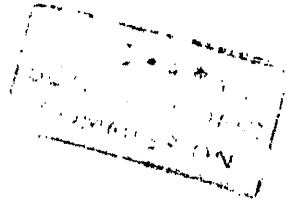


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MOSQUITO-BORNE DISEASES - MALARIA

The First Asian Malaria Conference (W.H.O.)

Bangkok, September 1953

by

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## THE FIRST ASIAN MALARIA CONFERENCE

The first Asian Malaria Conference organised by the World Health Organisation was held at Bangkok from 21st to 24th September, 1953. It was attended by delegates from the different governments in South East Asia and West Pacific regions, representatives of bilateral and international agencies and officers of the W.H.O. Secretariat. I attended this conference as an observer for the South Pacific Commission. The conference was opened by the Minister of Public Health of Thailand. The opening speech by the Minister of Public Health of Thailand was followed by addresses by Dr. C. Mani, Regional Director, W.H.O., South East Asia region, Dr. Paul F. Russel, Member of the Expert Committee on Malaria of the W.H.O., Dr. E.J. Pampana, Chief of Malaria Section, W.H.O. Geneva, and Dr. F.J. Dy, Regional Adviser on Malaria, Western Pacific Region, W.H.O.

Delegates representing the following countries were present: Afghanistan, Burma, Ceylon, Dutch New Guinea, French India, Indonesia, India, Laos, Malaya, Philippines, Portuguese India, Pakistan, North Borneo, Thailand and Vietnam. The total population of the areas represented at this conference is about 590 million. Half of this population lived until recently under conditions of exposure to malarial infection. Malaria is undoubtedly a public health problem of immense importance in these areas. As a result of malaria control schemes carried out in endemic areas in different countries, over 47 millions of people are now being protected against malaria. The different governments furnished the details of the extent, technique and organisation of the malaria control programmes in their respective countries.

### 1. Present Status of Malaria Control.

The experience of workers in different countries was that residual insecticide spraying was effective in controlling malaria. This measure was found to be efficacious even when there was considerable variation in climatic conditions, types of houses and habits and social conditions of the population. The per capita cost of large-scale malaria control schemes was so low that the communities concerned could afford to control malaria.

In the vast majority of malarious areas, the vector *Anopheles* rest indoors and consequently they are susceptible to effective control by residual insecticide spraying. Under such conditions it would be possible for a country to reach the end-point of malaria transmission more quickly than in other areas where the vectors are more elusive and do not come into that extent of contact with the insecticide. There are certain areas where the

vectors feed and rest out-doors; in such areas there is the likelihood that the residual insecticide may not be effective because the vector mosquitoes would not come in contact with the sprayed surfaces. The effectiveness of residual spraying under such conditions had not been proved and for this, certain experimental projects are in progress, as for example in New Guinea and Sarawak. It has been demonstrated, however, that in Mindoro (Philippines), Anopheles minimus flavirostris could be controlled by residual insecticide spraying.

So far no reports have been received from any of the countries represented at the Conference to indicate that the vector anophelines have developed a resistance to D.D.T. The residual insecticide now used in most of the countries for malaria control work is D.D.T. in the form of wettable powder. In some areas a 50 per cent formulation is used and in others the 75 per cent formulation; both forms have yielded good results. In a few instances where satisfactory results were not obtained it was found that the product used was not up to the standard specification, chiefly in respect to its D.D.T. content and its suspensibility in water. This could be due either to improper formulation and manufacture of the wettable powder, or deterioration of the product subsequent to manufacture resulting probably from storage under unfavourable condition. When the product at the time it was used conformed to the specifications of the W.H.O. Expert Committee on Insecticides the results were found to be uniformly satisfactory.

As regards the dosage and frequency of application, there was considerable variation in the procedure adopted by the different authorities, in their respective areas. The dosages employed ranged from 56 mg. to 200 mg. per square foot. The frequency of application also varied; in some areas, only a single spraying, in some two, three or more depending on the duration of the transmission season and other local factors. Different types of sprayers were used by different workers - such as the knapsack sprayer, pressure sprayers and stirrup pumps.

The general consensus of opinion was that, whatever the dosage, frequency of application or sprayer employed, so long as the measure was effective in controlling the local vector anophelines, there occurred a remarkable reduction in malarial mortality and morbidity. Indirectly, there occurred a lowering of the general death rates and infantile death rates. Some collateral benefits were observed in certain areas in India, as for example, control of other insect-borne diseases such as plague and dermal leishmaniasis.

There was an interesting discussion on the economic benefits that follow malaria control. Quite apart from the reduction in malarial mortality and morbidity, malaria control measures conferred such benefits as an increasing sense of well-being in the population, an increase in efficiency and a fuller utilisation of the natural resources of the country. The speakers gave specific information on the following points: (a) the value of land rose many-fold soon after malaria was controlled in those areas, (b) large tracts of arable land which were hitherto left uncultivated because of the unhealthiness of those areas were brought under cultivation; this also enabled landless persons of the cultivator class to get arable land for cultivation, (c) loss of individual income through malarial sickness was prevented, (d) economic surveys carried out in Mysore (India) showed that for every rupee spent on malaria control work, there was a return of 93 rupees by way of (i) savings in medical expenses and funeral expenses (ii) increased earning (iii) increased value of the land and livestock (iv) reduction in indebtedness. (e) Industrial concerns showed a larger production consequent on malaria control work, through increased efficiency and reduced sickness in the labor force. (f) The construction of roads, dams and

water-supply schemes was made possible, and at a lower cost, as a result of malaria control work.

## II. Organisation, Methods and Financing of Malaria Control Programmes.

It was felt that every country should have a central malaria control organisation for planning, training, research and standardisation of equipment and formulations. In countries with a well organised public health service, control operations could be integrated with general public health work. In countries without a developed public health service, and if malaria is the main public health problem, a separate organisation would be needed for malaria control operations.

It was felt that the malaria personnel should be adequately remunerated so as to retain efficient men in the malaria service.

Discussing the question of community participation in malaria control programmes, it was felt that the running of a control scheme with the help of voluntary labour provided by communities would not be satisfactory. The levy of a special tax for malaria control work would make a scheme unpopular. Funds for malaria control should be provided from national, central or local sources. Financial assistance from international agencies would contribute towards accelerated expansion of the programmes, provided that the government has agreed to provide funds for the continuance of the work when such outside assistance is withdrawn. Malaria control services should be on a stable basis in view of the immense importance of malaria control in public health work.

## III. Planned Development of National Malaria Control Programmes.

Priority for malaria control work should be given to areas with high endemicity, areas where malaria control is of economic importance and areas subject to epidemics of malaria.

In certain countries, as for example Greece, the spraying programme was discontinued when malaria reached an end-point. It was felt that the stage has not yet been reached in Asian countries when control programmes could be terminated with safety.

## IV. Regional Co-ordination.

Malaria control is at present so effective that country-wide elimination of the disease as a public health problem seems feasible. In areas where malaria has been effectively controlled there is the danger of re-infection across state, national or regional borders, through lack of inter-state or inter-governmental co-ordination. It was felt that there should be the closest co-ordination by different agencies or governments in regard to malaria control work. There are instances of the control of certain diseases carried out by inter-governmental committees. Such a procedure should be possible for malaria control work as well, especially in respect to large contiguous areas with similar conditions but falling under different governments, states or even regions.

Regarding the question of training of personnel it was felt that the auxiliary personnel needed for malaria control work could be trained locally. The training programme should be such as to give adequate training to sufficient numbers of auxiliary personnel for the implementation of local programmes.

It was felt that key professional staff who would ultimately be in charge of control programmes should receive the benefit of training abroad. The conference stressed the importance of sending W.H.O. visiting lecturers to malaria training centres.

## V. Recommendations of the Conference.

The following recommendations were made by the conference:

- (1) Efforts should be made to estimate the results of anti-malaria projects in regard to (a) malaria morbidity and mortality, (b) morbidity and mortality for other diseases affected by the control measures (c) economic benefits and social improvements resulting from malaria control.
- (2) Every country where malaria is a major public health problem should have a permanent anti-malaria organisation, adequately staffed with adequately paid personnel, and where malaria until recently has been a problem there should remain an organisation adequate to cope with any recurrence of the problem.

While there are advantages in decentralising the operations of malaria control, a central organisation is also necessary for it is most suitable to deal with research, training of personnel, assessment of results, standardisation of methods, equipment and supplies.

In large countries where state or provincial autonomous anti-malaria services exist, the central national organisation should give technical guidance, higher training and assist in co-ordinating the activities of the state or provincial malaria services on a nation-wide plane.

- (3) (a) In the planning and carrying out of national control programmes every effort be made to reduce per capita costs to a point where they can be met by routine budgetary funds; (b) with a view to increasing efficiency and lowering costs, further experimentation be carried on in the organisation of malaria control schemes, the training of personnel and insecticidal practice.

- (4) (a) That in planning malaria control programmes the principle of merging areas of control both within and outside the borders of the countries concerned, on an inter-country, intra-regional and inter-regional plane be followed. (b) that W.H.O. offer appropriate assistance for the co-ordination of national plans through its Regional Offices, and if need be, through other suitable methods such as inter-regional conferences and committees.

- (5) (a) That Governments endeavour to provide adequate training in adequate numbers of malaria control personnel at all levels. (b) That W.H.O. explore the possibility of convening periodic meetings on the organisational and technical aspects of malaria control which would provide an excellent medium for an interchange of ideas and experiences.

- (6) That W.H.O. assist governments in training local malaria control personnel by providing fellowships, visiting lecturers or consultants and regional malaria training centres, by supplying books and teaching equipment and materials and by disseminating information on methods and techniques being used in various countries.