



TWENTY-NINTH WORLD HEALTH ASSEMBLY

Agenda item 2.5.9

SMALLPOX ERADICATION PROGRAMME

Report by 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 at 5 May 1976 is shown in the summary report published on 7 May in the Weekly Epidemiological Record<sup>1</sup> (attached).
3. Excellent progress has been made in the programme during the past 12 months. Of the three countries regularly reporting cases only one year ago, India recorded its last case on 24 May 1975 and Bangladesh, on 16 October 1975. As of 5 May 1976, smallpox was believed to be confined to 20 remote villages in mountainous and desert areas of Ethiopia. Based on present trends in incidence and the intensity of programme activities, it is not unreasonable to anticipate that the last case of smallpox might occur within a matter of a few months. However, in Ethiopia especially, and no less in other previously endemic countries, a continued search for cases will be essential until not less than two years have elapsed since the last case of smallpox has occurred and an International Commission has certified that eradication has been achieved.
4. The accelerated progress of the programme during the past year may be attributed to a greater national commitment by those in the remaining endemic areas and to greatly increased international support. During 1975, contributions in cash and in kind were received from 23 Member countries, the United Nations Emergency Operation, and private donors. Assuming that the last case in Ethiopia occurs by mid-1976, it is estimated that for the period, 1976 through 1978, approximately \$ 16.7 million will be required in the form of international assistance for countries throughout the world to complete the task of global eradication. This support is required primarily to permit transmission in Ethiopia to be interrupted; to conduct an adequate search for possible hidden foci in all recently smallpox-endemic countries; to permit preparation of necessary documentation for and to convene the international commissions that will determine whether eradication can be certified; and to support further studies of monkeypox and other variola-related viruses so as to be assured that there is no persistent animal reservoir for smallpox. Funds from the Organization's regular budget and contributions so far received from or confirmed by various donors account for \$ 14.3 million. It is thus estimated that contributions amounting to about \$ 2.4 million are still required in order to complete the smallpox eradication programme.
5. Registry of laboratories retaining stocks of variola virus

As described in the attached Weekly Epidemiological Record, 32 laboratories in 14 countries have so far been registered as retaining stocks of variola virus. However, replies from a number of governments, especially in the African, American and European Regions, are still awaited and reconfirmation of the position of a number of diagnostic and research laboratories is still required. It is hoped that the registry might be completed by December 1976. At that time, it is proposed to convene a group of laboratory directors to draw up proposed guidelines for the storage and handling of variola virus which, if followed, would provide assurance that accidental human infection would not occur.

<sup>1</sup> Weekly Epidemiological Record, 1976 (7 May).

## 6. Risks of smallpox importations

Since January 1974, the only importations of smallpox into otherwise smallpox-free countries have occurred among migrants moving across essentially open borders into adjacent countries. During 1975 and 1976, 19 such cases have occurred, all in Somalia and all among nomads infected while in Ethiopia. The last such case occurred in February 1976. Among air travellers, the last known case occurred in Japan in January 1974, in a Japanese tourist returning from Bangladesh. During 1973, only two such cases occurred, one in an Indian worker returning from India to his residence in the United Kingdom and a second in a Japanese tourist returning from India to Japan.

With less than 35 known active cases in Ethiopia as of 5 May, it is apparent that the risk of smallpox being imported into any country is approaching nil. The experience of the past two years certainly substantiates this. Therefore, without changing the International Health Regulations at this time, it is recommended that countries review their requirements for international certificates of vaccination, such certificates being requested only of travellers who have been in an endemic country (presently, only Ethiopia) within the preceding 14 days.

## 7. Vaccination policies

Because of the rapidly diminishing risks of smallpox importations, the advice of the Organization has been increasingly sought by many countries in regard to recommended national vaccination policies. Since there are a variety of factors which influence national smallpox vaccination policies and because these vary from country to country, it is not feasible at this time to propose uniform recommendations which would be practicable and applicable to all countries.

For countries in Africa and for other recently endemic countries where smallpox eradication has not yet been certified, it would seem prudent to continue routine smallpox vaccination programmes. The International Commission for Certification of Smallpox Eradication in West Africa advised the West African countries that since "smallpox transmission still persists on the African continent . . . vaccination programmes, particularly for preschool children, should continue in all countries until such time as the global eradication of smallpox can be certified".

For other countries, differing circumstances have dictated different policies. Some countries have chosen to continue smallpox vaccination until such time as they can accomplish an effective transition to immunization programmes incorporating other antigens. Some countries have chosen to continue routine smallpox vaccination programmes until such time as they could be confident that global eradication had been achieved, feeling that it might be difficult to reinstitute programmes for routine smallpox vaccination should the global eradication programme experience a serious setback. Others have reasoned that since most complications follow primary vaccination, they would, for the present, suspend routine primary vaccination while awaiting further progress in the global eradication programme. Finally, some have recommended that smallpox vaccination be suspended altogether.

For these reasons, it is apparent that any broadly applicable proposals in regard to recommended vaccination policies for most countries would, at this time, be premature.

## 8. Vaccine storage

A number of countries are now planning for, or have established, reserves of vaccine to be retained for extended periods, which would be available for use should circumstances now unforeseen result in a recurrence of smallpox. It is proposed that the Organization also maintain such a reserve to be made available to Member States should the need arise. The magnitude of such a reserve would depend on the extent of voluntary donations to the Organization. Arbitrarily, it is proposed that the goal for this reserve be established at

approximately 4 million vials/ampoules. Under field conditions, approximately 50 to 75 persons could be vaccinated with each vial if the bifurcated needle were employed. Thus, 4 million vials/ampoules would be sufficient to vaccinate from 200 to 300 million persons. Because bifurcated needles are essential to maximize vaccine use, it is proposed that a stock of 5 million bifurcated needles also be retained in this emergency reserve. Storage costs of such a vaccine reserve were it to be retained in Geneva would be about US\$ 5200 per year if the vaccine were stored at 0 to 4°C and US\$ 7100 per year if it were stored at -20°C. Should it be decided to store the vaccine at other locations, storage costs might be somewhat higher or lower. The cost of 5 million bifurcated needles would be about US\$ 50 000. It is proposed that costs of vaccine storage and the needles be borne by the Voluntary Fund for Health Promotion.

Storage of vaccine at 0 to 4°C would obviously be simpler but data regarding the long-term stability of vaccine held at this or lower temperatures are fragmentary. A study of the kinetics of vaccine deterioration conducted in 1960 by Dr Nusret Fisek of the School of Public Health, Ankara, predicted that vaccine stored at 7°C or lower would be stable more or less indefinitely. Actual experience shows that vaccine produced at the Lister Institute (United Kingdom), Wyeth Laboratories (USA) and the Swiss Serum and Vaccine Institute and stored at -15° to -20°C for periods of 10 to 13 years appeared to undergo little or no loss in titre. Similarly, vaccine produced at the Rijks Institute (Netherlands), Connaught Laboratories (Canada) and the Swiss Serum and Vaccine Institute and stored at +4°C for periods of four to five years also showed no loss in titre.

Although the results of storage at +4°C are encouraging, it must be recognized that vaccines prepared in different laboratories may exhibit varying characteristics because of differences in the method of vaccine preparation. Further data may help in formulating recommendations but, for the present, it would seem prudent to store vaccines at -20°C until suitable data can be obtained.