POLIOMYELITIS SURVEILLANCE REPORT THIRD YEAR NO.110 MAY 17, 1957

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Public Health Service Bureau of State Services
Communicable Disease Center
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SPECIAL NOTE

The information in this report represents a factual summary of data reported to the Poliomyelitis Surveillance Unit from State Health Departments, Epidemic Intelligence Service Officers, participating Laboratories and other pertinent sources. All readers should be cautioned regarding the interpretation of these data, many of which are preliminary and provisional in nature. It is understood that the contents of these reports will not be released to the press, except by the Office of the Surgeon General, Public Health Service, U. S. Department of Health, Education and Welfare. State Health Officers, of course, are free to release any information they may wish concerning data from their state.

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I. Current Poliomyelitis Morbidity Trends

Poliomyelitis incidence by weeks for 1957, with similar data for the first five months of the five preceding years, is presented in Figure 1. National incidence has increased over the past three weeks. Following a low of 32 cases for the week ending April 20, the National Office of Vital Statistics received reports of 49 cases for the week of April 27, 40 cases for the week of May 4, and 71 cases for the week of May 11.

Table 1 presents reported incidence for the past six weeks by states and regions, with six-week totals for the previous four years. It may be noted from Table 1 that the majority of this recent increase in incidence has occurred in South West and South Central States. However slightly increased incidence was also noted in North East, North West and South West States, with only the North Central region remaining unchanged.

II. Routine Poliomyelitis Surveillance

Dr. Samuel Osgood, Epidemiologist, Oregon State Health Department, reported the occurrence of acute febrile illnesses in all eight children inoculated in a private clinic from one vial of Lilly vaccine (Lot 697781) on two days and using multiple-dose syringe technique. Pseudomonas aeroginosa was isolated from both the remaining fluid in the vial and the syringe used for the second group of inoculations. Lot 697781, one million cc's, was widely distributed to State Health Departments (350,000 cc) and commercially (650,000 cc) beginning April 22, 1957. Spot-checks by Health Officers in seven States on May 6, 1957 determined that at least 70,000 cc of this lot had actually been inoculated in several localities without report of significant reactions. No additional significant reactions have since been reported to Polio Surveillance Unit. All evidence thus indicates that these illnesses resulted from local bacterial contamination of this single vial.

During the period April 26 through May 16, the Polio Surveillance Unit received reports on ten poliomyelitis cases occurring within 30 days of a vaccination in 1957. Of these ten cases, six were nonparalytic and four were paralytic. Of the four paralytic cases, two followed inoculation with Lilly vaccine and two followed inoculation with a vaccine for which the manufacturer and lot number are unknown.

III. Triply-Vaccinated Polio Cases

PSU has received 224 reports of poliomyelitis occurring with onset in 1956 in individuals who had previously received three inoculations of vaccine. These 1956 cases may be classified as follows:

	1956 Cases Listed Thru Mar.28,1957	1956 Cases Listed Mar.29 thru May 16,1957	Total 1956 Cases
Nonparalytic	176	18	194
Paralytic	25	3	28
Possible Paralytic	4	minus 2*	2
Totals	205	19	224

*Diagnosis of polio revoked by State Health Department in one case; listed as paralytic polio (3V-38-Maryland) in one case.

Through May 16, 1957, reports have been received on four paralytic and six non-paralytic triply-vaccinated cases with onset of illness in 1957. A line listing of the four paralytic cases appears in Table 2. Of these four cases, three (3V-27, 3V-29, and 3V-34) were previously listed in PSU Report No. 108.

IV. Allergic Reactions Following Administration of Polio Vaccine

Information reported to PSU to date concerning possible polio vaccine reactions has included 25 individual case reports representing probable instances of allergic reactions to the vaccine. Onset of illness in 17 of these 25 cases was within 24 hours and in 8 cases was more than 24 hours following inoculation. These cases may further be tabulated by age as follows:

	INTERVAL INOCULATION TO ONSET OF REACTION		
	24 Hours or less	More than 24 hours	Total
AGE 2 - 14	5	6	11
AGE 15- 40	12	2	14
Totals	17	8	25

It may further be noted that a past history of allergy or allergic reactions was obtained in 10 cases. In 8 cases there was no allergic history, and past history was not reported in 7.

Prominent symptoms and signs present in these 25 cases are as follows:

SYMPTOMS AND SIGNS	PRESENT IN
Urticaria or other skin lesions (including 2 cases known to have persistent serious skin lesions)	22 cases
Periorbital edema, buccal mucous membrane edema, lip edema, or allergic conjunctivitis	7 cases
Fever	6 cases
Arthralgia or arthritis	5 cases
Asthmatic reaction	2 cases

Data and case reports concerning these possible allergic vaccine reactions have previously been reviewed in PSU Report Nos. 102 & 108. Cases previously listed in Reports 102 and 108 are individually summarized in Table 3. Fifteen additional case reports subsequently received by PSU are listed below; (these recently received reports have been included in the data reviewed above).

ALLERGIC REACTIONS TO POLIO VACCINE

Cases Reported March 29 through May 16, 1957

Case #15: (Reported by Dr. Norman W. Anderson, U.S. Army Hospital, Fort Leavenworth, Kansas.)

MME, white, female, age 38. Past history of allergy to penicillin, with urticaria and asthma.

Benadryl 90 mgms given prior to first polio vaccine inoculation at 10:00 AM (Lilly # 676317). At about 10:30 AM Patient gradually developed malaise, flushing of the face, itching, urticaria and difficulty in breathing. Administration of oxygen and 0.6 cc of 1/1000 epinephrine IM produced some relief within ten minutes; wheezes were decreased in intensity. Symptoms cleared during the next four hours after which patient was placed on Benadryl 50 mg and ephedrine 12.5 mg qid for 7 days.

Four months later, (after premedication with Benadryl and ephedrine during the 24 hours preceding inoculation and shortly following administration of 50 mg of Benadryl plus 15 mg of ephedrine), the second inoculation of polio vaccine was given (lilly 659001). Fractional dosage of 0.3 cc followed four hours later by 0.7 cc was given under hospital observation. Benadryl and ephedrine were continued for 10 days following inoculation. No reactions were noted following this second inoculation.

Case #16: (Reported by Dr. Norman W. Anderson, U.S.Army Hospital, Fort Leavenworth, Kansas)

HRC, white, male, age 37. Past history of severe allergic skin reaction over genitalia especially the prepuce and glans penis, during hospitalization in 1955 for hemorrhoidectomy.

Benardyl, 90 mg, was administered prior to first inoculation of polio vaccine (Parke,Davis #029900-B). 24 hours later the patient again developed the same skin reaction about the genitalia, the reaction lasting four days.

One month later a second inoculation (Pitman-Moore #175B088) was given concurrent with Benardyl and ephedrine therapy. No allergic manifestations were noted.

Case #17: (Reported by Dr. Norman W. Anderson, U.S.Army Hospital, Fort Leavenworth, Kansas)

MCP, white, female, age 33. No history of allergy to penicillin.

First inoculation of polio vaccine (Pitman-Moore #175A076) was followed six days later by a generalized urticarial reaction lasting three weeks, treated with Pyribenzamine. The second inoculation has not been given.

Case #18: (Reported by Dr. Norman W. Anderson, U. S. Army Hospital, Fort Leavenworth, Kansas)

MOOM, white, female, age 32. Past history of penicillin allergic reactions characterized by urticaria and joint manifestations.

First inoculation of polio vaccine (Pitman-Moore #175A084), after 80 mg Benadryl premedication, was followed by a mild urticarial reaction beginning 24 hours post-inoculation and lasting three days.

Four months later second polio inoculation (Lilly #689001) was given after 90 mg Benardyl and 18 mgms ephedrine premedication, and was followed by Benadryl and ephedrine therapy for five days. There was no reaction to this second inoculation.

Case #19: (Reported by Dr. Norman W. Anderson, U.S.Army Hospital, Fort Leavenworth, Kansas)

HRK, white, female, age 47. Past history of reactions to penicillin with swelling, induration of the arm, fever and malaise beginning six hours after penicillin injection and lasting 1 week.

First inoculation of polio vaccine (Lilly No. 689001) given in fractional dosage (0.1 cc at 8:30 AM and 0.9 cc at 3:30 PM). Benardyl and ephedrine tid. was also given. No reaction was reported.

Case #20-21-22 (Reported by Dr. Norman W. Anderson, U.S.Army Hospital, Fort Leavenworth, Kansas)

PMN, white, male, 34 years.
MDG, white, female, 25 years
ALW, white, male, 36 years

Past history in all three patients revealed acute violent reactions to penicillin requiring hospital admission.

All three patients were placed on Benadryl and ephedrine tid, and given first inoculations of polio vaccine in fractional dosage under hospital observation. First doses, 0.3 cc, were administered at 8:30 AM, followed by 0.7 cc at 12 :30 PM.

Case #20 omitted Benardyl and ephedrine medication during the 24 hour post-inoculation and developed urticaria and swollen lips. Symptoms regressed with subsequent treatment.

Case #21 and #22 developed no reactions.

Case #23: (Reported to Dr. Edward Pinckney, Assistant Editor, Journal of American Medical Association)

24 year old, male. Past history of Syndenham's chorea at age 6, of frequent upper respiratory infections and severe acne. No definite history of arthritis.

One week following first polio inoculation patient developed painful, red, warm, swelling of the left wrist. There were no other artiritis symptoms.

Physical examination other than the monarticular arthritis was completely normal. Laboratory data revealed ESR's of 16, 18, and 8 mm, C-reactive protein - trace, hemaglobin 14.7, WBC 10,700 with normal differential, ASO titer 833 units, two EKG's normal.

On 90 gr. of sodium salicylate, 15 mg. of Prednisone, and penicillin in divided doses the patient became asymptomatic in three days. There was no recurrence of any symptomatology in the subsequent month.

Case #24: (Reported to Dr. Robert M. Albrecht, Department of Health, State of New York, Albany, New York)

female, age 40. Past history of penicillin semsitivity.

About four hours following first polio vaccine injection (Lilly) patient noted swelling, redness, hives and itching of the arm in the area of the injection. Antihistamine therapy was given. The reaction subsided in about 18 hours.

Case #25: (Reported to Dr. Robert M. Albrecht, Department of Health, State of New York, Albany, New York)

female, age 18. Patient had never been given penicillin, but patient's father is extremely sensitive to penicillin.

About 24 hours following first injection of polio vaccine patient developed mild generalized hives, subsiding without treatment in about 24 hours.

Case #26: (Reported by Dr. Robert E. Kaufman, New York, New York)

female adult (nurse). No past history of urticaria or other allergic conditions, and no history of medications or injections for a long period prior to polio vaccine administration.

Nine hours following third injection with polio vaccine, the patient developed urticaria and angiodedma. She later developed fever, leukocytosis, slight lymphadenopathy, slight joint pains, and slight weakness of left arm.

Case #27: (Reported by Dr. Myron M. Nichols, Midland, Texas)

female, age 9. Past history of a rash from penicillin two years previously.

Patient had been given 2 polio vaccine injections (Lilly) without reaction. Five and one-half hours following a third injection the patient had onset of a definite mild erythematous eruption very similar to mild scarlet fever except that there was itching, a few wheals and slight edema of the skin of the antecubital fossae. WBC was 9,900 with 21% ecsinophiles, 1% basophiles, including 39% neutrophiles, 35% lymphocytes, and 4% monocytes. Patient had no other abnormality and in 48 hours the reaction had cleared. No treatment other than local calamine lotion was given.

Case #28: (Reported by Dr. Bernard B. Siegel, Allergy Division, Jewish Hospital of Brooklyn, Brooklyn,New York)

female, negro, age 23. Patient an atopic individual with active atopic dermatitis. She had received penicillin twice during the last few years, and on each occassion developed delayed angio-edema of the face.

Following injection of one cc of polio vaccine (Lilly) patient developed a delayed generalized urticaria lasting 24 hours.

Case #29: (Reported by Dr. Bernard B. Siegel, Allergy Division, Jewish Hospital of Brooklyn, Brooklyn, New York)

male, age 8. Past history of asthma but patient had never previously experienced urticaria and had been given penicillin on many occassions without reactions.

Within 48 hours after second polio vaccine injection patient developed generalized urticaria lasting about 48 hours.

(Dr. Siegel further reports administration of polio vaccine without untoward reaction to a number of patients who had previously experienced delayed urticarial reactions to penicillin. Dr. Siegel also mentions, of course, that patients who have experienced a delayed urticarial reaction to penicillin will not uncommonly tolerate subsequent therapeutic doses of penicillin without clinical reaction)

V. Vaccine Distribution

A summary of current and cumulative shipments of vaccine (in 1,000's of cc's of net bottled vaccine) appears in Table 4. Excluding export, 14 million cc's were shipped during April. The vaccine inventory on May 3 totaled eight million cc's, including vaccine unshipped by manufacturers and vaccine on hand in State and Local Health Departments, Physicians Offices and in Commercial Channels.

(This report was prepared by Dr. Lauri David Thrupp and Miss Helen Forester with assistance from the Statistics Section, CDC)

LDT
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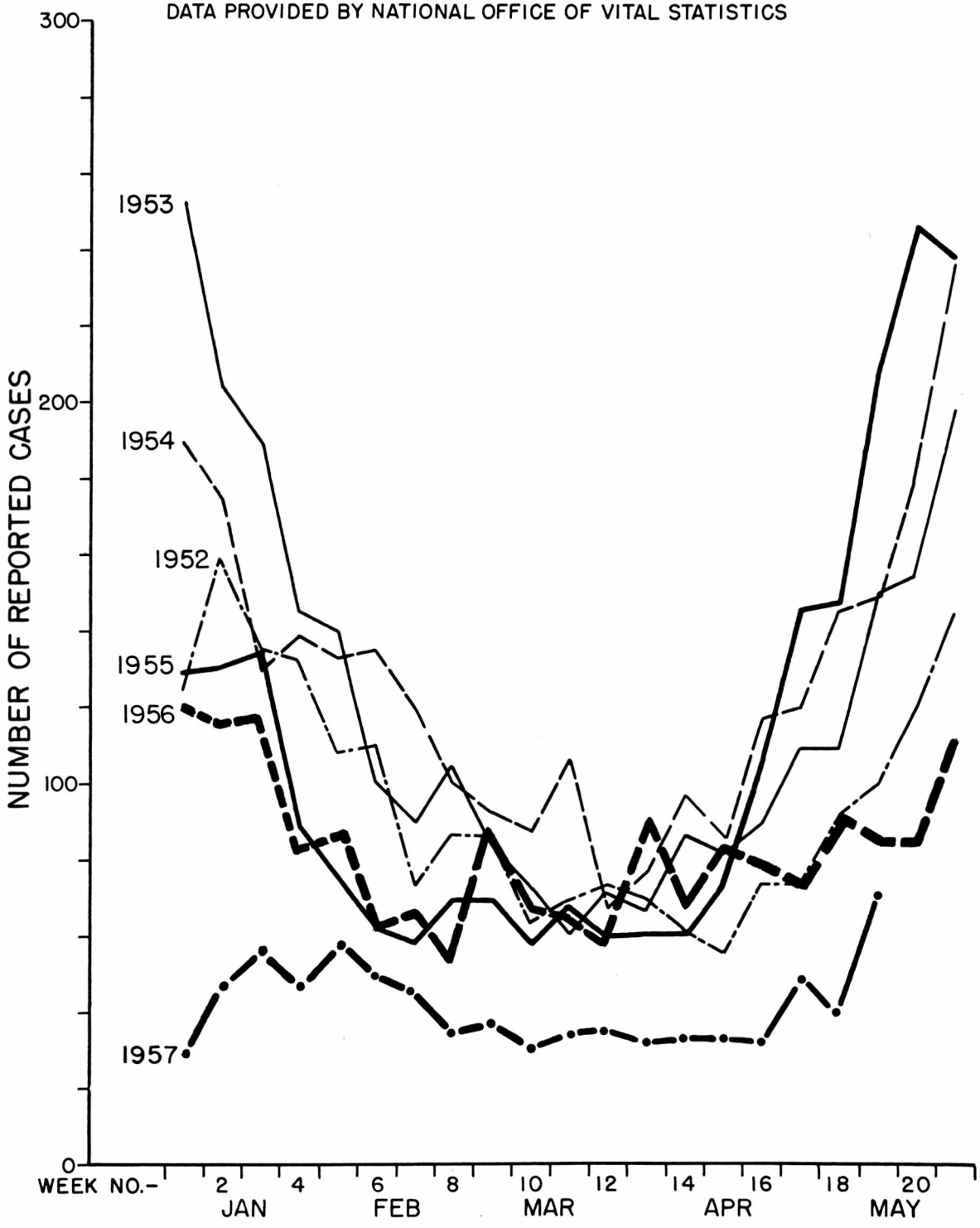
Fig. 1

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

DATA PROVIDED BY NATIONAL OFFICE OF VITAL STATISTICS



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ATLANTA, GA. - MAY, 1955

Table 1

TREND OF 1957 POLIOMYELITIS INCIDENCE

State and Region	Cases Reported to NOVS* for Week Ending: 4-6	4-13	4-20	4-27	5-4	5-11	Six Week Total	Comparable Six Week Totals in: 1956	1955	1954	1953
UNITED STATES	33	33	32	49	40	71	258	481	743	721	633
NORTH EAST	2	1	1	1	-	6	11	32	82	31	65
Maine	-	-	-	-	-	-	-	1	1	-	5
New Hampshire	-	-	-	-	-	-	-	-	-	-	-
Vermont	-	-	-	-	-	1	1	-	-	-	-
Massachusetts	-	-	-	-	-	1	1	2	5	4	2
Rhode Island	-	-	-	-	-	-	-	-	2	-	-
Connecticut	1	-	-	-	-	1	2	3	3	1	2
New York	1	1	1	-	-	1	4	18	46	16	36
New Jersey	-	-	-	-	-	-	-	3	8	4	7
Pennsylvania	-	-	-	1	-	2	3	5	17	6	13
NORTH CENTRAL	4	10	3	6	8	7	38	72	149	86	128
Ohio	-	2	-	1	1	1	5	6	19	12	10
Indiana	-	4	1	-	3	-	8	1	11	4	16
Illinois	-	-	-	-	2	-	2	14	35	9	23
Michigan	1	2	1	1	-	-	5	12	21	14	8
Wisconsin	-	-	1	1	1	1	4	15	8	1	9
Minnesota	-	-	-	-	-	1	1	5	11	9	14
Iowa	1	-	-	-	-	-	1	8	14	9	7
Missouri	1	1	-	-	-	2	4	5	7	15	18
North Dakota	-	-	-	1	-	-	1	-	1	2	-
South Dakota	-	-	-	-	-	-	-	-	3	2	3
Nebraska	1	1	-	1	-	1	4	4	8	3	7
Kansas	-	-	-	1	1	1	3	2	11	6	13
NORTH WEST	1	1	3	2	1	4	12	19	56	28	29
Montana	-	-	-	-	1	-	1	1	1	5	1
Wyoming	-	-	-	-	-	3	3	1	4	-	1
Idaho	-	-	-	1	-	1	2	3	25	2	3
Washington	1	-	-	-	-	-	1	3	8	13	17
Oregon	-	1	3	1	-	-	5	11	18	8	7

* National Office of Vital Statistics

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Table 1 (Continued)

State and Region	Cases Reported to NOVS* for Week Ending: 4-6	4-13	4-20	4-27	5-4	5-11	Six Week Total	Comparable Six Week Totals in: 1956	1955	1954	1953
SOUTH EAST	8	7	5	10	3	7	40	51	134	177	110
Delaware	-	-	-	-	-	-	-	-	5	-	1
Maryland	-	-	-	-	-	-	-	-	2	-	2
D. C.	-	-	-	-	-	-	-	-	-	1	1
Virginia	-	1	2	1	-	1	5	1	9	5	7
West Virginia	-	-	-	-	-	-	-	5	9	7	7
North Carolina	2	-	1	-	1	-	4	5	7	9	10
South Carolina	-	-	-	1	-	-	1	4	9	6	4
Georgia	2	3	1	-	-	-	6	1	24	12	15
Florida	1	-	1	4	1	5	12	22	47	94	30
Kentucky	-	-	-	2	-	1	3	6	14	9	9
Tennessee	1	3	-	1	1	-	6	5	4	5	3
Alabama	2	-	-	1	-	-	3	2	4	29	21
SOUTH CENTRAL	9	7	8	10	17	26	77	152	160	215	149
Mississippi	2	-	1	-	-	2	5	11	11	14	18
Arkansas	-	1	1	1	-	1	4	5	9	18	12
Louisiana	1	2	1	3	2	8	17	35	32	15	12
Oklahoma	-	-	-	-	-	-	-	6	6	16	14
Texas	6	4	5	6	15	15	51	95	102	152	93
SOUTH WEST	9	7	12	20	11	21	80	155	162	184	152
Colorado	-	1	-	1	-	-	2	2	7	6	10
New Mexico	-	-	-	2	-	2	4	3	4	-	3
Arizona	-	1	2	3	2	1	9	10	11	10	8
Utah	-	-	-	1	1	-	2	2	5	3	9
Nevada	-	-	-	-	-	-	-	5	7	5	-
California	9	5	10	13	8	18	63	133	128	160	122
TERRITORIES											
Alaska	-	-	-	-	-	-	-	1	1	4	4
Hawaii	-	-	-	-	-	-	-	2	4	33	3
Puerto Rico	-	-	-	-	-	-	-	9	65	2	3

* National Office of Vital Statistics.

Table 2

Paralytic Poliomyelitis Following Three Inoculations

(Reports through May 16, 1957)

3V Case No.	State	County	Initials	Age	Sex	Dates of Inoc.	Date 1st Symp.	Site of Para.	Mfr.	Lot No.
3V-27	Missouri	St. Louis	BD	7	F	6-?-56	1-4-57	RL,LL	L	?
						7-?-56			L	?
						12-28-56			L	679914
Comment: CSF contained 33 WBC, 63% Lymphs.										
3V-29	California	Los Angeles	MH	11	F	4-25-55	1-10-57	Bulbo-Spinal	C	?
						3-28-56			L	658259
						4-4-56			L	658259
						5-10-56			L	671708
Comment: CSF examination revealed 0 WBC and normal sugar and protein. On discharge, pharyngeal paresis had cleared but muscle examination revealed slight weakness of neck flexors and right shoulder.										
3V-34	New Mexico		TM	6	M	12-15-55	1-19-57	Bulbar	L	653800
						1-17-56		(Expired	L	653800
						9-14-56		1-25-57)	PD	1993
Comment: CSF on 1-23-57 contained 294 lymphocytes. Rapid progression of involvement necessitated tracheotomy on 1-24, and respirator care on 1-25. Histopathological findings were characteristic of acute anterior polio-encephalomyelitis.										
3V-37	Kansas	Ford	RB	6	M	11-10-55	2-22-57	RL,LL	L	?
						12-1-56		Trunk	L	?
						1-12-57			?	?

Table 3

POSSIBLE ALLERGIC REACTIONS TO POLIO VACCINE

Case No.	PSU Report No.	Allergic History	Age	Vaccine Inoc. No.	Interval from Inoc. to onset of Illness	Illness and Duration
1	102	?	5	1	?Same Day	Watery eyes, scratchy throat, cough, profuse nasal discharge.
				2	?Same Day	Similar illness.
				3	?Same Day	Asthma
2	102	?	6	1	?Same Day	High fever, 1 day.
				2	6 days	Generalized rash, urticaria, fever 103°F. severe joint pains, stomach ache, occipital headache; 6 days.
3	102	?	Adult	1	5 minutes	Burning eyes, generalized urticaria, erythema of the face, edema of the buccal mucous membranes; one hour.
4	102	Hay fever	4	1	6 hours	Itching, urticaria, 24 hours.
5	102	?	2	1	24 hours	Generalized urticaria.
				2		0.1 cc 1/10 intradermal - no reaction. Followed by 1.0 cc subcut. with antihistamine, without reaction.
6	102	7 cases of reaction to Wyeth lot 2401.			All within 1 to 3 days.	Localized erythema and tenderness in four cases. Slight fever, listlessness anorexia and localized reaction at site of inoculation in three cases. All 7 cases subsided within 2 to 7 days.
7	102	None	5	1	2 days	"White pimple" at site of inoculation, fever, malaise.
				2	2 days	Scattered asymptomatic vesicular and crusted lesions, diagnosed erythema multiforme; persisting several weeks later.

Table 3 (Continued)

Case No.	PSU Report No.	Allergic History	Age	Vaccine Inoc.No.	Interval from Inoc. to Onset of Illness	Illness and Duration
8	102	None	9	1	7-10 days	Fever, joint pain, mild exfoliative dermatitis; cleared.
				2 (0.1 cc intradermal).	5 days	Generalized exfoliative dermatitis, persisted.
9	102	?	7	1	2 days	Fever 104 F. for 6 days. Headache, sore neck and legs for 10 days.
				2	?	Similar illness, one week.
10	108	None	7½	1	6 days	Urticarial-like rash involving entire body, knee and ankle swelling, periorbital edema and fever of 104°. Acute phase about one week; rash persistent.
11	108	?	4	1	1-3 hours	Diffuse urticaria, periorbital edema; 2 days.
12	108	?	26	1	3 hours	Generalized urticaria, pain at inoculation site; ?Brief.
13	108	None	37	1	5 hours	Diffuse itching, blotchy red eruption, periorbital edema; 2 days.
				2		0.1 cc intradermal-no reaction. Followed by 1.0 cc subcutaneous also without reaction.
14	108	None	40	1	1 hour	Burning blotchy red rash on legs, and nausea.

Table 4

Poliomyelitis Vaccine Shipment Summary

(Reports from Polio Vaccine Activity, BSS, USPHS, through 5-10-57)

Vaccine Shipments (in 1000's of cc's)

Period	NFIP**** Sponsored Clinics	Public Agencies	Commercial Channels	Export *****	Total
1955	13,541	7,893	6,233***	-	27,667
1956					
First Ten Months	193	42,649	21,913	4,159	68,914
November	1	1,364	1,260	418	3,043
December	-	1,575	1,611	1,900	5,086
1956 Totals	194	45,588	24,784	6,477	77,043
1957					
January	2	4,705	4,243	2,111	11,061
February	3	9,934	6,100	544	16,581
March	3	5,297	3,140	1,456	9,896
April	-	8,639	5,161	1,360	15,161
Week Ending May 3	-	1,725	1,926	134	3,786
Cumulative Totals	13,743	82,057	49,660	11,949	157,409
Vaccine Cleared for distribution by the National Institutes of Health but not shipped by 5-3-57.					2,724
Vaccine in State and Local Health Departments					4,111
Vaccine in Commercial Channels and Physicians Offices					1,152

* Totals do not add because figures are rounded to nearest 1000 cc's.

** Less than 1000 cc's.

*** Includes 562,740 cc's shipped through commercial channels prior to inauguration of the Interstate Distribution Program in August, 1955.

**** Vaccine purchased by the National Foundation for Infantile Paralysis and distributed for inoculation of first and second grade children in locally organized school clinics.

***** Regulated under Department of Commerce Export Policy.