

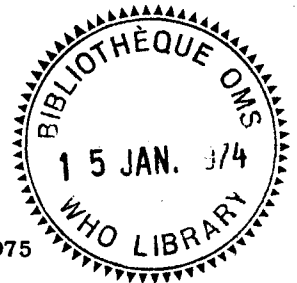


EXECUTIVE BOARD

Fifty-third Session

Provisional agenda item 3.4

INDEXED



REVIEW OF THE PROPOSED PROGRAMME AND BUDGET ESTIMATES FOR 1975

SMALLPOX ERADICATION PROGRAMME

Report of the Director-General

1. The Director-General has the honour to present the following report regarding the programme of smallpox eradication.
2. The status of the smallpox eradication programme as of 8 January 1974 is shown in the summary report published on 11 January 1974 in the Weekly Epidemiological Record¹ (attached).

During 1973, the number of reported cases of smallpox increased to approximately twice the previous year's total. About 134 000 cases are expected to have been recorded when all reports are received. The increase reflects, in part, the occurrence of extensive epidemics during the year in Bangladesh, the northern states of India and two of the four provinces of Pakistan. However, far more complete reporting of cases also occurred coincident with the development of a new approach to surveillance throughout India and Pakistan and an increase in the number of surveillance teams in Bangladesh. In Ethiopia, the only other country believed now to be experiencing endemic smallpox, smallpox incidence was 68% less than that recorded during 1972.

With improving surveillance, it is difficult to assess relative progress in the global programme simply on the basis of a number of cases reported. However, an additional index is afforded by the relative extent of infected areas. As of January 1974, only four countries were believed to harbour endemic smallpox compared to seven a year ago and 30 in 1967, the year the global eradication programme began. In the four currently endemic countries, smallpox is being limited to increasingly smaller geographic areas and now infects somewhat less than half of the geographic area of these countries.

In the four endemic countries, programmes were sharply intensified beginning in October. In Bangladesh and Ethiopia, the number of surveillance teams working in all afflicted areas was increased; in most, it was doubled. In India and Pakistan, special programmes were conducted for one week each month beginning in October in which many categories of health workers participated in a village-by-village search for cases; in many municipalities, the search was conducted house-by-house. In addition, in some low incidence areas, workers were given a cash bonus for discovery of previously undetected cases and outbreaks. The discovery of cases was followed by containment activities. This new approach proved remarkably effective in the detection of outbreaks, many of which would otherwise have become larger and perhaps have spread before detection. If perfectly applied, this system, in theory, should rapidly result in the cessation of transmission in the areas where utilized. Assessment of the system to date indicates that the failures so far have most frequently been caused by imperfect containment measures after detection of the outbreaks. Closer supervision in the field by experienced epidemiologists should correct this problem provided that a sufficient number be deployed for this purpose.

While it is difficult to anticipate the future course of events, now, at the beginning of the usual smallpox season, it would appear that the pace of activities is such in Bangladesh and Pakistan that a nil incidence could be reached in both at, or before, the time of the summer

¹ Weekly Epidemiological Record (1974), 49, 2.

rains. Ethiopia also could be at, or near, nil levels of incidence by that time, although with difficult problems of transport and communication in the northern provinces, more personnel and transport (such as helicopters) may be required to achieve that result. In India infection is more extensive than was expected in the states of Bihar and Uttar Pradesh and senior supervisory staff, although augmented in number, have been found to be too few to cope with the many problem areas. Failure during the autumn to eliminate infection in the states with low incidence, such as Assam, Andhra Pradesh and Jammu and Kashmir, also indicates a lack of sufficient resources and forecasts perhaps more serious problems during the forthcoming smallpox season. In brief, somewhat more resources may be required in Ethiopia to achieve the goal of eradication and, in India, substantially more epidemiologists as well as transport will almost certainly be required.

Elsewhere in the world, progress in the various programmes appears to be satisfactory. Nepal continues to experience numerous importations across its lengthy border with the highly endemic Indian states of Bihar and Uttar Pradesh but, so far, has been able to contain these satisfactorily. Importations this year into Afghanistan, Somalia and the French Territory of the Afars and Issas were competently and expeditiously contained. Botswana has struggled this year to interrupt a barely sustained chain of transmission among a small but uncooperative religious sect but appears to have stopped further transmission. Other smallpox-free countries in Africa and Asia are continuing to conduct surveillance and vaccination programmes although, with time, these are becoming regrettably less effective despite the continuing risk to which these countries are exposed.

Of the four geographical target areas (South America, Indonesia, Africa and mainland Asia) decided upon at the beginning of the programme, the Americas are the first to have experienced a period of more than two years without recognized cases. Accordingly, in August an international commission was convened in Rio de Janeiro to review the individual programmes and to decide whether, in their opinion, a sufficiently active and extensive surveillance programme had been in effect during this two year period so as to be able to state with confidence that eradication had been achieved. After a full review of each of the programmes and appropriate field visits, they concluded that eradication had been achieved but advised that surveillance and vaccination activities be maintained because of the risk of importing disease from endemic countries on other continents. A similar appraisal is planned to be conducted in April 1974 in Indonesia, the second of the target areas, where the last case of smallpox was detected in January 1972.

During the past seven years, considerable research has been conducted by WHO and its collaborating laboratories in regard to those poxviruses which are closely related to variola virus in order to test further the hypothesis that there is no animal reservoir of variola virus which could serve to threaten the programme. Most persuasive is the evidence that all outbreaks of smallpox which have occurred in smallpox-free areas of Asia, Africa and South America have been able to be traced to a specific importation from known endemic areas. However, 17 cases of a disease clinically resembling smallpox have been identified in widely scattered areas of Africa. Virus strains isolated from these cases have uniformly been characterized as monkeypox virus, a virus which in the laboratory is related to variola virus but which has distinctively different characteristics. From 17 to 19 December, investigators from eight collaborating laboratories as well as field epidemiologists from areas where human cases have occurred met in Geneva to review the status of studies to date and to plan future studies. At the end of the meeting a summary statement was agreed upon by the group as follows:-

"From 1970 to 1973 the intensive surveillance activities have detected 17 cases of human monkeypox infection in Sierra Leone, Liberia, Ivory Coast, Nigeria and Zaire. These cases occurred in 12 separate localities. There have been two pairs of cases with intervals of nine and 12 days between onset in household contacts. The occurrence of only two cases among 29 susceptible household contacts suggests that its potential for transmission in man is much less than for smallpox. There have been four deaths among the 17 cases, three of which can be attributed to the monkeypox infection. The case-fatality ratio approximates that seen in African smallpox. The incidence is most often confined to single cases and in recent months all of these have occurred in Zaire.

"So far monkeypox virus has not been identified in any field specimens collected from animals. It is possible that monkeys, like man, are only occasionally infected and that the true reservoir of the virus has not yet come to light. Examination of simian specimens from Zaire has yielded three pox viruses. One of these is like vaccinia; the other two resemble the two whitepox viruses which have been isolated in Utrecht from captive monkeys. These four 'whitepox viruses' have been subjected to intensive study in various laboratories but no test so far devised is able to distinguish them from variola virus. There are, however, no epidemiological grounds for regarding them as variola. They originated from areas where smallpox had not been reported for a considerable time and has not re-emerged. Nevertheless, study of the whitepox viruses must obviously continue and plans for this have been formulated.

The existence of several pox viruses more or less closely related to variola virus has raised the question of whether interconversions between one and another are possible. At the moment there is no evidence of such interconversion but the problem has long-term significance for the smallpox eradication programme and investigations have been planned which may answer this question.

Monkeypox and the whitepox viruses do not, at present, appear to pose a threat to the smallpox eradication programme. Nevertheless, intensive surveillance activities must continue as well as further investigations in the laboratory and in the field. The most important basis for optimism is provided by the increasing areas which are now free of smallpox and the steadily increasing time that they so remain."

At this advanced stage in the programme, three areas of special concern which were noted in last year's report of the Director-General to the Twenty-Sixth World Health Assembly, should again be noted:

1. Immediate notification and full international coordination in the event of an introduction of smallpox

With the continuing decrease in the number of countries with smallpox, each case in a country presumed to be non-endemic assumes increasing importance to the global programme. The source of infection and pattern of spread need to be carefully investigated by experienced epidemiologists to assure that the outbreak has resulted from an introduction from known endemic areas and not from unknown residual foci; prompt and effective containment measures need to be applied to prevent re-establishment of infection. To facilitate necessary international coordination, the Organization is prepared to provide immediately on request, smallpox experts as well as vaccine and bifurcated needles.

2. Maintenance of an alert surveillance system and appropriate vaccination system

In all countries, the health services must now be especially alert to detect possible imported cases. In the still endemic continents, it is recommended that specially trained surveillance teams be maintained to conduct active case-finding activities. Early detection of an importation is important as it is far less costly and much easier to deal with small foci than to re-institute a full-scale eradication programme which may be necessary if an outbreak is not dealt with early and expeditiously. In all but a few smallpox-free countries, programmes of maintenance vaccination are being continued to assure a high level of immunity which may serve as a barrier to further spread of smallpox should the disease be introduced.

3. Verification of absence of smallpox

Of increasing significance is the need to determine that transmission has been interrupted in areas or countries where the routine surveillance programmes detect no cases. It has been increasingly apparent that even when reasonable cooperation in reporting is obtained from existing health facilities and civil authorities, unreported foci may persist. To discover these requires an active search for cases by specially trained surveillance teams for which budgetary and other provisions should be made. Experience has shown that teams using the

"WHO Smallpox Recognition Card" can reasonably accurately assess the situation over a wide area through query of personnel at the existing health facilities, school children in the area, and inquiry in the major markets. While the number of teams required in a country or province depends on the terrain and density of population, the number need not be large. They must, however, be well trained and supervised and should continue their activities for at least two years after an endemic region has become free of smallpox.

Finally, it should be noted that, as requested by the Health Assembly, efforts will be made by the Organization to develop during 1974 and 1975 a written and cinematographic record of the development of the smallpox eradication programme. Preparatory work for these was begun in the spring of 1973 but, because of the special efforts needed to intensify the programme in the remaining four endemic countries, further work on these projects has had to be temporarily postponed.