

CDC POLIOMYELITIS SURVEILLANCE REPORT

NO. 131

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U.S. DEPARTMENT OF HEALTH, EDUCATION AND WELFARE  
Public Health Service      Bureau of State Services

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SPECIAL NOTE

Information presented in this report represents a summary of preliminary data regarding poliomyelitis and polio-like diseases reported to CDC from State Health Departments, participating diagnostic and reference laboratories, Epidemic Intelligence Service Officers, National Office of Vital Statistics, and other pertinent sources. It is to be emphasized that these data are provisional and intended for the information and administrative use of physicians involved in investigation and control of poliomyelitis and polio-like diseases. Anyone desiring to quote this information is urged to contact the person or persons responsible for the items reported in order that the exact interpretation of the report and the current status of the investigation be obtained.

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A. CURRENT POLIOMYELITIS MORBIDITY TRENDS

During the week ending October 12 a total of 169 poliomyelitis cases was reported to NOVS, compared with 211 the week of October 5, 231 for September 28, and 213 for September 21. Figure 1 presents national incidence by weeks for 1947 and 1952 through 1957. The number of cases for the 41st week and the cumulative total for the 1957 calendar year may be compared with similar data for 1956, 1955 and the low years, 1947 and 1942:

TOTAL NATIONAL POLIO INCIDENCE

	<u>1957</u>	<u>1956</u>	<u>1955</u>	<u>1947</u>	<u>1942</u>
<u>41st Week</u>	169	400	884	539	190
<u>Cumulative through</u> <u>41st week</u>	5261	13187	24973	8394	3211
<u>Total for the Year</u>	-	15463	29324	10789	4190

The 1957 weekly totals have fallen below those recorded in 1942, for this current week as well as for the weeks ending September 7 and September 21.

Table 1 presents the distribution of total cases by State and Region, and of paralytic cases by Region, for the past six weeks, with six-week totals for the comparable periods of the past four years. The decline in total weekly incidence to below 200 cases has largely been due to decreases in the nonparalytic and unspecified categories. The number of paralytic notifications has remained stable, with 88 cases last week, compared with 103 cases the week before, and 105, 82, 70 and 73 cases for each of the four preceding weeks. The paralytic cases recorded for last week were distributed among all Regions, but with the North Central and Southeast Regions combined reporting 50 of the 88. The largest number of paralytic cases in any one state was 11, in California.

The proportion of weekly total cases reported as paralytic rose last week to 52 percent, the highest since the week ending last May 25 when 32 (or 53 percent) of 61 cases were recorded as paralytic. The lowest weekly proportion of paralytic cases was recorded the week ending July 27, when only 19% of the 265 cases were reported as paralytic. Percent of total cases by month reported to NOVS as paralytic is shown in the table below. A definite seasonal variation is seen, with 59 percent paralytic in January, decreasing to 24 percent for July and August, and increasing again to 36 percent in September and 50 thus far in October. The proportion of total cases with paralytic status unspecified has remained relatively stable, ranging from 11 percent in May to 19 percent in August.

POLIOMYELITIS IN THE U.S. - 1957  
Preliminary Reports to the National Office of Vital Statistics

Month	Total Cases	Percent Paralytic	Percent Unspecified
January	241	59	17
February	165	50	18
March	131	46	17
April	147	44	12
May	295	44	11
June	439	36	12
July	1154	24	16
August	1348	24	19
September	970	36	16
October*	380	50	16

\*Data for the 40th and 41st weeks, ending October 5 and October 12.

B. ROUTINE POLIOMYELITIS SURVEILLANCE

1. Under-30-Day vaccinated cases - One paralytic poliomyelitis case with onset of symptoms within 30 days of a polio vaccine inoculation was reported to PSU during the week ending October 16. No nonparalytic under-30-day cases were reported.

Illinois reported this case, a two year-old male with onset of illness four days following second inoculation in the left arm. First paralysis developed in the right leg. Vaccine used was Lilly, lot number 700211 or 700204, both one million cc lots distributed in August. No other cases have been reported to PSU in association with either of these lots of vaccine.

2. Triply-vaccinated cases - During the week ending October 16, a total of 9 paralytic and 16 nonparalytic triply-vaccinated poliomyelitis cases were received by PSU. The paralytic triply-vaccinated cases are listed in Table 2. PSU has now received reports of 76 paralytic and 390 nonparalytic cases in triply-vaccinated individuals with onset of symptoms in 1957.

3. Vaccine distribution - Current and cumulative vaccine releases, shipments and inventory estimates are presented in Table 3.

C. ASEPTIC MENINGITIS - Progress Reports

1. Minnesota

Preliminary review of data from the Minnesota outbreak of aseptic meningitis has previously been presented (see PSU Reports 122 and 125).

Further data from hospitalized cases and family contact studies have been summarized in the following progress report by Dr. David Rogers, EIS Officer:

"On the basis of a random sample survey made in the Twin City area by the city and state health departments it is estimated that as many as 400,000 individuals could have been affected.

"Data on approximately 175 hospitalized cases of aseptic meningitis have been collected from hospital records and are being analysed. Preliminary tabulations of this data indicate that in its severe form, this is an acute, febrile illness, the outstanding feature of which is headache. The headache, which is usually described as severe, occurred in 97% of the cases. Stiff neck and stiff back occurred in 89% and 81% of cases respectively. Either nausea or vomiting was present in 58% of the cases. Of particular interest is a rash which occurred in 23% of the cases and was usually described as maculo-papular with distribution about the face and trunk. Contrary to first impressions, the rash did not occur predominately in children, but affected all age groups equally. Other symptoms which occurred with lesser frequency (10-20%) include sore throat, abdominal pain, photophobia and lethargy.

"The duration of illness was ordinarily between one and two weeks. In over half of the cases (53%) the temperature returned to normal between the 5th and 9th day of illness.

"As previously reported, the hospitalized cases were made up primarily of children and young adults. Only 8% of the cases were 35 years or older. Sixty-five percent of the cases were male. This male preponderance, while marked in young adolescents, tends to disappear above the age of 20 years.

"Spinal fluid was examined from almost all hospitalized cases and always contained cells, predominately lymphocytes. Spinal fluid protein was rarely elevated, and bacterial cultures were uniformly negative.

"Data concerning the occurrence of illness in the families of hospitalized patients have been collected and are currently being tabulated. Depending upon the criteria applied, the 'secondary attack rate' appears to lie between 20% and 35%. Males and females are equally affected. An attempt is being made to categorize secondary cases by symptom complexes with the hope of arriving at meaningful criteria for distinguishing cases related to the epidemic from other intercurrent illness. If such criteria can be derived, they may be applied to the larger, random sample survey (in which data was collected in the same manner as in the family contact study) with the aim of reaching a more reliable estimate of the total incidence of this disease."

## 2. Michigan

A particularly high proportion (77 percent) of cases reported as poliomyelitis in Michigan this year have been listed as nonparalytic.



Cumulative distribution as to paralytic status of cases included in preliminary reports to NOV5 this year through October 12 are shown in the table below, compared with paralytic distribution for the entire years of 1955 and 1956.

REPORTED POLIOMYELITIS IN MICHIGAN  
BY PARALYTIC STATUS

	<u>Total Cases</u>	<u>Percent Paralytic</u>	<u>Percent Nonparalytic</u>	<u>Percent Unspecified</u>
1955	1192	27	58	15
1956	680	42	48	11
1957*	465	19	77	4

\*Cumulative through October 12.

Dr. Gordon Brown, University of Michigan, has summarized preliminary results of virus isolations on specimens submitted from poliomyelitis and possible nonpolio aseptic meningitis cases in Michigan this year.

From 173 cases classified as nonparalytic, suspect polio, aseptic meningitis, etc., the following strains have been isolated:

Poliovirus	6 (4 unvaccinated and 2 triply-vaccinated)
Coxsackie	24
ECHO 9	26
Unidentified	10

From 14 cases classified as paralytic, the following strains have been isolated:

Poliovirus	5 (all unvaccinated)
Coxsackie	1
ECHO 9	1
Unidentified	1

"The Coxsackie isolated have all been A-9, B-4 or B-5, with a definite prevalence of B-5 during September. The ECHO 9 have all occurred in September and are scattered all over Michigan with two or three localized areas... ."

Cumulative distribution as to paralytic status of cases included in preliminary reports to MOVS this year through October 12 are shown in the table below, compared with paralytic distribution for the entire years of 1955 and 1956.

REPORTED POLIO MYELITIS IN MICHIGAN  
BY PARALYTIC STATUS

	Total Cases	Paralytic	Nonparalytic	Percent Unparalytic
1955	1192	51	58	15
1956	680	14	66	11
1957	463	19	71	15

Cumulative through October 12.

Dr. Gordon Brown, University of Michigan, has summarized preliminary results of virus isolations on specimens submitted from polio patients and possible nonpolio aseptic meningitis cases in Michigan this year.

From 173 cases classified as aseptic meningitis, aseptic meningitis, etc., the following strains have been isolated:

- Poliovirus 5 (4 unvaccinated and 1 empty-vaccinated)
- Coxsackievirus 2 (1 unvaccinated and 1 empty-vaccinated)
- ECHO 9 2
- Unidentified 10

From 15 cases classified as paralytic, the following strains have been isolated:

- Poliovirus 5 (all unvaccinated)
- Coxsackievirus 1 (1 unvaccinated)
- ECHO 9 1 (1 unvaccinated)
- Unidentified 1 (1 unvaccinated)

The Coxsackievirus isolated have all been A-9, B-4 or B-5, with a definite prevalence of B-5 during September. The ECHO 9 have all occurred in September and are scattered all over Michigan with two or three localized areas of "outbreaks" in the Detroit area.

Figure 1: CURRENT U.S. POLIO INCIDENCE  
COMPARED WITH YEARS 1952-1956

DATA PROVIDED BY NATIONAL OFFICE OF VITAL STATISTICS

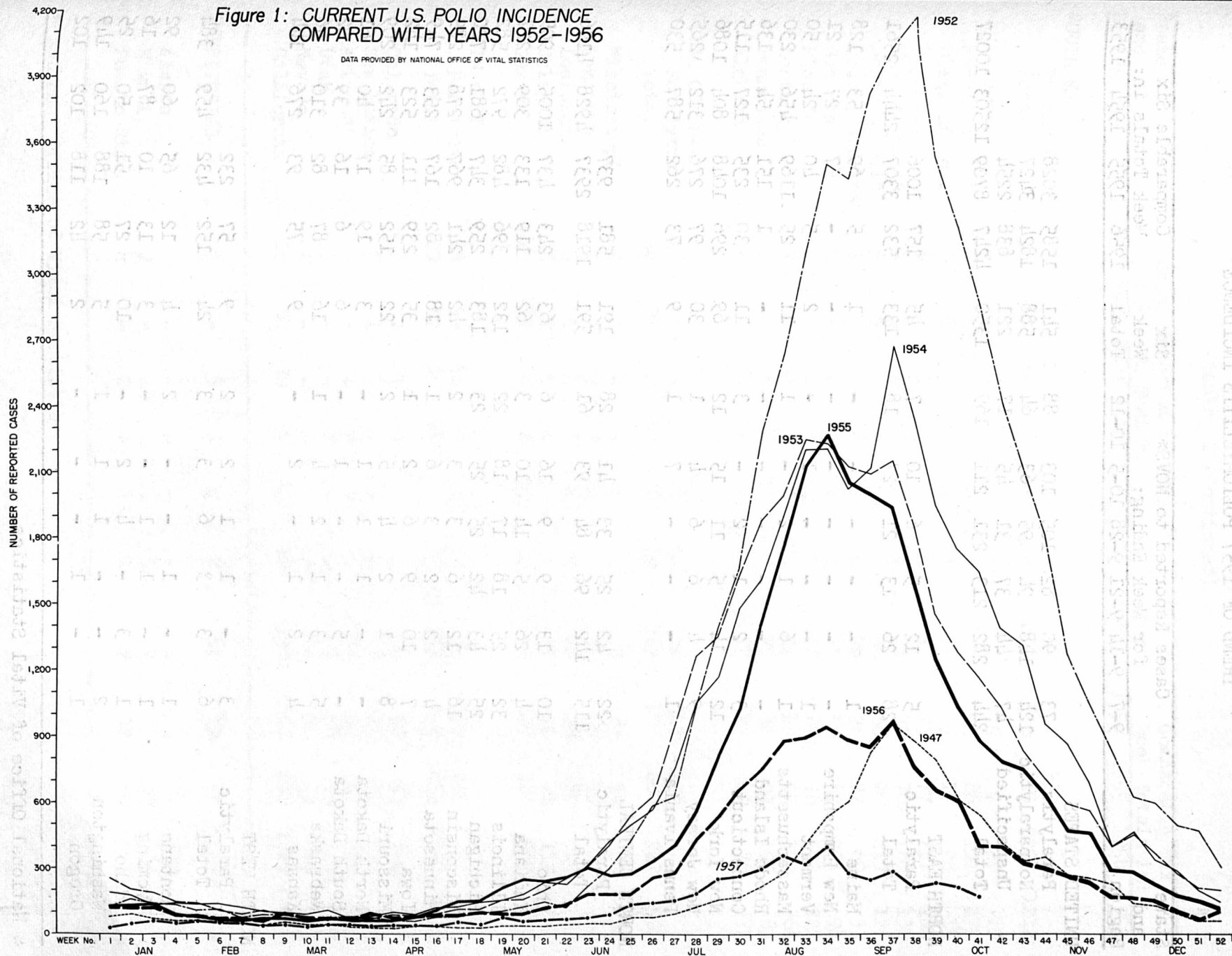


Table 1

## TREND OF 1957 POLIOMYELITIS INCIDENCE

State and Region	Cases Reported to NOVS* for Week Ending:						Six Week Total	Comparable Six Week Totals in:			
	9-7	9-14	9-21	9-28	10-5	10-12		1956	1955	1954	1953
UNITED STATES											
Paralytic	73	90	82	105	103	88	541	1585	3028		
Nonparalytic	124	148	94	95	63	64	588	1824	3427		
Unspecified	47	44	37	31	45	17	221	838	2254		
Total	244	282	213	231	211	169	1350	4247	8709	12503	10027
NORTH EAST											
Paralytic	5	12	5	6	10	7	45	157	1006		
Total	28	26	13	21	27	18	133	532	3307	2444	2561
Maine	1	-	-	-	-	-	1	5	69	53	128
New Hampshire	-	-	-	-	-	-	-	-	57	27	21
Vermont	1	-	-	-	1	-	2	5	40	24	50
Massachusetts	1	6	1	2	-	1	11	25	1169	456	230
Rhode Island	-	-	-	-	-	-	-	1	151	54	136
Connecticut	3	2	1	2	-	3	11	30	235	127	115
New York	12	14	5	11	15	12	69	296	1048	804	1086
New Jersey	9	4	6	6	4	1	30	97	276	312	265
Pennsylvania	1	-	-	-	7	1	9	73	262	587	530
NORTH CENTRAL											
Paralytic	22	42	25	33	41	28	191	581	937		
Total	115	142	96	84	93	61	591	1918	2937	4928	4156
Ohio	10	13	9	9	16	6	63	243	437	1005	905
Indiana	4	26	5	14	10	3	62	119	133	309	227
Illinois	32	25	18	17	18	22	132	396	482	972	582
Michigan	25	43	42	25	25	23	183	259	347	681	720
Wisconsin	16	12	6	3	3	2	42	241	967	278	289
Minnesota	4	2	2	3	6	1	18	82	167	253	749
Iowa	7	10	9	6	2	1	35	239	111	523	142
Missouri	8	1	2	4	5	2	22	152	85	242	209
North Dakota	-	-	1	1	1	-	3	19	17	40	61
South Dakota	-	5	-	-	1	-	6	6	16	39	82
Nebraska	5	3	1	2	4	1	16	87	82	310	46
Kansas	4	2	1	-	2	-	9	75	93	276	144
NORTH WEST											
Paralytic	3	-	1	1	2	2	9	57	232		
Total	6	3	3	6	3	3	24	152	432	459	384
Montana	1	-	1	-	-	2	4	12	65	60	92
Wyoming	1	-	1	1	-	-	3	13	10	87	16
Idaho	1	3	-	4	2	-	10	27	51	50	25
Washington	2	-	-	1	1	1	5	58	188	160	149
Oregon	1	-	1	-	-	-	2	42	118	102	102

\* National Office of Vital Statistics.

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Table 1 (Continued)

State and Region	Cases Reported to NOVSV* for Week Ending:						Six Week Total	Comparable Six Week Totals in:			
	9-7	9-14	9-21	9-28	10-5	10-12		1956	1955	1954	1953
SOUTH EAST											
Paralytic	21	16	26	45	25	22	155	243	330		
Total	36	42	47	73	43	39	280	528	810	2205	1212
Delaware	-	-	-	-	-	1	1	15	7	29	10
Maryland	-	1	1	3	-	2	7	44	86	101	175
Dist. of Col.	7	6	6	7	2	1	29	5	17	28	15
Virginia	5	4	5	10	8	5	37	73	77	217	181
West Virginia	1	4	1	12	4	1	23	37	70	180	136
North Carolina	5	5	4	9	5	8	36	86	96	213	126
South Carolina	3	5	5	8	3	5	29	28	77	69	33
Georgia	2	2	2	3	1	1	11	59	82	205	94
Florida	7	6	4	3	4	3	27	87	78	592	224
Kentucky	3	4	6	9	5	4	31	40	97	300	64
Tennessee	3	4	6	9	11	4	37	30	83	195	83
Alabama	-	1	7	-	-	4	12	24	40	76	71
SOUTH CENTRAL											
Paralytic	16	8	9	11	17	14	75	247	238		
Total	36	27	19	22	26	23	153	497	608	927	502
Mississippi	2	1	-	-	1	1	5	80	19	80	38
Arkansas	1	1	2	2	4	1	11	50	30	72	68
Louisiana	3	6	4	6	4	5	28	128	89	95	67
Oklahoma	8	2	5	6	4	2	27	40	81	113	87
Texas	22	17	8	8	13	14	82	199	389	567	242
SOUTH WEST											
Paralytic	6	12	16	9	8	15	66	300	285		
Total	23	42	35	25	19	25	169	620	653	1540	1212
Colorado	2	7	1	3	2	1	16	50	59	135	46
New Mexico	2	1	2	-	-	2	7	21	30	91	28
Arizona	-	-	2	6	-	3	11	20	41	55	63
Utah	3	-	-	2	-	-	5	58	23	109	37
Nevada	-	-	-	-	-	-	-	10	11	23	11
California	16	34	30	14	17	19	130	461	489	1127	1027
TERRITORIES											
	7	-	3	1	4	2	17	19	55	83	16
Alaska	1	-	-	-	-	-	1	2	17	72	4
Hawaii	2	-	1	-	3	1	7	5	32	10	4
Puerto Rico	4	-	2	1	1	1	9	12	6	1	8

\* National Office of Vital Statistics.

Table 2

1957 PARALYTIC POLIOMYELITIS CASES FOLLOWING THREE INOCULATIONS OF VACCINE  
(Reports October 10 through October 16, 1957)

3 V Case No.	State	County	Ini- tials	Age	Sex	Date 1st Symp.	Cerebro- Spinal Fluid	Site of Para.	Dates of Vacc. Inoc.	Mfr.	Lot No.
110	Tennessee	Greene	TDC	5	M	9-20-57		?	?	?	?
		(Preliminary Report)							?	?	?
111	Maryland	Prince George	SLF	2½	F	5-1-57		?	?	?	?
									3-9-57	?	?
Comment: "Patient ill most of winter, sore throat, not sleeping and poor appetite. Seen periodically by doctor. In May, 1957, mother observed child limping and she was examined by doctor. After 2 or 3 weeks observation child was referred to orthopedist, who referred to Children's Hospital for study and case was diagnosed. . ."											
112	Utah	Utah	MR	7	F	8-2-57		?	?	?	?
		(Preliminary Report)							?	?	?
113	Iowa	Webster	DC	5	M	8-26-57		?	?	?	?
		(Preliminary Report)							?	?	?
114	Iowa	Page	JK	7	F	9-3-57		?	?	?	?
		(Preliminary Report)							?	?	?
115	Iowa	Cerro Gordo	KR	8	F	9-18-57		?	?	?	?
		(Preliminary Report)							?	?	?

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Table 2 (Continued)

3 V Case No.	State	County	Ini- tials	Age	Sex	Date 1st Symp.	Cerebro- Spinal Fluid	Site of Para.	Dates of Vacc. Inoc.	Mfr.	Lot No.
116	Arkansas	Conway	BWMcC	13	M	8-19-57		LL	9-14-56 10-24-56 4-24-57	?	?
117	Virginia	Dinwiddie	JBj	33	M	9-25-57	55 cells	RA	July '56 Aug. '56 Mar. '57	?	?
118	Louisiana	E. Baton Rouge	Mrs. MC	24	F	?	60 cells	?	5-3-56 5-31-56 3-27-57	L L L	671707 671705 683458

Comment: "Mild" paralysis right leg.

Table 3

## POLIOMYELITIS VACCINE REPORT through 10-11-57

(Data provided by the Polio Vaccine Activity, BSS, USPHS.  
Listed in 1000's of cc's of Net Bottled Vaccine)

VACCINE RELEASES						
<u>Period</u>	<u>Lilly</u>	<u>Parke, Davis</u>	<u>Pitman- Moore</u>	<u>Wyeth</u>	<u>Sharpe &amp; Dohme</u>	<u>Cutter</u>
July	5,047	1,843	1,239	378	1,015	-
August	5,840	3,704	1,339	394	864	-
September	10,332	2,603	2,664	257	1,028	-
October						
1-11	-	621	-	-	-	-
Cumulative to date	129,915	33,357	32,191	9,623	10,405	401

VACCINE SHIPPED					
<u>Period</u>	<u>NFIP</u>	<u>Public Agencies</u>	<u>Commercial Channels</u>	<u>Export</u>	<u>Total</u>
1955	13,541	7,893	6,233	-	27,667
1956	194	45,588	24,784	6,477	77,043
1957					
January - June	151	36,044	23,760	6,385	66,970
July	-	4,642	4,903	327	9,871
August	-	4,133	4,037	1,099	9,269
September	585	3,036	3,654	1,272	7,962
Cumulative Totals	13,886	101,966	67,370	15,561	198,784

VACCINE INVENTORY				
<u>Week Ending</u>	<u>Unshipped by Manufacturers</u>	<u>In State and Local Health Departments</u>	<u>In Commercial Channel and Physicians Office</u>	<u>Total</u>
9-20-57	11,780	5,895	5,964	23,639
9-27-57	13,342	5,559	3,941	22,842
10-4-57	16,487	5,511	5,391	27,390