



INTERNATIONAL ASSESSMENT OF SMALLPOX ERADICATION IN INDONESIA

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What Went Wrong in Loning?<sup>1</sup>

by

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INTRODUCTION

The farming hamlet Loning (population 1500) is part of the sub-district Petarukan (population 85 000) and is situated between the main road Djakarta-Surabaya and the Java Sea. In September 1968, shortly after the beginning of the smallpox eradication programme in Indonesia, a part-time fire-fighting team started work in the area. It was responsible for containment in 13 sub-districts. A full-time advance team started action in February 1969. It was responsible for coordinating all eradication activities in Petarukan and 78 other sub-districts.

Smallpox had been reported from the sub-district of Petarukan since 1967. Petarukan has 72 hamlets, 18 of which were known to be infected in 1969. Of the 100 cases reported in that year, Loning contributed 22. The first case occurred early in 1969 when a servant brought the infection from a neighbouring hamlet. Although repeated containment actions were taken in 1969, transmission continued for many months. As this was unlike what our containment teams had experienced elsewhere, the team was somewhat demoralized. An analysis of the reasons for failure are described in this paper.

RESULTS

Surveillance

Reports of cases in this area usually come from the population and are forwarded by the civil administrator and checked by health personnel. During the outbreak, 34 cases were recorded, of which 12 were discovered during our investigations (Fig. 1). Interviews of the population revealed that there had been fear of forced isolation of cases which explains the hesitation to report cases. Additionally, some cases had not been reported because the population had not suspected smallpox. Finally, poor cooperation between the people and the village chief, who was not liked by the villagers, undoubtedly contributed to the problem of reporting as well as the efficacy of containment measures.

<sup>1</sup> Extracted from WHO/SE/71.30, pages 140-144.

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## CONTAINMENT

Timing

Four containment actions were taken during the year 1969. The first action had been taken by the part-time fire-fighting team, while the advance team did the others. Only one out of four containment actions was taken during the week when cases were reported. The other three were done 1, 5 and 10 weeks after the last reported case. In fact, it turned out that the last two actions were undertaken as a part of outbreak containment in neighbouring hamlets. No containment action was taken between weeks 12 and 26 although cases had been reported in weeks 17, 20 and 21. However, some vaccinations may have been given without being recorded.

Coverage

Until the fourth containment action, none had ever covered the population of the hamlet effectively. The number of vaccinations given was 209 in week 6; 388 in week 12 and 281 in week 26. Only in August, 1456 or 98% of the total population was vaccinated. During this same period, 9% of the population of the area of which Loning is a part, received primary vaccinations on the occasion of three visits by the routine vaccinator and by one mass campaign. The population interviewed gave the following reasons for the poor coverage.

- (a) Four of vaccinated children getting fever;
- (b) the vaccinator did not always turn up for the appointments in spite of being announced and expected;
- (c) those that had been vaccinated during one action were reluctant to be vaccinated again.

Follow-up

No documentation was available to check this aspect of containment. It is known, however, that at least once the investigator sent to do follow-up was content with the information received from the village chief that no new cases had occurred, instead of visiting the houses of the patients. The information given by the village chief subsequently proved to be wrong.

## EPIDEMIOLOGICAL CHARACTERISTICS

No exceptional features that would make eradication impossible were revealed during the investigation. However, the tradition of visiting related patients by whole families was an important factor in the maintenance of transmission. Although hundreds of vaccinations had been performed around each case, transmission continued among neighbours (Fig. 2).

## DISCUSSION

A number of shortcomings were uncovered in the analysis. However, lest we be too critical, it should be kept in mind that this hamlet was just one of a great number of critical areas. This one was looked at with a magnifying lens to expose all weaknesses, many of which would normally escape attention.

In the outbreak, a single containment action with complete coverage of the whole population constituted one approach to stop transmission. This was done in week 31 and transmission stopped after two incubation periods. However, looking at the map and pattern of transmission, one concludes that satisfactory coverage of the affected house and immediately adjacent houses during any of the containment actions in the first half of the year, would have interrupted transmission of smallpox in the hamlet. There was no reason, however, to expect success in Loning with earlier half-hearted efforts which were delayed in being instituted.

Perhaps the most important single fault was our failure to identify the problems promptly and to correct them by technical guidance. The best system cannot work if it is not well supervised.

#### SUMMARY

Lack of success in smallpox eradication inevitably has a good reason. In the Loning outbreak, surveillance was weak as shown by the fact that 40% of the cases were discovered in the course of investigation. Containment action was usually delayed and the coverage insufficient. Contrary to instruction, follow-up action did not necessarily assure a personal check of the house of the patient and his neighbours. Finally, it is clear that supervision and technical guidance are the most important parts of any eradication effort.

FIGURE 1

SMALLPOX OUTBREAK - HAMLET LONING, 1969

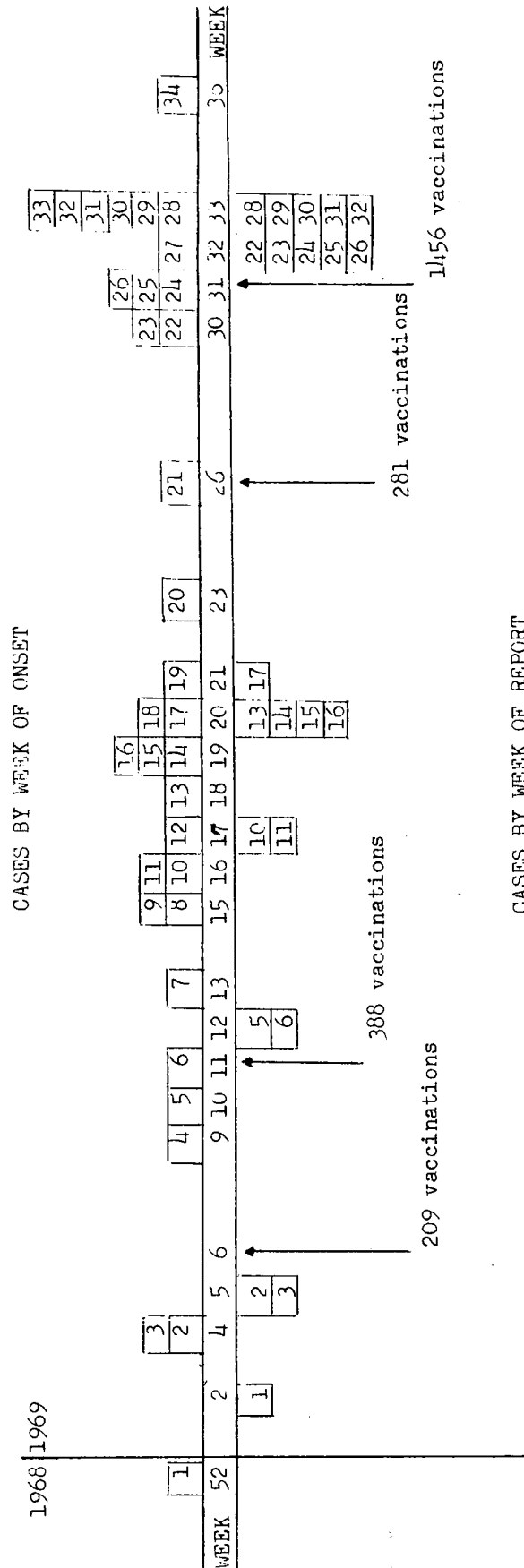
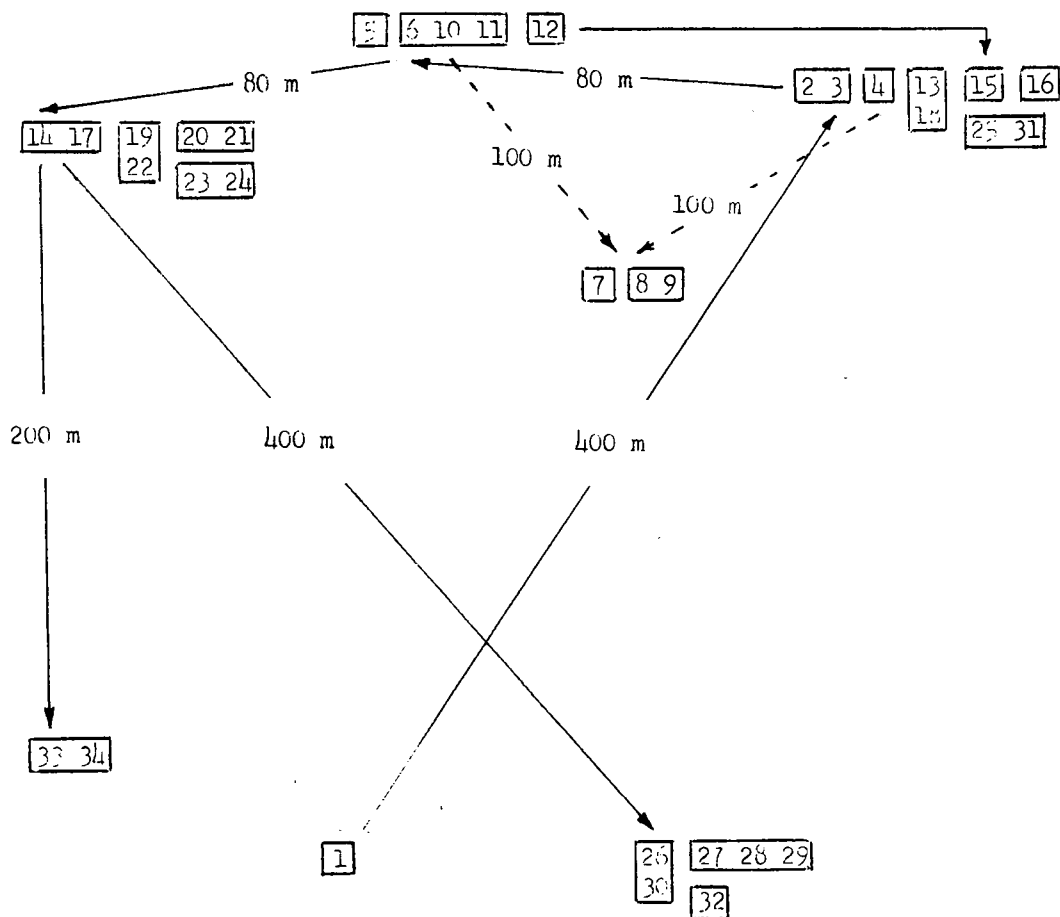


FIGURE 2  
LOCATION OF 34 SMALLPOX CASES IN HAMLET LONING  
SUBDISTRICT PETARUKAN, CENTRAL JAVA, 1969



□ House

Numbers inside houses refer to case numbers

Distances given in meters

Houses within one cluster are not more than 20 meters from each other