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SMALLPOX TRANSMISSION ON A BUS

by

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In July 1971, an outbreak of 17 cases of smallpox were detected in Loralai District, Baluchistan. Careful tracing of the source of infection of cases in this outbreak revealed that transmission on a public bus played a significant role in dissemination of infection. Because smallpox transmission as a result of contact on public transport has been so infrequently documented, it was decided to report this outbreak in greater detail.

Background

Loralai District is an agricultural district with a population of about 110 000 persons. A highway traverses the valley and the District and most of the population are concentrated along this highway. Villages are located about two to three miles apart and usually within two miles of the main road (Fig. 1). In addition to the settled population, there are an uncertain number of nomads who, with their flocks, normally spend their winters in Punjab and summers in the Loralai area where they settle near the villages. The capital, Loralai town, is situated on the main road which connects Quetta City, the capital of Baluchistan with Punjab Province.

No cases of smallpox had been reported from this district since 1964.

Present outbreak

During the first week of July, the Provincial Smallpox Programme was first notified of cases in the District. Field investigation was promptly initiated and continued over the succeeding weeks.

The first case, a 36-year-old nomad and small shopkeeper in Muzafargarh, Punjab Province, arrived in Loralai District in mid May and with other nomads, erected tents close to village D, nine miles from Loralai town. On 20 May he developed a modified case of smallpox. Subsequently, three additional cases occurred among pre-school children in the nomad group. Containment measures were taken and the area searched over a distance of 20 miles but no further cases were detected.

Two weeks later, notification was received of cases of smallpox in village Ch, located 26 miles away from village D. The first case, a 14 year old, vaccinated 10 years previously, developed modified smallpox on 22 June. Two weeks previously he had been in village D and had contact with the nomad group. Four cases occurred subsequently in his family and one additional case in a neighbour who had refused vaccination.

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One of those in the family who had developed smallpox was a four-year-old girl who developed a confluent rash beginning on 1 July. She became progressively more ill and on 21 July, was taken by her mother for treatment at a private clinic in Loralai town and then to the district hospital. The patient had no cough. They travelled the 35 miles to Loralai town on a public bus and returned to the village the same day. On 23 July the patient died.

On the bus, the girl and her mother rode in the front of the bus on one of the five seats set aside for women and children passengers and separated by a partial partition from the remaining seats reserved for male passengers. Four passengers who had contact on the bus became ill as well as the bus driver (Table 1).

TABLE 1. BUS CONTACTS WHO CONTRACTED SMALLPOX

Age	Sex	Date of onset	Previous vaccination
3	F	1 August	None
5	F	2 August	None
2	F	3 August	None
8	F	4 August	None
60	M	7 August	30 years previously

Two of the passengers had contact while travelling to Loralai town and two when the patient returned to her village.

Four additional cases occurred as a result of contact of the patient with other patients and visitors at the private clinic and hospital and they, in turn, served to infect eight other persons.

The rapid, widespread dissemination of this outbreak to 12 towns and villages over a distance of more than 40 miles is particularly notable. The spread of infection by the patient, first on the bus and subsequently in the clinic was principally responsible. Transmission on a bus such as occurred in this instance is an unusual event but it is well to bear in mind that such may occur.

FIG. 1. SCHEMATIC MAP  
LORALAI AREA

