Vaccine						
	0	1	2	3	4+		
0-4	63	13	12	22	17	9	136
5-9	31	14	18	45	38	14	160
10-14	9	7	3	28	28	1	76
15-19	16	1	9	23	12	-	61
20-29	30	8	5	28	12	9	92
30-39	10	2	5	6	8	4	35
40+	6	-	2	-	-	1	9
Unk	-	-	-	1	1	2	4
Total	165	45	54	153	116	40	573
PERCENT DOSES	31.0	8.4	10.1	28.7	21.8	-	100.0

Once again this year the cut-off date for preliminary PSU forms has been set at January 31. In view of the excellent cooperation by the State epidemiologists in submitting these forms we hope to have 100% of the preliminary forms by this date. Furthermore, the cut-off date for 60-day follow-up forms on cases occurring in 1960 has been set at February 28, 1961. Last year the PSU received follow-up clinical evaluations on fully 89% of reported cases. Thus far such follow-ups have been received from only 44.3% of 1960 cases, but with the decrease in new case reporting large numbers of 60-day follow-ups are currently being received.

It is hoped that, with the smaller incidence of cases in 1960, we will be able to exceed the 1959 level of reporting. In this way detailed statistical analyses of cases, based on the best available clinical and laboratory criteria for diagnosis, can be completed during the early months of 1961. Such analyses will be presented in subsequent PSU Reports well before the 1961 season of increased incidence.

A total of 22 states have reported 80% or more of their cases to the PSU on preliminary forms. This includes the following 12 states with 100% preliminary reporting:

Arkansas, Colorado, Connecticut, Delaware, Hawaii, Iowa, Kansas, North Dakota, Rhode Island, Vermont, Washington, and West Virginia.

4. ROUTINE POLIOMYELITIS SURVEILLANCE

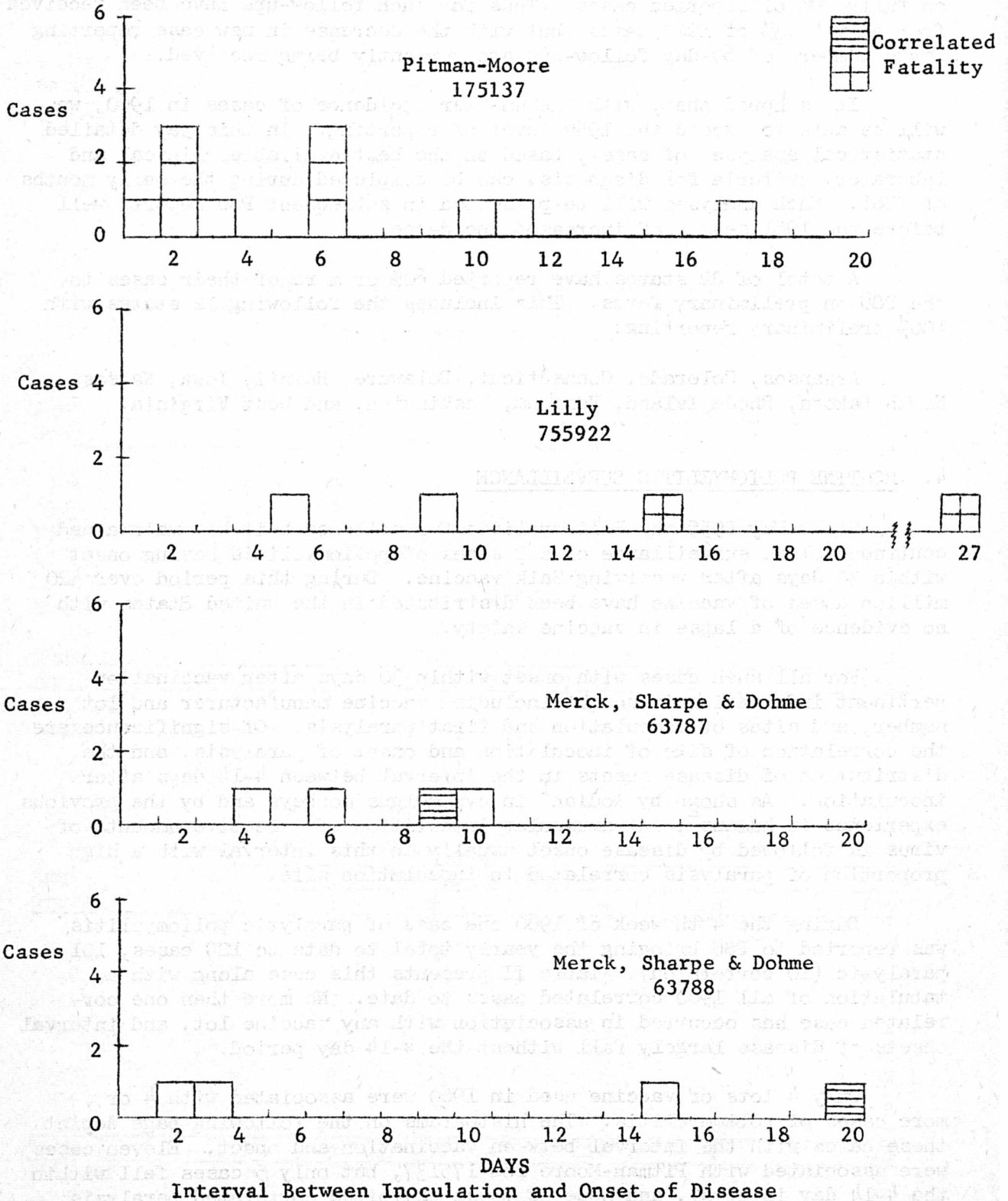
Since May 1955 the Poliomyelitis Surveillance Unit has maintained continued close surveillance of all cases of poliomyelitis having onset within 30 days after receiving Salk vaccine. During this period over 420 million doses of vaccine have been distributed in the United States with no evidence of a lapse in vaccine safety.

For all such cases with onset within 30 days after vaccination pertinent information is sought including vaccine manufacturer and lot number, and sites of inoculation and first paralysis. Of significance are the correlation of site of inoculation and onset of paralysis, and the distribution of disease onsets in the interval between 4-14 days after inoculation. As shown by Bodian in cynomolgus monkeys and by the previous experience in humans, intramuscular inoculation of infective amounts of virus is followed by disease onset usually in this interval with a high proportion of paralysis correlated to inoculation site.

During the 48th week of 1960 one case of paralytic poliomyelitis was reported to PSU bringing the yearly total to date to 129 cases, 101 paralytic (10 correlated). Table II presents this case along with a tabulation of all 1960 correlated cases to date. No more than one correlated case has occurred in association with any vaccine lot, and interval onsets of disease largely fall without the 4-14 day period.

Only 4 lots of vaccine used in 1960 were associated with 4 or more cases of poliomyelitis. The histograms on the following page depict these cases with the interval between vaccination and onset. Eleven cases were associated with Pitman-Moore lot 175137, but only 5 cases fell within the 4-14 day interval, and none of these exhibited correlated paralysis. Thus, no lapse in vaccine safety can be implicated in any of these lots.

VACCINE LOTS ASSOCIATED WITH FOUR OR MORE CASES OF PARALYTIC POLIOMYELITIS



1. Bodian, D. "Viremia in experimental poliomyelitis. II Viremia and the mechanism of the 'provoking' effect of injections or trauma," Am. J. Hyg. 60:358-70, 1954.
2. Langmuir, A. D., et al, "Surveillance of poliomyelitis in the United States in 1955", Am. J. Pub. Health 46:75-88, 1956.

(This report was prepared by the Poliomyelitis and Polio-like Disease Surveillance Unit, Joseph Oren, M. D., Chief, Michael J. Regan, M. D., with the assistance of Statistics Section CDC)

FIG. 1 CURRENT U.S. POLIO INCIDENCE COMPARED WITH YEARS 1955-1959, APR.-DEC., BY WEEK

PROVISIONAL DATA SUPPLIED BY NATIONAL OFFICE OF VITAL STATISTICS

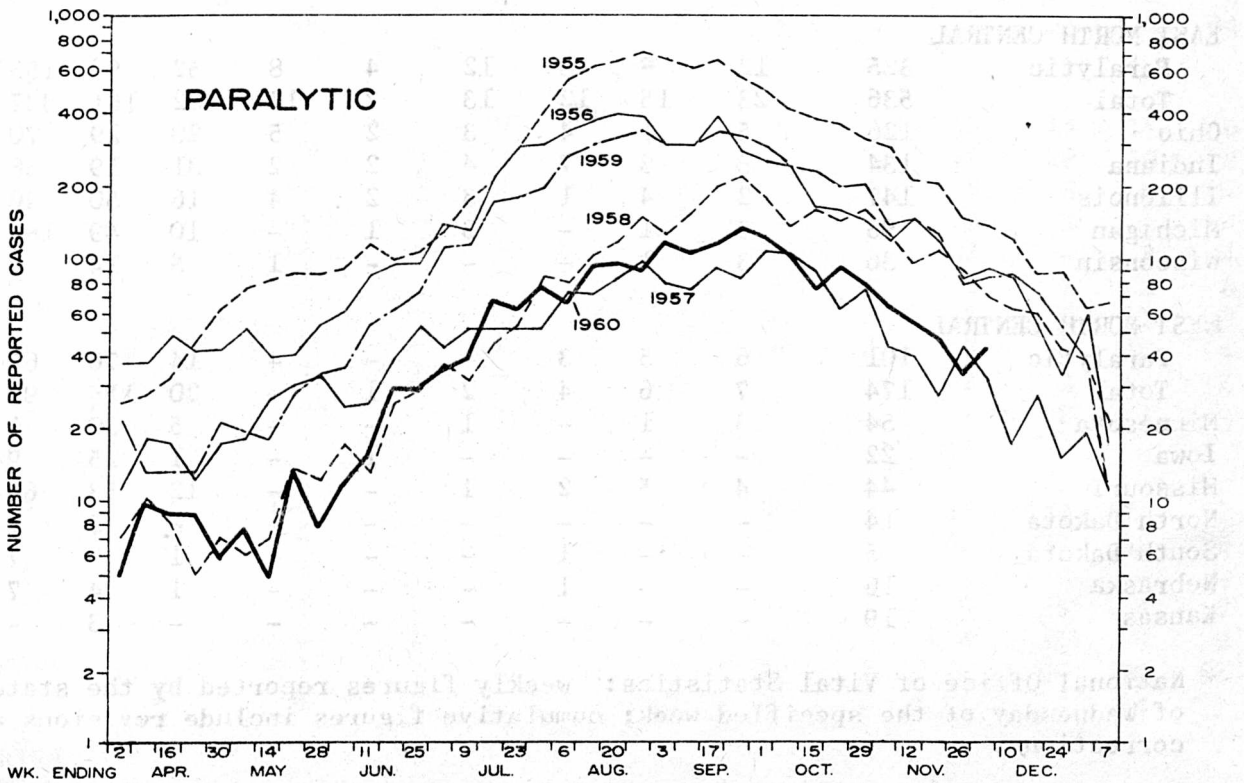
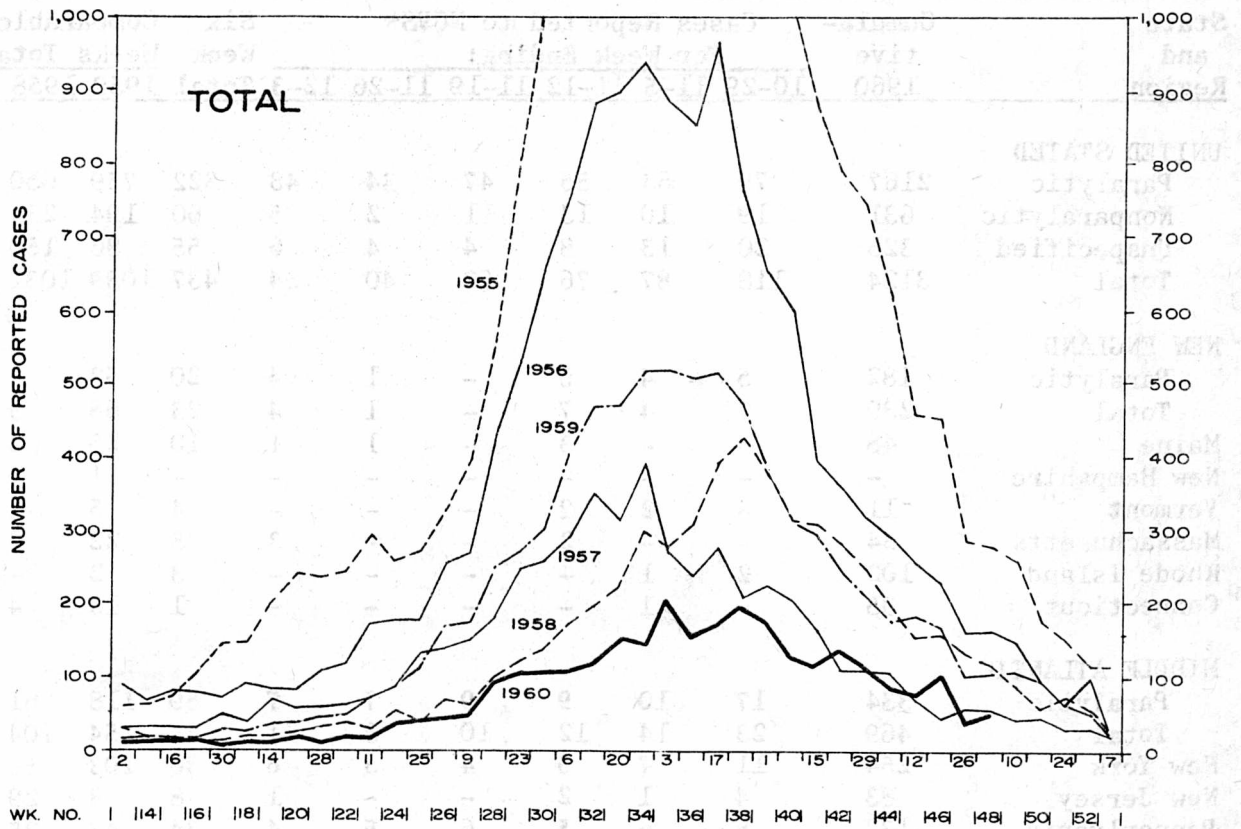


Table I

TREND OF 1960 POLIOMYELITIS INCIDENCE

State and Region	Cumulative 1960	Cases Reported to NOVS* For Week Ending:						Six Week Total	Comparable Six Weeks Totals in:		
		10-29	11-5	11-12	11-19	11-26	12-3		1959	1958	1957
UNITED STATES											
Paralytic	2167	79	64	55	47	34	43	322	759	650	257
Nonparalytic	631	19	10	13	11	2	5	60	194	231	101
Unspecified	326	20	13	8	4	4	6	55	86	150	66
Total	3124	118	87	76	62	40	54	437	1039	1031	424
NEW ENGLAND											
Paralytic	182	5	4	6	-	1	4	20	52	8	4
Total	230	7	4	7	-	1	4	23	68	9	4
Maine	48	5	-	3	-	1	1	10	25	2	3
New Hampshire	-	-	-	-	-	-	-	-	1	-	-
Vermont	11	-	2	2	-	-	-	4	5	1	-
Massachusetts	34	-	-	2	-	-	3	5	22	2	-
Rhode Island	102	2	1	-	-	-	-	3	2	-	-
Connecticut	35	-	1	-	-	-	-	1	13	4	1
MIDDLE ATLANTIC											
Paralytic	334	17	10	9	9	7	7	59	118	61	16
Total	469	23	14	12	10	8	11	78	154	104	25
New York	254	11	7	5	4	3	6	36	103	50	17
New Jersey	83	4	1	2	-	-	1	8	8	29	2
Pennsylvania	132	8	6	5	6	5	4	34	43	25	6
EAST NORTH CENTRAL											
Paralytic	325	12	8	8	12	4	8	52	96	155	55
Total	536	23	15	12	13	7	12	82	161	337	106
Ohio	126	5	1	4	3	2	5	20	29	70	26
Indiana	134	8	8	7	4	2	2	31	19	38	34
Illinois	147	2	4	1	3	2	4	16	50	40	14
Michigan	93	5	1	-	3	1	-	10	49	180	25
Wisconsin	36	3	1	-	-	-	1	5	14	9	7
WEST NORTH CENTRAL											
Paralytic	101	6	5	3	-	-	-	14	76	67	13
Total	174	7	6	4	2	1	-	20	118	90	24
Minnesota	54	3	1	-	1	-	-	5	30	6	2
Iowa	22	-	-	-	-	1	-	1	25	9	3
Missouri	44	4	5	2	1	-	-	12	53	60	12
North Dakota	14	-	-	-	-	-	-	-	3	1	-
South Dakota	5	-	-	1	-	-	-	1	-	7	2
Nebraska	16	-	-	1	-	-	-	1	4	7	2
Kansas	19	-	-	-	-	-	-	-	3	-	3

* National Office of Vital Statistics: weekly figures reported by the state as of Wednesday of the specified week; cumulative figures include revisions and corrections.

Table I (Continued)

State and Region	Cumulative 1960	Cases Reported to NOVS for Week Ending:						Six Week Total	Comparable Six Weeks Totals in:		
		10-29	11-5	11-12	11-19	11-26	12-3		1959	1958	1957
SOUTH ATLANTIC											
Paralytic	455	19	19	19	9	6	10	82	137	100	48
Total	585	22	24	23	13	6	10	98	169	147	75
Delaware	-	-	-	-	-	-	-	-	1	5	-
Maryland	151	7	8	3	6	-	1	25	6	11	15
D.C.	5	3	-	-	-	-	-	3	-	-	8
Virginia	52	3	3	5	2	3	5	21	30	29	7
West Virginia	62	4	5	2	1	1	3	16	25	37	6
North Carolina	95	1	1	7	1	1	1	12	46	12	12
South Carolina	129	1	2	1	2	-	-	6	14	12	6
Georgia	24	1	1	3	-	1	-	6	24	16	10
Florida	67	2	4	2	1	-	-	9	23	25	11
EAST SOUTH CENTRAL											
Paralytic	108	7	1	1	6	5	3	23	76	56	15
Total	250	16	5	4	7	5	3	40	100	79	40
Kentucky	130	7	4	2	-	-	-	13	20	30	12
Tennessee	54	3	1	1	3	4	2	14	50	19	11
Alabama	23	-	-	-	2	-	-	2	17	21	9
Mississippi	43	6	-	1	2	1	1	11	13	9	8
WEST SOUTH CENTRAL											
Paralytic	182	3	4	6	5	2	4	24	47	117	38
Total	285	5	4	8	6	2	4	29	69	144	59
Arkansas	32	2	-	1	-	-	-	3	17	8	-
Louisiana	51	-	1	-	1	-	1	3	18	7	10
Oklahoma	17	-	1	-	-	-	-	1	13	5	5
Texas	185	3	2	7	5	2	3	22	21	124	44
MOUNTAIN											
Paralytic	52	-	6	2	1	-	4	13	14	15	6
Total	99	4	7	3	5	-	6	25	28	39	12
Montana	23	2	1	-	-	-	2	5	5	6	-
Idaho	10	1	1	-	1	-	-	3	2	1	-
Wyoming	21	-	-	-	1	-	1	2	-	8	-
Colorado	21	-	4	-	-	-	2	6	2	2	6
New Mexico	8	-	-	2	-	-	-	2	6	11	1
Arizona	9	-	1	-	3	-	1	5	8	10	4
Utah	7	1	-	1	-	-	-	2	3	-	1
Nevada	--	-	-	-	-	-	-	-	2	1	-
PACIFIC											
Paralytic	428	10	7	1	5	9	3	35	143	71	62
Total	496	11	8	3	6	10	4	42	172	82	79
Alaska	2	-	-	-	-	-	-	-	9	-	-
Washington	37	1	1	1	2	-	1	6	36	4	7
Oregon	36	1	1	2	-	-	-	4	31	4	9
California	413	9	6	-	3	10	3	31	96	70	62
Hawaii	8	-	-	-	1	-	-	1	-	4	1
TERRITORIES											
Puerto Rico	497	3	5	5	1	6	5	25	-	1	2

Table II

PARALYTIC POLIOMYELITIS OCCURRING WITHIN 30 DAYS OF LAST VACCINE INOCULATION
(Cases Reported to PSU from November 20, through December 3, 1960)

State	County	Ini- tials	Age	Sex	Date Inoc.	Mfr. Lot No.	Onset Inter- val	Site Inoc.	Site First Para.
Maine	Cumber- land	D. L.	2	M	10-11-60	M.S.&D.63793	5 days	arm	slight of legs
<u>ALL CORRELATED CASES TO DATE -</u> <u>DECEMBER 9, 1960</u>									
Calif.	Los Angeles	S. H.	3	F	6-20-60	Pfizer 92489	1 day	right hip	right leg
Calif.	San Joaquin	L. J.	2	F	5-12-60	P-D 06059A	9 days	right deltoid	right shoulder
Ill.	Douglas	R. C.	6	M	8-13-60	Lilly S8009- 755925	1 day	left deltoid	both lower extre- mities & upper left extre- mity
Ky.	Taylor	B. J.	6 mos.	F	8-13-60	M.S.&D. 63787	9 days	right buttock	right leg
La.	E. B. Rouge	D. B.	6 mos.	F	2-3-60	Lilly 8043- 746989	1 day	left arm & left leg	left leg
Minn.	Polk	M. C.	25	F	7-6-60	P-M 175A136	29 days	right arm	rt. leg & rt. arm
N. Y. City	Kings	S. L.	5 mos.	M	8-31-60	P-D 061737	15 days	right arm	right arm
Oregon	Des- chutes	T. R.	8	M	7-15-60	Wyeth 35303	3 days	right arm	right arm
R. I.	Provi- dence	D. G.	1	F	6-13-60	M.S.&D. 63788	20 days	right arm	right arm
West Va.	Preston	K. S.	3	F	9-10-60	Unk. Unk.	16 days	left ²⁵ arm	left arm