



EXECUTIVE BOARD

Forty-fifth Session

SUMMARY RECORD OF THE EIGHTH MEETING

WHO Headquarters, Geneva
Friday, 23 January 1970, at 2.30 p.m.

CHAIRMAN: Sir William REFSHAUGE

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Eighth MeetingFriday, 23 January 1970, at 2.30 p.m.

| <u>Present</u> | <u>Designating Country</u> |
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| Sir William REFSHAUGE, <u>Chairman</u> | Australia |
| Dr I. S. KADAMA, <u>Vice-Chairman</u> | Uganda |
| Professor I. MORARU, <u>Vice-Chairman</u> | Romania |
| Dr H. M. EL-KADI, <u>Rapporteur</u> | United Arab Republic |
| Dr M. EL KAMAL, <u>Rapporteur</u> | Algeria |
| Dr J. ANOUTI | Lebanon |
| Dr D. ARNAUDOV | Bulgaria |
| Dr A. BARRAUD | Upper Volta |
| Dr S. BÉDAYA NGARO | Central African Republic |
| Dr S. P. EHRLICH, jr | United States of America |
| Sir George GODBER | United Kingdom of Great Britain and Northern Ireland |
| Dr E. GONZÁLEZ GÁLVEZ | Panama |
| Professor J. F. GOOSSENS | Belgium |
| Dr C. K. HASAN | Pakistan |
| Dr Y. R. JOSHI | Nepal |
| Dr B. JURICIC | Chile |
| Dr B. D. B. LAYTON | Canada |
| Professor L. von MANGER-KOENIG | Federal Republic of Germany |
| Dr S. P. W. STREET | Jamaica |
| Dr M. TOTTIE (alternate to Professor B. A. Rexed) | Sweden |
| Dr G. TUVAN | Mongolia |
| Dr V. P. VASSILOPOULOS | Cyprus |
| Professor K. YANAGISAWA | Japan |

Secretary: Dr M. G. CANDAU
Director-General

Smallpox eradication programme: Item 2.4 of the Agenda
(Document EB45/16)

Dr PAYNE, Assistant Director-General, introducing the item, said that information regarding the status and development of the smallpox eradication programme was presented in document EB45/16.

As members would recall, the intensified programme of eradication had commenced in January 1967, and the programme was now beginning its fourth year. Since 1967, reported smallpox incidence had declined almost sixty per cent. despite a considerable improvement in the completeness of reporting in most countries. As was shown in Fig. 1 of document EB45/16, it was at the lowest level recorded since 1962. On the basis of reports received to date, it was estimated that approximately 56 000 cases would be recorded during 1969 - the lowest total ever reported to the Organization. Smallpox had also receded geographically. In 1967, forty-three countries had recorded one or more cases, but in 1969 only twenty-nine countries had reported cases. No cases had been introduced into the smallpox-free continental areas of Europe, Australia or North America between September 1968 and January 1970. A case had however been introduced into Germany on 15 January 1970 by a German citizen returning from Pakistan. The case had been diagnosed only two days after the development of the rash; there had been few contacts and it was doubtful whether there would be further spread.

Smallpox incidence per 100 000 population was shown by country for 1967 and 1969 in Figs. 2 and 3. Rates of five cases or more per 100 000 population had been recorded by fifteen countries in 1967; four of them - Brazil, the Democratic Republic of the Congo, Indonesia and West Pakistan - had experienced such rates of magnitude in 1969. It should be pointed out that smallpox eradication programmes in those four countries were now the most active of any.

Eradication programmes had now been begun in most endemic countries and in countries at special risk of introduction. Of those not yet having begun programmes, Ethiopia planned to begin in the autumn of 1970, but little information was available regarding activities in either South Africa or Southern Rhodesia. Endemic smallpox was clearly present in some areas of South Africa; Southern Rhodesia, however, reported only sporadic cases, which might be accounted for by introductions from neighbouring endemic areas.

In the overall programme, western and central African countries showed the most substantial progress to date, as could be seen from Fig. 5. Since January 1967, over 100 million of the 120 million inhabitants of those countries had been vaccinated. A special surveillance programme had been begun in September 1968 and reporting had been greatly intensified. Every suspect case had been carefully investigated and its source of infection traced. Those surveillance activities had played a major role in interrupting smallpox transmission. The last known cases in those countries had occurred early in October 1969. It was too early to state, however, that those countries were smallpox-free, as it was known that the disease could be transmitted over many months in isolated, remote villages before coming to the attention of the authorities.

In eastern and southern Africa, smallpox incidence had declined appreciably in 1969, as was shown in Fig. 6. Most countries had recorded fewer cases than in previous years and Zambia and Swaziland had reported no cases at all. In Kenya, Malawi, Mozambique, Southern Rhodesia, Tanzania and Uganda, very few cases were now being recorded. With an intensified programme of surveillance it should be possible to interrupt the remaining chains of transmission in those countries quite rapidly, well before their systematic vaccination programmes were completed. Although over half of all cases had been reported from the Democratic Republic of the Congo, the WHO-assisted programme in the Congo was by far the most active of any in eastern and central Africa. Over eight million of the nineteen million residents had so far been vaccinated by special teams, and an additional four million by the co-operating health services. More than half of all recorded cases were now being reported through the special surveillance activities associated with the programme. South Africa had reported cases in 1969 in three north-eastern provinces. Containment activities were said to have been undertaken for each outbreak. Eradication programmes were now in progress in the other endemic African countries, except, as previously noted, in Southern Rhodesia and Ethiopia.

In South America, all cases except two had been reported by Brazil, the only endemic country in the Americas. The number of cases reported by that country had increased sharply in 1969, as was shown in Fig. 7. That increase was attributed to the development during the past eight months of a special surveillance programme in which surveillance officers had been assigned to each of the major states to improve reporting, to investigate suspected cases and to trace their origin. In one state, an average of forty cases had been discovered for each case reported officially.

In Asia, smallpox incidence had declined by 40 per cent. in 1968 and almost as much in 1969, as shown in Fig. 8. Indonesia was at present conducting the most intensive programme in Asia, now in its second year. Large areas, accounting for half the population of Indonesia, now appeared to be free from endemic smallpox. Increased surveillance activities in other areas, however, had resulted in more complete reporting, so that the overall incidence for the country had not changed significantly. A similarly active programme had been begun in West Pakistan. Programmes in Afghanistan, East Pakistan and Nepal had been intensified during the year but were not as effective as could be desired. In India, steps had been taken to improve the existing programme, including especially the

abolition of the use of liquid vaccine and the substitution of the bifurcated needle for the rotary lancet, and increased efforts had been made to reach previously unvaccinated children. Reported cases in India had declined for the second year.

During the past year, the technical and operational strategy of the eradication programme had continued to be elaborated. Principles of programme implementation had been set forth in the report of a WHO scientific group on smallpox eradication (Technical Report Series No. 393) and in the handbook for smallpox eradication programmes in endemic areas, which had been widely distributed. Those principles had constituted the basis for special seminars which had been conducted in 1967 for countries in Asia, in 1968 for countries in eastern and southern Africa, and in 1969 for countries in western and central Africa and the Eastern Mediterranean Region.

In 1971 the programme would have been in operation for five years. It was proposed that ~~an expert committee be convened at that time to review the status of the programme and~~ to advise on future strategy.

Major efforts continued to be made to ensure that fully potent and stable freeze-dried vaccine was used in all endemic areas. Freeze-dried vaccine which met WHO standards was now in use in all endemic areas except South Africa, where it was understood that liquid vaccine continued to be employed, and in Brazil and Pakistan, where nationally-produced vaccine, although satisfactorily potent, had not been sufficiently stable. Assistance was also being provided to production laboratories in other endemic areas. The programme for the regular testing of smallpox vaccines at the WHO reference centres had steadily expanded, and over 200 lots had been tested in 1969.

As additional programmes were begun and others intensified, the need for vaccine donations continued to grow despite increased production in many endemic countries and despite the use of the bifurcated needle and the jet injector, both of which conserved vaccine. More than twenty-two million doses of vaccine had been distributed in 1969 but it was estimated that almost 50 per cent. more would be required in 1970, in addition to more than 100 million doses of vaccine which the USSR had been supplying annually under bilateral agreements to India and Afghanistan, and forty million doses which the United States of America had been supplying to countries in West Africa.

Experience of the past three years had shown the absolute necessity of surveillance and containment activities if a country was to become smallpox-free, as had been dramatically illustrated by the experience of two African countries - Guinea and Sierra Leone - which in 1967 had recorded by far the highest rates of smallpox in the world. In January 1968 they had initiated eradication programmes and in each case the surveillance component of the programme had been particularly emphasized. All cases had been promptly and carefully investigated, their sources of infection traced and carefully supervised containment measures had been initiated. Seventeen months later, in May 1969, when less than 70 per cent. of the population had been vaccinated in the systematic vaccination programme, the last case of smallpox had occurred. The vaccination programme had continued but no further cases had been found. A similar experience had been reported by Indonesia.

To facilitate the development of the surveillance component of the programme, the Organization had prepared in 1969 a special manual which discussed the theory and practice of surveillance-containment operations, and which had now been distributed widely. Seminars dealing particularly with surveillance and assessment procedures were being planned for the endemic countries of Asia in 1970. To assist in the detection and identification of smallpox cases, the Organization had in 1969 prepared an illustrated brochure and teaching slides dealing with the clinical diagnosis of smallpox in African patients. Almost 75 000 copies of the brochure had been distributed, and during 1970 pictures of smallpox patients in Asia would be obtained, and similar teaching materials prepared for distribution. The development of a network of laboratory services was also in progress. Training courses had already been conducted for countries in the Americas and additional courses were planned during 1970 for countries in Asia.

It had originally been felt that the investigation of all suspect cases of smallpox was not feasible until the reported smallpox incidence had fallen below five cases per 100 000

population. During 1969, only four countries had recorded rates of that magnitude and those countries were among those conducting the most intensive programmes. It was possible that in 1970 no country would record a rate exceeding five cases per 100 000; none at least should greatly exceed it.

For those reasons and in view of the practical field experience, the Organization believed that the time had come for the present strategy in the global programme to evolve further with the objective, beginning in 1970, that every suspect case of smallpox should be immediately investigated by trained staff, the chain of transmission traced and appropriate containment measures taken. He was confident that with the institution of such an approach the tempo of the eradication effort would be measurably accelerated.

Professor von MANGER-KOENIG asked for information concerning adverse reactions, such as encephalitis, following smallpox vaccination.

Dr ARNAUDOV observed that although considerable efforts had been made for the control of smallpox, much remained to be done to achieve the desired results. It was essential to accelerate the pace of control activities to obtain complete eradication within the shortest possible time, for which purpose strengthened technical and organizational activities on the part of the health authorities were required. It was also important to give greater assistance - both financial and in the training of personnel - to those countries which had already made some progress in eradication activities. All countries must observe strictly the International Health Regulations.

Professor MORARU, supporting Dr Arnaudov's remarks, said that it was essential to prevent a recrudescence of smallpox. Action to speed up the eradication programme should be strengthened.

Dr JURICIC said that the decline in the incidence of smallpox by almost 60 per cent. between 1967 and 1969 and the decrease in the number of countries recording cases from forty-three to twenty-nine were very encouraging. He hoped that the strategy outlined in part III of document EB45/16 would be followed even more closely in the future, mass vaccinations being carried out until the number of cases was brought within the effective control of the health services. The progress made in West and Central Africa was particularly encouraging. If the present rate of vaccination in Nigeria continued, 1970 would be a decisive year for that country.

The fact that the substantial increase in reported cases in Brazil was attributed to the initiation of a special programme of surveillance and that there had been an increase in the number of people vaccinated augured well for the future. He was disturbed, however, by the statement in the report that the increased incidence in West Pakistan could not be attributed to improved reporting as the programme in that area was still in its early phases. The programme could hardly be described as being in its early phases if 97 per cent. of the population had been vaccinated during the past three years as was indicated. Similarly, concerning East Pakistan, it was stated in the document that smallpox in that area had declined sharply following major epidemics in 1968, that the decrease in incidence was similar to that observed in previous post-epidemic years and that as the eradication programme had been delayed in its development it was doubtful that it had yet had a significant influence on smallpox morbidity. The data given in Table 5 showed, however, that the major proportion of the population of that area also had been vaccinated. There might be a number of reasons for lack of success in the vaccination campaign, such as the use of deficient vaccine or poor storage conditions, or perhaps there were mistakes in the figures provided, but he would welcome an explanation.

Dr EHRLICH said that although there were areas in which increased attention to smallpox eradication was needed, progress had been remarkable. The programme in the Democratic Republic of the Congo was particularly to be commended. It was to be hoped that greater progress would be made in Sudan and that the programme to be carried out in Ethiopia would

reach a successful conclusion. He had been pleased to hear from Dr Payne of the role that WHO was to play as smallpox began to disappear as an important cause of morbidity and mortality. That question must be given increasing attention by the Organization, so that the worldwide programmes in that connexion could be carefully evaluated and developed and measures taken to ensure that no gains were lost.

With the disappearance of smallpox the question of the relative risk of vaccination compared with the risk of contracting the disease was bound to arise, and he asked what WHO planned to do to help countries to solve that question.

Sir George GODBER said that most of his points had been made by Dr Ehrlich. He shared Dr Juricic's concern about the situation in Pakistan, which was one of the most disturbing at the present time. Even so, however, great progress had been made and WHO had much to be proud of. Much remained to be done, but the point was being reached where attention would have to be turned to what should be done in the pre-terminal stage. It was now possible to envisage a situation where smallpox had finally been contained into areas of small remote populations, where it might still exist as a human infection and where distant countries would have ceased to maintain vaccination and their populations would be practically non-resistant to the disease. In his own country it was becoming difficult to maintain vaccination because the public was aware of the possibility of serious adverse reactions to vaccines. Perhaps it was time for WHO to be considering the possibility of incorporating into polyvalent killed antigens a killed smallpox antigen which - if a suitable one could be produced - might give some basic resistance to children perhaps ten years hence, rather than immediately. Efforts had been made in his country for a number of years to achieve something of that kind and the complications associated with vaccination had been closely examined. While serious or fatal reactions were infrequent, perhaps one in one hundred thousand, the loss of one healthy person out of one hundred thousand was serious and each such incident would become a matter of public concern, increasing as the danger of smallpox decreased. He welcomed the Assistant Director-General's reference to the work that needed to be done for the period of containment, since that period would certainly have to continue for a very considerable time as the pre-terminal phase of the eradication programme was reached.

Dr JOSHI said that he was still concerned with smallpox eradication, not the post-eradication problems. While the incidence of smallpox was falling, there was a danger that cases would go undetected since it was much harder to diagnose the disease in isolated cases than when there was a large outbreak. Moreover, developing countries had to depend largely on paramedical personnel for diagnosis. He would like to know whether the expert committee could discover a simple and effective method of diagnosis; and whether there was any provision for training people in diagnosis. He also wished to know whether there was any provision for establishing centres to which suspected cases of smallpox could be referred for assistance in reporting cases, and tracing and contacting sources of infection.

Dr HENDERSON (Smallpox Eradication), replying to questions, said that the situation in Pakistan certainly appeared paradoxical in that despite numerous vaccinations in both East and West Pakistan there had been major outbreaks in 1969, for example in Western Pakistan along the Indian border. In fact, the number of vaccinations reported often included people, particularly schoolchildren, who had been vaccinated several times over, while some people had not been vaccinated at all. Another difficulty had been a low proportion of vaccination takes due to the use of liquid vaccine.

During the current year steps had been taken to improve supervision, to provide freeze-dried vaccine of good potency, to organize vaccination in specific areas and to launch an intensive case-finding and containment operation. West Pakistan now had one of the better programmes, but it was difficult to judge a programme on the basis of the number of vaccinations reported. Attention had therefore been concentrated on surveillance with a view to improving reporting and investigating of cases.

With regard to the question of speeding up the eradication programme, most countries appeared to be doing as much as they possibly could. During the past year or so attention had been given to the possibility of speeding up activity in South-East Asia. The problem was whether to vaccinate the entire population - adults and children - when it was found that most adults already had vaccination scars. In many South-East Asian countries the plan now was to vaccinate only children under fifteen years, which was the age-group where most cases of smallpox occurred, and that practice seemed to save effort and produce better results and thus in effect speeded up the programme. Other approaches were possible, depending on the different epidemiological situations in different countries. The major factor observed in speeding up programmes had been surveillance and it had been surprising to note the pace of decrease in smallpox when active surveillance programmes had been instituted. Surveillance, which involved pursuit of each case by trained teams and containment action by vaccination in the immediate area and among household contacts, was not costly and it was hoped that the system would be intensified in the coming two years.

The next question was what to do once smallpox had disappeared and what was the frequency of adverse reactions to vaccination. Possibly the most detailed information available on complications was contained in an article published in the United States of America in 1969. A number of good studies had been made in the United Kingdom and in several European countries, but since the data were collected in different ways it was difficult to compare the relative frequency of complications from country to country. It was hoped that useful information would emerge from two studies of the frequency of vaccination complications now being prepared in Europe. One of the factors to be taken into account in connexion with vaccination was concern about the risk of importing smallpox; that would depend on the proximity of an endemic area and the extent of travel in and out of a country. Another factor was the probability of rapid detection and action in the case of imported smallpox; obviously the countries with more developed health services could apply control measures faster than other countries. In connexion with possible complications, it had been observed that primary vaccination presented a lower risk in very young children than in adults. Hence if the vaccination of infants were stopped immediately, what would happen in five, ten or fifteen years? It would be necessary then to establish, if global eradication had not been achieved, how many of the people not vaccinated in infancy would have to be vaccinated later in life with a greater risk of experiencing complications. The question was by no means simple and the answer would not be the same for any two countries.

In his opinion surveillance was the most important measure. Smallpox did not spread rapidly or extensively and two weeks elapsed between each generation of cases. Hence the disease could be contained with a minimum of hysteria and, with intelligent action, kept to a small outbreak. What was important was the ability to move rapidly.

The retention or otherwise of vaccination at the present stage was a matter of national policy. No doubt most countries would want a killed or a more attenuated vaccine. Studies were being made, but not intensively, since there was little enthusiasm for research to develop an improved vaccine when one already existed and was widely available, and such research needed considerable work and field testing. It was unlikely that any improved strains would be ready for field use before five or seven years.

Dr BARRAUD said that the countries of his Region wished to thank the Organization for its help in the eradication programmes which they had had to launch to combat residual or epidemic smallpox. The campaign had helped to reduce endemic smallpox and in some countries, such as his own, no case had been recorded in 1969. He wished particularly to express gratitude to the Director-General for his consistent attention to the needs of those countries.

Sir George GODBER said he would like to comment on Dr Henderson's suggestion that it was not difficult to contain an importation of smallpox. His own country had had more experience than most European countries and he knew of nothing so disruptive in the medical world in a European country as the discovery, not of an admitted smallpox case but of a second generation

of cases from a highly modified admission. He recalled a situation eight years previously in which there had been five separate admissions in three weeks, all incubating the disease, all with valid re-vaccination certificates, and in one instance three had died before anyone had had a focal rash. Such situations called for highly scientific apparatus for virus isolation.

Dr HENDERSON (Smallpox Eradication) said that he had not meant to imply that it was easy to contain imported smallpox. It was a matter of relative difficulty; it could be done though it was to some extent difficult and costly. His point was that as the world incidence of smallpox decreased, so the problem of introduced cases decreased; and from the point of view of protection against smallpox, it would be more profitable and beneficial to reduce the incidence outside a country than to try to build a better wall around that country or improve immunity within the country.

In replying to Dr Joshi, he said that work was now proceeding on the problem of laboratory training and it was hoped that most countries would eventually have a national laboratory capable of giving laboratory training. Work was also in progress on training courses and materials to help clinical diagnosis. Attention was being given to improved laboratory tests and it was hoped that the matter would be submitted to the expert committee for consideration and recommendation.

Dr EL KAMAL, Rapporteur, read out the following draft resolution:

The Executive Board,

Having considered the report of the Director-General on the smallpox eradication programme;

Having noted that significant progress is being made in the eradication effort in most parts of the world and particularly in countries of western and central Africa which have virtually succeeded in interrupting smallpox transmission after only three years;

Believing that the progress in the programme to date calls for renewed efforts on the part of all countries and that the programme should continue to be one of the principal objectives of the Organization;

Viewing with concern that a few endemic countries have still not initiated programmes and that not all are yet using freeze-dried vaccine conforming to recommended standards; and

Noting the importance of surveillance in present programmes and the desirability, at this time, of placing a much greater emphasis on the detection, investigation and containment of all cases and outbreaks in all countries,

1. REQUESTS

(1) all countries to take appropriate steps to improve further case reporting and to adopt, as an objective, the immediate investigation and containment of all reported cases and outbreaks of smallpox from 1970 onwards; and

(2) all countries to provide continued support to the programme, including vaccine and other assistance;

2. REITERATES the importance of using in the eradication programme only freeze-dried vaccine which meets the requirements established by WHO;

3. REQUESTS the Director-General:

(1) to contact those endemic countries which are not yet conducting eradication programmes to determine what assistance might be required to permit them to undertake such efforts;

(2) to continue to take all necessary steps to assure the maximum co-ordination of national and international efforts; and

(3) to report further on the progress of the Smallpox Eradication Programme to the World Health Assembly and to the Executive Board.

Decision: The resolution was adopted.¹

¹ Resolution EB45.R20.