REPORT NO. 255
MAY 11, 1962

COMMUNICABLE DISEASE CENTER

POLIOMYELITIS

SURVEILLANCE

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

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: Chief, Poliomyelitis Surveillance Unit, Communicable Disease Center, Atlanta 22, Georgia.

Communicable Disease Center	Clarence A. Smith, M.D., Chief
Epidemiology Branch	Alexander D. Langmuir, M.D., Chief
Statistics Section	Robert E. Serfling, Ph.D., Chief
Surveillance Section	Donald A. Henderson, M.D., Chief
Poliomyelitis Surveillance Unit	Michael Regan, M.D., Chief James A. Bryan, II, M.D. Leo Morris, Statistician

SUMMARY

Ten cases of poliomyelitis, 7 paralytic, were reported for the week ending May 5. This represents the largest number of cases with 1962 onset to be reported in any week thus far this year.

Five of the seven paralytic cases were reported from Texas; these include the fourth and fifth paralytic cases in Webb County (Laredo) and the third paralytic case in Bexar County (San Antonio). A narrative report from Texas is included in Section 2.

A summary of 1961 poliomyelitis fatalities and age-specific attack rates is discussed in Section 5.

Also included is a status report on 1962 polio cases reported to PSU.

1. CURRENT MORBIDITY TRENDS

Twenty-one cases of poliomyelitis, 17 paralytic, were reported during the three week period ending May 5 (See Figure 1). Of the 101 cases reported thus far this year, over half have occurred in the Middle Atlantic and West South Central States (See Table I). The Middle Atlantic region represents largely delayed reports from New York. In the West South Central region, Texas has accounted for 17 of the 22 paralytic cases reported; all have had 1962 onsets.

The table below compares current cumulative poliomyelitis experience with those of past years.

Polio (Cumulated Weekly) Through 18th Week for Past Five Years

	1962	1961	1960	1959	1958
Paralytic	71	88	196	291	160
Total	101	136	272	409	297

2. REPORT - TEXAS

The 5 cases of paralytic poliomyelitis reported from Texas during the current week include 2 from Webb County (Laredo) and 1 from Bexar County (San Antonio). Webb County has now reported a total of 5 paralytic cases in 1962, all occurring within the past 8 weeks. This is the highest reported County total in the United States and includes 2 fatalities.

All 5 cases are inadequately vaccinated Latin-American pre-school age children. Three of the patients are still hospitalized and virologic study is underway.

Age	Sex	Onset Date	Vaccination Status (IPV)	Remarks
8 mo.	F	3-3	0V	
19 mo.	M	3-15	0V	Fatality
5 yr.	M	3-23	1V	Fatality (3-25)
15 mo.	F	Unk.	0V	
3 yr.	M	Unk.	0V	

The Bexar County case is the third paralytic case in 1962 reported from this county. According to Dr. Van C. Tipton, Epidemiologist, Texas State Department of Health, a fourth as yet unreported case has been recognized. The 3 reported cases have occurred within the past 8 weeks as shown below.

Age	Sex	Onset Date	Vaccination Status (IPV)
31	M	3-11	0V
2	M	4-18	0V
9	M	Unk.	Unk.

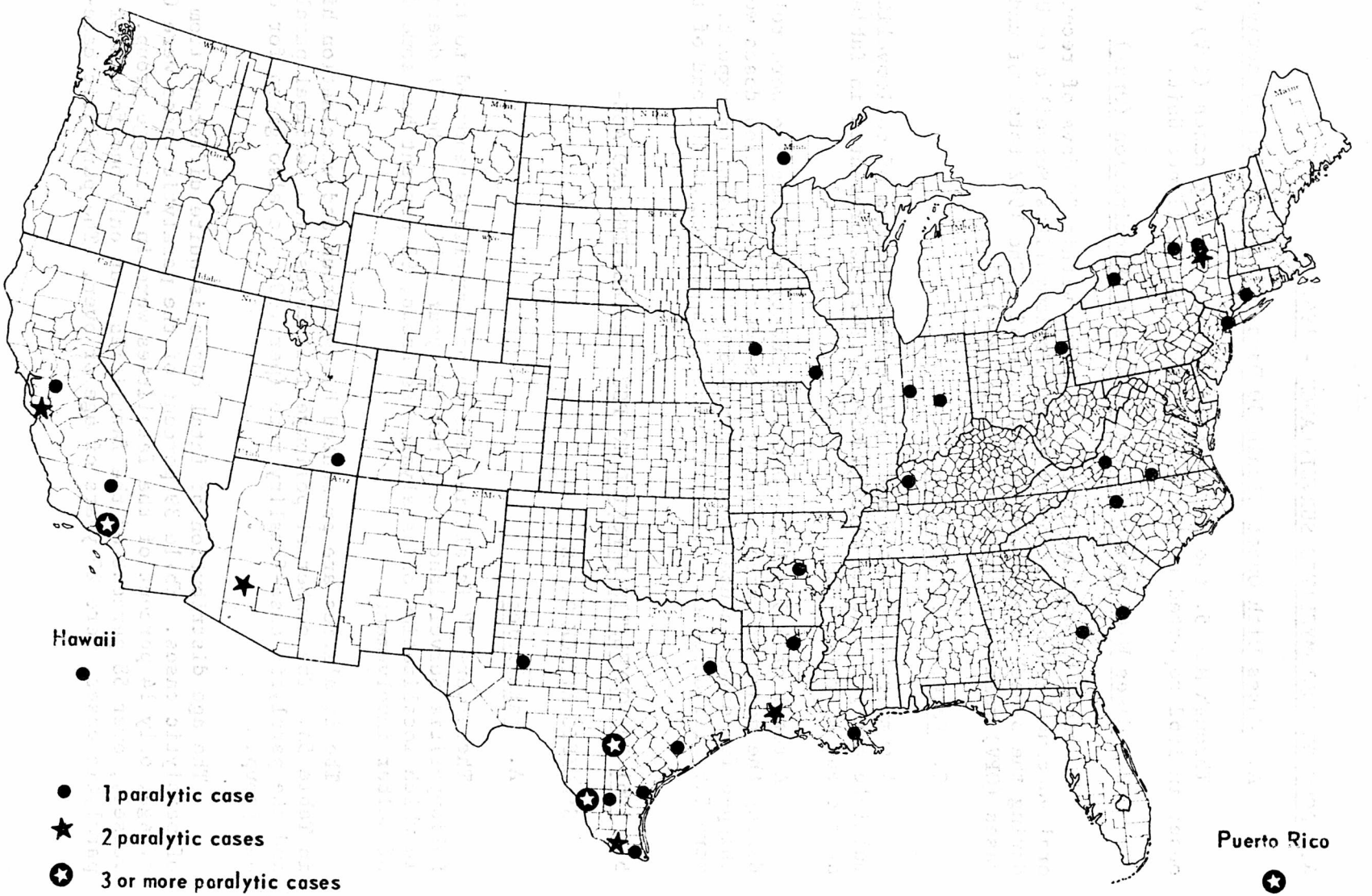
3. 1962 POLIOMYELITIS REPORTED TO PSU

Of the 71 cases of paralytic poliomyelitis reported thus far in 1962, 52 had onset since January 1. Nineteen cases represent delayed reports with onset of illness in 1961. The map on page 3 depicts the paralytic cases with onset in 1962 by county of origin (cases reported through May 5, 1962).

The only geographic concentration continues to be centered in southern Texas where 13 paralytic cases have occurred in six counties. Eleven of the 12 cases with known vaccination status were unvaccinated. The twelfth case had only one dose of inactivated vaccine. Aside from Texas, only populous Los Angeles County, California, has reported as many as three cases this year.

There have been no additional poliovirus isolates reported from 1962 cases since those appearing in PSU Report No. 254 (April 20, 1962).

REPORTED PARALYTIC POLIO IN U. S. BY COUNTY– 1962 onset through May 5



4. ROUTINE POLIOMYELITIS SURVEILLANCE - 1962

A. Cases With Onset Within 30 Days of Vaccination (Inactivated)

Through May 5, there have been no under-30-day cases (IPV) with onset in 1962 reported to the Poliomyelitis Surveillance Unit.

B. Cases With Onset Within 30-Days of Vaccination (Oral)

No cases of poliomyelitis with onset within 30 days of receiving oral vaccine have been reported to the Poliomyelitis Surveillance Unit during the 3-week period ending May 5, 1962. The 1962 total of under-30-day cases (OPV) remains at one (See PSU No. 254).

C. Vaccine Distribution

A summary of current and cumulative shipments of poliomyelitis and multiple antigen vaccine through March, 1962, is presented in Table II at the end of this report.

A total of 4.3 million doses of inactivated vaccine were released during the month of March. During this month, 4.1 million doses were shipped for domestic use and another 0.6 million doses for export. There were 5.6 million doses (5.1 million cc's) unshipped at the end of the month.

5. 1961 POLIOMYELITIS REPORTED TO PSU - FATALITIES AND AGE-SPECIFIC ATTACK RATES

A. Fatalities

There were 77 fatalities due to poliomyelitis reported to the Poliomyelitis Surveillance Unit for the year 1961. Of the 71 deaths in which localization of paralysis was known, 93 percent had some degree of bulbar involvement.

The fatalities are presented by age group and vaccination history in Table 5A. The number of poliomyelitis cases with residual paralysis and the paralytic case-fatality rate (per 100) are also given for each age group.

The age distribution of fatal cases is quite different from that of paralytic cases. While 39 percent of the paralytic cases were 0-4 years of age, only 14 percent of the fatalities were in this age group. Conversely, over 58 percent of the fatalities, but only one-fourth of the paralytic cases, were 20 years of age or over. The paralytic case-fatality

rate increases with age indicating a more severe involvement in the older age groups. The overall case-fatality rate of 9.3 per 100 compares with 9.5 in 1960, 8.3 in 1959 and 7.4 in 1958.

B. Age Specific Attack Rates

In 1961, paralytic poliomyelitis continued to strike the prime risk pre-school age group. Of the 829 paralytic cases reported to the Poliomyelitis Surveillance Unit, 319 were infants and pre-school children. Age specific attack rates shown in Table 5B clearly indicate this peak incidence. Rates diminish progressively with age until the young adult group, and then a secondary rise is evident in the 25-29 year age group. Thus, in 1961, "babies and breadwinners" again suffered the highest disease incidence.

Table 5A

POLIOMYELITIS FATALITIES BY AGE GROUP
AND VACCINATION HISTORY, UNITED STATES, 1961

Age Group	Doses of Vaccine 0	1-3	4+	Unk	Total	Total Paralytic Cases	Paralytic Case Fatality Rate (Per 100)
0-4	5	5	1	0	11	319	3.4
5-9	9	1	2	0	12	184	6.5
10-14	1	3	0	0	4	79	5.1
15-19	1	3	1	0	5	39	12.8
20-29	10	2	0	0	12	106	11.3
30-39	18	4	0	2	24	71	33.8
40+	8	1	0	0	9	30	30.0
Unk	0	0	0	0	0	1	--
Total	52	19	4	2	77	829	9.3

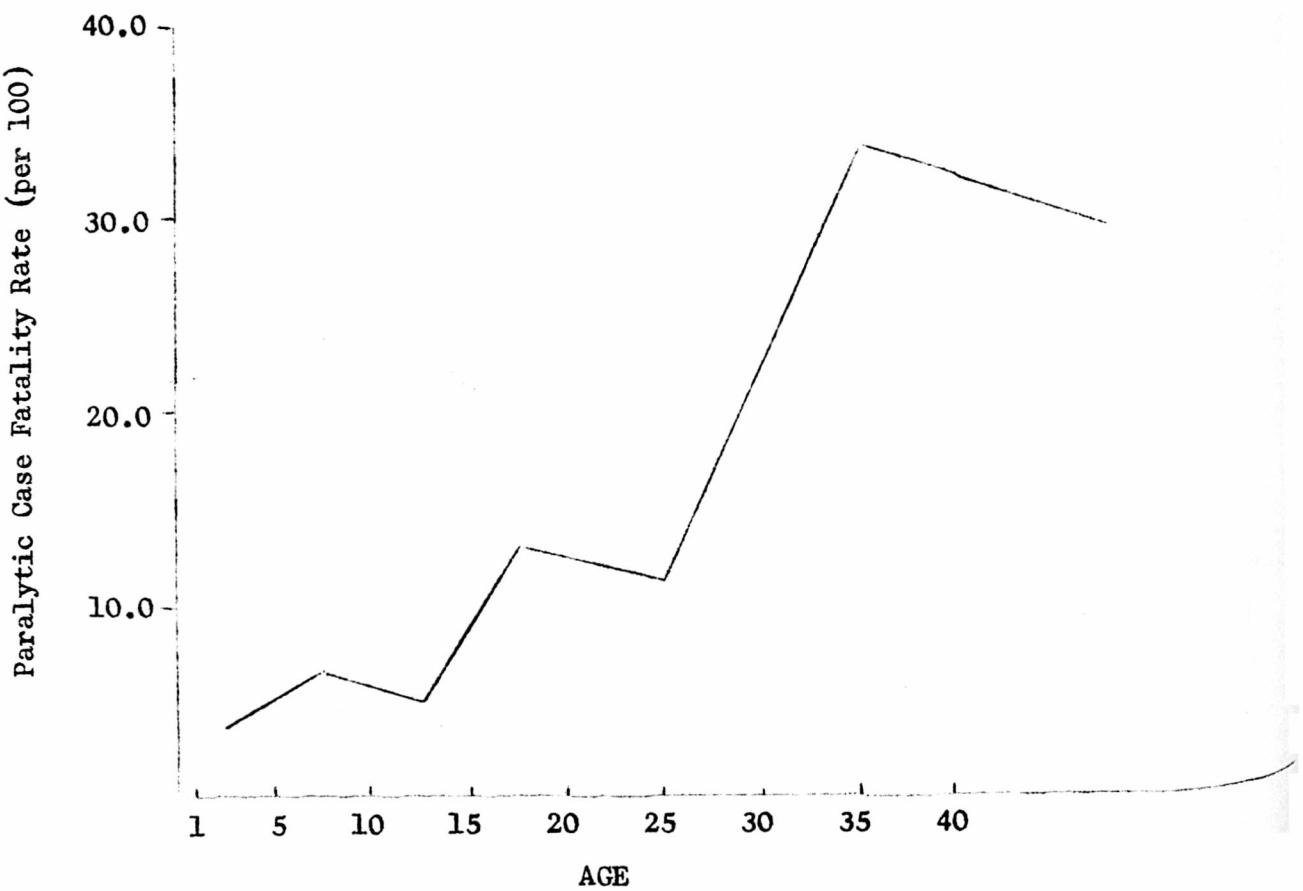


Table 5B

PARALYTIC POLIOMYELITIS - UNITED STATES
AGE-SPECIFIC ATTACK RATES - 1961

Age Group	Population* (Thousands)	Cases	Rate per 100,000
<1	4,174	48	1.15
1-4	16,435	271	1.65
5-9	19,172	184	0.96
10-14	17,359	79	0.44
15-19	13,615	39	0.29
20-24	11,196	47	0.42
25-29	10,784	59	0.55
30-34	11,690	50	0.43
35-39	12,470	21	0.17
40+	65,549	30	0.05
Unk	--	1	--
Total	182,943	829	0.45

* U.S. Bureau of Census 1961 Estimates. Under-one-year age group was derived from 1961 total births less infant deaths.

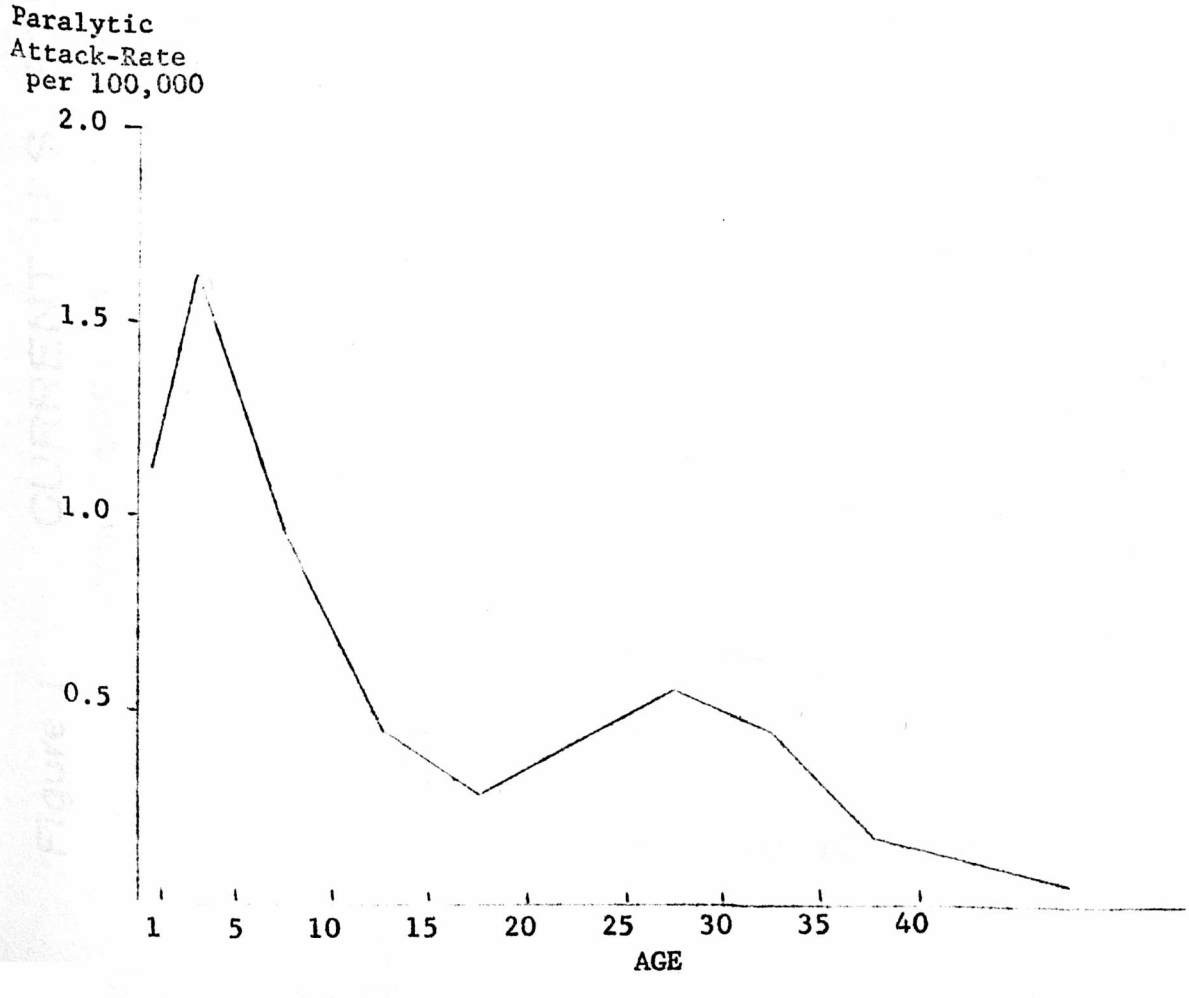


Figure 1 CURRENT U.S. POLIO INCIDENCE
COMPARED WITH YEARS 1957, 1959, and 1961

DATA PROVIDED BY NATIONAL OFFICE OF VITAL STATISTICS
AND COMMUNICABLE DISEASE CENTER

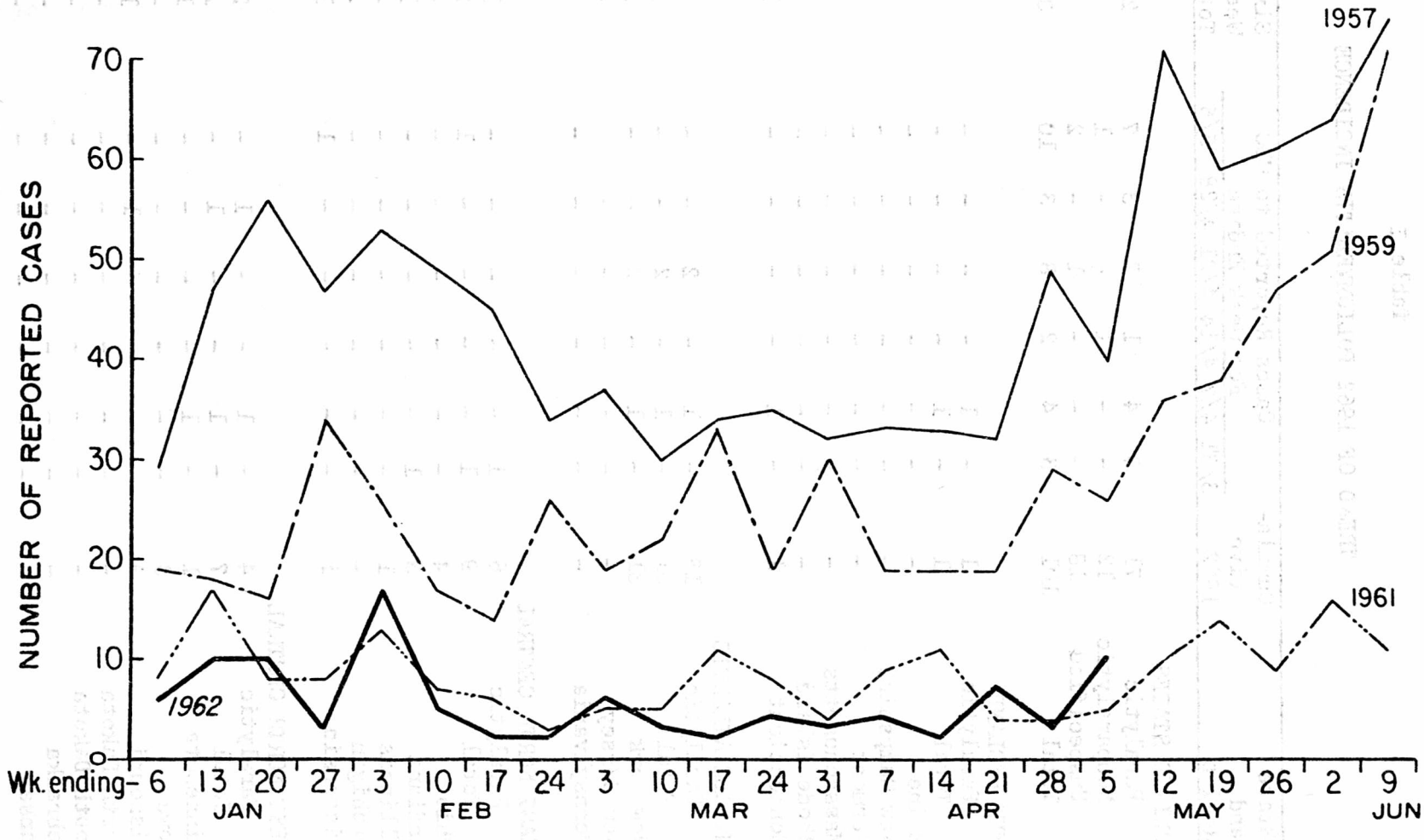


Table I

TREND OF 1962 POLIOMYELITIS INCIDENCE

State and Region	Cumulative 1962	Cases Reported to CDC For Week Ending 3/31	4/7	4/14	4/21	4/28	5/5	Six Week Total	Comparable Six Weeks Totals in 1961	1960	1959
UNITED STATES											
Paralytic	71	3	4	1	7	3	7	25	31	47	101
Nonparalytic	12	-	-	1	-	-	1	2	4	13	24
Unspecified	18	-	-	-	1	-	2	3	2	5	18
Total	101	3	4	2	8	3	10	30	37	65	143
NEW ENGLAND											
Paralytic	1	-	1	-	-	-	-	1	-	2	1
Total	1	-	1	-	-	-	-	1	-	2	2
Maine	-	-	-	-	-	-	-	-	-	2	-
New Hampshire	-	-	-	-	-	-	-	-	-	-	-
Vermont	-	-	-	-	-	-	-	-	-	-	-
Massachusetts	-	-	-	-	-	-	-	-	-	-	2
Rhode Island	-	-	-	-	-	-	-	-	-	-	-
Connecticut	1	-	1	-	-	-	-	1	-	-	-
MIDDLE ATLANTIC											
Paralytic	18	-	1	-	2	-	-	3	6	6	7
Total	31	-	1	-	2	-	-	3	6	7	12
New York	31	-	1	-	2	-	-	3	2	3	12
New Jersey	-	-	-	-	-	-	-	-	2	3	-
Pennsylvania	-	-	-	-	-	-	-	-	2	1	-
EAST NORTH CENTRAL											
Paralytic	6	1	-	-	-	-	-	1	4	4	5
Total	9	1	-	-	-	-	1	2	5	9	11
Ohio	4	-	-	-	-	-	-	-	1	2	5
Indiana	3	1	-	-	-	-	-	1	1	-	1
Illinois	1	-	-	-	-	-	-	-	3	3	2
Michigan	-	-	-	-	-	-	-	-	-	4	2
Wisconsin	1	-	-	-	-	-	1	1	-	-	1
WEST NORTH CENTRAL											
Paralytic	4	-	1	-	-	1	-	2	1	1	5
Total	7	-	1	-	-	1	-	2	2	1	8
Minnesota	1	-	1	-	-	-	-	1	-	-	-
Iowa	3	-	-	-	-	-	-	-	1	-	-
Missouri	3	-	-	-	-	1	-	1	-	1	5
North Dakota	-	-	-	-	-	-	-	-	-	-	-
South Dakota	-	-	-	-	-	-	-	-	-	-	1
Nebraska	-	-	-	-	-	-	-	-	1	-	-
Kansas	-	-	-	-	-	-	-	-	-	-	2

Table I (Continued)

State and Region	Cumulative 1962	Cases Reported to CDC For Week Ending 3/31	4/7	4/14	4/21	4/28	5/5	Six Week Total	Comparable Six Weeks Totals in 1961	1960	1959
SOUTH ATLANTIC											
Paralytic	6	-	-	-	-	1	-	1	3	4	25
Total	8	-	-	1	-	1	1	3	3	5	33
Delaware	-	-	-	-	-	-	-	-	-	-	-
Maryland	-	-	-	-	-	-	-	-	-	-	-
D. C.	-	-	-	-	-	-	-	-	-	-	-
Virginia	2	-	-	-	-	1	-	1	-	-	2
West Virginia	-	-	-	-	-	-	-	-	-	1	3
North Carolina	2	-	-	-	-	-	1	1	-	2	4
South Carolina	1	-	-	-	-	-	-	-	1	-	2
Georgia	1	-	-	-	-	-	-	-	1	1	1
Florida	2	-	-	1	-	-	-	1	1	1	21
EAST SOUTH CENTRAL											
Paralytic	3	-	-	-	1	-	-	1	1	1	6
Total	5	-	-	-	1	-	1	2	1	1	12
Kentucky	1	-	-	-	1	-	-	1	-	-	2
Tennessee	2	-	-	-	-	-	1	1	-	-	6
Alabama	-	-	-	-	-	-	-	-	-	-	-
Mississippi	2	-	-	-	-	-	-	-	1	1	4
WEST SOUTH CENTRAL											
Paralytic	22	2	1	1	4	-	5	13	3	12	25
Total	24	2	1	1	4	-	5	13	4	17	32
Arkansas	1	-	-	-	1	-	-	1	-	-	3
Louisiana	5	-	-	-	1	-	-	1	2	1	6
Oklahoma	-	-	-	-	-	-	-	-	-	2	-
Texas	18	2	1	1	2	-	5	11	2	14	23
MOUNTAIN											
Paralytic	3	-	-	-	-	-	-	-	1	1	3
Total	6	-	-	-	1	-	-	1	2	3	6
Montana	2	-	-	-	-	-	-	-	-	-	-
Idaho	-	-	-	-	-	-	-	-	-	-	-
Wyoming	-	-	-	-	-	-	-	-	-	1	-
Colorado	-	-	-	-	-	-	-	-	-	1	2
New Mexido	1	-	-	-	1	-	-	1	-	1	1
Arizona	2	-	-	-	-	-	-	-	1	-	1
Utah	1	-	-	-	-	-	-	-	1	-	2
Nevada	-	-	-	-	-	-	-	-	-	-	-
PACIFIC											
Paralytic	8	-	-	-	-	1	2	3	12	16	24
Total	10	-	-	-	-	1	2	3	14	20	27
Washington	-	-	-	-	-	-	-	-	2	-	2
Oregon	-	-	-	-	-	-	-	-	1	2	2
California	9	-	-	-	-	1	2	3	11	17	22
Alaska	-	-	-	-	-	-	-	-	-	-	-
Hawaii	1	-	-	-	-	-	-	-	-	1	1
TERRITORY											
Puerto Rico	5	1	2	-	-	-	-	3	2	67	-

Table II

THE NATIONAL FOUNDATION

MONTHLY REPORT OF POLIOMYELITIS VACCINE RELEASED AND SHIPPED*
(1,000 cc's)

March 1962

	SINGLE ANTIGEN		MULTIPLE ANTIGEN		TOTAL	
	This Month	To Date	This Month	To Date	This Month	To Date
CC. Released	4,047	522,258	258	15,843	4,305	538,101
CC. Shipped						
National Foundation	1	14,263	0	0	1	14,263
Public Agencies	1,955	188,928	0	1,416	1,955	190,344
Commercial Channels	2,145	191,047	35	13,422	2,180	204,469
Domestic Total	4,101	394,238	35	14,838	4,136	409,076
Export	203	111,539	0	634	203	112,173

CC. UNSHIPPED END OF MONTH**
(1,000 cc's)

	1960	1961	1962
January	19,459	14,755	4,963
February	20,965	15,737	5,220
March	27,062	13,414	5,142
April	27,216	10,887	
May	24,846	6,448	
June	24,620	6,558	
July	23,830	4,233	
August	24,525	4,599	
September	23,091	6,181	
October	19,565	5,543	
November	16,319	5,139	
December	15,669	4,038	

* Includes manufacturers' adjustments of previously reported figures.
** Excludes outdated vaccine removed from inventory.

SUPPLEMENT TO CDC POLIOMYELITIS SURVEILLANCE REPORT NO. 255, MAY 11, 1962

U.S. Department of Health, Education, and Welfare

Public Health Service Bureau of State Services

COMMUNICABLE DISEASE CENTER
Atlanta 22, Georgia

POLIOMYELITIS IMMUNIZATION SURVEY
SAN JUAN, PUERTO RICO
MAY - 1961

Conducted by:

Rafael A. Timothee, M.D., M.S.P.H., Chief,
Division of Preventive Medical Services,
Puerto Rico Department of Health, San Juan, Puerto Rico

Consultation and Assistance by:

Dr. Dana Quade and Mr. Leo Morris, Statistics Section,
Epidemiology Branch, Communicable Disease Center

Poliomyelitis Immunization Survey of San Juan, Puerto Rico, May, 1961

INTRODUCTION

This survey of poliomyelitis immunization levels was conducted by the Division of Preventive Medical Services, Puerto Rico Department of Public Health, in cooperation with the local health units of San Juan and Rio Piedras and with the Communicable Disease Center, United States Public Health Service.

The field work was carried out by nine teams of interviewers, six teams made up of personnel from the San Juan Health Unit and three from the Rio Piedras Health Unit, with some supplementary work by personnel of the Division of Preventive Medical Services. This is the initial immunization survey, based on CDC methods, carried out entirely in Spanish.

With the availability of 1960 population data by census tract, sample totals have been expanded to give estimates of total numbers of persons in various categories. In addition, the improvement in immunization status between January 1960 and May 1961 is presented.

STUDY METHODS

The general sampling plan was to interview one-fifth of the households on one-sixteenth of the blocks, making a one-eightieth sample of the city. More specifically, a complete list of blocks was made using the maps drawn up by the Bureau of the Census for the 1960 census and every sixteenth pair of blocks on this list, beginning with a pair chosen at random from the first sixteen, was chosen to be in the sample. If the two blocks of a pair so chosen, say blocks n and (n+1) in the list, were not geographically adjacent, then blocks (n-1) and n were substituted; if these also were not geographically adjacent, then (n-1) and (n-2) were tried; and so on. Then, when the interviewers arrived at the pair of blocks in the field, they attempted to obtain an interview at every fifth dwelling unit, beginning with a randomly chosen one. After this sampling scheme had been set up, it became apparent that the lower socioeconomic residential areas in the northern part of Rio Piedras would be seriously underrepresented, and in particular, one large housing project, Nemesio Canales, in which several cases of poliomyelitis had occurred during 1960, would be missed entirely. Hence, a supplementary sample of 30 families was taken in the project.

In addition to questions about poliomyelitis vaccination status, the occupation and educational level was asked of the head of each household interviewed. These were then coded in accordance with the socioeconomic index devised by Professor A.B. Hollingshead of Yale University. In doing

this, the survey team was greatly assisted by Mrs. Paquita Limardo of the Social Science Research Center of the University of Puerto Rico, and Mrs. Maria Perez, statistician of the Puerto Rico Department of Health. The general scheme of the index is as follows:

Occupation	Code
Major Professionals, owners of large businesses, etc.	1
Minor Professionals, owners of medium businesses, etc.	2
Semiprofessional people, owners of small businesses, etc.	3
Clerical and sales workers, etc.	4
Skilled manual workers, etc.	5
Semiskilled manual workers, etc.	6
Unskilled laborers, persons on relief or unemployed, etc.	7

Educational Level	Code
Postgraduate Work	1
College Graduate	2
College: 1-3 years	3
High School Graduate	4
10-11 years	5
7-9 years	6
0-6 years	7

The combined adjusted index is obtained as seven times the occupation code plus four times the education code, where if one code can be determined from the survey data but the other not, then the unknown code is arbitrarily set equal to the known one. Thus the resulting index can vary from 11 for families with the highest socioeconomic status to 77 for families with the lowest status.

The city was divided for the purpose of this survey into 20 "survey districts", 10 in San Juan and 10 in Rio Piedras, and the average adjusted Hollingshead index of all persons in the sample was calculated for each district. (All the members of one household are given the same index). The 20 districts are shown in the first of the two attached maps. The district boundaries were expressly drawn to make the indexes as homogeneous as possible within each district. In Table 1, the 20 districts are identified by indicating which census tracts they include, the total population and the average index found for each. The districts have been ordered in accordance with these average indexes (from the lowest to the highest Hollingshead Index) which range from a low of 28.17 to 71.01.

The districts were then grouped into four areas classified as upper, upper-middle, lower-middle and lower socioeconomic areas. Each socioeconomic group includes these districts with comparable Hollingshead indexes. The index range and population of each group is presented on the following page. The second map depicts the geographic picture of the socioeconomic area classification for the 20 survey districts.

Socioeconomic Area	Number of Districts	H.H. Index Range	1960 Population	Percent of Total Population
Upper	4	28.17-39.10	86,610	20.0
Upper-Middle	5	46.51-51.96	131,865	30.5
Lower-Middle	4	59.36-63.00	108,856	25.2
Lower	7	67.65-71.01	105,046	24.3
TOTAL	20		432,377	100.0

RESULTS

Table 2 gives a general summary of the blocks and dwelling units scheduled and completed. In all, 182 blocks were chosen for the sample, of which 21 were found upon inspection to be uninhabited; a one-fifth sample of the remaining 161 blocks yielded 1,176 dwelling units, and of these units, 6 were vacant. Thus, 1,170 or 1.21 percent of the 96,474 occupied housing units were sampled.

Interviews were completed at 1,123 (96 percent) of the 1,170 occupied units. Eighty-nine percent were completed on first visit and an additional 7 percent by telephone and field callbacks. Another 4 percent could not be reached during the survey. There were only 2 households who refused to grant an interview.

The 1,123 completed interviews included a population of 5,454 persons. The composition of the sample population by age is presented in Table 3. The table also indicates the number of persons belonging to families for which the Hollingshead Index could be obtained - a remarkable 5,427 or more than 99.5% of the 5,454 persons in the survey. As is usual, one may note the higher proportion of children in the lower socioeconomic areas.

The estimated immunized populations were calculated by the use of sampling ratios derived from the sample groups and 1960 census tract data. These sampling ratios were obtained for each socioeconomic group by dividing the 1960 census populations by the sample population. The expanded total may be slightly different from the census totals as all fractions were eliminated from calculations. The populations involved are included in the table on the following page.

Socioeconomic Area	Number in Sample*	1960 Census	Sampling Ratio	Expanded Sample
Upper	753	86,610	1:115	86,595
Upper-Middle	1,391	131,865	1:95	132,145
Lower-Middle	953	108,856	1:114	108,642
Lower	2,116	105,046	1:50	105,800
		432,377		433,182

* Does not include persons with unknown age or unknown immunization status.

Table 4 indicates the present (May 1961) immunization status of the city by age (through 39 years of age) and socioeconomic group. The poliomyelitis vaccination status among the four socioeconomic groups shows the highest level to be among the upper socioeconomic group with a general gradual falling off to the lower socioeconomic group.

A relatively large proportion of children under five years of age among the lower and lower-middle socioeconomic groups have never received an inoculation - 51 and 43 percent respectively.

As has been found in other surveyed cities throughout the United States, the school-age children (5-14) in each socioeconomic group, are generally better protected than the other age groups. In San Juan, 88 percent of the upper socioeconomic children from 5 to 9 had had three or more inoculations. This proportion ranged downward to 56 percent among the lower socioeconomic children in this age group. The older school children from 10 to 14 produced the smallest difference in vaccination levels: from 76 percent in the upper to 65 percent in the lower socioeconomic group.

Among the adults, the proportion with 3 or more inoculations was negligible.

PREVIOUS VACCINATION STATUS

The estimated number of persons immunized before the 1960 poliomyelitis epidemic is shown in Table 5. During the interview, the respondent was asked: how many of the poliomyelitis vaccinations were received after January 1, 1960. Since 1960 was an epidemic year, the people in San Juan were very aware of poliomyelitis and had no trouble recalling this information. The age of each individual was adjusted by subtracting one year from their present age.

The increase in immunization levels from January, 1960, to May, 1961, is presented in Figure 1. The percent having the specified number of doses on January 1, 1960, are indicated by the dotted portion of the area depicting each age and socioeconomic group. The percent added from January, 1960 to May, 1961 is presented by the lined portion of the area. The remaining area, which is blank, represents the percent of people not having the specified number of inoculations.

The greatest increase in number of persons immunized was in the 0-4 year old pre-school age group. This was the group hardest hit by the epidemic and therefore much attention was directed toward their immunization. The 5-9 year old group showed the next best increase in number of persons immunized, the increase in the 10-14 and 15-19 year old groups were approximately equal, and the percent added in the adult population was negligible. The increase in number of persons immunized is summarized in Table 6.

SAN JUAN, PUERTO RICO

IDENTIFICATION OF SURVEY DISTRICTS

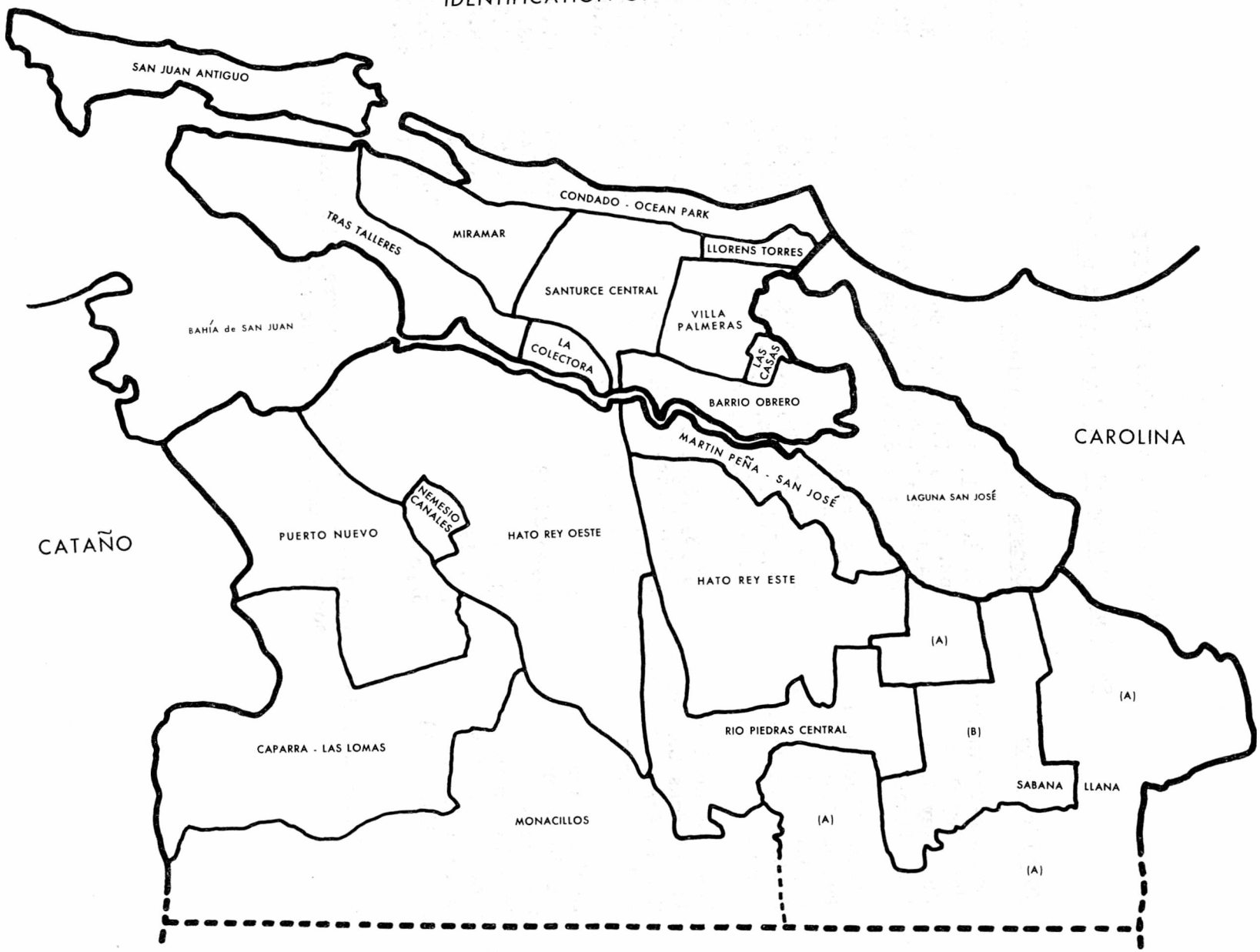


Table 1

IDENTIFICATION OF SURVEY DISTRICTS

San Juan Poliomyelitis Immunization Survey

District Name	Census Tracts Included	Population	Ave. H.H. Index*
Condado-Ocean Park	9, 10, 11, 12	9,892	28.17
Hato Rey Oeste	pt. 43,65,67,68, pt. 86	17,288	30.76
Hato Rey Este	48,49,57,58,59,60,61,62,63,64	36,155	32.61
Monacillos	80,81, pt.86,95,96,97,98	23,275	39.10
Sabana Llana (A)	50,52,53,54,91	19,803	46.51
Puerto Nuevo	69,70,71,74,75	17,996	47.38
Caparra - Las Lomas	72,73,76,77,78,79,82,83,84,85	42,931	50.93
Santurce Central	14,15,16,23,24,25,26,39	30,390	51.27
Miramar	17,18,19,20,21,22	20,745	51.96
San Juan Antiguo	1,2,3,4,5,6,7,8	22,095	59.36
Rio Piedras Central	56,66,87,88,89,90,92,93,94	36,277	61.24
Martin Pena - San Jose	44,45,46,47	24,400	62.90
Villa Palmeras	27,28,29,30,31,32,33	26,084	63.00
La Colectora	40	16,947	67.65
Barrio Obrero	35,36,37,38	34,324	68.04
Las Casas	34	5,368	68.29
Tras Talleres	41,42	20,327	68.43
Nemesio Canales	pt. 43	6,000	69.44
Llorens Torres	13	14,104	70.95
Sabana Llana (B)	51,55	7,976	71.01

* Hollingshead Index - The lower the numerical score, the higher the socioeconomic class of the district.

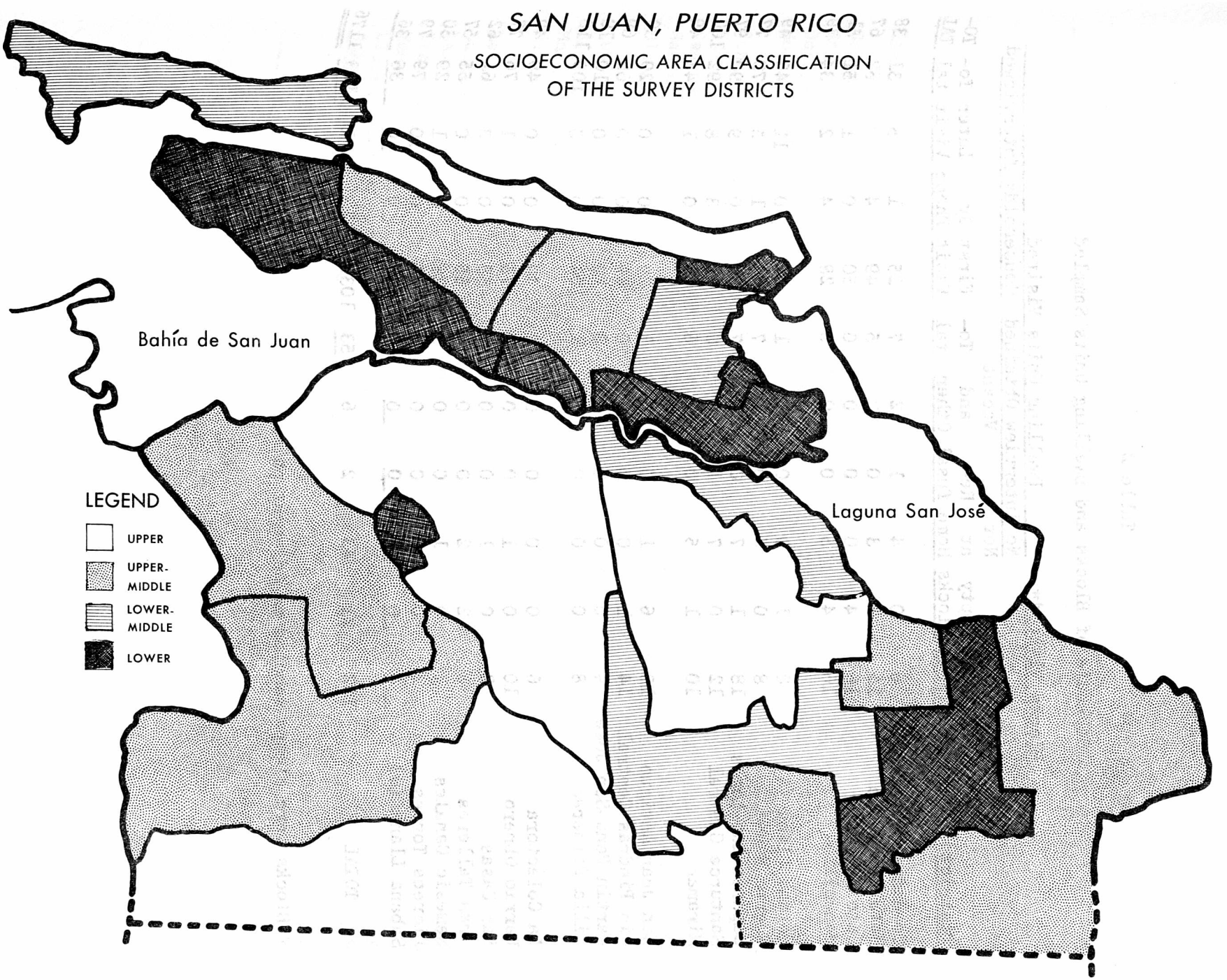

SAN JUAN, PUERTO RICO
SOCIOECONOMIC AREA CLASSIFICATION
OF THE SURVEY DISTRICTS
Bahía de San Juan
Laguna San José
LEGEND
UPPER
UPPER-MIDDLE
LOWER-MIDDLE
LOWER

Table 2

Schedule of Blocks and Dwelling Units Sampled

District	Blocks Visited*		Dwelling Units Visited								
			No Interview Obtained				Households Interviewed				
	Total Blocks	Empty Blocks	Not at Home	Re-fusal	Vacant and Other	To-tal	First Visit	By Phone	Later Visit	To-tal	TO-TAL
Condado-Ocean Park	6	0	4	1	2	7	25	1	5	31	38
Hato Rey Oeste	16	1	3	0	2	5	49	4	9	62	67
Hato Rey Este	16	4	0	0	0	0	50	0	1	51	51
Monacillos	16	4	5	0	0	5	28	4	2	34	39
Sabana Llana (A)	8	1	0	0	1	1	37	0	11	48	49
Puerto Nuevo	8	0	6	0	1	7	64	1	5	70	77
Caparra-Las Lomas	18	1	7	0	0	7	81	0	9	90	97
Santurce Central	12	0	7	1	0	8	81	3	8	92	100
Miramar	10	1	5	0	1	6	42	0	1	43	49
San Juan Antiguo	10	6	1	0	0	1	29	0	0	29	30
Rio Piedras Central	14	1	0	0	0	0	69	0	0	69	69
Martin Pena-San Jose	4	0	0	0	0	0	10	0	0	10	10
Villa Palmeras	8	0	0	0	1	1	104	0	5	109	110
La Colectora	6	0	0	0	0	0	49	0	0	49	49
Barrio Obrero	10	0	1	0	0	1	75	0	1	76	77
Las Casas	2	0	1	0	0	1	58	0	3	61	62
Tras Talleres	8	2	2	0	0	2	55	0	0	55	57
Nemesio Canales	2	0	1	0	0	1	28	0	1	29	30
Llorens Torres	2	0	0	0	0	0	69	0	10	79	79
Sabana Llana (B)	4	0	0	0	0	0	36	0	0	36	36
TOTAL	182	21	43	2	6	53	1039	13	71	1123	1176

* Blocks were always sampled as adjacent pairs.

Table 3

Composition of Survey Sample

District	Total house holds inter-viewed	Total persons with known adju-sted HH Index	Persons by Age						
			<3mos.	3 mos. 4 yrs.	5-14 yrs.	15-39 yrs.	40 yrs and over	Unk	Total
Condado-Ocean Park	31	128	0	11	28	46	43	0	128
Hato Rey Oeste	62	261	1	21	62	88	93	0	265
Hato Rey Este	51	231	1	20	50	81	77	2	231
Monacillos	34	158	0	25	43	61	29	0	158
Sabana Llana (A)	48	209	2	20	54	86	47	0	209
Puerto Nuevo	70	298	1	21	82	125	73	0	302
Caparra-Las Lomas	90	382	0	29	96	150	104	3	382
Santurce Central	92	389	1	27	79	163	123	0	393
Miramar	43	176	1	17	46	64	52	0	180
San Juan Antiguo	29	109	2	13	27	43	24	0	109
Rio Piedras Central	69	315	1	30	81	125	78	0	315
Martin Pena-San Jose	10	40	1	1	5	21	12	0	40
Villa Palmeras	109	523	3	79	139	205	108	0	534
La Colectora	49	295	1	35	102	93	64	0	295
Barrio Obrero	76	394	1	53	98	148	94	0	394
Las Casas	61	389	2	58	125	125	79	0	389
Tras Talleres	55	300	2	38	78	116	66	0	300
Nemesio Canales	29	134	1	21	39	56	17	0	134
Llorens Torres	79	458	1	69	152	140	96	0	458
Sabana Llana (B)	36	238	1	21	66	96	54	0	238
TOTAL	1123	5427	23	609	1452	2032	1333	5	5454

Table 4

ESTIMATED NUMBER OF PERSONS IN SAN JUAN
BY SOCIOECONOMIC GROUP, AGE, AND NUMBER
OF SALK INJECTIONS
May, 1961

Age and Socio-economic Group	Persons by Number of Doses					Percentages			
	0	1-2	3	4+	TOTAL	0	1-2	3	4+
0-4									
Upper	1035	805	4600	2415	8855	11.7	9.1	51.9	27.3
Upper-Middle	2850	1710	5320	1235	11115	25.6	15.4	47.9	11.1
Lower-Middle	6156	2394	5016	684	14250	43.2	16.8	35.2	4.8
Lower	7650	1700	4950	700	15000	51.0	11.3	33.0	4.7
5-9									
Upper	805	575	4830	5060	11270	7.1	5.1	42.9	44.9
Upper-Middle	1520	2565	7790	3800	15675	9.7	16.4	49.7	24.2
Lower-Middle	3990	2166	6156	1938	14250	28.0	15.2	43.2	13.6
Lower	5300	1750	7900	1000	15950	33.2	11.0	49.5	6.3
10-14									
Upper	575	1725	5520	1610	9430	6.1	18.3	58.5	17.1
Upper-Middle	2470	2850	10355	1805	17480	14.1	16.3	59.2	10.3
Lower-Middle	3306	1482	8322	570	13680	24.2	10.8	60.8	4.2
Lower	3250	2050	9450	550	15300	21.2	13.4	61.8	3.6
15-19									
Upper	2990	690	4715	1380	9775	30.6	7.1	48.2	14.1
Upper-Middle	5035	1520	6365	665	13585	37.1	11.2	46.8	4.9
Lower-Middle	5244	1026	3876	114	10260	51.1	10.0	37.8	1.1
Lower	6800	1300	6250	100	14450	47.1	9.0	43.3	0.7
20-39									
Upper	15640	1955	2070	1035	20700	75.5	9.4	10.0	5.0
Upper-Middle	33725	1235	2280	760	38000	88.8	3.3	6.0	2.0
Lower-Middle	28272	1596	2280	0	32148	87.9	5.0	7.1	0.0
Lower	19450	1000	1800	200	22450	86.6	4.5	8.0	0.9

Table 5

ESTIMATED NUMBER OF PERSONS IN SAN JUAN BY SOCIOECONOMIC GROUP, AGE, AND NUMBER OF SALK INJECTIONS
January 1, 1960

Age and Socio-economic Group	Persons by Number of Doses					Percentages			
	0	1-2	3	4+	TOTAL	0	1-2	3	4+
0-4									
Upper	3978	1638	3276	585	9477	42.0	17.3	34.6	6.2
Upper-Middle	5952	3264	3072	192	12480	47.7	26.2	24.6	1.5
Lower-Middle	10062	2223	2574	0	14859	67.7	15.0	17.3	0.0
Lower	12240	1632	1785	306	15963	76.7	10.2	11.2	1.9
5-9									
Upper	2340	1872	5850	1404	11466	20.4	16.3	51.0	12.2
Upper-Middle	4128	3648	7296	1152	16224	25.4	22.5	45.0	7.1
Lower-Middle	5850	1287	5850	351	13338	43.9	9.6	43.9	2.6
Lower	7701	2499	5916	255	16371	47.0	15.3	36.1	1.6
10-14									
Upper	1521	1989	6201	234	9945	15.3	20.0	62.4	2.4
Upper-Middle	5088	2688	8928	672	17376	29.3	15.5	51.4	3.9
Lower-Middle	5616	1404	6552	468	14040	40.0	10.0	46.7	3.3
Lower	5508	2040	8415	153	16116	34.2	12.7	52.2	0.9
15-19									
Upper	3978	819	3861	234	8892	44.7	9.2	43.4	2.6
Upper-Middle	7008	960	4320	288	12576	55.7	7.6	34.4	2.3
Lower-Middle	6201	1287	3393	0	10881	57.0	11.8	31.2	0.0
Lower	7905	1428	3927	51	13311	59.4	10.7	29.5	0.4
20-39									
Upper	19188	1755	1404	234	22581	85.0	7.8	6.2	1.0
Upper-Middle	36096	864	1920	96	38976	92.6	2.2	4.9	0.2
Lower-Middle	30654	1287	1170	0	33111	92.6	3.9	3.5	0.0
Lower	20961	816	1173	102	23052	90.9	3.5	5.1	0.4

FIGURE 1

VACCINATION STATUS OF SAN JUAN, PUERTO RICO: JANUARY 1960 and MAY 1961

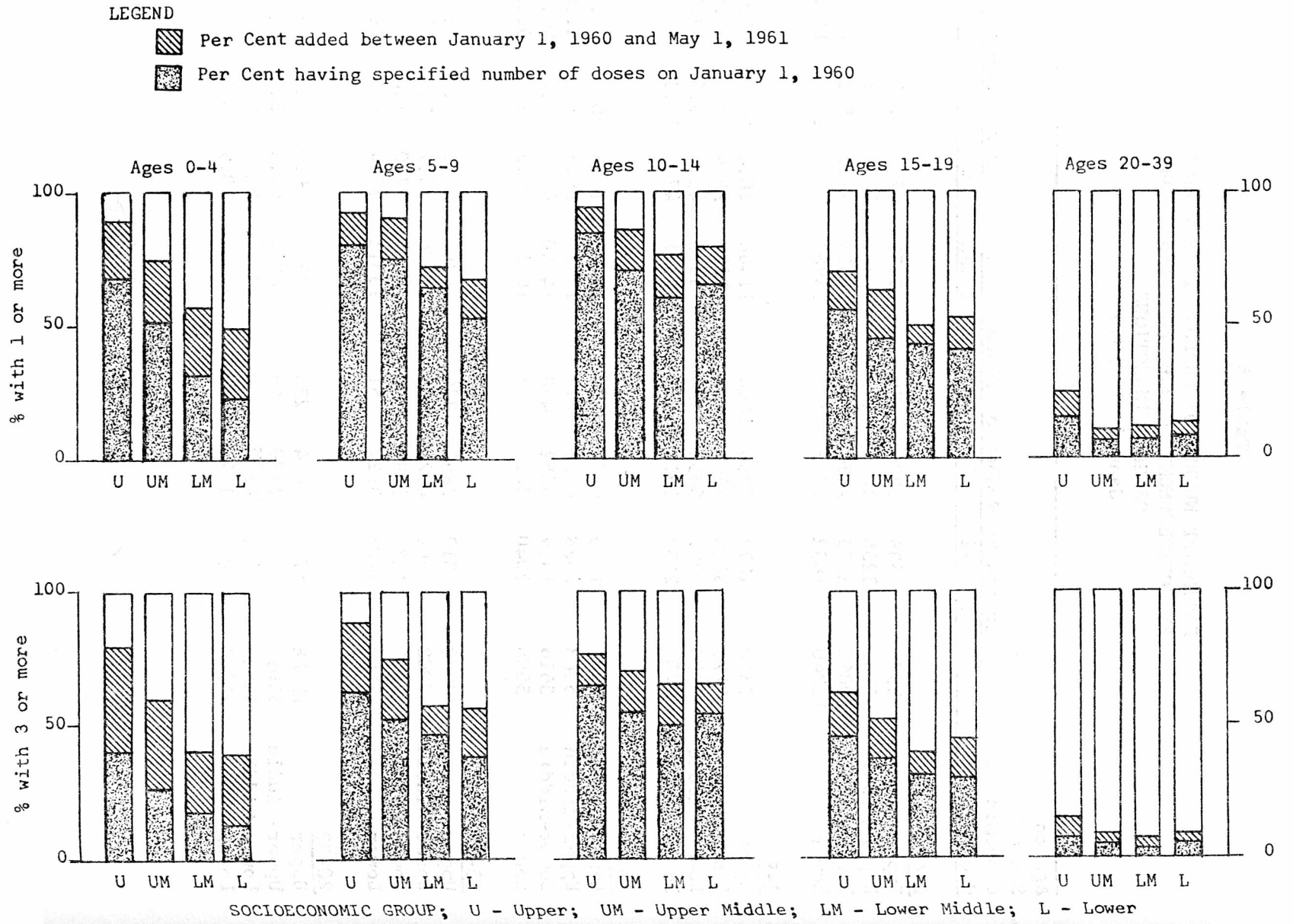


Table 6

IMPROVEMENT OF SALK VACCINATION STATUS
January, 1960 - May, 1961
San Juan, Puerto Rico

Age	Socioeconomic Group	Proportion with 3 or More Salk Injections		Proportion with No Salk Injections	
		Jan. 1960	May 1961	Jan. 1960	May 1961
0-4 Years	Upper	40.7	79.2	42.0	11.7
	Upper-Middle	26.2	59.0	47.7	25.6
	Lower-Middle	17.3	40.0	67.7	43.2
	Lower	13.1	37.7	76.7	51.0
5-9 Years	Upper	63.3	87.8	20.4	7.1
	Upper-Middle	52.1	73.9	25.4	9.7
	Lower-Middle	46.5	56.8	43.9	28.0
	Lower	37.7	55.8	47.0	33.2
10-14 Years	Upper	64.7	75.6	15.3	6.1
	Upper-Middle	55.2	69.6	29.3	14.1
	Lower-Middle	50.0	65.0	40.0	24.2
	Lower	53.2	65.4	34.2	21.2
15-19 Years	Upper	46.1	62.4	44.7	30.6
	Upper-Middle	36.6	51.7	55.7	37.1
	Lower-Middle	31.2	38.9	57.0	51.1
	Lower	29.9	44.0	59.4	47.1
20-39 Years	Upper	7.3	15.0	85.0	75.5
	Upper-Middle	5.2	8.0	92.6	88.8
	Lower-Middle	3.5	7.1	92.6	87.9
	Lower	5.5	8.9	90.9	86.6