WORLD HEALTH ORGANIZATION

REGIONAL OFFICE FOR SOUTH EAST ASIA

REGIONAL COMMITTEE DOCUMENT

REGIONAL COMMITTEE | SEA/RC17/15

Seventeenth Session | 25 September 1964

Agenda item 13

CONCLUSIONS AND RECOMMENDATIONS ARISING FROM THE TECHNICAL DISCUSSIONS ON SMALLPOX ERADICATION

INTRODUCTION

At the seventeenth session of the Regional Committee for South East Asia, held in New Delhi, India, from 22 to 28 September 1964, three meetings were devoted to technical discussions on the subject of "smallpox eradication". They were held under the chairmanship of Dr K.M. Lal (India), with Dr Ko Ko (Burma) as Rapporteur. The following papers were submitted and referred to during the course of the discussions:

SEA/RC17/9	- Agenda for the technical discussions
SEA/RC17/5	- Working paper on smallpox eradication prepared by the Regional Office
SEA/RC17/TDCS/1	- Report of the national smallpox eradication programme in Burma
SEA/RC17/TDCS/2	- Report of the smallpox control programme in Indonesia
SEA/RC17/TDCS/3	- Report on planning, organization and execution of the national smallpox eradication campaign in India
SEA/RC17/TDCS/4	- Methodology and lessons learnt from assessment and evaluation of smallpox eradication programme in different parts of India
SEA/RC17/TDCS/5	- A report on the smallpox eradication programme in Thailand
SEA/RC17/TDCS/6	- A report on the smallpox eradication programme in Afghanistan.

1. REVIEW OF THE SMALLPOX SITUATION IN SOUTH-EAST ASIA

In reviewing the smallpox situation in the Region, it was noted that Asia remained the continent reporting the greatest number of smallpox cases and deaths. In the period from 1959 to 1963, Asia had reported from 67.3% (39 221 cases) in 1960 to 81.3% (75 424 cases) in 1963 of the world's total number of cases. As 1963 was expected to be a peak year, according to the cyclical trend shown by the disease in some of the countries in the Region, the increase in the number of cases was not unexpected.

In Mongolia and Ceylon, smallpox was no longer endemic, while in Thailand transmission had practically ceased. However, strict surveillance was being maintained to prevent re-introduction.

India reported the largest number of cases. There were 31 052, 45 195, 42 231 and 69 768 cases in 1960, 1961, 1962 and 1963 respectively.

Indonesia reported 7 967 cases and 239 deaths in 1963 and 874 cases and 57 deaths in the first six months of 1964.

In Afghanistan and Nepal, smallpox was endemic, but the reporting system was incomplete.

In Burma, smallpox was endemic in certain areas before the Second World War, but a downward trend had been noticed since 1950; there were, for example, only 32 cases with one death reported in 1962, but there was an increase in 1963, with 193 cases and 21 deaths.

Periodic vaccination and revaccination were being maintained in Ceylon and Mongolia, and an intensified systematic vaccination programme had been in operation in Thailand for a number of years.

A nation-wide eradication programme was started in India in 1962 and in Afghanistan and Burma in 1964. In Indonesia, intensified mass vaccination had been in operation since 1963 in endemic and other neighbouring areas, to be completed by 1965; routine vaccination was continuing in the other parts of the country. In Nepal, a smallpox control pilot project was started in the Kathmandu Valley in early 1962; by March 1964, 70% of the population had been vaccinated.

Detailed plans of the national smallpox eradication or control programmes in respect of Afghanistan, Burma, India, Indonesia and Thailand are contained in the documents mentioned above.

2. EPIDEMIOLOGY

The epidemiological aspects of smallpox were discussed, with special reference to the role of factors such as persistence of infection, urban/rural distribution and immunity status, age distribution and seasonal and long-term periodicity.

Regarding the urban/rural distribution, it was brought out that smallpox, although beginning to show an over-all downward trend, persisted longest in overcrowded or newly established areas, such as slums in cities and in suburban areas; where there was a to-and-from migration of labour, and in areas difficult of access. The development of better communications and travel facilities to the suburban and urban areas and also between neighbouring countries, added an extra link of transferrence of smallpox within the country and from outside, through the intermingling of population within the country and in inter-country border areas.

Regarding the age distribution, it was found that the age specificity varied according to the immunity status of the various segments of the population. In the absence of any system of reporting of smallpox by age-groups, the data available from the returns of the infectious-disease hospitals in India, for example, showed that the largest number of admissions occurred in some cities in the 0-4 age group, pointing to inadequacy in primary vaccinations, whilst in other cities the largest number occurred in the higher age-groups, due to lack of phased revaccination activities.

The group gave epidemiological data on the incidence, mortality and periodicity of smallpox in individual countries, highlighting the above-mentioned factors.

3. NATIONAL ERADICATION PROGRAMMES

3.1 Planning, Organization and Execution of the Programme

Important considerations in the different phases of eradication programmes (viz., preparatory phase, attack phase and maintenance phase, as already presented in various papers) were discussed.

There were appreciation of and agreement on the guidelines to be taken into consideration in the various phases of organization of the smallpox eradication programme as contained in document WHO/Smallpox/20, dated 25 May 1964, and in the First Report of the WHO Expert Committee on Smallpox, 1964.[1]

During the preparatory phase, stress was laid on the need for planning and providing for a long-term programme on a national scale, with adequate funds, the existence of well-trained and contented vaccination staff, adequate supervisory staff to check the results of vaccination, mobility of the staff, and the availability of a potent vaccine with facilities for its proper storage. Steps should be taken towards health education of the people, to enlist their active participation and that of any agencies, in the effective implementation of the programme. Even at this stage, information on the social and cultural background of the people, as relating to smallpox, should be collected and utilized for educational purposes.

An analysis of the staffing patterns in the different countries had consistently shown that the tendency was to economize and therefore to understaff the programme. This indicated that, very early in the progress of

[1] WHO Technical Report Series 283.

the programme, it was frequently realized that both the field workers and the supervisory staff should have been much more numerous. It appeared desirable, therefore, to staff the programme adequately from the beginning and later, if necessary, to reduce, thus reversing "Parkinson's Law".

It was realized that the success of the programme would depend on effective administrative machinery, along with effective and maximal coverage of all segments of the population with a potent vaccine. In view of the heavy endemicity of smallpox in some countries, 100% successful primary vaccinations should be achieved and as near as possible 100% revaccinations should be aimed at. In addition to vaccinators, the need for active involvement of all maternal and child health and other medical services as well as of auxiliary staff was stressed. The educative role of teachers in ensuring that all primary/secondary school students, under their charge were successfully vaccinated was realized, and it was felt that, for the success of the programme, their participation should be availed of to the maximum.

Great stress was placed on an independent evaluation of the programme, so that the gaps brought out by such an evaluation might be immediately plugged (see Section 5).

3.2 Inter-country Co-operation

(a) In view of the varied and large border areas existing between the countries of the Region, these areas should be given priority for vaccination on an intensified basis and preferably synchronizing such activities. This phase of the programme could be reviewed periodically at inter-country border meetings, which should usefully be organized yearly.

(b) Detailed studies of the epidemiological situation of smallpox and of anti-smallpox activities in the various countries of the Region, particularly in border areas, were presented. The value of these studies was evident, and the recommendation was therefore made that an exchange of such information, every six months, to the countries of the Region would be of mutual advantage.

(c) In view of the efforts at controlling and eradicating smallpox in the Region, it was considered desirable that all countries of the Region co-operate by promptly notifying smallpox cases, even on suspicion, both internationally and directly to adjoining countries.

(d) The group recognized that freeze-dried vaccine was the only vaccine of choice and confirmed that all countries that had embarked on eradication control programmes were using it whenever possible. In view of the rapid progress of the programmes in these countries, the consumption of freeze-dried vaccine was far in excess of the quantities being kindly donated, and therefore the group urged that further quantities of freeze-dried vaccine, as required, should be obtained from donating countries or through WHO during this crucial phase, in order that the programmes would not be jeopardized. Meanwhile, it was noted with satisfaction that four out of the six countries in which smallpox was endemic had made arrangements

for the local production of freeze-dried vaccine, with WHO/UNICEF assistance. This would, however, take a minimum of two years or more, and international assistance with supplies of freeze-dried vaccine would continue to be needed in this transitional period.

(e) As transmission of smallpox had ceased, for all practical purposes, in Ceylon, Mongolia and Thailand, the representatives of these three countries considered it advisable that WHO might arrange for refresher training courses in smallpox diagnosis and epidemiology, particularly for medical officers in charge of infectious-disease hospitals and port and airport health services.

4. SPECIAL CONSIDERATIONS IN NATIONAL ERADICATION PROGRAMMES

4.1 Population Estimates, Recording and Reporting of Smallpox

(a) The group agreed that in the mass programmes being carried out, it was essential to maintain continuously the already started census of families, both in the urban and rural areas. This had become an accepted feature in the programme, in which it had become a part of the job specification of the individual vaccinators in the areas allotted to them, as well as being the responsibility of the inspectorates.

(b) The necessity of reporting all smallpox cases, including those suspected, within each administrative unit and neighbouring areas as soon as possible was emphasized, in order to initiate the necessary epidemiological investigations and control measures around the case(s) both at the point of origin and at the point of encounter. As the programme advanced and a large proportion of the population was protected, the reporting of every suspected case at the earliest possible moment became all the more important. All methods of reporting and notification through all possible agencies should therefore be explored.

(c) The need for standard forms for reporting periodically the smallpox situation and vaccination activities as a pre-requisite to the above and to assessment was accepted. Suitable forms were discussed and agreed upon (see Annexes).

4.2 Vaccines, Vaccination Techniques, Reactions, Complications and Prevention

(a) As referred to above, freeze-dried smallpox vaccine was considered the vaccine of choice in smallpox eradication programmes in the countries of this Region. All smallpox personnel must, however, be adequately instructed to the effect that even freeze-dried vaccine needed to be kept in suitable storage conditions and, once the vaccine is distributed, direct sunlight avoided

(b) The techniques of vaccination in force in the different countries were reviewed. The method to be followed should be the one that produced the least trauma, such as the multiple pressure technique and the linear scratch. In India, where the rotary lancet method was used, it was considered that the transition from this technique to one of the two other techniques would be

gradually carried out. Evidence was produced of the significant advantage of following vaccination in the linear scratch and the rotary lancet techniques with immediate dabbing of the vaccinated place with the vaccine.

(c) Satisfaction was expressed that no significant serious complications, in particular post-vaccinal encephalitis, were reported. In India, out of 273 million vaccinations, for every 13 million vaccinations not more than one post-vaccinal encephalitis-like case had been registered. Reference was also made to similar insignificant complications in the mass vaccination programme carried out in the USSR. The precaution taken in some of the mass vaccination programmes in the Region whereby one insertion was given in primary vaccination to children over four years of age was noted.

Regarding local reactions, emphasis was placed on the educative role which vaccinators and all concerned could play towards reducing the risk of such complications by observing basic principles of asepsis. There were reports of relatively severe local skin reactions following the use of batches of freeze-dried vaccine. However, it was appreciated that as a result of a collaborative study of vaccinia virus strains used in vaccine production, there were very good prospects that a strain with high antigenicity and minimal reactions would soon be introduced in vaccine production after controlled laboratory and field trials.

4.3 Laboratory Diagnosis

Until the load of smallpox infection in countries was reduced to minimal levels, all cases of suspicious smallpox should be considered as smallpox and necessary action taken accordingly. The value of laboratory diagnostic methods became increasingly great in areas where sporadic cases occurred, and all efforts to make facilities available for these diagnostic methods should be pursued. These methods were discussed at length, but the discussion is not recorded here, since they are described in the First Report of the WHO Expert Committee on Smallpox.[1]

4.4 Health Education

In planning all phases of programmes in smallpox eradication or control, a survey and study should be made of the people's understanding, attitudes, beliefs and practices with respect to the disease and the measures proposed (i.e. vaccination and revaccination), channels of communication among them, available media for publicity and education and the local community organizations which would be available for co-operation with the programme.

The health education objectives should be clearly defined in relation to the programme objectives and operations, and the health education tasks for the various personnel engaged in the programme indicated. All the eradication personnel and others connected, directly or indirectly, with the programme should be trained to discharge their educational responsibilities effectively. There should be well-trained health educators at appropriate levels, to plan and co-ordinate educational and publicity work, provide adequate supervision to the staff and conduct training programmes.

---

[1] WHO Technical Report Series 283, pp. 14-15 and Annexes 1 and 2.

4.5 Integration with Regular Health Services

It was recognized that all task forces engaged in the eradication programme had ultimately, at one stage or other, to be integrated with the basic health services. This would, of course, depend on the degree of development of the basic health services in respective countries at the time when the programmes were ready for integration. The other alternative would be to continue the task force and gradually build other health services around it.

In countries where national smallpox eradication programmes were in operation, it was considered premature to combine smallpox vaccination with other immunization procedures or other control activities. In countries where smallpox was no longer a major problem, the possibility of carrying out simultaneous control activities and/or combined immunizations should be seriously considered (for example, smallpox vaccination combined with BCG and/or other immunization procedures, or with yaws control activities wherever yaws remained endemic).

4.6 Administrative Aspects

It was noted that the maximum utilization of available resources should continue to be made in all the countries with smallpox eradication programmes on a long-term basis. As mentioned in paragraph 3.2 (c), the major difficulty referred to was in the supply of freeze-dried vaccine in time as well as in adequate quantities.

4.7 Legislation

It was agreed that whilst backing legislation should exist, the difficulties of implementing such legislation were realized. However, with continued education, greater popular acceptance would be achieved and the need for enforcing legislation reduced. Efforts should be concentrated on obtaining acceptance of vaccination at school entry, on school-leaving and at the time of employment.

5. EVALUATION

The subject of evaluation was discussed at great length, and much valuable information exchanged on the lines of experience gained in India and recorded in "A Guide for the Evaluation of the National Smallpox Eradication Programme at District Level", produced by the Ministry of Health, Government of India.

6. INTERNATIONAL SANITARY REGULATIONS

The participants were aware of the views of the WHO Committee on International Quarantine which met in 1964[1] and of the Expert Committee on Smallpox[2] in regard to possible revision of the International Certificate of Vaccination and Revaccination. No comments were made, as Member Governments would be reporting on this matter to the World Health Assembly.

---

[1] "Twelfth Report of the Committee on International Quarantine", document WHO/IQ/43, February 1964.

It was, however, observed that in all the countries of this Region where smallpox was still endemic, freeze-dried vaccine, known to give a high percentage of successful "takes" in revaccination, was being utilized as widely as possible. This implied that arrangements and facilities were now available for all persons contemplating international travel from endemic countries to be vaccinated with freeze-dried smallpox vaccine.

7. RECOMMENDATIONS

7.1 Concept of "Eradication of Smallpox"

The concept of "control", limited to the protection of a national population and faced with the existence of endemic foci in other countries, required a perpetual and elaborate system of defence: education, general vaccination and revaccination, reporting, isolation, quarantine, investigation, contact vaccination, international notification, etc. This was the situation in the South-East Asia Region, where smallpox was still endemic in some countries and no longer endemic in others. The realization of a change of concept of control to one of eradication of smallpox could only come through concerted national action by all countries of the Region. Regional eradication had now become the objective and task set itself by the Region as a follow-up of the resolution of the Eleventh World Health Assembly in 1958[1] and resolutions of subsequent sessions of the Regional Committee.

In a region where smallpox was heavily endemic and where much movement of population took place, either within or across the national boundaries, planning and continued implementation of such programmes on a long-term basis became essential. Whilst it was appreciated that most governments of the Region had already embarked upon national eradication programmes and had provided for the attack phase to be completed in as short a time as possible, there appeared uniformly to be inadequate provision for the adequate mopping up and maintenance phase on a long-term basis. It was therefore recommended that this should be provided for until the goal of eradication in the Region was achieved, in accordance with the criteria laid down in the report of the WHO Expert Committee on Smallpox Eradication.[1]

In a region where smallpox was heavily endemic and where much movement of population took place, either within or across the national boundaries, planning and continued implementation of such programmes on a long-term basis became essential. Whilst it was appreciated that most governments of the Region had already embarked upon national eradication programmes and had provided for the attack phase to be completed in as short a time as possible, there appeared uniformly to be inadequate provision for the adequate mopping up and maintenance phase on a long-term basis. It was therefore recommended that this should be provided for until the goal of eradication in the Region was achieved, in accordance with the criteria laid down in the report of the WHO Expert Committee on Smallpox Eradication.[2]

7.2 Vaccine Requirements

Some of the countries of the Region had started the production of freeze-dried smallpox vaccine, but it would take a minimum of two years

---

[1] Resolution WHA11.42

[2] WHO Technical Report Series 283, 04

before they could meet their own requirements for the maintenance phase. It was recommended that, until such time, WHO should make further endeavours to obtain the necessary supplies from donating countries.

7.3 Inter-country Co-operation

The value of inter-country co-operation was recognized, and it was therefore recommended that consideration be given to the synchronization of control measures, organization of inter-country border meetings, exchange of information and training facilities, as outlined in Section 3 above.

7.4 Uniformity in Terminology

The recommendations of the First WHO Expert Committee on Smallpox in respect of definitions of terms used in smallpox eradication programmes[1] were considered practicable, and it was recommended that the widest distribution of this information be made in the Region, so as to bring about uniformity in terminology.

7.5 Health Education

It was observed that in the various phases of eradication programmes not enough attention had been given to the place and value of health education. It was therefore recommended that the educational aspects of the national smallpox eradication programmes should be planned and implemented keeping in mind items such as the following:

(1) Programme objectives for each phase of operation.
(2) Health education objectives (what the people will have to do for implementation of different phases of the programme and after the attack phase is completed).
(3) The health education programme as an integral part of the eradication programme.
(4) Personnel and their health education tasks, to carry out (3) above, specifying who will do what, how, where and when.

(a) Administrators and public health administrators
(b) Eradication programme personnel
(c) District and health centre personnel
(d) Community development and other welfare department personnel
(e) Community leaders, voluntary agencies and local bodies
(f) Members of the medical, teaching and other professions.

7.6 Evaluation

The disappearance of the disease is the only final evidence of the success of the programme. Before this is achieved, the evaluation of the programme in the different stages was considered essential for detecting

[1] ibid, p.4

gaps and shortcomings, in order to remedy them promptly and thus keep improving the campaign at all times. To reach the final goal of eradication, it was recommended that:

(1) A built-in evaluation of the programme should be made, by means of a uniform procedure, as laid down by, and under the direction of, the central authority;

(2) This evaluation should be concurrent, consecutive and terminal;

(3) The evaluation should have an independent element in the consecutive and terminal operations, whereas the concurrent one would have to depend entirely on direct supervision of procedures at various stages;

(4) In the absence of any better practicable field method for an immunological appraisal of the herd immunity status at any given point of time, the present available method of challenge vaccination, should continue;

(5) The guidelines worked out as a result of evaluations made as part of the Indian national smallpox eradication programme should be considered as applicable to countries of the Region;

(6) A terminal evaluation should be made by an independent central organization to determine the readiness or otherwise of an area to enter the maintenance phase of the programme as defined in the First Report of the WHO Expert Committee on Smallpox.[1]

7.7 Legislation

Variolation was reported to be in practice in one area, and legislation to ban this dangerous procedure should be introduced.

[1] WHO Technical Report Series 283

A. INDIVIDUAL NOTIFICATION FORM

NOTIFICATION OF SMALLPOX

I have today *examined/received information regarding the undermentioned and belive *him/her to be *suffering from/to have died of smallpox

Name of Patient:	Smallpox Vaccination: *Yes/No
*Father/Husband name:.....	Sex: *M/F / Age:
Full address:	If dead, date of death: .....
.... Signature of notifier Date Address:.....	*Strike off those not applicable

B. FORM: QUARTERLY SUMMARY REPORT ON SMALLPOX CASES AND DEATHS BY AGE

Area:..... Year:..... Quarter:.....

Age	Estimated population	Cases	Deaths
<1			
1-4			
5-14			
15 and over			
Total			

FORM: WEEKLY/QUARTERLY REPORT ON SMALLPOX VACCINATION

(1)Area: _____ Period: _____

I. Primary vaccinations and revaccinations carried out

Age	Primary vaccinations	Revaccinations	Totals
Below 1 1 - 4 5 - 14 15 and over			
TOTAL			

II. Observed vaccinations

Primary	Revaccinations
Number observed	Number observed
Number positive	Number positive
% positive	% positive

Type of vaccine and batch number:

Stock of vaccine available:

(1)Area: In respect of the smallest administrative unit of operation, a weekly report is indicated; in respect of districts or provinces, consolidated returns on a quarterly basis only are indicated.