

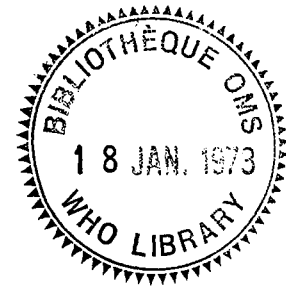
INTER-COUNTRY SEMINAR ON  
SURVEILLANCE IN SMALLPOX ERADICATION

INDEXED

New Delhi, 30 October - 2 November 1972

## CROSS NOTIFICATION IN SMALLPOX ERADICATION

by

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In a smallpox endemic area, when the incidence of the disease is brought down to a minimum by mass vaccination programmes, it is surveillance that gains priority as the most important weapon in the eradication effort. Rapid and effective containment of focal outbreaks alone can lead to complete interruption of transmission of smallpox. Success in containing an outbreak depends upon the speed with which the action is initiated and the thoroughness in tracing out the complete chain of transmission so that all reservoirs of infection are identified. Any unidentified reservoir of infection in a remote area can again lead to fresh outbreaks.

Tracing out the source of infection is a simple exercise. An investigating team can confirm the source of infection after visiting the place from which the infection is suspected to be imported. If this place happens to be within the administrative jurisdiction of the local Health Authorities, the task is easy but if it is outside their jurisdiction difficulties will arise. Fortunately in the State of Andhra Pradesh the health staff of any one administrative district is permitted by the Government to enter into any other district for epidemic investigation.

During the year 1971, when an outbreak of smallpox was detected in Visakhapatnam District, the Unit Officer (Paramedical) of the District, after investigation, found that the outbreak was due to importation of infection from Srikakulam District. He immediately crossed the border and located two infected villages in Srikakulam District and notified the District Health Authorities. As a result of such notification, further investigation in Srikakulam District revealed that undetected smallpox transmission had been occurring during the past year. More than 300 cases were detected in several villages and effective containment measures were launched. If Visakhapatnam District authorities had been content with arresting transmission of smallpox only in their territorial jurisdiction, they would have faced a series of subsequent importations and consequent outbreaks. The cross-notification proved beneficial to both districts and they are now free from smallpox.

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When smallpox infection is found to be imported from a different state the facilities available for quick action are limited; the health staff of one state cannot cross the inter-state boundaries for locating the source of infection. Inter-state cooperation is essential for rapid and effective containment action and such cooperation is beneficial to both the donor and recipient states. A brief account of such efforts by Andhra Pradesh and Mysore States is given to illustrate the importance of cross-notification in smallpox eradication.

At the beginning of 1972, Andhra Pradesh State reported no smallpox cases and transmission appeared to have been interrupted. Mysore State, similarly, had reported no smallpox cases for more than a year. On 4 February 1972, a smallpox outbreak was detected in Basheerabad Village, Thandur Block, Hyderabad District of Andhra Pradesh. On investigation, the first case was found to be an importation from Kurukunta Village, Sedam Tq. Gulbarga District of Mysore State. As this village in Mysore State is only 5 miles from Basheerabad, many people had visited Kurukunta and they informed that there had been many smallpox cases and deaths occurring over a long period.

On 18 February, the District Health and Family Planning Officer of Gulbarga District was informed by cross notification about the focus of infection in Kurukunta. For some time there was no confirmation from the district officer but the State health authorities sent investigating teams and the WHO Epidemiologist also visited the area. Consequently, not only the outbreak in Kurukunta was confirmed, but outbreaks in about 130 villages with over 1 300 cases were also detected and reported.

During the first week of May, an inter-state meeting was organized in which all the District Health Officers of the adjacent districts participated. Free discussions were held and coordinated surveillance measures were formulated. The District Health Officers of Gulbarga and Hyderabad exchanged reports every week and established effective surveillance and containment measures. The WHO Epidemiologist provided valuable guidance to both States. Due to the intensive containment action by the District Health Officer of Gulbarga District, Mysore State is now smallpox-free as per their reports. Thus it is clear that the cross notification by Andhra Pradesh State on 18 February was directly responsible for the detection of more than 1 000 unreported cases in Mysore State. It also stimulated containment activities in both states leading to interruption of smallpox transmission within the states and beyond state borders.

Due to excellent cooperation with the District Health Officer, Gulbarga, the sources of imported infection into Andhra Pradesh State could be traced in the majority of the instances. A list of importations is appended to this report. During 1972, 20 importations of smallpox infection were reported, cross notification was done in each instance and 17 were confirmed. Of the three unconfirmed, one importation was a recovered case of smallpox in the scabbing stage, coming from Kalyan of Maharashtra State, and the other was from the Calcutta area. Only in one instance, a clear indication of the source could not be obtained in spite of our best efforts.

The joint efforts by both Andhra Pradesh and Mysore States revealed some useful and important features of smallpox transmission and its containment:

1. Investigation of the movement of population between the states revealed the following facts which may partly explain why smallpox is prevalent during the summer months:-
  - i) During summer, most of the agricultural labour population finds no work at home and migrates to the nearest places where they can work. This period they call "Suggi". Going on "Suggi" is an annual feature. Usually, industrial towns are visited for this purpose. Kurukunta which was the first notified village of Mysore attracts many labourers from surrounding villages to its cement factory.
  - ii) Some important festivals take place during this period and people visit relations in other villages; Ugadi (New Year), Ramanavami, Moharram etc., are some of them. At Kolkunda (Mysore State) there was a big congregation of both Hindus and Muslims for the Moharam festival and dispersal of infection was traced to this congregation.
  - iii) More than 80% of the marriages are celebrated in summer by the Hindu community and people from different villages gather at the place of marriage. In Hyderabad District, due to the congregation of people at a marriage in one village in April, 72 smallpox infections were found to spread into 4 other villages.
  - iv) Migrating semiskilled labourers such as tinkers go from village to village during summer and remain stationary in other seasons. In Hyderabad District for example two batches of tinkers were found to be responsible for the introduction of infection into 3 villages.
2. Due to the experience gained in recent outbreaks, the need for a well trained investigation and containment team is recognized. Such a team alone can be successful in tracing the source of infection which is not always easy. Both Mysore and Andhra Pradesh have established such teams at the State level.
3. To achieve eradication, cross-notification must be prompt and the resulting investigation after receipt of the report must be done sincerely and thoroughly. There should be a combined effort on both sides to confirm the source of infection and until it is confirmed the search should continue.
4. It was observed that detailed and complete information was not furnished regarding the imported cases while cross notifying. Merely giving the name of the village or town may not help in identifying the reservoir of infection. Particulars of the name of the street, house in which the infected person stayed, the name of the head of the family and the duration of stay will help in locating the suspected course.
5. Not only the first imported case which is responsible for the outbreak but the movement of any suspected contact leaving the infected village, subsequently should be reported to the health authorities at his destination. This will permit identification of suspected contacts so that they may be kept under surveillance so as to prevent further transmission.

Summary

Smallpox does not respect any administrative or political boundaries. Importation of infection from one administrative unit to another and from one state to another cannot be stopped but can be detected and action can be taken to prevent further transmission. Cross-notification is the only effective measure by which the neighbouring administrative units can be alerted, so that further importation can be prevented by arresting transmission at the source. The need for coordinated teamwork between health organizations of adjacent states is stressed. Two instances are cited in which cross-notification resulted in the detection of a large number of unreported cases. The benefits derived by both Andhra Pradesh and Mysore States due to such coordination are pointed out. Eradication of smallpox is possible only when such joint efforts are made by different states and countries.

IMPORTATIONS OF SMALLPOX INTO ANDHRA PRADESH  
FROM OUTSIDE THE STATE DURING 1972 (JANUARY TO SEPTEMBER)

Name of village in which importation occurred	Talaq	Source of infection	Cross notification done	Confirmed
<u>HYDERABAD DISTRICT</u>				
Basheerabad	Tandoor	Kurukunta (Mysore)	Yes	Yes
Malkapur	Tandoor	" "	Yes	Yes
Sirigiripet	Tandoor	" "	Yes	Yes
Mailwar	Tandoor	" "	Yes	Yes
Thattepally	Tandoor	" "	Yes	Yes
Sangamkalan	Tandoor	Mangalgi (Mysore)	Yes	Yes
Karankot	Tandoor	Nidgunda (Mysore)	Yes	Yes
Manthatti	Tandoor	Sedam Tq. (Mysore)	Yes	Yes
Vishwanthapur	Tandoor	Kalyan (Bombay) (Maharashtra)	Yes	No
Gundaal	Purgi	Kanagadda (Mysore)	Yes	Yes
<u>MAHABOBNAGAR DISTRICT</u>				
Nagampally	Maddur	Mudhol (Mysore)	Yes	Yes
Sajnapur	Maddur	Putpak (Mysore)	Yes	Yes
Maddelbedu	Maddur	Gummitkal (Mysore)	Yes	Yes
Uligundam	Kodangal	Kolkunda (Mysore)	Yes	Yes
Doulatabad	Kodangal	Sedam (Mysore)	Yes	Yes
Sultanpur	Kodangal	Jilledpalli (Mysore)	Yes	Yes
Pathakondangal	Kodangal	Matpally (Mysore)	Yes	Yes
Allapur	Kodangal	Kanagada (Mysore)	Yes	Yes
<u>MEDAK DISTRICT</u>				
Dhansari	Zaheerabad	Not traced	Yes	No
<u>VISAKHAPATNAM DISTRICT</u>				
Visakhapatnam	Visakhapatnam	Santhragacham near Calcutta (West Bengal)	Yes	No