1963 Epidemic of Poliomyelitis in Barbados, West Indies

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FROM MARCH 23 through June 19, 1963, 68 cases of paralytic poliomyelitis were noted on the island of Barbados among a population of 232,333, an attack rate of 29.3 per 100,000, and a dramatic increase from the annual totals of 0–7 cases recorded during the period 1952–62 (unpublished data, M.A.B.). Indeed, the only previous significant outbreak of poliomyelitis had occurred in 1933 and totaled 61 cases concentrated in the 0–5-year age group (*1*). During the 1963 epidemic in this circumscribed population, careful epidemiologic observations showed abrupt termination of the outbreak temporally related to the mass island-wide administration of oral poliovirus vaccine. The epidemiologic features of the outbreak, particularly as related to the attempted control measures, will be discussed in some detail.

Descriptive Data

Barbados, the most easterly island of the West Indies, is 21 miles long by 14 miles wide and has an area of 166.33 square miles. The highest point is 1,100 feet above sea level (*2*).

The climate is pleasant with the temperature seldom rising above 86° F. or falling below 65° F. The average annual rainfall varies from district to district through a range of 50 to 75 inches (*2*). The island is free of malaria, schistosomiasis, and filariasis (unpublished data, M.A.B.).

Barbados was colonized by the British in 1625 and, uniquely among West Indian islands, was never ruled by any other colonial power. At present the island is self-governing. Communications are good, and each part of the island can be reached by surfaced road from any other part in approximately half an hour.

The population counted in the official 1960 census was 232,333, yielding a density of 1,397 persons per square mile. Density is greatest in the area of Bridgetown, the only city, is somewhat more sparse in the south, and lowest in the rural north. In the 1960 census, 89 percent of the population was classified as Negro, 4 percent as white, 6 percent as mixed, and 1 percent as other—East Indians, Chinese, American Indians, and so forth (unpublished census data, M. A. B.). Most of the people are poor, and the houses tend to be small and overcrowded. In the Bridgetown area the houses are close together, but in the rural areas dwellings are more widely spaced.

Most of the rural population works on sugar plantations, but along the coast a small group supports itself from fishing. The urban population in Bridgetown follows ordinary service

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and labor occupations in general commerce, especially in connection with the seaport. The major local industry is the production of sugar, with alcohol distillation and rum production as subsidiaries.

There is a good islandwide water system closely monitored for safety, but many homes do not have running water, and water must be carried from neighborhood taps. No islandwide sewage system exists, and many homes have no sanitary facilities. However, since April 1959, the Barbadian government, with the cooperation of the Pan American Health Organization, has been actively improving environmental sanitation, and the proportion of homes without acceptable means of excreta disposal has declined from about 50 percent to 27 percent (personal communication, James Allen, sanitarian, Pan American Health Organization).

There are some 77 physicians on the island, about half in private practice. There is one general hospital, operated by the government, with full-time specialists in medicine, surgery, anesthesiology, radiology, and pathology. At the time of the epidemic the full-time staff, including house officers, numbered 22.

The director of medical services supervises an active program in public health and preventive medicine administered through three health centers and a number of substations. At each health center a full-time medical officer of health directs venereal disease control, tuberculosis control, preventive services in maternal and child health and nutritional consultation, and supervises environmental sanitation.

Attesting to the efficacy of these public health measures is a decline in Barbados' infant mortality rate. From 1951–55 the rate was essentially static, ranging erratically from a high of 146 to a low of 109 per 1,000 live births. In 1956, the rate dropped to 97 and declined steadily to a low of 60 in 1960. There was a rise to 84 in 1961 but a decline to 54 in 1962 (reference *3* and personal communication, R. R. Puffer, chief statistician, Pan American Health Organization).

Methods of Study

Selection of cases. All the patients reported as cases were hospitalized at the Barbados General Hospital. One author (A. C. G.) obtained basic clinical and epidemiologic data in a standard manner from each person with suspected poliomyelitis throughout the epidemic. As virologic studies could not readily be performed in Barbados, and the potential for circulation of nonpolio enteroviruses seemed high, the diagnosis of poliomyelitis was limited to patients who fulfilled the following criteria:

1. PROBABLE. These patients had objective signs of asymmetrical lower motor neuron paralysis or paresis without sensory loss. Most had a history of a preceding nonspecific acute febrile illness. None had documented typical cerebrospinal fluid abnormalities during acute illness or residual paralysis at 30 days.

2. DEFINITE. These cases fulfilled all the criteria for "probable" and had one or more of the following: Characteristic cerebrospinal fluid findings during acute illness or definite residual paresis or paralysis 30 days after onset.

Definite and probable cases were reported as poliomyelitis. Nonparalytic cases of presumed viral central nervous system disease were recorded as aseptic meningitis syndrome.

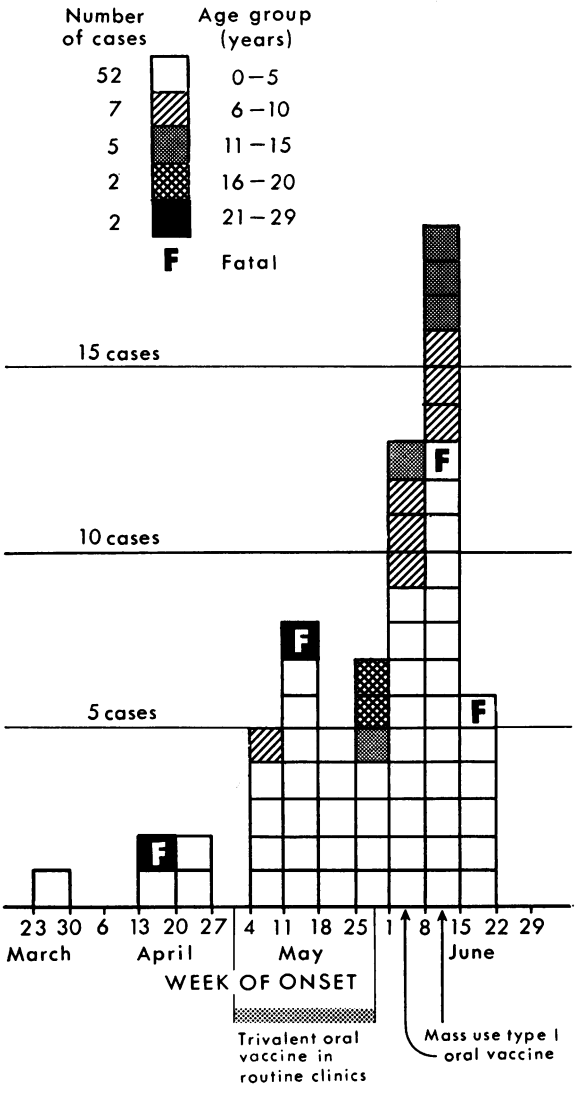
Laboratory methods. Virologic studies were performed at the University of Southern California Infectious Disease Laboratory, Los Angeles. Rectal swabs for virus isolation were placed in veal infusion broth and stored in the frozen state at about −10° C. Serums were separated and then stored in the same manner. All specimens were packed in dry ice for shipment by air to Los Angeles where they were stored at −20° C. until tested.

Viruses were isolated by standard methods in monkey kidney tissue culture, and polioviruses were typed by neutralization. Isolates not neutralized by any of the three poliomyelitis antiserums were not further characterized.

Serums from the well children were screened at dilutions of 1:4 and 1:8 for neutralizing antibodies against prototype strains of polioviruses types I, II, and III.

The mass immunization program. Upon verification of a poliomyelitis epidemic, plans were made to assess the effects of rapid islandwide immunization with emphasis on children aged 0–5 years, using type I oral poliovaccine supplied by the Public Health Service. The 0–5 age group was selected for a concentrated effort because (*a*) this age group exhibited

Figure 1. Poliomyelitis, by week of onset, Barbados, 1963



the highest attack rate of clinical poliomyelitis, (*b*) the importance of children in this age group in the dissemination of polioviruses has been well documented, (*c*) a serologic survey in Barbados in 1957 showed high levels of natural immunity in older age groups and a concentration of susceptibles in the 1–4 age group (*1*), and (*d*) between May 1–28, 1963, some 33,000 doses of trivalent oral poliovaccine had been administered to school children aged 6 through approximately 15 years, the next most vulnerable age groups.

Compilation of data. One author (A. C. G.), assisted by Dr. N. E. Procope and Dr. D. Bayley of Barbados General Hospital, summarized the clinical records and assessed the patients for residual paralysis 30 days after onset. Age-specific immunization records were tabulated by the medical officers of health in Barbados. The director of medical services, Barbados (M. A. B.) coordinated data collection.

Results

Temporal course of the epidemic. The epidemic curve for the 13-week outbreak is illustrated in figure 1. The initial case had onset during the final week of March. There were only four cases in April, and new cases occurred at a constant rate during May. There was a marked peak during the first 2 weeks of June when 37 of 68, or 54 percent, of the detected cases occurred. After the third week of June, when six new cases occurred, the outbreak terminated abruptly, and no new cases had been detected through July 30, 1964.

Patients' age, sex, race, and vaccination status. Forty-one (60 percent) of the 68 patients were males. Ages ranged from 11 months through 29 years, with a mean of 5.2 years and a mode of 3 years. All but 1 of the 68 patients were Negroes in the lower socioeconomic group. The single exception, an 8-year-old white girl, was in the middle socioeconomic group.

Fifteen patients had received oral poliovirus vaccine at intervals of 1 to 29 days before onset of illness; 7 had received trivalent vaccine and 8 monovalent type I vaccine. A 1-year-old girl had received three doses of inactivated vaccine. She recovered completely in 3 weeks.

Paralytic attack rates. The attack rate (all rates were calculated using the 1960 census figures) was 29.3 per 100,000, with a rate for males of 38.9 per 100,000 and for females of 21.3 per 100,000. Grossly, at least, the male predominance seemed to hold throughout the age range affected. The male-to-female case ratio in the 0–5 age group did not differ significantly from the ratio observed in the combined groups of patients aged 6 through 29 years. Cases among the age groups 6 years of age and older were too few to permit individ-

ual intergroup comparisons of male-to-female case ratios.

The attack rate in the 0–5 age group was 5.7 times higher than that experienced by the next most affected group, the 6- to 10-year-olds (table 1). The attack rates of the 6–10 and 11–15 age groups did not differ significantly. The remaining two age groups experienced too few cases to permit reliable statistical comparisons.

Barbados is divided into 11 parishes which function as governmental subdivisions. St. Michael Parish includes urban Bridgetown. The number of cases in each parish are shown in figure 2, and the population, number of cases, and attack rates by parish are listed in table 2. The 0–29 year age range was chosen as the denominator population because no cases were observed in older persons. Data were tabulated separately for 52 of the 68 patients who were in the 0–5 year age group. Cases occurred in 10 of the 11 parishes. Although the highest attack rate was recorded in rural St. John Parish, urban St. Michael accounted for the largest concentration of cases.

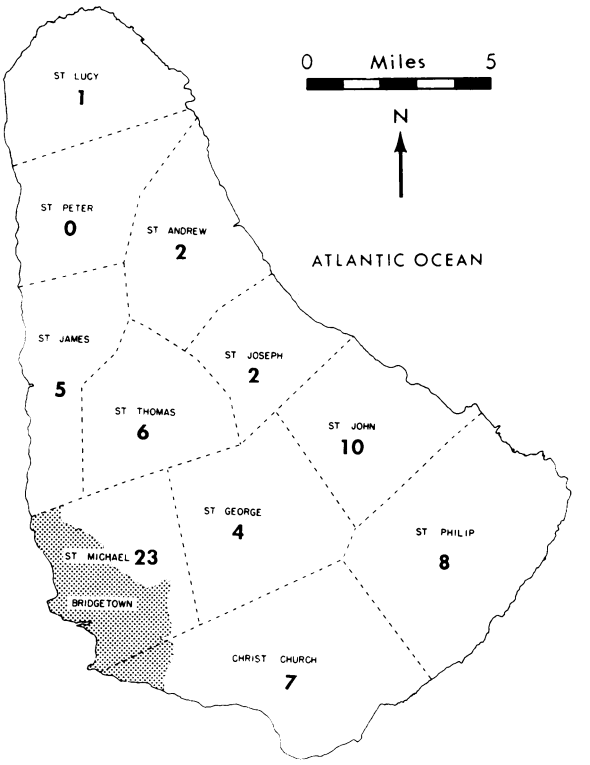
Attack rates by parish for the 0–29 and 0–5 age groups were not precisely parallel, but in general, parishes with high overall attack rates had high rates in the 0–5 age group (table 2). The concentration of illness in the 0–5-year-old children was islandwide, suggesting a homogeneity of susceptibility in this age group.

No definite geographic pattern of spread was discernible. However, the first two patients resided in rural St. Andrew and St. John, and

Table 1. Age-group specific attack rates of poliomyelitis per 100,000 population, Barbados, 1963

Age group (years)	Number of cases	Population	Attack rate
0–5	52	38, 593	135. 0
6–10	7	29, 670	23. 6
11–15	5	24, 861	20. 1
16–20	2	20, 328	9. 8
20–29	2	26, 331	7. 6
Total	68	139, 783	48. 6

Figure 2. Cases of poliomyelitis by parish, Barbados, 1963



urban St. Michael had its first case almost a month after the first patient became ill. The attack rates were lowest in the more sparsely settled northern parishes, and most cases occurring there had onset during the final 3 weeks of the outbreak. We have no epidemiologic data which account for the relatively high attack rates in rural St. Philip, St. John, St. James, and St. Thomas (table 2).

Clinical features. Forty-eight of 68 patients classified as having poliomyelitis (70 percent) were known to have residual paresis or paralysis 30 days after onset or had died (table 3). Among the survivors with 30-day followup, the proportion with residua was 44 of 56 (78 percent). Although the few cases in the upper age groups do not allow reliable statistical comparison of residua by age, it is of interest that both patients in the 21–29-year age group died, and the 2 patients in the 16–20-year age group had residual paralysis.

Four patients died, yielding a case fatality rate of 5.9 percent. All four were males and all had spinal paralytic disease with sufficient

Table 2. Poliomyelitis cases by parish of residence, Barbados, 1963

Parish	Number of cases		Population		Attack rate per 100,000	
	0–5 years	0–29 years	0–5 years	0–29 years	0–5 years	0–29 years
St. Michael	16	23	14, 313	53, 540	112. 0	43. 0
Christ Church	5	7	5, 276	19, 792	94. 8	35. 4
St. George	4	4	3, 067	10, 705	130. 0	37. 4
St. Philip	6	8	3, 001	10, 869	200. 0	73. 6
St. John	9	10	1, 957	7, 003	460. 0	143. 0
St. James	4	5	2, 279	8, 213	175. 0	60. 9
St. Thomas	6	6	1, 883	6, 350	319. 0	94. 5
St. Joseph	1	2	1, 593	5, 515	62. 7	36. 3
St. Andrew	1	2	1, 540	5, 229	65. 0	38. 2
St. Peter	0	0	1, 977	6, 848	----------	----------
St. Lucy	0	1	1, 707	5, 719	----------	17. 5
Total	52	68	38, 593	139, 783	135. 0	48. 6

involvement to require tracheostomy and mechanical respiratory assistance. The first, a 29-year-old, succumbed on the 6th day of illness; the second, a 21-year-old, died on the 25th day; and the remaining two were 3- and 4-year-old boys who expired within 24 hours of onset of symptoms.

Three other patients had transient depression of respiratory function. Two, a 13-year-old boy and an 8-year-old girl, had tracheostomies, but did not require respirators. The third, a 4½-year-old boy, recovered without a tracheostomy or mechanical respiratory assistance.

A 3-year-old boy and a 15-year-old girl were classified as bulbar paralytic. Both exhibited isolated unilateral facial nerve paralysis. The girl had no residual paresis 30 days after onset.

Virus isolations from patients. Virus isolation was attempted from four acutely ill patients, and poliovirus type I was recovered from rectal swabs from three who had paralytic disease. Cultures from the fourth patient, made during a nonspecific febrile illness, did not yield a poliovirus, and the patient did not develop clinical poliomyelitis.

Enterovirus carriage and poliomyelitis antibody prevalence. Rectal swabs were obtained from 46 well children aged 1–3 years who presented at vaccine clinics for immunization on June 4–5, and blood samples were also taken from 22 of them. None had received oral poliovaccine, but one child had received a single injection of inactivated poliovaccine. Histories of inactivated poliovaccine administration in the remaining 21 were negative or uncertain, but no child had completed the standard series of 3 inactivated poliovaccine injections.

Cytopathogenic agents were isolated from 16 (35 percent) of these 46 children. Six children (13 percent) were carrying poliovirus type I; 3 (6.5 percent) harbored poliovirus type II; 1 child (2.2 percent) yielded a mixture of polioviruses types II and III; and 6 (13 percent) were infected with agents other than polioviruses which exhibited enterovirus-type cytopathogenic effects. Although none of the children nor any of their household contacts had received oral poliovaccine, some of the polioviruses isolated might have been vaccine strains.

No gross differences were noted in poliomy-

Table 3. Classification of cases of poliomyelitis, Barbados, 1963

Paralytic status 30 days after onset	Initial diagnosis			Total
	Spinal paralytic	Bulbar paralytic [1]	Aseptic meningitis syndrome	
Residual	43	1	0	44
No residual [2]	11	1	5	17
Unknown	8	0	0	8
Dead	4	0	0	4
Total	66	2	5	73

[1] No cases classified as bulbar-spinal paralytic.
[2] Excludes one case with history of paresis prior to hospitalization and negative cerebrospinal fluid findings.

elitis antibody prevalence among the well 1-, 2-, and 3-year-olds, so the data for the three ages were combined in table 4. As the number of children sampled was small, generalizations should be made with extreme caution, but the data may properly be used as a rough indicator of the level of immunity among the 1–3-year-old age group on the island.

Among the entire group tested, only 4 (18 percent) lacked antibodies to all 3 types of polioviruses. An identical number showed antibodies to all three types. Twelve of the 22 (54 percent) had antibodies to a single type, and 2 (9 percent) inhibited 2 types of poliovirus. Type III antibodies were present most frequently, being encountered alone or with antibodies to one or both remaining types in 13 of 22 (59 percent). Type I antibodies were encountered next most frequently and were present alone or in combination with other types in 10 of 22 (45 percent) serums. Type II antibodies were present in 5 (23 percent) instances and were never encountered alone but were always accompanied by antibodies to one or both of the other types.

Polioviruses were recovered from rectal swabs from 5 of the 22 children whose serums were tested. Four of the isolates were type I and one, type II. Antibodies were present at dilutions of 1:8 in three of the four children infected with type I virus. Serum from the fourth child completely neutralized type I poliovirus at a dilution of 1:4 and incompletely neutralized the same virus at a 1:8 dilution, probably reflecting recent inception of the intestinal infection. The child who was harboring the type II strain exhibited antibodies against type I only, suggesting recent infection with the type II virus.

Table 4. Patterns of poliomyelitis neutralizing antibodies [1] in blood samples of 22 children, aged 1–3 years, Barbados, 1963

Poliovirus type	Number of children
Type I	5
Type II	0
Type III	7
Types I and III	1
Types II and III	1
Types I and II	0
Types I, II, and III	4
No antibody	4
Total	22

[1] Antibody titers of 1:8 or greater in all positive samples except 1 with a 1:4 titer.

Table 5. Pattern of oral poliovaccine administration, Barbados, 1963

Dates of administration and recipients or type of distribution	Age group (years) of recipients		Total
	0–5	6 and older	
Trivalent vaccine, May 1–28:			
School children [1]	3,703	33,325	37,028
Vaccinees at health centers [2]	3,387	13,548	16,935
Hospital personnel and their families [1]	100	900	1,000
Patients of private physicians [1]	1,005	9,045	10,050
Mass feedings of oral type I [3] and trivalent vaccines:			
June 4–5	3,825	3,901	7,726
June 11–13	10,603	38,885	49,488
Total	22,623	99,604	122,227

[1] Age breakdown of vaccinees estimated (see text).
[2] Age breakdown estimated from a sample of records.
[3] Includes 50,000 doses of type I vaccine supplied by the Public Health Service.

Oral poliovaccine administration. Prior to May 1, 1963, private physicians had administered oral poliovaccine to a small, but unknown, number of persons. Precise data on use of inactivated vaccine on Barbados were not readily available, but the local authorities believed that, except in the upper socioeconomic groups, the proportion of individuals so immunized was small. Thus, the level of artificial immunity to poliomyelitis, while difficult to quantitate, was thought to be low at the time cases began to appear.

On May 1, 1963, the Department of Medical Services of the Barbadian government began immunizations with trivalent oral poliovirus vaccine, and by May 28, 54,000 doses were administered to the public, and another 1,000 doses to the personnel of the Barbados General Hospital and their families. Private physicians purchased an additional 10,050 doses of trivalent oral vaccine (table 5).

The epidemic curve continued to rise in spite of the vaccine given during May, so the estimated age distribution of the vaccinees is especially pertinent. As children start school at age 5 in Barbados, some of the vaccine given in the schools went to the 0–5 age group. In a rather arbitrary fashion, it was estimated that 10 percent of the vaccine given in May went to the 0–5 age group. As 16 percent of the population was in this age group, 10 percent seemed a reasonable minimum estimate. Thus, although some 65,000 doses of trivalent oral vaccine were given in May, only about 8,000 doses were administered to the 0–5 age group—the group experiencing the highest attack rate of paralytic disease.

Islandwide feedings with type I vaccine stressing the 0–5 age group were carried out on June 4 and 5. Heavy rains limited clinic attendance and only 3,825 (9.9 percent) of the children in the 0–5 age group received the vaccine (table 5).

A second islandwide feeding on June 11–13 depleted the Public Health Service-supplied oral type I vaccine, and some 7,000 doses of the local supply of trivalent vaccine were used. A total of 10,603 children in the 0–5 age group were fed (table 5). Thus, 27 percent of this epidemiologically critical age group received oral vaccine within a single 72-hour period.

In summary, from May 1 through June 13, 59 percent of the 0–5 age group and 53 percent of the entire population received monovalent type I or trivalent oral poliovirus vaccine. During the two islandwide campaigns, 25 percent of the total population and 37 percent of the 0–5 age group ingested oral vaccine.

Discussion

The 1963 epidemic was the first outbreak of paralytic poliomyelitis on Barbados in 30 years. Although the precise dynamics governing the initiation of the epidemic are obscure, several factors may have been operative.

In a population not protected by artificial immunization, epidemic poliomyelitis can be anticipated soon after the infant mortality rate is reduced to a critical level of 70–80 per 1,000 (*4*, *5*). In Barbados, this rate had fluctuated about the critical level for 5 years prior to 1963 and, in this sense, the island was ripe for an epidemic of poliomyelitis. However, Payne (*4*), Paul (*5*), and Melnick (*1*) have pointed out that the inverse relationship between attack rates of paralytic poliomyelitis and infant mortality rates is not invariable, particularly in the Caribbean islands. As a matter of fact, Barbados experienced its only other major outbreak of poliomyelitis in 1933, in a decade when the average infant mortality rate was 233 per 1,000 (*1*).

Although none of the patients was imported or had known contact with off-islanders, the introduction of a virulent, imported epidemic strain of poliovirus into an island community with improving sanitation and waning natural immunity may have been important in the initiation of the 1963 epidemic. A widespread epidemic of type I poliomyelitis occurred in British Guiana from December 1962 through March 1963 (*6*). Barbados and British Guiana have frequent commercial contact. Aircraft, powered vessels, and sailing schooners ply back and forth regularly.

In 1957, working with a sample of 17 Barbadian children in the 1–4 age group, Melnick found that 59 percent had antibodies to poliovirus type I, 12 percent to type II, 23 percent to type III, and 75 percent had antibodies against at least one type (*1*). The 82 percent prevalence of antibodies to at least one type was not greatly different in 1963 among the 22 children sampled in the 1–3 age group. In spite of the somewhat lower age range sampled in 1963, small changes such as the decrease in prevalence of type I antibodies to 45 percent cannot be construed as significant alterations in the serologic profile of this age group. The numbers of children tested in both 1957 and 1963 were too small to give stable prevalence data. Nevertheless, it is of interest that the proportion of young children with type I antibodies was not markedly different in 1963.

Several factors might have led one to expect a lower prevalence of type I poliomyelitis antibodies in the 1–3 age group in 1963 than in 1957. The occurrence of the epidemic and the age distribution of cases indicated a concentration of young susceptibles. Improvement in environmental sanitation and general public health had occurred. The infant mortality rate,

which had fallen to the "critical level" of 70–80 per 1,000, or less, should have been correlated with decreased spread of enteric agents of all kinds, including polioviruses. Indeed, the prevalence of type I antibodies may well have been significantly lower in March 1963 when the epidemic began than at the time of Melnick's survey in 1957 (*1*) or ours on June 4–5, 1963. The 1963 serums were collected near the peak of the epidemic, and many of the children may have been recent converters. The presence of type I poliovirus in the feces of 4 of the 10 children with type I antibodies would support the thesis of recent serologic conversion in those 4 at least.

The studies of enterovirus carriage in well children, aged 1–3, while not representing a true statistical sample, did show that 10 of 46 (22 percent) were carrying poliovirus strains and that 6 of them (13 percent) were excreting type I. This would confirm the expectation that asymptomatic carriage of polioviruses would be common in this young age group and highlights the epidemiologic importance of asymptomatic infections in young children in spreading polioviruses to susceptible individuals. The isolation of cytopathogenic agents other than polioviruses from 6 (13 percent) of the children studied indicated that other viral agents were circulating freely in the community and supported the decision not to classify patients with aseptic meningitis syndrome as cases of nonparalytic poliomyelitis.

The concentration of paralytic illness noted in the 0–5 age group was consistent with the classic patterns seen as poliomyelitis changes from an endemic infection with a low rate of clinical expression to epidemicity (*7*).

The explanation for the excessive number of males affected is obscure, but higher attack rates in males have been noted previously (*8, 9*). Although the numbers of cases in the older age groups were small, in the Barbados epidemic the male predominance was not grossly age dependent. This contrasts with the experience of Timothee and co-workers in Puerto Rico in 1960; they found higher attack rates in males only through 7 years of age (*9*).

It is of interest that only one case of paralytic poliomyelitis was recorded among the upper socioeconomic groups who ordinarily have high attack rates with higher age distributions of cases if epidemic poliomyelitis occurs in a developing country (*9–11*). Timothee and coworkers (*9*) noted low rates among upper socioeconomic groups during the 1960 epidemic in Puerto Rico where that segment of the population had been relatively well immunized with inactivated poliovirus vaccine. In Barbados, it was believed that the upper socioeconomic group had also been well immunized with inactivated poliovirus vaccine administered by private physicians. Thus, the 1963 Barbadian epidemic provided a second instance of reversal of the pattern of attack rates by socioeconomic groups in a tropical country—again perhaps secondary to protection induced by inactivated poliovirus vaccine.

Precise evaluation of the attempt to halt the epidemic by the production of viral interference by rapid, mass feeding of type I oral poliovirus vaccine to the susceptible 0–5 age group was difficult. Mass feeding under epidemic conditions has been followed by rapid and marked reduction of cases and early termination of the epidemics (*12, 13*). Modification of the expected courses of epidemics has been reported even when the oral vaccine type fed was heterologous to the agent causing the epidemic (*11, 14*). On the other hand, Dick and Dane (*15*) have emphasized the variability of poliomyelitis epidemics and the difficulty of projecting their courses.

The 1963 Barbados epidemic terminated within 6 days following completion of the second mass feeding of oral vaccine, June 11–13 (fig. 1). During this 3-day period, the vaccine was given to 21 percent of the total population and 27 percent of the critical 0–5 age group. The abrupt decline of the epidemic curve and its termination within 1 week after the peak were strong evidence for the effectiveness of the vaccine program. Poliomyelitis epidemic curves usually decline more gradually and are usually skewed to the right—that is, more cases are usually recorded after the peak than before (*16*).

The occurrence of this epidemic established Barbados as another tropical area where improving standards of hygiene are reducing the incidence of natural immunity engendered by infections with polioviruses in infancy. To avoid a repetition of the epidemic, the Depart-

ment of Medical Services plans to incorporate two doses of trivalent oral vaccine into routine immunizations given to infants during the first year of life at well-child clinics. This step should counter the waning incidence of naturally acquired immunity among new susceptibles born into the community.

Summary

From March 23 through June 19, 1963, 68 cases of paralytic poliomyelitis occurred in Barbados, the island's first epidemic in 30 years.

Poliovirus type I was isolated from three patients with paralytic disease. The age distribution of the patients, with illness concentrated in the 0–5 age group, was typical of that usually encountered in a developing tropical country. Only one case occurred in a member of the upper socioeconomic groups, perhaps reflecting the use of inactivated poliovirus vaccine by this segment of the population.

Enterovirus carriage studies on June 4 and 5, near the peak of the epidemic, showed that 6 of 46 (13 percent) well children aged 1–3 years harbored type I poliovirus, indicating moderately widespread seeding of this agent in small children. Concomitant studies of antibody prevalence in serums from 22 of these children revealed that 55 percent lacked antibodies to poliovirus type I.

The epidemic terminated abruptly within 6 days of a mass feeding of oral poliovirus vaccine in which some 27 percent of the 0–5-year-olds were fed within a 3-day period. It is believed that the mass vaccine feeding was instrumental in effecting an early termination of the epidemic.

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