

# ABSTRACTS AND REPORTS

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## POLIO IN NORTHEAST BRAZIL

Over 80% of the 1986 cases of poliomyelitis reported in Brazil have come from the country's northeast region. Disease activity has persisted despite continued efforts to block transmission—including local vaccination programs, a special regional vaccination day on 19 April, and the regular national campaign day on 14 June.

No significant changes have been detected in the age distribution, vaccination history, or urban/rural distribution of cases compared to previous years. Of note, however, is the predominance of poliovirus type 3, which has been responsible for 71% of the 1986 cases for which laboratory data are available (Figure 1). Type 3 also predominated in 1981, to a lesser degree, a circumstance attributed to the impact that the first national vaccination days had on type 1 poliovirus.

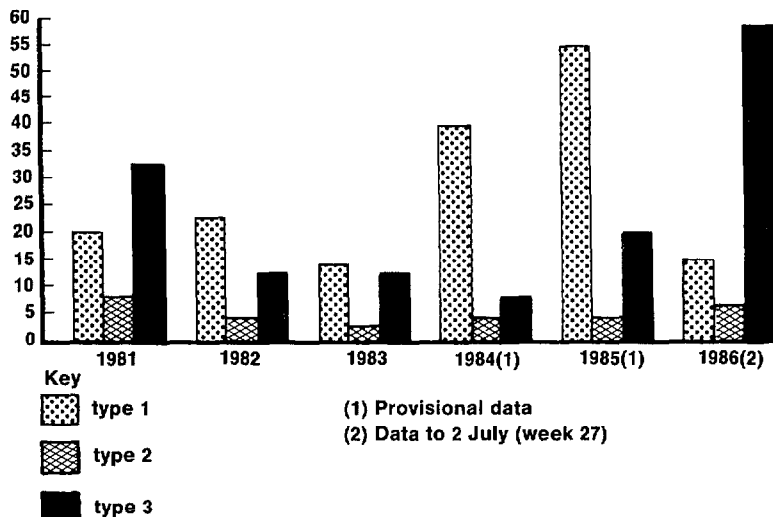
In order to identify factors affecting the current polio situation in Brazil's northeast region, a detailed analysis of data available at the national level was carried out, concentrating on the following:

- determination of vaccine efficacy in 1985 and 1986, based on estimations of vaccination coverage with three or more doses of vaccine (by one-year age group) and data on disease cases in vaccinated children.
- comparison of antibody titers against the three types of poliovirus in 35 cases selected from those reported in the northeast in 1986. The first sample was taken seven days after disease onset and the virus isolation tests were negative, thus reducing the possibility that wild poliovirus infections would interfere with the results.

Results of the analysis suggest low vaccine efficacy in 1986, especially for children under two years of age (40% of the total). Considering that this did not occur in 1985, when type 1 predominated, it was concluded that the low efficacy might involve the vaccine's type 3 component. This was corroborated by analysis of the serologic data, which indicated that the type 3 titers were always lower than those for type 1 or type 2, regardless of the number of doses received. The hypothesis of insufficient type 3 immunization is also supported by the fact that six cases studied in vaccinees with three or more doses revealed no detectable type 3 titers.

These data suggest that the intensive and extensive circulation of type 3 poliovirus in the northeast is associated with low vaccine efficacy, though this is not the only determining factor. This

FIGURE 1. The annual number of poliomyelitis cases in Brazil, by type of virus isolated, in 1981-1986.



low efficacy could be due to a low concentration of type 3 in the vaccine, to the three doses of vaccine being insufficient to provide a satisfactory immunologic response, or to cold chain problems that could affect vaccine stability.

Brazil's Ministry of Health used two special polio vaccines in selected areas during the national vaccination day on 16 August—one a monovalent type 3 vaccine with the usual titer (300,000 TCID<sub>50</sub>) and the other a trivalent vaccine containing double the titer for type 3 (600,000 TCID<sub>50</sub>). A clinical-serologic trial was carried out to evaluate the advantages of these preparations in relation to the one currently being used, and results are expected by December 1986.

Source: Brazil, Ministry of Health, *Poliomyelitis Informe Semanal* 1(29), 19 July 1986, as reported in the PAHO EPI Newsletter, vol. 8, no. 4, 1986, pp. 3-4.

## UPDATE ON POLIO IN THE AMERICAS, 1986

During the first 40 weeks of 1986 ending 4 October, a total of 802 poliomyelitis cases were reported from 10 countries in the Region of the Americas (Figure 1). For the same period in 1985, 517 cases were reported from 11 countries. Six countries that had cases in