



TWENTY-SIXTH WORLD HEALTH ASSEMBLY

Provisional agenda item 8.3



INDEXED

SMALLPOX ERADICATION

Report of the Director-General

As requested by the Twenty-fifth World Health Assembly,<sup>1</sup> the Director-General has the honour to present the following report regarding the programme of smallpox eradication.

The current status<sup>2</sup> of the programme as of 2 May 1973 is summarized in the Weekly Epidemiological Record<sup>2</sup> published on 4 May (attached).

Since 1967, the number of countries recording smallpox as well as the extent of the smallpox endemic areas has steadily diminished. In 1967, when the intensified global programme began, 42 countries reported cases of smallpox and 30 of them were considered to be endemic for the disease; in 1973 to date, 9 countries have reported one or more cases of smallpox and only 5 of these are considered to be endemic. During January, cases were detected by only six countries, the smallest number of countries ever to report cases of smallpox in a given month.

The encouraging trend as measured by the extent of the endemic areas has been overshadowed during 1972 and 1973 by the development of major epidemics of smallpox throughout Bangladesh and in the northern states of India. Primarily, because of these epidemics, which are not yet satisfactorily controlled, the global smallpox incidence in 1972 exhibited an increase of 23% over the total of cases recorded in 1971 and, to date, in 1973 shows a further increase of more than 70% over the number of cases notified at this time last year. More complete notification is believed to account for only a small proportion of this increased incidence.

Except in India and Bangladesh, the progress of the eradication programme has been encouraging. In the Americas, no cases of smallpox have been discovered for more than two years during which an intensive surveillance programme has been in effect, and it now seems highly probable that smallpox has been eradicated in the western hemisphere. In Africa, endemic smallpox now appears to be restricted to two countries - Botswana and Ethiopia. In Botswana, transmission appeared to have been interrupted in October 1972, but surveillance teams in March discovered one additional small focus. Intensive containment measures were applied and no further cases have been detected during the past six weeks. In Ethiopia, a highly effective eradication programme is in progress and smallpox incidence has steadily declined since March 1972. Smallpox transmission is now believed to have been interrupted in 8 of the 14 provinces and interruption of transmission throughout the country, and in Africa itself, is expected within a year. In the other African countries, maintenance vaccination and surveillance programmes are continuing and must, of course, be continued for at least two years after the last case has been detected on the continent.

<sup>1</sup> Handbook of Resolutions and Decisions, Vol. I, 1948-1972, pp. 96-97, resolution WHA25.45 para. 8.

<sup>2</sup> Weekly Epidemiological Record, 1973 ... (4 May).

In Asia, programmes in Nepal, Afghanistan and Indonesia have also made excellent progress. Indonesia has detected no cases for more than 16 months and Afghanistan, none for more than 6 months. Cases which have occurred in Nepal since June 1972, have all resulted from importations from India. Pakistan, although still with extensive endemic areas in Sind Province, has sharply intensified the pace of its activities during the past year and has virtually succeeded in interrupting transmission in the other three provinces, as well as in Karachi. Assuming continued progress, the interruption of smallpox transmission throughout the country could be achieved by the end of this year.

A significant setback to the global programme was the reintroduction of smallpox into Bangladesh in February 1972. National Health staff, WHO and other international agencies worked intensively to bring the outbreaks under control but extensive migration, coupled with problems in transport and communication, thwarted this effort and the disease spread throughout much of the country. In February 1973, a considerable number of additional emergency measures were implemented to combat the epidemics, including the mobilization of many additional health staff. The relative success of these measures, however, is still difficult to appraise.

In India, extensive epidemics developed this season in the states of West Bengal and Jammu and Kashmir. Uttar Pradesh, northern Madhya Pradesh and Bihar, heavily afflicted in 1971-1972, continued to experience major epidemics in 1972-1973. Virtually all other states experienced one or more importation from these foci and smallpox spread to the previously smallpox-free eastern wing of India. A number of measures have been taken to control the disease but, as yet, there is no indication of a downward trend in incidence. Much remains to be done to improve the reporting and surveillance-containment components of the programme throughout most of India.

While it is in India and Bangladesh that the future of the eradication effort is most uncertain, it should be noted that the resources available in these countries compare very favourably with those of most other countries which have experienced endemic smallpox during the past six years. The basic health services are better developed, many more and better trained staff are employed in the smallpox programme, better transportation and communication services are available and the populations are generally more receptive to vaccination. With enhanced supervision and a firm commitment to accomplish the task, the interruption of transmission could occur more rapidly in these than in other areas.

During the past six 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. The most persuasive evidence in support of this hypothesis is the fact 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 specific importations from known endemic areas. However, 15 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 but which has distinctively different characteristics than variola virus. In one instance only does the disease appear to have been transmitted from man to man - from a child to its mother - despite the presence of many close household contacts between these patients and unvaccinated susceptibles. While the reservoir of this virus is still uncertain, the illness in man appears to be a chance infection with limited capacity to be transmitted from person to person. Studies are continuing.

As this advanced phase of the programme proceeds, three subject areas deserve special mention: (1) immediate notification and full international coordination in the event of an introduction of smallpox; (2) maintenance of an alert surveillance system and appropriate vaccination programmes by countries throughout the world, and (3) implementation of special programmes and techniques to assure that transmission has been interrupted in areas where the reporting network records no cases.

1. 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. Without such measures, the success of the entire global programme may be jeopardized. To facilitate the necessary international coordination of effort, the Organization is prepared to provide immediately on request, smallpox experts as well as vaccine and bifurcated needles.

2. In all countries, the health services must now be especially alert to detect possible imported cases. In this age of increasing international travel, a smallpox infection in Dacca or Calcutta today, may be the focus for an outbreak in Europe, Africa or the Americas tomorrow. 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. The only known exceptions are the United States of America, United Kingdom and New Zealand, three countries which consider that the risk of complications from vaccination, although slight, may still be somewhat greater than the risk of imported smallpox, and that their highly developed system of health services would presumably detect quickly an importation. Other countries, as favourably situated geographically and with as well developed health services, have elected to continue now well-established and accepted routine programmes of smallpox vaccination, pending further development of the global eradication programme. Vaccination policy is, of course, a matter which each country must decide for itself having weighed the tangible and many intangible factors concerned.

3. Lastly, a problem of increasing significance has been 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, all 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.

One of the four epidemiological regions has reached and a second will soon reach the time when two full years have elapsed since the last known cases occurred, (South America, in April 1973; Indonesia, in January 1974). In cooperation with the governments concerned, WHO is providing for an independent international appraisal of activities in these areas to confirm the status of eradication.

In many countries which have become free of smallpox, the programme itself has been broadened in scope to include administration of other antigens and surveillance of other diseases of national importance. Such an approach is logical in the scheme of development of the health services and serves to strengthen the structure necessary for a country to maintain a smallpox-free status.

Finally, in accordance with the request of the Twenty-fourth World Health Assembly<sup>1</sup> plans are now being developed to provide audiovisual documentation regarding the programme, including both illustrated books and films.

The eradication programme is now operative in all endemic countries; surveillance activities are steadily improving and the extent of the smallpox endemic areas is steadily diminishing. As these areas diminish, increasing resources can be brought to bear. With a firm commitment to accomplish the task both at national and international levels, and with the now considerable experience of the past six years, there is every reason to expect that global eradication could be achieved within the next two years. The difficulty of the task, however, must not be under-estimated nor efforts be relaxed prematurely. Continued support in the form of supplies and equipment, vaccines and cash donations to the Special Account for Smallpox Eradication, are especially important at this time.

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<sup>1</sup> Handbook of Resolutions and Decisions, Vol. I, 1948-1972, p. 36, resolution WHA24.45.