



# POLIOMYELITIS SURVEILLANCE REPORT

FOR ADMINISTRATIVE USE

REPORT NO. 220

JANUARY 13, 1961

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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

With the reporting of only 14 cases, 8 paralytic, during the first week of 1961, poliomyelitis is at its usual low incidence for the early months of the year. No reports of winter epidemics in the United States have been received.

The preliminary totals reported to NOVS for the year 1960 are presented and compared with the previous four years.

A summary of the type III outbreaks in Maryland and a brief analysis of the severe 1960 poliomyelitis epidemic in Hokkaido, Japan, are included in this report.

The summary of current and cumulative shipments of poliomyelitis and quadruple antigen vaccines is continued with data made available by The National Foundation.

1. CURRENT POLIOMYELITIS MORBIDITY TRENDS

During the week ending January 7, the number of cases reported to the Communicable Disease Center was at a characteristically low winter level. Only 14 cases, 8 paralytic, were reported during the first week of 1961.

The preliminary cumulative total of cases reported to the National Office of Vital Statistics in 1960 is presented in Table I by state and region. Shown below are the preliminary national figures compared with the annual totals for each of the previous four years:

	<u>Preliminary</u> <u>1960</u>	<u>Final Annual Totals</u>			
		<u>1959</u>	<u>1958</u>	<u>1957</u>	<u>1956</u>
Paralytic	2265	6289	3697	2499	7911
Total	3277	8425	5787	5485	15140

Thus, there has been a 64 percent decrease in paralytic cases and a 61 percent decrease in total cases compared to the final figures for 1959. The preliminary total of 3,277 cases in 1960 is the lowest figure reported to NOVS since 1938 when 1,705 total cases were reported. In addition, the 2,265 paralytic cases in 1960 is the lowest number recorded by NOVS since the reporting of paralytic poliomyelitis began in 1951. However, it should be noted that when the paralytic status of the 354 unspecified cases in 1960 is determined, the final figure for paralytic cases is expected to approximate the previous low of 2,499 paralytic cases reported in 1957.

2. REPORTS

A. Maryland

The following summary of the type III poliomyelitis outbreaks in Maryland during 1960 is abstracted from a report by Glen E. Gresham, M.D.,

EIS officer assigned to the Maryland State Department of Health and Dr. Charlotte Silverman, State Epidemiologist.

Through November 19, 1960, there had been 134 cases of paralytic poliomyelitis reported in the state of Maryland. Of these cases, 95 had occurred in Baltimore City, 16 in Western Maryland and the remainder largely in the suburban counties surrounding Baltimore City. The cases were not generalized throughout the state but were due largely to two distinct outbreaks: one in Western Maryland and a larger one in Baltimore City.

PARALYTIC POLIOMYELITIS, MARYLAND 1960: Through November 19

AREA	POPULATION ESTIMATE	CASES	A.R./100,000 POP.
Baltimore City	920,700	95	10.32
Baltimore County	495,700	13	2.62
Anne Arundel County	208,300	4	1.92
Western Maryland	194,400	16	8.23
Garrett County	20,200	7	34.65
Allegany County	83,700	7	8.36
Washington County	90,500	2	2.21
STATE OF MARYLAND	3,091,200	134	4.33

Both outbreaks were predominantly due to type III poliovirus but differed remarkably in distribution of cases. The cases in Western Maryland were randomly scattered throughout the three counties of Garrett, Allegany, and Washington. In Baltimore City, the distinct pattern seen in urban outbreaks since the advent of Salk vaccine is evident, with a concentration of cases in the lower socioeconomic areas of the city and a subsequent radial scattering throughout adjacent counties.

Of the 95 cases occurring in Baltimore, 72 occurred in children under ten, 52 in the pre-school age group. This corresponds to the recent shift back to the younger age groups in post-1955 urban outbreaks. Turning to vaccination status, it is seen that 44 of the 95 cases had not received vaccine and only 5 had received the recommended number of four doses. The attack rate in the Negro population was twice that in the white population, another factor consistent with the changing urban epidemic pattern of recent years.

PARALYTIC CASES BY RACE AND VACCINATION STATUS

	Doses of Vaccine						Total	Paralytic Attack Rate
	0	1	2	3	4+	Unk		
White	23	4	5	11	4	2	49	7.8
Nonwhite	<u>21</u>	<u>4</u>	<u>9</u>	<u>10</u>	<u>1</u>	<u>1</u>	<u>46</u>	<u>15.8</u>
Total	44	8	14	21	5	3	95	10.3

In contrast, the Western Maryland outbreak occurred in a scattered fashion in a largely rural area with several small cities and towns. All but one of the 16 cases were white and no predilection for the younger age groups was evident.

It is noteworthy that both outbreaks showed a percentage of bulbar cases considerably higher than the level of approximately 10 percent usually seen. Bulbar cases ranged from unilateral facial nerve paralysis to overwhelming respiratory failure and death. There have been nine deaths. The following table shows the paralytic cases by clinical type of involvement.

PARALYTIC CASES BY CLINICAL TYPE

AREA	SPINAL ONLY	BULBAR INVOLVEMENT	UNSPECIFIED	TOTAL CASES	% OF SPECIFIED CASES WITH BULBAR INVOLVEMENT
Baltimore City	59	34	2	95	37%
Western Maryland	7	9	0	16	56%
Baltimore County	7	4	2	13	36%
Other Counties	<u>7</u>	<u>2</u>	<u>1</u>	<u>10</u>	<u>22%</u>
ENTIRE STATE	80	49	5	134	38%

Thus far, there has been a poliovirus isolation from 69 cases, of which 65 were type III. This is shown as follows:

POLIOVIRUS ISOLATION

AREA	I	II	III	Total	Percent Type III
Baltimore City	2	0	48	50	96
W. Maryland	1	0	9	10	90
Other	<u>1</u>	<u>0</u>	<u>8</u>	<u>9</u>	<u>89</u>
Total	4	0	65	69	94

PARALYTIC CASES BY RACE AND VACCINATION STATUS

Race	Doses of Vaccine				Total	Attack Rate
	0	1	2	3		
White	23	4	5	11	43	7.8
Nonwhite	21	4	2	10	47	10.8
Total	44	8	7	21	90	10.3

B. Japan - Hokkaido

During the summer of 1960 a severe poliomyelitis epidemic occurred in Japan with 5012 cases and 279 deaths reported by October 10. Most severely involved was the northernmost major Japanese island, Hokkaido, where 1,593 cases and 106 deaths had occurred. According to Dr. Shinichi Matsuda, Chief, Epidemiology Department, the Institute of Public Health, Tokyo, sporadic cases of polio were still appearing in November. Dr. Matsuda has kindly given permission for the publication of the following data abstracted from his preliminary report of the Hokkaido epidemic.

The widespread epidemic of poliomyelitis began at the end of May, 1960 in the small coal mining town of Yubari City in south central Hokkaido and spread over the entire island. The following table indicates the magnitude of the epidemic compared to the incidence of polio in Hokkaido since 1949:

	No. of Cases	Case Rate**	No. of Deaths	Fatality Rate**
1949	500	12.1	60	1.4
50	187	4.4	27	0.6
51	371	8.6	27	0.6
52	95	2.1	24	0.5
53	258	5.6	12	0.3
54	113	2.4	18	0.4
55	108	2.3	16	0.3
56	199	4.1	17	0.4
57	122	2.5	10	0.2
58	206	4.2	12	0.2
59	94	1.9	8	0.2
60*	1280	25.1	84	2.6

\* Through September 20

\*\*Rates per 100,000

The incidence rate of poliomyelitis in Hokkaido has exceeded that for all of Japan in almost every year since 1949. However, the rate of 25.1 per 100,000 in 1960 (through September 20) is more than 6 times that of Japan, 4.2 per 100,000.

The epidemic increased rapidly in June and reached a peak during the last week in August when almost 200 cases were reported in one week. Over 30 cities, towns, and villages are included in the epidemic area with attack rates ranging from 56 to 2727 cases per 100,000 population. Most of these localities have poor sanitary conditions. Especially in the coal mining towns many people are overcrowded in tenement houses with common water taps, baths, and lavatories.

Age distributions of polio in Hokkaido in past years have shown a preponderance among infants and young children, with the one year old group accounting for 38 to 47 percent of total cases each year between 1956 and 1958. Similarly the 1960 occurrence was largely "infantile paralysis", with rates as follows:

<u>Age</u>	<u>Cases</u>	<u>Rate (per 100,000)</u>	<u>% Distribution of cases</u>
0-5 mos.	42	90.6	3.3
6-11 mos.	192	441.4	15.0
12-17 mos.	321	666.1	25.0
18-23 mos.	177	401.5	13.0
2 years	216	245.2	16.9
3 years	112	123.4	8.8
4 years	60	63.4	4.7
5-9 years	114	20.0	8.9
10+ years	<u>55</u>	<u>1.4</u>	<u>4.3</u>
Total	1280	25.1	100.0

Rates were highest in the group from 6 months to 2 years of age. Rates for males were higher than those for females at each year of age.

In general the epidemic has been considered very severe clinically with many cases of respiratory involvement. Preliminary observations indicate that 37 percent of cases were without paralysis, 22 percent had mild involvement, and 38 percent had moderate or severe paralysis. The case fatality rate in the epidemic areas averaged 9.25 percent, while that of all Japan exclusive of Hokkaido for the same period was 5.1 percent.

In a preliminary laboratory study poliovirus type I was isolated from 70 of 139 patients studied (50.4 percent), and from 12.3 percent of family contacts studied. Type II poliovirus was isolated in 3 cases, type III in 7 cases, and other viruses in 21 cases. Virology was performed at the Institute of Public Health of Hokkaido.

Due to a significant shortage of Salk vaccine only children under 3 years of age in the epidemic areas had been vaccinated. During the epidemic approximately one-third of all children in this age group received 2 doses of vaccine.

### 3. 1960 POLIOMYELITIS CASES REPORTED ON PSU FORMS

The 1960 cumulative total of poliomyelitis cases reported to the Poliomyelitis Surveillance Unit on individual case forms now stands at 2,851 through December 24, 1960. Of these cases, 2,174 are paralytic, 627 nonparalytic and 50 unspecified as to paralytic status. This total represents 87 percent of the 3,277 cases reported to the NOVS at the close of the year as shown on the following page:

	Reported to NOVS <u>(Preliminary 1960 Figures)</u>	PSU Forms Received <u>(Thru 12/24/60)</u>	<u>Percent</u>
Paralytic	2265	2174	96
Nonparalytic	658	627	95
Unspecified	<u>354</u>	<u>50</u>	<u>14</u>
TOTAL	3277	2851	87

It is evident that many of the cases reported to NOVS as unspecified are listed as either paralytic or nonparalytic on the PSU forms submitted to the Polio Surveillance Unit. We hope to receive close to 100 percent of the preliminary reports from all states by January 31.

Cooperation by the state epidemiologists in the submission of both preliminary and 60-day follow-up reports has been excellent as it was last year when the PSU received follow-up clinical evaluations on 89 percent of reported cases. Thus far, such follow-ups have been received on 56 percent of the cases with 1960 onset. Follow-up reporting has improved as we approach our cut-off date of February 28, 1961, with only a few states accounting for most of the PSU forms not yet submitted.

The cases reported to PSU are presented below by paralytic status, age group, and vaccination history:

TABLE 3

POLIOMYELITIS CASES BY PARALYTIC STATUS, AGE GROUP  
AND VACCINATION HISTORY REPORTED ON PSU FORMS  
(Through December 24, 1960)

Age Group	Paralytic					Unk	Total
	Doses of Vaccine						
	0	1	2	3	4/		
0-4	515	99	119	124	45	35	937
5-9	213	36	52	131	64	17	513
10-14	53	15	14	58	32	12	184
15-19	71	9	7	20	4	6	117
20-29	169	19	13	16	10	8	235
30-39	99	8	9	9	6	3	134
40/	45	-	-	1	-	4	50
Unk	3	-	-	-	-	1	4
Total	1168	186	214	359	161	86	2174
PERCENT DOSES	55.9	8.9	10.2	17.2	7.7	-	100.0

TABLE 3 (Continued)

POLIOMYELITIS CASES BY PARALYTIC STATUS, AGE GROUP  
AND VACCINATION HISTORY REPORTED ON PSU FORMS  
(Through December 24, 1960)

Age Group	Nonparalytic Doses of Vaccine						Total
	0	1	2	3	4/	Unk	
0-4	71	14	13	24	16	12	150
5-9	35	16	21	46	40	16	174
10-14	10	7	5	33	29	4	88
15-19	18	1	10	23	13	-	65
20-29	35	8	6	30	12	10	101
30-39	11	2	5	6	8	4	36
40/	6	-	2	-	-	1	9
Unk	-	-	-	1	1	2	4
Total	186	48	62	163	119	49	627

PERCENT DOSES	32.2	8.3	10.7	28.2	20.6	-	100.0
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4. ROUTINE POLIOMYELITIS SURVEILLANCE

A. Cases with Onset Within 30 Days of Vaccination

In the five week period since PSU Report No. 219, 12 additional cases of poliomyelitis with onset within 30 days after vaccination have been reported to the Polio Surveillance Unit. This includes 9 paralytic cases, none of which are clearly correlated with site of inoculation. These paralytic cases, mostly delayed reporting, are listed in Table II.

For the year thus far, there have been 140 cases, 109 paralytic (10 correlated). As the 60-day follow-up reporting becomes more complete, additional information pertinent to under 30-day cases is received.

B. Vaccine Distribution

The summary of current and cumulative shipments of poliomyelitis and quadruple antigen vaccines, which was recently discontinued in PSU Report No. 216 (October 28, 1960), is continued once again in this report with data supplied by The National Foundation. These reports of polio vaccine production and shipment will be released monthly by The National Foundation and subsequently will appear monthly in forthcoming PSU reports.

In Table III, monthly reports of poliomyelitis vaccine released and shipped appear for October and November of 1960. It should be noted that subtraction of the October figures yields cumulative totals for the end of September which differ somewhat from those previously maintained. These differences reflect a variety of adjustments made by manufacturers.

(This report was prepared by the Poliomyelitis and Polio-like Disease Surveillance Unit, Joseph Oren, M.D., Chief, and Mr. Leo Morris, Statistician, 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

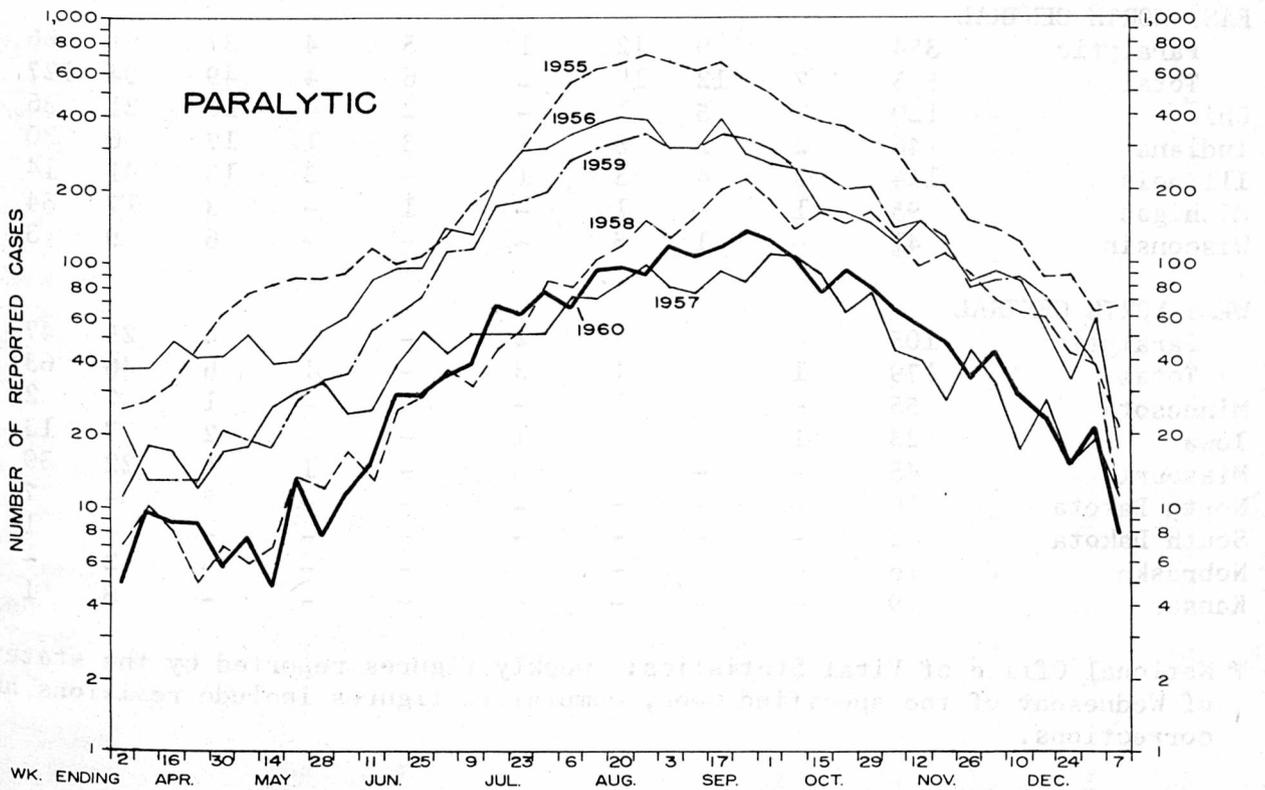
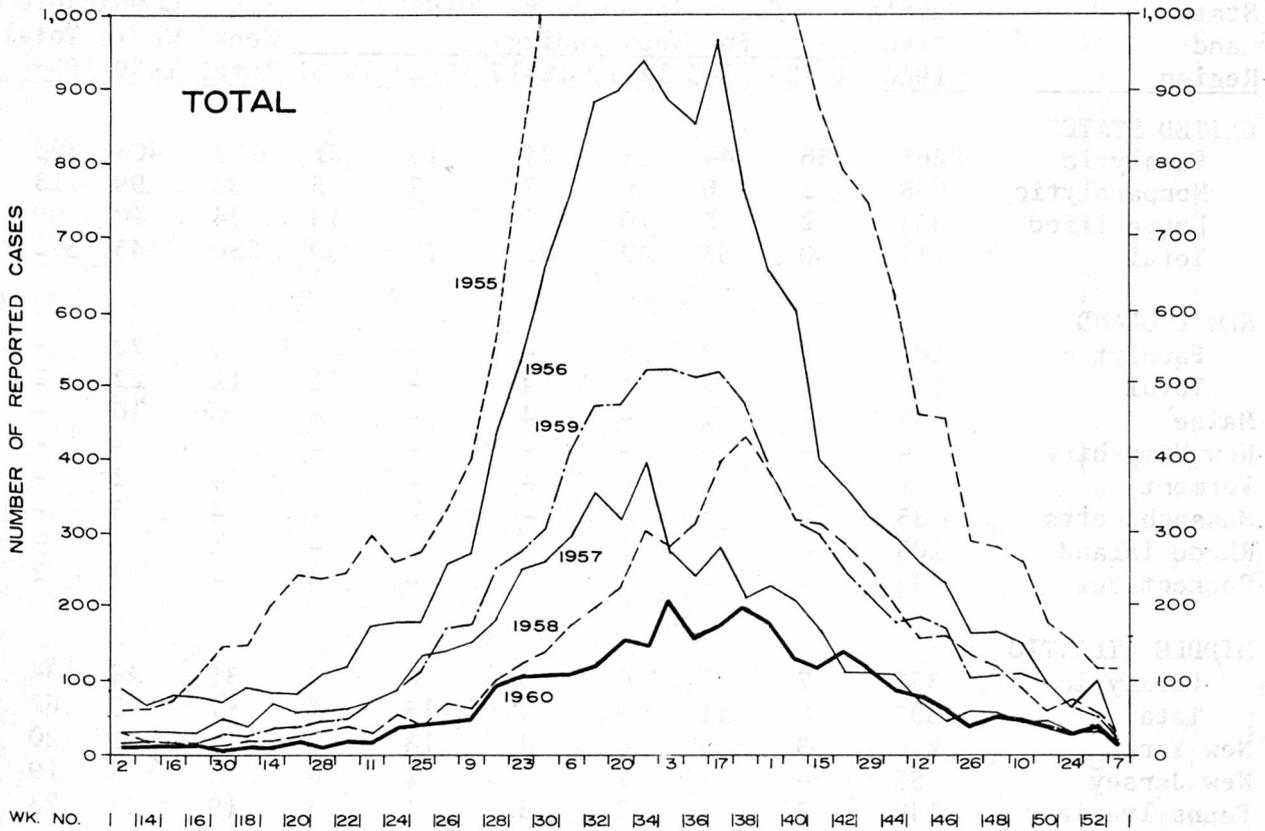


Table 1

## 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:		
		11-26	12-3	12-10	12-17	12-24	12-31		1959	1958	1957
UNITED STATES											
Paralytic	2265	36	44	33	24	15	21	173	404	360	153
Nonparalytic	658	2	6	6	7	7	5	33	99	113	77
Unspecified	354	2	5	10	8	6	13	44	40	99	37
Total	3277	40	55	49	39	28	39	250	543	572	267
NEW ENGLAND											
Paralytic	186	1	4	-	4	-	-	9	20	-	3
Total	236	1	4	1	4	-	1	11	22	2	4
Maine	52	1	1	-	4	-	-	6	10	-	1
New Hampshire	-	-	-	-	-	-	-	-	-	-	-
Vermont	11	-	-	-	-	-	-	-	2	-	-
Massachusetts	35	-	3	-	-	-	1	4	6	-	1
Rhode Island	103	-	-	1	-	-	-	1	-	-	-
Connecticut	35	-	-	-	-	-	-	-	4	2	2
MIDDLE ATLANTIC											
Paralytic	355	7	7	6	5	6	4	35	58	34	4
Total	507	8	11	9	7	15	7	57	80	62	10
New York	280	3	6	6	4	13	3	35	51	20	7
New Jersey	85	-	1	1	-	1	-	3	5	19	-
Pennsylvania	142	5	4	2	3	1	4	19	24	23	3
EAST NORTH CENTRAL											
Paralytic	354	6	9	12	1	5	4	37	61	66	22
Total	565	7	12	18	2	6	4	49	94	127	46
Ohio	129	2	5	1	-	2	-	10	21	36	11
Indiana	146	2	2	8	1	3	1	17	6	20	15
Illinois	154	2	4	3	1	-	3	13	41	14	5
Michigan	95	1	-	1	-	1	-	3	17	54	12
Wisconsin	41	-	1	5	-	-	-	6	9	3	3
WEST NORTH CENTRAL											
Paralytic	105	-	-	1	2	-	1	4	25	47	10
Total	179	1	-	1	3	-	1	6	46	63	16
Minnesota	55	-	-	1	-	-	-	1	7	2	4
Iowa	23	1	-	-	1	-	-	2	7	13	2
Missouri	45	-	-	-	-	-	1	1	22	39	6
North Dakota	16	-	-	-	2	-	-	2	-	7	-
South Dakota	5	-	-	-	-	-	-	-	-	1	2
Nebraska	16	-	-	-	-	-	-	-	2	-	-
Kansas	19	-	-	-	-	-	-	-	8	1	2

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

Table 1 (Continued)

State and Region	Cumulative 1960	Cases Reported to NOVS for Week Ending						Six Week Total	Comparable Six Weeks Totals in:		
		11-26	12-3	12-10	12-17	12-24	12-31		1959	1958	1957
<b>SOUTH ATLANTIC</b>											
Paralytic	475	6	10	5	5	-	10	36	66	71	33
Total	609	6	11	5	8	-	10	40	88	95	47
Delaware	-	-	-	-	-	-	-	-	-	6	-
Maryland	160	-	1	2	-	-	7	10	5	4	16
D. C.	5	-	-	-	-	-	-	-	1	4	5
Virginia	58	3	5	3	-	-	3	14	7	23	6
West Virginia	62	1	3	-	-	-	-	4	8	21	2
North Carolina	96	1	1	-	1	-	-	3	20	4	8
South Carolina	132	-	1	-	2	-	-	3	10	8	3
Georgia	26	1	-	-	2	-	-	3	23	2	4
Florida	70	-	-	-	3	-	-	3	14	23	3
<b>EAST SOUTH CENTRAL</b>											
Paralytic	112	5	3	2	1	-	1	12	41	34	5
Total	275	5	3	6	5	-	14	33	52	64	27
Kentucky	150	-	-	4	4	-	12	20	13	17	2
Tennessee	57	4	2	-	1	-	2	9	17	26	6
Alabama	23	-	-	-	-	-	-	-	9	13	10
Mississippi	45	1	1	2	-	-	-	4	13	8	9
<b>WEST SOUTH CENTRAL</b>											
Paralytic	189	2	4	3	3	2	-	14	25	77	30
Total	294	2	4	3	3	4	-	16	33	106	51
Arkansas	36	-	-	2	-	2	-	4	10	7	-
Louisiana	52	-	1	-	-	2	-	3	7	4	3
Oklahoma	17	-	-	-	-	-	-	-	7	5	4
Texas	189	2	3	1	3	-	-	9	9	90	44
<b>MOUNTAIN</b>											
Paralytic	52	-	4	-	-	-	1	5	11	2	7
Total	102	-	6	1	2	-	1	10	17	11	10
Montana	24	-	2	1	-	-	-	3	4	4	-
Idaho	11	-	-	-	1	-	NR	1	1	-	-
Wyoming	22	-	1	-	1	-	-	2	-	1	-
Colorado	21	-	2	-	-	-	-	2	-	-	3
New Mexico	7	-	-	-	-	-	-	-	3	3	1
Arizona	9	-	1	-	-	-	-	1	7	1	5
Utah	8	-	-	-	-	-	1	1	1	1	1
Nevada	-	-	-	-	-	-	-	-	1	1	-
<b>PACIFIC</b>											
Paralytic	437	9	3	4	3	2	-	21	97	29	39
Total	510	10	4	5	5	3	1	28	111	42	56
Alaska	2	-	-	-	-	-	-	-	3	-	-
Washington	40	-	1	2	-	1	-	4	18	5	5
Oregon	37	-	-	-	-	-	1	1	28	3	8
California	423	10	3	3	5	2	-	23	62	33	42
Hawaii	8	-	-	-	-	-	-	-	-	1	1
<b>TERRITORIES</b>											
Puerto Rico	498	6	5	-	-	1	-	12	5	5	-

Table II

PARALYTIC POLIOMYELITIS OCCURRING WITHIN 30 DAYS OF LAST VACCINE INOCULATION  
(Cases Reported to PSU from November 27 through December 24, 1960)

State	County	Ini- tials	Age	Sex	Date Inoc.	Mfr.	Lot No.	Onset Inter- val	Site Inoc.	Site First Para.
Calif.	Alameda	C.G.	14 mos.	M	9-8-60	Unk.	Unk.	11 days	Unk.	Unk.
Indiana	Clark	A.H.	9 Mos.	F	9-12-60	Unk.	Unk.	9 days	Unk.	Unk.
New Jersey	Hudson	K.M.	15	F	8-16-60	Lilly	755918	6 days	right arm	left lower leg
New Jersey	Hudson	C.S.	5	F	8-12-60	Wyeth	37201	2 days	left arm	both lower extre- mities
New York	Allegany	W.M.	1	M	9-20-60	Unk.	Unk.	24 days	right upper extre- mity	right lower extre- mity
New York	Chaut- auqua	M.S.	35	F	8-25-60	Unk.	Unk.	16 days	Unk.	Unk.
Rhode Island	Provi- dence	M.B.	2	M	7-9-60	Wyeth	1E471	4 days	right arm	right leg
Rhode Island	Provi- dence	K.B.	1	M	7-12-60	Unk.	Unk.	1 day	Unk.	Unk.
Rhode Island	Provi- dence	N.W.	26	F	7-20-60	Unk.	Unk.	15 days	Unk.	Unk.
Colorado Case F.P. which appeared in Report #218 has been dropped as an under 30-day case.										

Table III

THE NATIONAL FOUNDATIONMONTHLY REPORT OF POLIOMYELITIS VACCINE RELEASED AND SHIPPED(1,000 cc's)OCTOBER 1960

	<u>SINGLE ANTIGEN</u>		<u>MULTIPLE ANTIGEN</u>		<u>TOTAL</u>	
	<u>This</u>	<u>To</u>	<u>This</u>	<u>To</u>	<u>This</u>	<u>To</u>
	<u>Month</u>	<u>Date</u>	<u>Month</u>	<u>Date</u>	<u>Month</u>	<u>Date</u>
CC. Released	<u>3,509</u>	<u>457,836</u>	<u>229</u>	<u>11,737</u>	<u>3,738</u>	<u>469,574</u>
CC. Shipped						
National Foundation	5	15,242	-	-	5	15,242
Public Agencies	821	162,421	51	707	872	163,128
Commercial Channels	1,181	162,844	298	9,300	1,479	172,144
Export	<u>2,935</u>	<u>87,857</u>	<u>32</u>	<u>402</u>	<u>2,967</u>	<u>88,259</u>
Total	<u>4,942</u>	<u>428,364</u>	<u>381</u>	<u>10,409</u>	<u>5,323</u>	<u>438,773</u>

NOVEMBER 1960

	<u>SINGLE ANTIGEN</u>		<u>MULTIPLE ANTIGEN</u>		<u>TOTAL</u>	
	<u>This</u>	<u>To</u>	<u>This</u>	<u>To</u>	<u>This</u>	<u>To</u>
	<u>Month</u>	<u>Date</u>	<u>Month</u>	<u>Date</u>	<u>Month</u>	<u>Date</u>
CC. Released	<u>2,768</u>	<u>460,605</u>	<u>789</u>	<u>12,527</u>	<u>3,558</u>	<u>473,131</u>
CC. Shipped						
National Foundation	2	15,244	-	-	2	15,244
Public Agencies	498	162,919	68	775	566	163,694
Commercial Channels	993	163,836	933	10,233	1,926	174,069
Export	<u>4,280</u>	<u>92,137</u>	<u>30</u>	<u>433</u>	<u>4,310</u>	<u>92,570</u>
Total	<u>5,773</u>	<u>434,136</u>	<u>1,031</u>	<u>11,441</u>	<u>6,804</u>	<u>445,577</u>

