WORLD HEALTH ORGANIZATION
REGIONAL OFFICE FOR THE WESTERN PACIFIC

REPORT ON
THE FIRST INTER-COUNTRY
YAWS CONTROL CO-ORDINATION MEETING

Kuala Lumpur, Federation of Malaya, 13-18 April 1959
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1. INTRODUCTION

The first Inter-country Yaws Control Co-ordination Meeting for Asia was opened on 13 April 1959 by the Honourable Minister of Health, Federation of Malaya, Mr. V.T. Sambanthan. In his inaugural speech, after welcoming the participants from the different countries and from the international agencies, the Minister expressed his conviction that a meeting of this nature, in which a group of specialists are able to exchange their knowledge and co-ordinate their work, must result in progress in the yaws campaigns in the regions concerned. He stressed the advisory role of WHO in the combat against disease and mentioned also the assistance given by both WHO and UNICEF. Border problems were to be discussed and decisions to be taken and the participants must bear in mind the resources and financial abilities of the countries concerned, which must be reconciled with the recommendations of specialists and the technical objectives. Similar problems were encountered in malaria eradication and had been discussed at the Second Asian Conference on Malaria Eradication in Delhi, recently. In this connection, the Minister wondered whether the time had not come to speak of yaws eradication. The Malayan Government's experience was that the elimination of yaws in an area had resulted in manifold gains in health and in the field of economics, and the Malayan Government was prepared to make every effort to help eradicate the disease. In the conclusion, the Minister said that when decisions were taken by his technical advisers it was of great help to him in formulating his policies and he felt that for all the governments concerned the informal deliberations of this meeting would provide most useful guidance.

Dr. C. Hackett (Venereal Diseases and Treponematoses, World Health Organization) thanked the Honourable Minister on behalf of the World Health Organization. He reminded the participants of the great strides made in the control of yaws since the introduction of penicillin some ten years ago. By the end of 1958 about one hundred million persons had been examined in national yaws campaigns in which WHO and UNICEF had been invited to assist, and about 25 million persons had been treated. Roughly half the total population living in areas where yaws occurs had thus been covered. Dr. Hackett then stressed the need for discussion among workers in yaws campaigns in different countries. He felt that now, following a great and rapid reduction of the disease in many countries following mass campaigns, the concern was the organization of the later stages of the work that should lead to the eradication of the disease. Two aspects were important: the development of rural health services which could be made responsible for the essential surveillance and preventive measures; the co-ordination of public health activities between adjoining countries.

Mr. Polak (UNICEF) said that the United Nations Children's Fund was happy to be associated with work against yaws, particularly since eradication of the disease was now being considered. UNICEF had supported a number of campaigns in Asia by providing equipment, supplies, drugs and vehicles. The efforts of the governments concerned had been impressive in conducting these programmes and the technical guidance of WHO had been valuable. A meeting such as this was another step forward. It would be of help not only to those participating, but to all the workers in the field. Mr. Polak ended by expressing the hope that UNICEF could continue to be associated with the work until eradication was achieved and by thanking the Government of the Federation of Malaya for having made the meeting possible.
Dr. R. Tumbokon (Undersecretary for Health and Medical Services, Philippine Republic) thanked the Minister and through him the Government of the Federation of Malaya, in the name of all the participants. He also expressed gratitude to the international organizations for making this meeting possible.

Dr. Huggins, Joint General Secretary, made an introductory statement on the proposed programme of the meeting, its content, its form and the practical arrangements, following which he called for nominations for the General Chairman. Dr. Din (Malaya) was proposed by Dr. Somboon Vacharotai (Thailand) and the proposal was seconded by Dr. Pruoch Vann (Cambodia). Dr. Din was elected by acclamation and took the chair.

Dr. Din made a short speech of thanks and welcome to the participants both on behalf of his country and himself to have been elected General Chairman and then went on to propose a list of daily chairmen and rapporteurs which was accepted by the meeting. A Drafting Committee was elected.

The General Chairman then called attention to the Draft Agenda which was adopted on the proposal of Dr. Cruz (Philippines) seconded by Dr. Noordin (Malaya).

2. PRESENTATION AND DISCUSSION OF COUNTRY PAPERS

The first item of the working agenda was the presentation and discussion of working papers.

2.1 Burma

The report on the yaws position in Burma was presented by Dr. Tha Hla who pointed out that at present no surveys had been done in Burma, that probably in Northern and Southern Burma most yaws occurred. He believed at present that on account of mis-diagnosis the prevalence of yaws was underestimated, but that it was probably low. In areas of low known prevalence it was proposed to combine anti-yaws activities with the venereal diseases campaign at present in action. Before specific activities against yaws were undertaken surveys would be made upon which a plan of operations could be drawn up. Dr. Tha Hla also pointed out that he had observed yaws and syphilis in the same family. Where this occurred was probably in areas in which venereal syphilis was a more common disease, but that yaws was brought into these areas by migrants. The difficulty of interpreting serological reactions was stressed and the value of the history of the origin of the individual was pointed out.

2.2 Indonesia

Dr. Soemarsono presented the paper on yaws in Indonesia and outlined the factors influencing the success of yaws control. He stressed the importance of the co-operation of the people and of the civil administration. The TCP technique started in 1950 and in 1954 this was largely changed to the TCPS. He summarized the results achieved in Lendah sub-district by the study of the changes in households in relation to the number of cases of yaws found in them. Following
mass treatment and re-surveys there were in all instances very considerable falls of prevalence of yaws. It was said that from ITS to arrival at a prevalence of yaws suitable for consolidation required up to six re-surveys during four to five years.

The work already carried out in the Indonesian campaign might be tabulated as follows:

<table>
<thead>
<tr>
<th></th>
<th>Millions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total population in area of activities</td>
<td>48.2</td>
</tr>
<tr>
<td>Population examined for the first time</td>
<td>44.7</td>
</tr>
<tr>
<td>Population in consolidation</td>
<td>12.0</td>
</tr>
<tr>
<td>Cases found at first survey</td>
<td>4.2 millions</td>
</tr>
<tr>
<td>Cases found at all resurveys</td>
<td>2.02 &quot;</td>
</tr>
<tr>
<td>Cases found in consolidated areas</td>
<td>0.018 &quot;</td>
</tr>
</tbody>
</table>

The total number of sub-districts already involved in the campaign is over 1200.

2.3 Thailand

Dr. Somboon Vacharotai presented the paper on the TCP in Thailand. He said that it commenced in 1950 with international assistance, that the objectives and the methods were those recommended by WHO in WHO/VDT/135, that, by January 1959, about 16 million people had been examined and 1.3 million cases treated, that supervision was undertaken not only by sanitarians, but by medical officers, that field evaluation was made every six months, and that integration was being attempted as a trial and that it would be expanded if successful. A film was shown on the work of the project in Thailand which had been produced with the assistance of the Division of Health Education.

2.4 Malaya

Dr. Noordin presented the report on Malaya and said that a name list of the population was prepared at the commencement of the campaign and selective mass treatment was used. This was still a relatively small campaign involving two states. Surveys were undertaken by the house-to-house method. The co-operation of the village heads and the population had notably improved during the campaign, thanks to better information and the results of treatment.

Some problems faced in Malaya were mentioned including that of low coverage which was being tackled. The hiding of infectious children by parents was perhaps partly responsible for the low coverage at the beginning of the campaign, although such instances were rare at present. Another problem was the difficulty in regular follow-ups due to shortage of staff, leading to delays of up to three years in two areas. This was thought to account for the increase in infectious yaws found on resurvey in one such area. It was hoped in the near future to expand the
campaign into two further northern states which lie along the frontier with Thailand where seasonal migration of labour was important. Dr. Noordin felt that much could be gained by co-operation with TCP Thailand on this problem. Dr. Somboon Vacharotai was sure that Thailand would be prepared to co-operate with Malaya in so doing. Dr. Din then emphasized that conditions at the border referred to were very large with a very large population of migrant labour. Dr. Din stated that at the Second Asian Malaria Conference in Delhi, it had been unofficially agreed between officials of Malaya and Thailand to hold an inter-country meeting in Songkhla this year to discuss problems of co-ordination in both malaria and yaws campaigns in both countries.

2.5 Philippines

Dr. Tumbokon presented his report stressing how the campaign against yaws had been made part of the public health structure of the country and had been integrated into the developing rural health service since 1954 and was now based upon 1300 rural health units. From these units the anti-yaws measures were being carried out by their regular staff who could be formed into teams if the necessity arose. He stressed the following points:

(1) The general prevalence rate of yaws in the country was not as high as had been expected but extended over a wider area than was generally thought. This necessarily required a different method of approach and would eventually mean penicillin injections over a wider geographical area and for a longer period of time.

(2) The Philippine Government, through its health agency, the Department of Health, well realized the need for utilizing the services of rural health unit personnel throughout the Philippines if increased efficiency and wider coverage were to be attained in its efforts to eradicate yaws in this country through treatment, sanitation and health education.

(3) The Yaws Control Programme was progressing as satisfactorily as could be expected and from the results so far obtained from the operations, it might well be considered a success.

(4) The need for foreign aid like that given by WHO and UNICEF was fully recognized particularly in a developing country like the Philippines. It was hoped that this aid would continue until such time as the nation's finances would be sufficient to cope effectively with the yaws control problems so that the objectives for which the programme had been planned and launched would be realized sooner than expected.
Dr. Cruz stressed the benefit derived from previous similar conferences on yaws which permitted interchange of knowledge and co-operative effort on as wide a scale as possible.

2.6 Laos

Dr. Pierron (WHO) emphasized that 90% coverage had been achieved on an average, that the population was approached village by village, that almost half a million persons had been examined by a total auxiliary staff of 8 to 13; about 16,000 treated, and he mentioned that the treatment policies were slightly different from those now recommended by WHO but were uniform from the beginning. These treatment policies had arisen before the WHO recommendations. He had found surprise visits useful and selective mass treatment was applied throughout. A relatively high prevalence of hyperkeratoses had been found and was unexplained.

2.7 Cambodia

Dr. Pruoch Vann presented a statement on the yaws control activities in Cambodia. These to date had not been carried out systematically, but a new programme was in the planning stage. The campaign was not going to be nation-wide, but was to be concentrated in three provinces bordering with Thailand and Laos.

3. EPIDEMIOLOGY OF YAWS IN RELATION TO ERADICATION CAMPAIGNS

Opening the subject, Dr. Hackett discussed at some length the contents of the document WHO/VDT/135/Rev.1 (also published in Bull. Wld. Hlth. Org. 1956, 15, 869-896). He outlined the natural history of yaws stressing the following points: the importance that transmission plays and how further knowledge of this aspect may assist in anti-yaws measures; the role of poor hygienic conditions and effective contact between infectious patients and healthy persons; the possible part played by water and soap in checking transmission.

Discussing the course of yaws, mention was made of the importance of latency and relapses therefrom; the epidemiological significance of infectious lesions, hyperkeratoses and late lesions; the frequency of latent cases in relation to active cases. In many populations there are more than three times as many latent cases for each active case, but it is possible that in many such areas previous treatment had resulted in the suppression of many active lesions. The Indonesian work suggested that in populations who had had little or no treatment there might be as few as two latent cases for each active case. Malnutrition or illness were possible factors in precipitating relapses. The importance of contacts in field work was dealt with and it was felt that probably in yaws the important contacts in the transmission occurred outside the household. The value of having headings such as "Inactive late yaws" and "Others" was also mentioned.

Under good field conditions, diagnostic errors of about 10% might be expected as checked by reliable serological tests. Most errors were likely to occur through inclusion of palmar and plantar lesions not due to yaws. Over-diagnosis would have no ill effects upon the results of the campaign, but could
make assessment very difficult. It was also good policy not to include history latent cases or inactive cases in the total active yaws figures. Early and late lesions were defined and it was stated that one would not find early and late lesions in the same patient at the same time.

Patchiness of the distribution of yaws was regarded as a characteristic. Seasonal variation of the prevalence of active lesions occurred in some countries and might be explained by seasonal variations in diet.

In the execution of effective yaws campaigns in addition to adequate early planning and the use of an effective drug, the importance of high coverage at all surveys, and periodical re-surveys, not more than one year apart; the expansion of activities in a regular way throughout the country and in adjacent countries; the importance of surveillance to replace re-surveys when the prevalence of yaws had fallen below 2% of active cases and 0.5% infectious cases, as recommended by Dr. Kodijat (WHO/VDT/218) were stressed. Evaluation should be carried out continuously to ensure the regular progress of the work. Numerical data collected should be studied in the first place, as near to the collector of the data as possible so that immediate use can be made of any indications found.

Finally reference was made to document WHO/VDT/253 regarding the changes in prevalence of yaws lesions after mass treatment, inasmuch as at re-surveys great reductions in infectious cases were found before similar great reductions occurred in late lesions, although after mass treatment there would be a considerable fall in total active yaws. It was suggested that the results of PAM in campaigns were more effective than those of arsenical and bismuth preparations, so that findings after use of the latter were not necessarily directly applicable to campaigns in which PAM was used.

During the discussion, the following points were raised. Children were rarely infected during the first two years of life until they started leaving their mother and having contact with other children outside the home. Small flies might possibly play some part in the transmission of yaws, but this was probably much less important than transmission by more direct contact. It was suggested that probably many solitary hyperkeratoses belonged to the early stage, but that infectious relapses in such cases were unusual, if they occurred at all. The relative importance of reinfections was raised and although these are unusual, at present there is little definite information about them, especially in view of the possible length of time during which latency may continue. A question was raised regarding the highest clinical prevalence that participants had observed. In Nigeria maximum prevalences were between 25-30%, while in Indonesia in exceptional areas a prevalence of 40% or over had been seen, in which communities many early lesions and hyperkeratoses were observed. In the New Hebrides, clinical prevalences of 40-50% had been found with sero-reactors reaching up to 100%.

4. EPIDEMIOLOGY OF RECEDING YAWS

Dr. Hackett presented his paper on the Epidemiology of Receding Yaws. Receding Yaws was defined as the state of the disease when without any campaign the prevalence had fallen to a low level from a previously higher level, due probably to improvements in the general standard of living. Other factors
concerned in this were also discussed, and what public health measures should be
taken in such areas were outlined. It was stated that following yaws campaigns
and in the later stages of receding yaws, isolated cases might occur for some
time. These cases might arise from missed cases, delayed relapses or introduction
of infection by newcomers. The problem of the passage of yaws infection across
international frontiers emphasized the importance of co-ordination of yaws
activities on both sides of such frontiers.

There was an increasing danger of the extension of venereal syphilis from
cities and towns into rural areas where yaws had been eradicated so that the grow­
ing adult population would not be protected by childhood yaws infection, hence
the need for defining the extent of venereal syphilis in such urban communities
and the importance of undertaking effective measures against it.

During the discussion, the parallel recession of syphilis in the United
States and in Surabaya was associated with improved economic conditions. The
protection against venereal syphilis given by yaws was discussed and some
participants felt that this was not absolute.

5. YAWS ERADICATION METHODS - RECORD KEEPING AND ECONOMICS OF YAWS CAMPAIGNS

The discussion was opened by Dr. Somboon Vacharotai who used the Thailand
TCP to illustrate various points. The methods generally were those recommended
by WHO in WHO/VT/135. He outlined the development and present position of the
campaign in Thailand. Considerable discussion took place on survey methods and
particularly on the question of the use of census lists of the names of villagers.
It was recommended that if the campaign was not well received by a population the
use of such lists were of great value in ensuring attendance at surveys. One
speaker referred to the abandonment of this procedure when it was found that the
campaign was popular. The usefulness of a census list at initial treatment
surveys when the workers were unknown to the people was also stressed. It also
provided a convenient measure of the total population of a village. It was agreed
that in re-surveys and particularly later re-surveys, the use of name census lists
was a time-consuming and uneconomical procedure and was not essential. It was
agreed that survey procedures had to be adapted to local conditions and local
administrative patterns.

In discussing the economics of yaws campaigns and the costing of such
programmes it was noted that the usual practice is to take into account the cost
to the government and that of imported equipment and supplies provided by
international agencies.

The need for the greatest practical simplification of all returns from mass
campaigns was agreed. The need for such simplifications in records during con­
solidation and integration was even greater since the staff who would collect and
prepare them would be concerned with data for other diseases too.

A Sub-Committee was appointed to study the simplification of records in
greater detail and to report to the meeting later.
Dr. Wasito continued the discussion on yaws eradication by briefly outlining the work of the Treponematoses Control Programme (Simplified) (TCPS) in Indonesia. He emphasized that yaws was a disease of poverty in rural areas and that systematic work was needed for success in yaws campaigns. There was need for a census list of names and to examine as nearly as possible to 100% of the population. Coverage was important, but there were always some people away from the village. Re-surveys must be carried out to deal with imported and missed cases. In Indonesia, it had been found that work by teams was too expensive, and the use of the "djurupatek" (skilled yaws worker) - who is similar to the yaws scout - was evolved.

In Indonesia, the villagers were obedient to their chiefs, so that if the confidence of the village chief was gained, the villagers would co-operate. The basic unit of the TCPS was the sub-district which in Java has a population of 20 to 30,000 people. In each sub-district there was a polyclinic in the charge of a "mantri" (male nurse). The djurupatek was attached to the polyclinic and worked under the supervision of the mantri. With the aid of a bicycle he surveyed the village population and selected patients suffering from yaws who were once each week gathered for the mantri to examine and treat. This was the TCPS. Outside Java, the sub-districts were usually larger and transport by boat or horse was necessary. There the TCPS was done by an experienced and reliable nursing aide who also gave the injections.

In the village, the co-operation of the administration, religious and local leaders was important. The village census was brought up to date by the village clerk three weeks before starting examinations. A djurupatek could examine up to 300 persons a day. The integration of the TCPS into the rural health services from the very beginning of the campaign was stressed. In Indonesia in TCPS only patients were treated together with mother/child contacts. Total mass treatment was used in remote or difficult areas. Surveys were carried out by gathering the villagers at the headman's house. Re-surveys and ITS were made in the same way and carried out at regular intervals. When the prevalence of active yaws fell below 2% of total active yaws and below 0.5% of infectious yaws, these surveys were stopped and consolidation commenced as was detailed in Dr. Kodijat's paper (WHO/VT/218).

Dr. Wasito stressed the importance of the "last yaws cases" during consolidation. These were accounted for by relapses or re-infections, cases who were missed at the previous survey, imported cases, especially those arriving from the outer suburbs of towns where no mass campaign was carried out and mis-diagnoses. Patients in the incubation period would unavoidably be missed. When an infectious case was found, wide contact treatment was given. Dr. Kodijat had recently drawn up new instructions for re-surveys during consolidation with increasing intervals between them when continuing low prevalences were found.

As consolidation became established, the djurupatek would become a multi-purpose worker. He received health education training and more recently extra training in leprosy diagnosis to assist in leprosy case-finding. The importance of raising the educational and economic standard of the population to assist in dealing with the last yaws cases was stressed. Welfare workers were playing an increasingly important part in village work towards this end.
During the discussion it was emphasized that in the Philippines, a rural health Act provided for a wide distribution of barrio (village) health centres which would be responsible for the final stages of communicable disease control and eradication campaigns. A village level council included one member particularly responsible for health matters.

It was pointed out that infection might be introduced in a village by new arrivals with lesions on some unexposed part of the body or by village inhabitants on their return from other places, and who did not need to report to the headman.

There was considerable discussion regarding the practicability and desirability of using djurupateks or yaws scouts in yaws campaigns. It was generally agreed that such a worker was desirable but that for his effective use, rural health units were essential for supervision. The desirability of having such workers paid from local government funds was also stressed.

It was mentioned that the Thai Government insisted upon permanent staff in the yaws campaign for fear that temporary staff might increase the number of unqualified practitioners. Thus there would be difficulties in recruiting djurupatek type of people unless full planning had been made for their continuous employment. In Laos on account of the paucity of rural health units the employment of the djurupatek would not be practical for the time being and re-surveys were to be continued by teams. One of the campaign teams would be made responsible for surveillance and consolidation and would work closely with dispensary staff. In Cambodia, in connection with a rural health demonstration and training centre, trials would be made of the use of fundamental educators in health work and plans for integrated health activities were also being studied.

6. THE EXPERIENCE OF WHO - RECOMMENDED DOSAGE OF PAM IN YAWS CAMPAIGNS

Dr. Cruz introduced this subject and considerable discussion followed in which unanimous agreement was expressed on the adequacy of the dosage of PAM recommended by WHO for yaws campaigns in WHO/VDU/135/Rev.1.

6.1 Hyper-sensitivity reactions to penicillin

Most participants reported that they had seen none of these reactions in the course of the yaws campaigns in their countries using penicillin conforming to WHO recommended standards. One fatal case was reported from Indonesia out of 7.6 million injections and in Thailand five fatal cases were reported from 3.2 million infections since 1950. Attention was called to the article on how to treat penicillin reactions in Wld. Hlth. Org. Bull. 1958, 19, 427-501. In this regard attention was called to a simple piece of equipment for the rapid injection of adrenalin in emergencies ("Ampins"). It was regarded as a necessity that supplies of such units should be made available to all yaws workers injecting penicillin. There were no observations to report on the resistance of treponemes to penicillin.
7. OBJECTIVES OF YAWS CAMPAIGNS; SURVEILLANCE AND INTEGRATION; SIMPLIFIED METHODS, ADDITIONAL TRAINING OF STAFF

The subject was reviewed by Dr. Zahra under two headings: (a) Immediate objective - the elimination of yaws from the area; (b) long-term - the promotion of rural health services. They are integral parts of one continuing process, which could be accelerated by the practical application of our present day understanding of the epidemiology and therapy of yaws. Because the spectacular benefits of yaws campaigns are taken to the homes of the people, previously deprived of basic medical services, the public support thus gained served to stimulate and bring about a demand for improved health services.

In order to realize the above objectives, timely and far-sighted planning of the various necessary phases of the campaign was essential. Continuity and long-term permanent measures of control have to be planned at the same time as the Initial Treatment Survey, with adequate budgetary provision. Long-term control of Yaws: Mass chemotherapy of an endemic disease in underdeveloped areas will not on its own bring about an immediate extinction of the infection but only its reduction to a level that will then become manageable by a smaller surveillance organization, preferably based on rural health centres.

To achieve such a reduction of active yaws, the Initial Treatment Survey method selected should ensure the highest possible coverage with maximum cooperation of the people. The teams should, therefore, be trained to view yaws as a community problem, which is to be attacked as such. The dosage of PAM and the three treatment policies (TMT; JMT; SMT) in relation to prevalence of active yaws, have repeatedly been proved practicable and sound in the field.

Periodical resurveys were agreed to be necessary if the ITS achievements were not to be endangered; they also were necessary for a regular assessment of previous work.

The interval at which resurveys will be carried out depends on the coverage of the population, the prevalence of active yaws found at previous surveys, on the treatment policy followed, and on available staff and resources. The first resurvey should preferably be within one year from ITS and be undertaken by house-to-house inspection by simply trained staff.

The selection and training of junior auxiliary personnel for the necessary resurveys were discussed. If a country could afford to employ yaws scouts, as practised in Indonesia and Nigeria, these should preferably be the responsibility of the local Government Authorities and be recruited locally in time to be trained by the special teams at ITS. The importance of insisting on a reasonably high standard of education should be considered before recruitment; if their absorption into future permanent health services is intended, they should be capable of additional training and duties.

In areas where there are neither permanent rural health staff nor yaws scouts, the difficult question arises as to by whom, how, at what intervals, and for how long resurveys and surveillance will be carried out. In such circumstances,
there will be no alternative but for the special ITS teams to be detached to re-
survey work. It must also be decided whether and where resurveys could be carried 
out at longer intervals than one year, and also how the teams could maintain their 
usefulness and popularity in repeatedly treated villages. One solution is for the 
teams to carry out multipurpose surveys and treatment either after additional 
training or by attaching to them other specialized workers (like leprosy, B.C.G. 
and other vaccinators, etc.) as the need may be. The readily accessible school 
population should receive their special attention.

7.1 Promotion of Rural Health Services

There will be gradually formed thus a nucleus of experienced multipurpose 
workers, who have been in close contact with the rural people, their problems and 
needs, and who have also learnt to co-ordinate their work with that of other 
health staff. They will also have secured epidemiological information of other 
prevalent communicable diseases in the country. These surely are important steps 
towards the introduction of integrated health services at a later date with workers 
who have developed the correct concept and basic experience in rural health.

Where there are no existing rural health services, it will be necessary to 
start an Area Demonstration in Rural Hygiene, in which training for, and applica-
tion of an integrated programme would be studied.

Where there are some medical and health services, scattered and poorly 
supervised, the participation and training of staff in the planned yaws I.T.S. 
should be immediately ensured - they will thus be prepared for their future duties 
in follow-up and other post-campaign work. Surveys and resurveys will thus become 
an extension of the dispensary or health centre. Another urgent need will be the 
amalgamation of all static rural medical activities (dispensary, hospital, materni-
ty centres, environmental hygiene) at health centres.

Where a rural health service has started with a network of health centres, 
the task of the yaws organization would be similar but easier, since consolidation 
and integration would be achieved earlier.

The progress of the campaign will depend on the dramatic reduction of the 
yaws prevalence, and the campaign's consolidation and integration into health 
centres. The latter must, however, be popular, and the community deeply interested.

The permanent measures set up, after the yaws campaign, should be well 
within the abilities of the local authorities to maintain and to expand when new 
problems arise.

Regular inspection and supervision of all rural health services is essential. 
Inspection may be a whole or part-time duty. The more infrequent it is, the more 
thorough it must be and the more experienced the inspecting of rural medical officer.

Thus, a separate department of rural health in the central health adminis-
tration with a degree of permanency should be established for the proper organiza-
tion of all rural services from the centre to the periphery. This is essential 
because the outlook and philosophy of the clinician and urban administrator may 
differ greatly from those of the rural worker.
To conclude, for the successful eradication of yaws and other endemic diseases, the service in its initial stages must rest on the tripod of mobile special units, rural health centres and hospitals - all associated as much as possible with concurrent social, educational and economic development. Mobile work with teams should never be an end in itself. Gradually as conditions and development permit, the rural health centres should deal with the important endemic disease problems and extend their services to the homes of the people, leaving little need for large mobile units.

Dr. Huggins made the following comments:

One of the set objectives of the meeting was to identify common problems and attempt to find satisfactory solutions for these. He thought that Dr. Zahra had indicated the objectives, the methods to be used in achieving these objectives and that a useful purpose might be served in pointing out some of the practical problems as well as quoting examples of where the objectives had been achieved and others where difficulties had prevented complete success in achieving them.

He referred to the findings of the yaws control project in Western Samoa which happened to be an area with rather favourable conditions, in that the population was homogeneous, limited to 110,000, and there was an adequate well organized basic health service. The area was divided into medical districts each with a population of 3 to 8000 people and each was provided with a health unit staff consisting at least of an assistant medical officer, a district nurse, and nurse-aide. In this project, the resurveys and integration following the ITS were organized by means of mobilizing the total rural health personnel to carry out the work in all the medical districts simultaneously over a short period of time. Thus at the first resurvey the island of Savaii with 20,000 people was covered in six days, and the island of Upolu with 70,000 people was covered in 12 days and 99.6% of the population was examined. This technique was so well accepted both by the population and the health administration that it had become a routine procedure to have an annual "Yaws Week" during which the resurvey was carried out in a limited period of time. The results achieved at this campaign were quoted: briefly, the ITS in 1955 and 1956 revealed a total of 11.2% of active yaws with 3.3% infectious cases. The second resurvey in 1957 gave a prevalence of total active yaws of 0.027% and infectious cases of 0.02%. At the third resurvey in 1958 - total and infective yaws found was 0.001%. In the ITS, and in resurveys between 96 and 100% of the population was examined. Thus under these circumstances the results of the campaign can be termed successful from the point of view of the reduction or almost elimination of yaws. But there were other results of the campaign which should be mentioned. These were the improved standards of hygiene which were reported by the health administration, and the increased activities of the women's committees which normally undertook responsibility for the hygiene of the villages as well as the care of the sick. The population was psychologically prepared to accept further health projects and this was important in view of a major difficulty experienced during the initial campaign. An outbreak of poliomyelitis occurred with 27 cases of paralysis in children under three years of age, most of whom had received injections of PAM shortly before the onset of paralysis, just after the commencement of the project. This had stimulated considerable resistance on the part of the people, which had been fortunately overcome. A similar outbreak in Western Samoa had been reported by Lambert in 1932 when his mass campaign was carried out.
Another important result of this campaign was the increased authority of the health workers in the eyes of the people and the closer contact established between the health workers and the villagers.

The possibility of delaying the first resurvey until the second year was discussed for areas where the prevalence of yaws was low, a high coverage had been obtained, and total mass treatment carried out. This, it was suggested, might have an application when staffing difficulties and also remote areas made annual resurveys in low prevalence areas difficult. The importance of household contacts in the spread of yaws was raised. Indonesian studies indicate that at resurveys most new infectious cases could be traced to contacts from outside the household after SMT.

Attempts were being made in some countries to add other communicable disease control activities to those of the yaws campaign in its consolidation stage, such as leprosy case-finding and BCG vaccination. However, care should be taken not to overload the capacity of rural health personnel. Central co-ordination within the medical services made for flexibility in the field.

8. RESEARCH IN YAWS

Dr. Hackett opened the discussion on research in yaws by briefly summarizing some of the findings reported in the WHO Monograph No. 35 by Turner & Hollander "The Biology of the Treponematoses". Reference was also made to some experimental work on the inoculation of Treponema pertenue which indicates the development of immunity to reinfection after eight months of yaws. Tribute was paid to the work of Schoebl and other workers in the Philippines. The subject was then dealt with under the following headings:

8.1 Treponemes

Further basic studies are required and the importance of developing methods of culturing treponemes was stressed since it would have wide applications in many other aspects. The importance of further studies on the survival of treponemes away from the body and the continuing sensitivity of treponemes to penicillin was stressed.

8.2 Epidemiology

Further information was needed on the mode of transmission of the disease and the entry of the treponemes into the body. Factors producing low prevalence of yaws might have practical application in yaws campaigns. Prevalence studies in virgin areas would be of considerable value in interpreting yaws prevalences in other countries. Further studies were required of the varying prevalence and propositions of the different types of yaws lesions and sero-reactivity.
8.3 **Pathology**

The distribution of treponemes in the body of infected individuals at all stages of the disease, including latency, and the factors pre-disposing to relapses needed further study. The part played by trauma and super-infection in the production of late lesions and the infectiveness of late yaws ulcers are largely unknown. More information was required on the frequency of spontaneous cure and the persistence of treponemes in treated late yaws patients.

8.4 **Clinical**

Attention was called to various factors which might play a part in the decreased severity of yaws in many parts of the world at the present time. Further studies were required of palmar and plantar changes and of digital contractures and of the differentiation of similar lesions not due to yaws. Further information was needed regarding the frequency of cardiovascular and nervous lesions and of congenital infections in yaws.

8.5 **Diagnosis**

Improved differentiation of yaws from syphilis, especially serological, was required. The value of serological surveys in yaws campaigns should be determined and the need for simple treponemal diagnostic tests was agreed.

8.6 **Prevention**

Public health activities required at different levels of clinically active disease or sero-reactivity needed definition. The sources of "the last yaws cases" in the later stages of yaws campaigns were discussed. The level of prevalence below which regular resurveys could be postponed or replaced by surveillance needs definition. All factors at present decreasing the prevalence of yaws needed careful study so that crucial cases could be defined and applied in campaigns. The possibility of developing a vaccine for immunization against yaws was raised and there was need to study the results five and ten years after mass campaigns.

9. **INTER-COUNTRY CO-ORDINATION**

Dr. Huggins introduced the subject. This was discussed several times during the meeting. There was general acceptance by all participants of the need for, and importance of, inter-country co-ordination of yaws control activities and general willingness to co-operate in efforts to achieve this inter-country co-ordination.

The Minister of Health of the Federation of Malaya, in his address at the opening of the meeting, called special attention to this question. He also commended the wisdom of technical discussions the results of which the participants from the various countries could take up with their respective governments rather than raising the problems initially through diplomatic channels.
All agreed that in carrying out a mass yaws eradication campaign, the expansion of the campaign should be regular and uniform to form an ever-enlarging compact area of control so that re-introduction of infection by patients coming from untreated areas will be minimal, as recommended in document WHO/VDT/135. In border areas, the same principle should be applied but this needed the co-ordinated activities of the national workers on both sides of the border, for the *Treponema pertenue* does not recognize man-made frontiers.

As a first step in this co-ordination in yaws eradication there should be a study of the following:

(a) the yaws problem, including prevalence, in the areas on both sides of the borders;

(b) yaws eradication activities being undertaken or planned;

(c) any special factors favouring the spread of infection such as movement of population across the borders.

This will indicate the extent of the problem and the action needed.

It was highly desirable that yaws eradication activities should be carried out on both sides of any border where there is a yaws problem and as far as is possible at the same time.

Participants filled out a questionnaire issued at the beginning of the meeting and gave information available concerning their border area yaws problems. These data are summarized in Annex 1. It is noted that in Thailand, the border areas with Cambodia, Laos, Burma and Malaya have already been covered by ITS and have reached the stage of resurveys or checking resurveys. The present prevalence of active yaws in the first two border areas is about 2%; near Burma prevalence was 0.2% at resurveys and near Malaya the prevalence at ITS was 7.8%. On the other hand, in Burma, the prevalence of yaws in the border areas is not yet known but is probably not high and no yaws campaign is yet planned. In Cambodia, the prevalence of yaws is estimated to be about 7% and a campaign in the border provinces is planned for 1959. In Laos the yaws campaign has, over the past five to six years, reduced the prevalence of the disease from 4 - 7% to a very low level and resurveys are being continued. In Malaya, the yaws campaign in the north east has reached the stage of resurveys and reduced the prevalence of yaws to 3.7%. A campaign in the border area to the west is being planned.

Population movements across the Burma/Laos and Burma/Thailand frontiers were not so important because of border restrictions nor across the Laos/Cambodia frontier because at the border were sparsely populated dense forest areas. Across the Malaya/Thailand frontier there was reported considerable movement of migrant farm workers.

It would seem therefore that the yaws problems on the borders between Thailand and Cambodia and between Malaya and Thailand were the most important.
In adjacent areas of Indonesia and the Philippines, a prevalence of about 7% has been reported for Sangir, Talaud and the Celebes; about 30% is estimated in South, East, Central and West Borneo and the prevalence is unknown in the Riouw province of Sumatra. In the Sulu province of the Philippines, the prevalence of yaws is estimated to be 5% and ITS and resurveys are being carried out. The yaws campaign is being carried out in the neighbouring areas of Sangir, Talaud and Borneo. There is reported slight movement of population from Sangir and Talaud to the Southern Philippines.

The prevalence of yaws in the neighbouring areas of Malaya and Riouw Islands of Indonesia and of Sumatra (N.E.) was not reported but it was stated that there was a movement of population between Riouw and Malaya. No information on the yaws prevalence of the border areas between Sarawak and Kalimantan was provided but the movement of population here did not appear important.

The presence of open water between Indonesia, Malaya and the Philippines modified the problem and required special study to assess its true importance as regards the transport of yaws.

This preliminary assessment of the border problems shows that the present yaws activities should be continued in various countries, that in Burma preliminary clinical surveys should be carried out to establish the prevalence of yaws in the border areas, in Cambodia the planned campaign should be put into operation, in Malaya the present activities should be continued and the campaign in the other border areas should be established.

However, there is an obvious need for continued co-ordination and it is suggested that this could be best achieved by taking the following steps:

(a) All countries concerned where yaws campaigns are being carried out should report, in a paragraph of the quarterly reports, on the campaign activities in the border areas, together with the prevalence of yaws found, the treatment policy and on any infectious cases suspected of arising from across the frontier.

(b) Medical Officers responsible for the work should meet periodically to discuss informally the co-ordination of their respective anti-yaws activities either at border meetings or at inter-country meetings, such as the present one.

(c) The WHO could assist the co-ordination by arranging for the exchange of reports and information, after translation where necessary, and by facilitating the organization of inter-country co-ordination meetings.
During the discussion the following points arose. Preliminary surveys are to be undertaken in the Tenasserim Division in Southern Burma and also in areas of Southern Burma adjoining Thailand. Various types of population movement took place across the Malayan/Thai border including seasonal migration from the east to the west coast of Malaya via Thailand of many harvesters, as well as occasional movements of Malayans into Thailand to work on the rubber plantations. Medical examination of migrants for yaws would be possible where such examinations were part of the preventive measures against other communicable diseases. The cooperation of the village headmen in reporting new entrants to their village might also be sought.

From Cambodia it was felt that the solution of border problems was largely related to national work against yaws in these areas. The difficulty of supervising visits across frontiers of family members was stressed.

Dr. Wasito stressed that people crossing frontiers came not only from adjacent areas, but from remote ones so that the border problems had wider implications. He suggested that any treatment given at frontiers should be available to others than nationals.

From the islands of eastern Indonesia seasonal migration to the southern Philippines was reported. There was an undetermined risk of yaws from British North Borneo and considerable family movement took place between Borneo and the Sulu archipelago.

The importance of careful planning to ensure that a yaws team would be available to carry out work in border provinces when required was stressed. Dr. Noordin spoke of the organization of labour migration and of the issue of border passes, of medical examination and of the possibility of treating yaws patients found in transit. The contribution to the solution of the border problems of migratory labour by the medical work carried out on plantations was also cited. There was a small contact between Burma and Laos, but it appeared probable that it was in an area where at least on the Laotian side there was no yaws because of its altitude.

10. OTHER TOPICS

10.1 Rehabilitation services

The availability of established rehabilitation services for the assistance of late yaws cases with deformities was discussed and the prevention, resulting from yaws campaigns, of gravely disabling lesions, was stressed.

10.2 Public information activities

The value of films, particularly cartoon films for health education, and especially if the commentary was in the language of the area, was agreed by all. The absence of such films dealing with yaws was regretted and their need emphasized.
Attention was called to the value of public address units in increasing coverage by field teams. Some rural populations had been rather wearied by educational or propaganda films and were more likely to be attracted by entertainment films. The difficulties arising from the absence of electric supplies in rural areas was stressed as were the difficulties of transporting generators for this purpose where roads were inadequate. Radio broadcasts and tape-recordings had also been used. It was agreed that projection of films and similar public education activities were best left to the responsibility of national information and health education departments.

10.3 Public-health field activities

The value of the attachment of other public health field activities to those of yaws projects was generally agreed. These included particularly leprosy surveys and smallpox vaccination. However, there were others which could be similarly attached provided that the time required for this additional work did not clash with the progress of the yaws campaign. It was very desirable to attach yaws resurveys to other field work and this was very practical since each patient in the yaws resurveys needed to be seen only once and for a short period. The importance in all these activities of having permanent staff rather than temporary staff was stressed.

10.4 Simplification of yaws survey data

The small committee formed to make recommendations on simplification of yaws survey data presented their conclusions. This need for this simplification arose, at the present time, from the needs of campaigns in consolidation. It was logical also to carry this simplification back to ITS and resurveys. This simplification recommended the reduction of data of surveys to one heading of "Persons treated", sub-divided into "Infectious yaws", "Non-infectious yaws" and "Others". It was recommended that simplified forms might be considered for use in surveys and to record the prevalence of yaws at dispensaries. In dispensary returns the third category of "Persons treated" namely "Others", would not be applicable. A Daily Field Work Form (Annex 2) and a Yaws Monthly/Quarterly Return (Annex 3) were adopted and are attached as Annexes. These forms were unanimously accepted.

11. RECOMMENDATIONS

A series of recommendations based upon suggestions arising during the meeting were then discussed. After certain modifications these were adopted as follows:

(1) Accurate data on venereal syphilis in countries where yaws is undergoing eradication should be gathered to define the problem of venereal syphilis in these countries.
(2) Campaign data already available should be studied, or pilot field studies undertaken, to ascertain at what prevalence of total active and infectious yaws following mass treatment (TMT; JMT and SMT) the frequency of resurveys could be reduced without interfering with the efficiency of the campaign.

(3) Consideration should be given, in areas faced with staff shortages, to the possibility of using TMT in populations with a low prevalence of active yaws (under 10%) and delaying the first resurvey until the second year.

(4) Research should be undertaken in all aspects of endemic treponematoses from which is likely to come knowledge of basic or practical value in their eradication. The participants, aware of the value of research in yaws, welcome the increasing research activities by WHO, and recommend that research in yaws be undertaken.

(5) The practicability of simplifying returns from mass campaigns should be studied so as to avoid unnecessary activities without reducing the adequacy of data of the work done and results achieved. Attention is called to the simplification drawn up and accepted by this meeting.

(6) The present WHO recommendation of PAM dosage in mass campaigns (4 ml. for an adult with active yaws, etc.) was unanimously agreed to be adequate.

(7) Although fatal reactions following PAM have not been reported in most yaws campaigns in South East Asia and the Western Pacific, the availability of readily injectable adrenaline solution (in "Ampins"), for use should grave penicillin hypersensitivity be met, was recommended. A few of these special ampoules, should be immediately available wherever PAM injections are given in endemic treponematoses campaigns.

(8) To economize on staff and money, as far as practical, public health field measures should be combined. These may include the combination of yaws and leprosy surveys and yaws surveys and smallpox vaccination and other activities. Yaws resurveys can readily be attached to many other field health activities.

(9) It is recommended that the various countries concerned discuss common problems with a view to co-ordinating anti-yaws activities at the border.

(10) It was unanimously agreed that the present meeting had served a useful purpose in facilitating the exchange of technical knowledge and the progress of country campaigns and had also assisted inter-country co-ordination. A second inter-country yaws control co-ordination meeting should be called together in 1960/61.
12. ADOPTION OF DRAFT REPORT

Dr. Soemarsono, seconded by Dr. Prouch Vann, proposed the adoption of the draft report. The draft report was then unanimously adopted together with the amendments agreed by the meeting.

13. ADJOURNMENT

Speeches of thanks were made by Dr. Cruz, Dr. Huggins, Dr. Tumbokon and Dr. Somboon Vacharotai. After expressing his thanks to the participants and international staff members, Dr. Din closed the meeting.
<table>
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<th>Present Yaws Prevalence on Border</th>
<th>Status of Yaws Campaign</th>
<th>Border Country No. II</th>
<th>Present Yaws Prevalence on Border</th>
<th>Status of Yaws Campaign</th>
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DAILY FIELD WORK FORM

PLACE ........................................ DATE ..............................

Type of Survey and Treatment Policy ........................ Signature ........................

<table>
<thead>
<tr>
<th>PERSONS TREATED WITH YAWS</th>
<th>PERSONS NOT TREATED</th>
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<td>15 AND OVER</td>
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CO-ORDINATION MEETING
Kuala Lumpur, Malaya
13-18 April 1959

Amex 2
FIELD WORK OR DISPENSARY
YAWS MONTHLY/QUARTERLY RETURN

PLACE........................................ Date Completed........................................

PERIOD............. to ................ Date of Yaws Consolidation in area..........................

Signature........................................

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<td>NEW ATTENDANCES IN DISPENSARY</td>
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<td>PERSONS TREATED</td>
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<table>
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<th>UNDER 15</th>
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</tr>
<tr>
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* Not applicable to dispensaries
AGENDA

Monday, 13 April
09.00 : Registration
10.00 : Arrival of the Honourable Minister of Health, Federation of Malaya, to open the Meeting.
10.30 - 11.00 : Informal meeting with the Minister; Coffee.
11.00 - 12.00 : Resumption of Meeting.
   (a) Procedure and Conduct of Meeting - explanation by General Secretary.
   (b) Election of General Chairman; Daily Chairmen; Daily Rapporteurs; and Drafting Committee.
   (c) Adoption of Agenda.
14.00 : Presentation and discussion of country papers.

Tuesday, 14 April
08.30 - 10.15 : Epidemiological approach to yaws eradication (Dr. Hackett).
10.30 - 12.00 : Epidemiology of receding yaws (Dr. Hackett).
14.00 - 16.30 : Yaws eradication methods; record keeping and economics of yaws campaigns (Dr. Somboon Vacharotai)

Wednesday, 15 April
08.30 - 12.00 : Yaws eradication methods (continued) (Dr. Wasito).
14.00 - 15.00 : The experiences with WHO recommended dosage of PAM in yaws campaigns (Dr. A. Cruz).
15.30 - 17.00 : Visit to tin mine.

Thursday, 16 April
08.30 - 12.00 : Objectives of yaws campaigns; surveillance and integration; simplified methods. Additional training of staff (Dr. Zahra and Dr. Huggins).
14.00 - 16.30 : Research in yaws (Dr. Hackett).

Friday, 17 April
08.30 - 12.00 : Inter-country co-ordination (Dr. Huggins and Dr. Zahra).
14.00 - : Other topics
           Field visit to Sungei Buloh.

Saturday, 18 April
08.30 - 11.30 : Discussion and adoption of draft report.
11.30 - 12.00 : Closure of Meeting.
A. Country Participants

**Burma**

1. Dr. Tha Hla  
   VD Team Leader  
   Mandalay

**Cambodia**

2. Dr. Prouch Vann  
   Directeur adjoint du Service de Santé  
   Ministère de la Santé  
   Phnom-Penh

3. Dr. Chau On  
   Médecin-Chef de la Circonscription médicale de Siemréap  
   Siemréap

**Indonesia**

4. Dr. R. Wasito  
   Director VD Research Institute  
   Surabaya

5. Dr. Soemarsono  
   Deputy Director Yaws Institute  
   Trimargo-kulon 8  
   Jogjakarta

**Laos**

6. Dr. Houmphan Bandhavong*  
   National Director Yaws Control Project  
   Savannakhet, Laos

**Malaya**

7. Dr. A. A. Cameron  
   Director of Medical Services  
   Kuala Lumpur

8. Dr. Mohd. Din Bin Ahmad  
   Deputy Director of Medical Services (H)  
   Kuala Lumpur

9. Dr. Raja Noordin  
   Medical Officer, Yaws Control Project  
   Federation of Malaya

10. Dr. M. C. Chacko  
    General Hospital  
    Penang

11. Dr. D. Roy  
    Medical Officer of Health  
    Selangor

---

* Unable to attend
LIST OF PARTICIPANTS (cont'd)

A. **Country Participants (cont'd)**

**Philippines**

12. Dr. Rafael Tumbokon  
   Undersecretary of Health and Medical Services  
   Department of Health  
   Manila

13. Dr. Amadeo H. Cruz  
   Project Director, Rural Health Services  
   Bureau of Health Services  
   Manila

**Thailand**

14. Dr. Somboon Vacharotai  
   Director Treponematoses Control Project  
   Bangkok

15. Dr. (Miss) Ampha Phothivihok  
   Medical Officer, TCP  
   Bangkok

B. **WHO & UNICEF STAFF**

**WHO Personnel**

16. Dr. C. J. Hackett  
   Medical Officer  
   Venereal Diseases & Treponematoses  
   WHO, Geneva

17. Dr. D. R. Thomson  
   WHO Medical Adviser to UNICEF  
   Bangkok

**SEA Region**

18. Dr. A. Zahra  
   Joint General Secretary  
   Regional Adviser on Communicable Diseases

19. Dr. J. L. De Vries  
   WHO Medical Officer  
   Treponematoses Control Project  
   Bangkok, Thailand

**WF Region**

20. Dr. W. M. Yung  
   WHO Area Representative  
   Singapore

21. Dr. D. R. Huggins  
   Joint General Secretary  
   Regional Adviser  
   Venereal Diseases & Treponematoses
LIST OF PARTICIPANTS (cont'd)

B. WHO & UNICEF Staff (cont'd)

WHO Personnel (cont'd)

WP Region  22. Dr. R. Pierron
Medical Officer, Yaws Control Project
Savannakhet, Laos

UNICEF Personnel

23. Mr. S. Polak
Resident Representative
UNICEF Thai Area Mission
Bangkok

- oOo -
INTER-COUNTRY YAWS CONTROL
CO-ORDINATION MEETING

Kuala Lumpur, Malaya
13-18 April 1959

COUNTRY PAPERS

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<thead>
<tr>
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<td>dPR/VDT/50</td>
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<td>R. Pierron &amp; H. Bandhavong</td>
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<td>dPR/VDT/51</td>
<td>A Review of the Philippines Yaws Control Programme</td>
<td>A. H. Cruz</td>
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<td>Review of T. C. P. Thailand</td>
<td>S. Vacharotai</td>
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<td>dPR/VDT/54</td>
<td>The Results Concerning the Condition of Yaws of the Campaign in Indonesia</td>
<td>R. Wasito</td>
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<td>dPR/VDT/55</td>
<td>Yaws in Cambodia</td>
<td>Prouch Vann &amp; Chau On</td>
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<td>A Short Talk with the Proposed National Programme on the Control of Yaws Disease in Burma</td>
<td>Tha Hla</td>
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<td>dPR/VDT/57</td>
<td>Statement of Yaws Control Programme in the Philippines</td>
<td>R. Tumbokon</td>
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INTER-COUNTRY YAWS CONTROL
CO-ORDINATION MEETING

Kuala Lumpur, Malaya
13-18 April 1959

REFERENCE MATERIAL

1. Bulletin, WHO Vol. 15, No. 6
3. An International Nomenclature of Yaws Lesions (Monograph No. 36)
5. Serological and Epidemiological Aspects in Yaws Control - Kranendonk
6. Syphilis - Review of Recent Literature - Beerman et al
8. WHO/VDT/197 Rev. 1 - Glossary of Terms used in Mass Campaigns Against Yaws
9. WHO/VDT/135 Rev. 1 - Some Important Aspects of Yaws Control
10. WHO/VDT/254 - Studies on the Immunity of Framboesia Tropica in Man - Guimaraes
11. WHO/VDT/253 - Some Aspects of the Epidemiology of Yaws - Hackett
12. WHO/VDT/217 - The Indonesian-Yaws Control Campaign - Hackett
13. WHO/VDT/251 - Reactions Produced in Pinta, Yaws or Syphilis Patients on Inoculation with Treponema Perteneur Castellani 1905 - Medina
14. WHO/VDT/218 - The Indonesian Treponematoses-Control Programme, Simplified (TCP) Directions on Measures to be Taken in the Consolidation Phase - Kodijat
15. INT/VDT/87 - Transmission of Yaws in Nature - Hackett
16. INT/VDT/109 Rev. 1 - WHO Treponematoses Advisory Teams (TAT)
17. INT/VDT/116 - Epidemiology of Receding Yaws - Hackett
18. INT/VDT/117 - Research in Yaws - Hackett
19. Doc.AFR/HEP/Seminar/1 - Social and Cultural Backgrounds for Planning Public Health Programmes in Africa - Read

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