

RESULTS OF INVESTIGATION AND CONTROL PROGRAMME IN SIERRA LEONE

E. Cummings¹, D. R. Hopkins², J. N. Thornton³

Over the past quarter century, Sierra Leone has experienced three major smallpox outbreaks at 10 year intervals. The most recent outbreak began in October, 1966. In 1967, Sierra Leone experienced the highest incidence of smallpox of all countries reporting to WHO.

In late January 1968, the Smallpox Eradication Programme began systematically to vaccinate the country's population. By the end of August 1968, 728,190 smallpox vaccinations had been administered in 4 of the 13 administrative districts, affecting 30% of the national population.

In August 1968, the intensified investigation and control effort-termed "Eradication Escalation"-was begun in an attempt to eradicate smallpox even before the mass vaccination phase could completely cover the country. This approach, as applied to the entire 19 country project, was based on the expected coincidence of the usual seasonal decline in smallpox from August to November, and the already significant decline in smallpox incidence presumed to be a result of vaccination of 50% of the target population in West Africa since January 1967. We felt justified in making this extra effort in Sierra Leone partly because the vaccination teams had already vaccinated most of Kono and Koinadugu Districts, perennially the two areas of highest endemicity and highest population turnover, and partly because all of the Guinean side of the common border had by then been vaccinated by the Guinean programme.

The intensified investigation and control programme began with a Special Issue of The Eradicator, the monthly newsletter of the Sierra Leonean Programme. This issue was sent to all dispensers, health inspectors, medical officers, district administrative officials, paramount chiefs and Peace Corps volunteers. It explained the rationale of the effort and appealed to them to be especially alert for smallpox in their areas. This was followed up by personal visits by headquarters staff to District Officers and District Medical Officers in key districts. The District Officers, in turn, also sent circular letters directly to all paramount chiefs under their control. Radio and newspaper appeals were also made.

A four man "fire-fighting team" undertook to investigate and control outbreaks which averaged three per month. SMP headquarters personnel also investigated these and other outbreaks before, with, or after the fire-fighting team. In February 1969, the fire-fighting team actively searched 2 of 3 suspect coastal districts looking for smallpox.

Investigation was mainly limited to determining the source of the outbreak and geographical extent of the exposed population. We were able to ascertain the source of approximately three-fourths of the investigated outbreaks. During the first several months of the intensified campaign, determination of the source of an outbreak often led to other previously unknown outbreaks, but recently, most outbreaks have been traced to previously discovered infected areas. In Sierra Leone, widely attended funeral ceremonies for prominent smallpox victims in rural areas are often the cause of wide-spread smallpox outbreaks. The difficulties of tracing all persons in attendance at these funerals or even all villages represented, are obvious.

¹Deputy Chief Medical Officer, Sierra Leone Ministry of Health

²Medical Officer Advisor, NCDC/USAID, Freetown, Sierra Leone

³Operations Officer Advisor, NCDC/USAID, Freetown, Sierra Leone

Emphasis was placed on the control of each discovered outbreak. This was achieved mainly by vaccination of the entire index village and exposed surrounding villages, and by isolation of victims. A salient feature here was the importance of at least two vaccination visits for each infected village, preferably in late afternoon or evening or very early morning in order to ensure effective coverage of the population. In one district, control of a very extensive outbreak was only attained after we arranged for a vaccinator to sleep in each infected village, thereby being available to vaccinate farmers returning from work in the evening, or before they went out again in the morning. Also important was the occasional separation of the fire-fighting team members into two or even one-man units in controlling wide-spread outbreaks.

Since the beginning of the intensified investigation and control programme there has been a continuous decline of smallpox. This decline is seen in the number of cases, number of outbreaks, and number of chiefdoms infected by month. A total of 10 outbreaks were reported or discovered in 1969. All of the 1969 outbreaks occurred in 5 coastal districts which were unvaccinated. Two of these districts have since been vaccinated, and a third will be completed this month (May). There were six new outbreaks discovered or reported in January this year, three in February, one in March, and none in April.

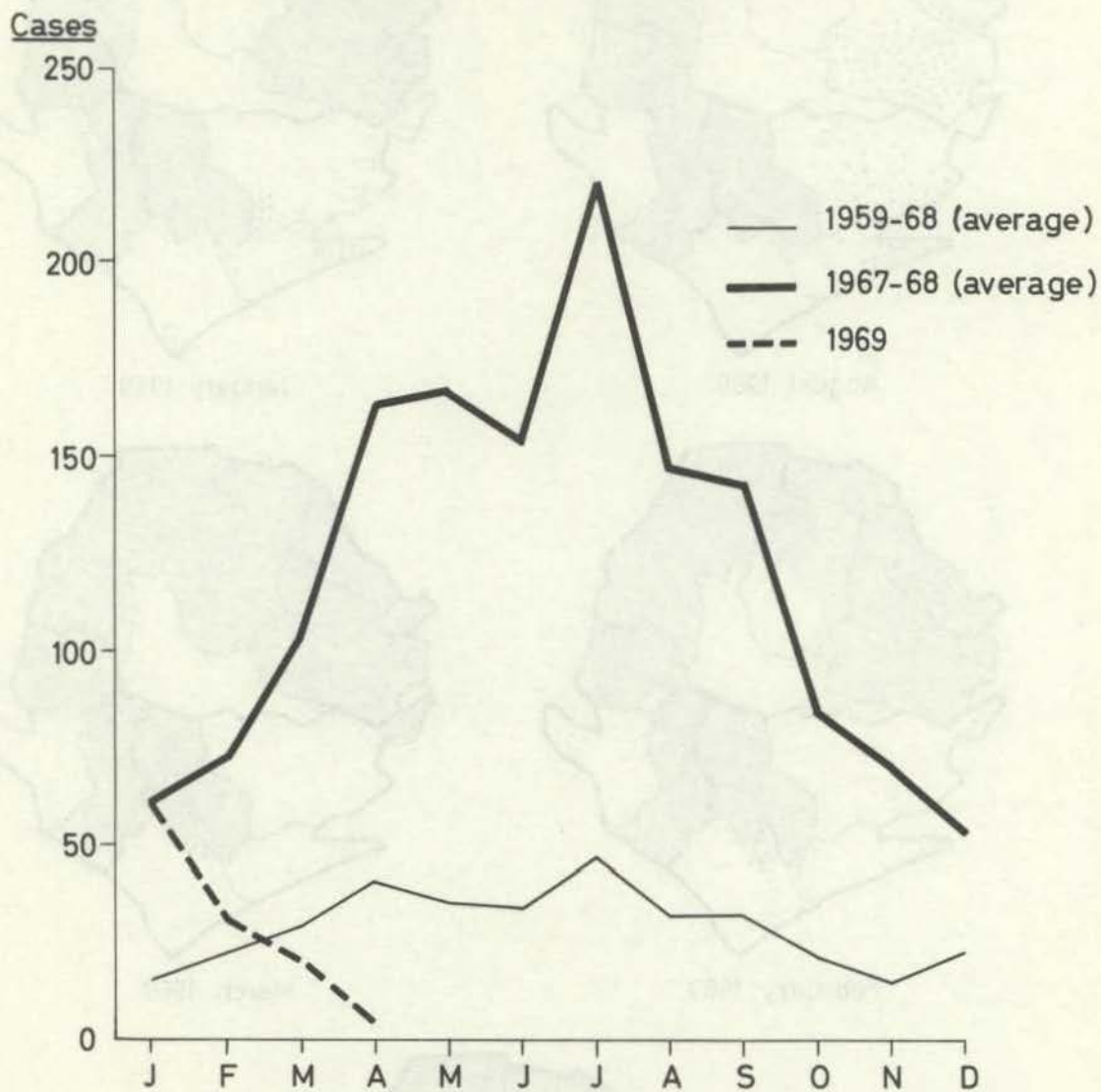
Especially significant is the fact that, while smallpox reports in the last 4 months of 1968 were only about 30% less than in the same period in 1967, there has been in the first four months of 1969 a steady decline in smallpox cases - with only one case with onset in April - even though smallpox incidence normally increases in Sierra Leone at this time of year (Figure 1). A total of 114 cases were reported or discovered in January, February, March and April 1969. In 1968, 112 cases were officially notified in January alone. Reduction in the geographical extent of the disease is seen to have been achieved at an equally rapid pace (Figure 2).

We have of course had instances of delays and failures in reporting, and of inadequate control measures taken after we did learn of some outbreaks. But in summary, we feel that the effectiveness of this type of intensified investigation and control programme, in conjunction with an efficient mass vaccination effort, has been especially dramatic.

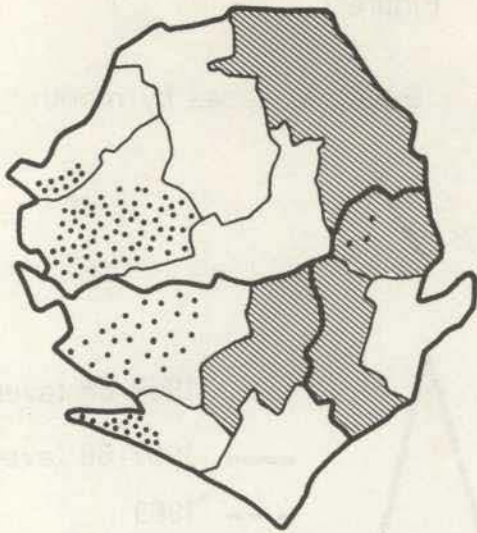
The statistics speak for themselves.

Figure 1

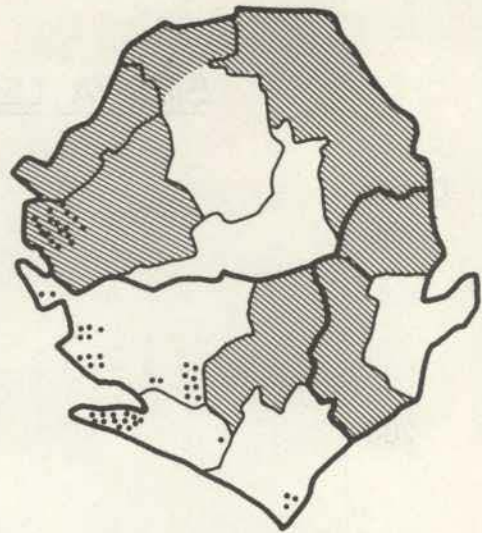
SIERRA LEONE : Smallpox cases by month



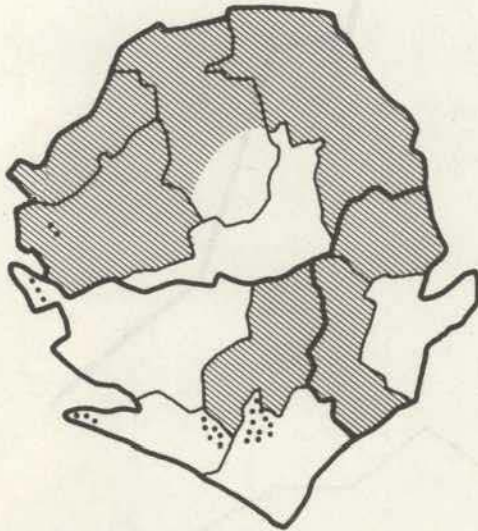
SIERRA LEONE



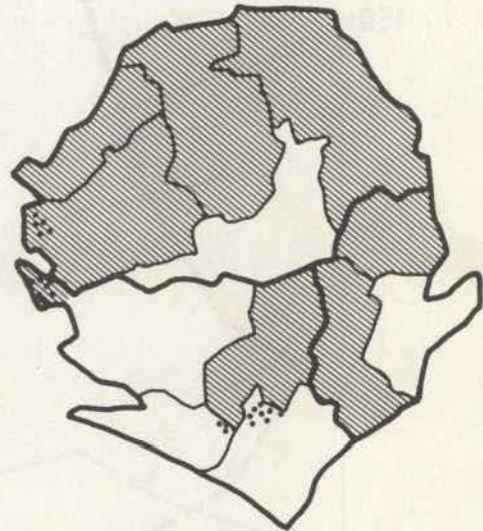
August 1968



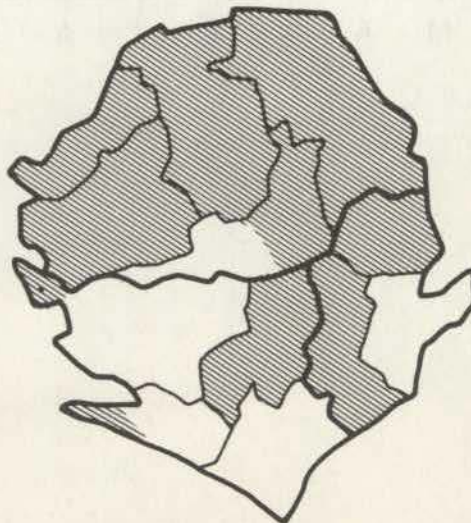
January 1969



February 1969



March 1969



April 1969

• One case of smallpox
▨ Vaccinated regions