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AN ALASTRIM OUTBREAK IN THE GRAN SABANA (STATE OF BOLIVAR) VENEZUELA, 1962

by

Juan G. Halbrohr, M.D., M.P.H.,
Division of Epidemiology of the Ministry of
Health and Social Welfare, Caracas, Venezuela

The smallpox-free status of Venezuela, effectively maintained since 1957, was interrupted in June, 1962, when two unvaccinated nomadic people of American-Indian stock reintroduced the disease into the border zone of the Gran Sabana from the neighbouring North Brazilian endemic zones. In this area the migration of indigenous population across the relatively uncontrolled and uninhabited frontiers is frequent.

As soon as the local health authority at the Santa Elena Rural Health Centre learned of the first two suspected cases, he notified by radio the Division of Epidemiology of the Ministry of Health and Social Welfare in Caracas. He asked the assistance of a Federal epidemiologist to carry out field investigations and to institute control measures. The local doctor was not sure about the diagnosis of the suspected cases, because of his lack of experience with smallpox. In fact, he suspected chickenpox rather than smallpox.

The suspect cases were of particular concern because of the possibility that the disease might spread from the isolated Gran Sabana to the very densely populated "Iron Zone" (iron mines and industry) in the northern part of Bolivar State. Rapid control would be important to block the diffusion of the disease northward and to other regions of the country.

The Gran Sabana is located in the southern part of the State of Bolivar, one of the largest States of Venezuela. It is nearly rectangular in shape and is about 40 000 km^2 in size; its population of 5500 people consists of 5000 nomadic or seminomadic peoples and about 500 non-indigenous population, from other national areas, including Spanish Capuchin monks, Brazilian diamond- and gold-miners and so on. The population density is 0.14 persons per square kilometre.

The Gran Sabana is mainly a flat area with a few isolated flat-topped mountains (tapuis) and some scattered forest zones. Its eastern and southern limits are mountainous and forested.

This territory is accessible only by plane; it has eight landing fields. The first road between El Dorado and Santa Elena was still in construction. The capital of the Gran Sabana is Santa Elena de Uairén, with about 350 inhabitants and with a rural health centre. It is the headquarters (Episcopate) of the four Franciscan Catholic Missions. The second village of importance is Icabarú, with 250 people and which also has a rural health centre. There are three peripheral Franciscan Missions in Uonkén, Kavanayén and Kamarata. The other villages and settlements are smaller and there are also many scattered groups of hamlets and isolated huts. Most of the indigenous population is nomadic in continuous migration from one place to another and across the country borders as well.

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Many of the migrant indigenous population of the Gran Sabana had not been vaccinated against smallpox, owing to the considerable difficulty in reaching them. The last immunization campaign was carried out in 1952. It is also unlikely that the Gran Sabana population had experienced smallpox during the past 20 or 30 years, considering the virtual absence of characteristic facial scars, even in adults.

A few days after receiving the notification from Santa Elena, an epidemiologist and eight vaccinators went by plane to the area. The team had at its disposal a five-passenger aircraft, a jeep and a boat with outboard motor. Travel by land from Santa Elena was possible only within a radius of about 25 km. The headquarters of the anti-epidemic activities was established in the Santa Elena Health Centre; communication among the previously-noted sites was by radio-telephone.

In each of the following places, Santa Elena, Icabarú, Urimán and in the Missions of Uonkén, Kavanayén and Kamarata, where the indigenous population was concentrated, a vaccinator was posted. Two vaccinators accompanied the epidemiologist in his daily journeys by plane, by boat, and often on foot, to vaccinate the smaller communities, to supervise the vaccination centres and to carry out field investigations.

Epidemiological findings

In total, 11 cases were discovered. All belonged to the "pemon" or "taurepan" indigenous (American-Indian) ethnical group.

At the beginning of June, 1962, two adult males, 30 and 22 years old, respectively, became ill shortly after returning from Brazil. At this time they were staying in the settlement Las Malocas, near Santa Elena.

Intensive efforts were made to detect cases in the very extensive, sparsely populated and isolated territory. Nine additional cases were found, five of which were secondary and four tertiary, among those who were exposed - some of whom lived in hamlets or isolated huts as much as 100 km or more from Santa Elena. Definite transmission links could be established among the cases. The cases were migrants who moved, mainly on foot, from one site to another, sometimes during the incubation period.

Clinically and epidemiologically, the cases were smallpox. Laboratory investigations were delayed more than a month, but the diagnosis was eventually confirmed in all cases.

Vaccination programme

The first of the two index cases transmitted the disease to a 16-year-old and an eight-year-old boy in Las Malocas, where the index cases had first become ill. No subsequent transmission occurred.

The second of the two index cases transmitted smallpox to relatives, a 30-year-old woman and her four-year-old son, who lived in Apoipo (Fig. 2), but who had come to Las Malocas to visit the patient. They subsequently transmitted the disease to two additional persons living in Uonkén. A 19-year-old girl from Uonkén also became infected from the second index case and subsequently transmitted the disease to two children living in Kavanayén and Kamarata.

The nature of the illness suggested that it was variola minor; none of the patients had previously been vaccinated and none died.

Without waiting for laboratory results, an intensive vaccination programme was started throughout the whole of the Gran Sabana territory. The "multipressure" technique was used and freeze-dried vaccine was applied.

Between 9 June and 10 July, 4302 vaccinations (4184 primary) were done in the Gran Sabana area among the indigenous population, and 311 vaccinations (76 primary) among non-indigenous people. This represented approximately 86 per cent. of the estimated indigenous population.

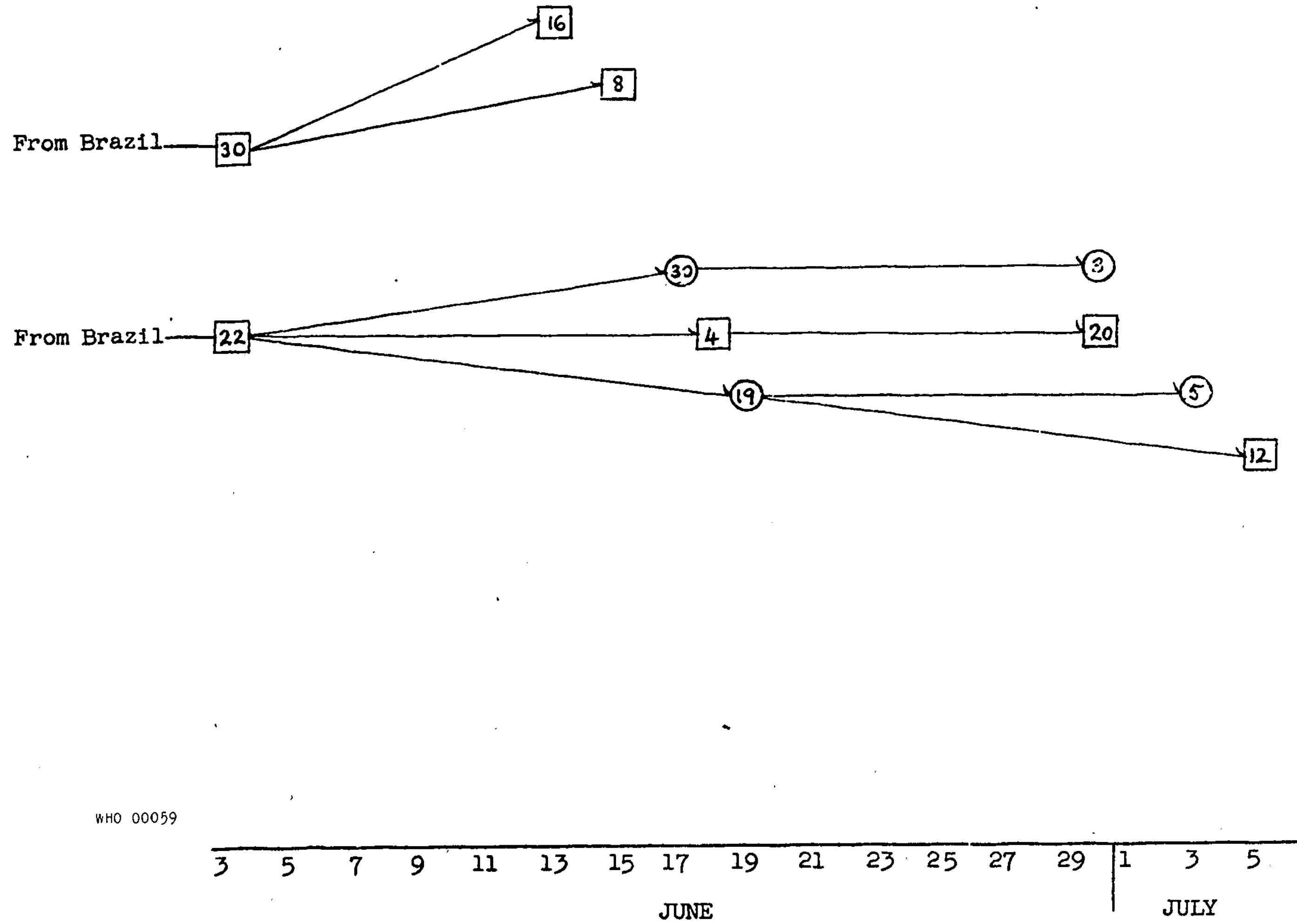
Additionally, the population of villages and towns along the road leading from the northern end of the Gran Sabana to the previously-mentioned "Iron Zone" were vaccinated, as well as the population of the "Iron Zone" itself. In all, 60 000 vaccinations were given. The vaccination status of passengers at the Santa Elena and Icabarú landing fields was strictly controlled.

Conclusion

The smallpox outbreak observed in the Gran Sabana in 1962 is typical for non-endemic countries which are constantly exposed to reintroduction of the infection from still-endemic neighbouring zones.

Through prompt investigation of suspect cases and intensive control measures, the outbreak was rapidly terminated, even in this very remote, difficult area, in which not more than 10 per cent. of the population was immune. It is notable that the disease spread slowly, as is usual in smallpox, despite a high proportion of susceptible persons. This certainly facilitated the containment efforts.

FIG. 1 SMALLPOX OUTBREAK - GRAN SABANA, VENEZUELA, 1962



Key

5 Male, age 5

12 Female, age 12

FIG. 2 SMALLPOX OUTBREAK - GRAN SABANA, VENEZUELA, 1962