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MALARIA CONFERENCE - SOUTH-EAST EUROPE

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REPORT

A conference on malaria was held from 12 to 14 December 1955 in Belgrade under the joint auspices of the Yugoslav Government and the Regional Office for Europe of the World Health Organization. Representatives from the following countries participated: Albania, Bulgaria, Greece, Rumania, Turkey and Yugoslavia.¹

In an address of welcome, Dr. V. Djukanović, Secretary of the Yugoslav Committee for Cooperation with International Health Organizations, praised the efforts made towards international cooperation, of which the Conference was an outcome. He referred to resolution WHA8,30 of the World Health Assembly on the eradication of malaria and expressed the hope that the meeting would make a further contribution to WHO's constructive work.

Dr. W. Bonne, on behalf of the Director-General of WHO and of the Director of the Regional Office for Europe, wished the Conference every success.

Professor Č. Simić was unanimously elected Chairman of the Conference and a Drafting Committee was set up.²

As an opening to the technical discussions the delegations gave the history of malaria control and of the present situation in their respective countries.

¹ For list of participants, see page 10

² For Drafting Committee, see page 11

The six neighbouring countries represented at the Conference have certain epidemiological features in common. Thus, in all of them, the three principal species of Plasmodium existed, while seasonal malaria has been an important factor in morbidity and mortality, and equally important in causing social and economic deterioration. With a few exceptions the same vectors (A. sacharovi(elutus), A. maculipennis and A. superpictus) are to be found in each country. All the health administrations made efforts between the two wars to organize malaria control campaigns of varying intensity which, however, were only partially successful and did not make it possible to envisage their extension on a country-wide basis. Only after the introduction of DDT were governments finally able to establish national control programmes. Between 1946 and 1950 the use of DDT became the method of choice in all these countries (Greece and Turkey 1946; Albania and Yugoslavia 1947; Rumania 1949; Bulgaria 1950) and, as was to be expected, the results were spectacular in view of the epidemiological characteristics mentioned above.

All the participants furnished data on morbidity before the use of residual DDT and during the past few years. In Albania up to 1933, and in Bulgaria up to 1930, there were about half a million cases of malaria annually, whereas in the ten first months of 1955 only 1221 haematologically confirmed cases were observed in Albania and 662 only in Bulgaria. In Greece, where in some years the notified cases formerly numbered 1 200 000, only 408 haematologically confirmed cases were observed in 1952. In Rumania, the 1948 figure for cases of malaria was 338 198 and in the first ten months of 1955 only 325 cases were notified (215 haematologically confirmed). In Turkey, the percentage of hospitalizations due to malaria, which was 8.6 in 1940, dropped to 0.6 in 1954. In Yugoslavia there were approximately a million cases of malaria in 1935, but the figure had fallen to 796 in 1953. In other words, in these six countries of South-East Europe, malaria, which before the first DDT spraying operations claimed 4 to 5 million victims per year, now attacks a few thousand only and would appear to be responsible for very few deaths.

All the delegations stated that their governments wished to take steps for the final eradication of malaria before the anopheles could develop any possible resistance, such as had already been noted in Greece and elsewhere.

Residual insecticides have been used by the various countries as follows:

DDT in a dosage of 2 g per m² - in kerosene solution or in emulsion;
BHC in a dosage of 0.25 to 0.30 g gamma isomer per m²;
more recently, in Greece, chlordanes in a dosage of 1.3 g per m² or
dieldrin in a dosage of 0.5 g per m².

These products have been applied once, twice or three times a year. Lower doses of DDT (1 g per m²) have been used in Yugoslavia.

Some countries, such as Rumania and Bulgaria, began by treating the highly endemic zones before dealing with the outlying low endemicity regions, while other countries attacked from the outset all the inhabited areas in a given zone.

In addition to the mass spraying method, Rumania and Bulgaria experimented - first of all on a small scale and then extending the experiment to whole regions - with a system of barrier spraying on the boundaries of the large populated centres or in the outlying zones with low endemicity, sometimes suspending spraying in zones where no cases had been notified for two or three years.

In the zones of Rumania and Bulgaria where malaria is only sporadic, and where mass spraying operations have been suspended, "focal" sprayings ("selective" method) are also effected. This method consists in the application of insecticide to a house where there is a patient and to four or five neighbouring houses.

In all the countries represented, antilarval measures have been adopted in addition to spraying with chlorinated residual insecticides. The same products are used for larval control and aircraft are sometimes employed, particularly in Greece. The larval control method is generally reserved for the treatment of large expanses of water, as in marshes or rice fields, and it has not been applied on a large scale except in Greece. In the

possible event of anopheles developing resistance, account should be taken of the fact that chlorinated insecticides have been fairly widely used in agriculture by several of the countries concerned, particularly during the last few years, and that anopheline larvae have probably been in contact with them.

Sanitation of watercourses and swamps has been undertaken in the participating countries. The measures adopted have been designed to meet the requirements of agriculture rather than those of malaria control, but have nevertheless helped to achieve good results by reducing the malaria potential particularly in Bulgaria.

Extension of the rice fields, which presented a danger before the introduction of insecticides, can today be authorized, but care must naturally be taken, when new rice fields are created, to avoid increasing the malaria potential of a region: this principle applies equally to large-scale hydraulic works and to irrigation systems.

Chemotherapy is practised in all the countries concerned with the various drugs available, schizontogametocytocidal treatment being the most usual.

The dosage is practically the same everywhere, but treatment schedules differ from country to country. In Albania and Bulgaria, former patients are given "anti-relapse" treatment in the spring. In Bulgaria, this treatment is followed by clinical prophylaxis ("suppressive" therapy) up to the end of the malaria season.

In Rumania, all new cases and all malaria patients registered during the preceding year (new cases or relapses) undergo schizontocidal treatment from April to October, followed, throughout the whole of the malaria season, by clinical prophylactic treatment.

In Albania, Rumania, Turkey and Yugoslavia chemo-prophylaxis has been applied to certain population groups particularly exposed to the risk of infection owing to their occupation, and to organized communities in malarious zones (employees in big workyards, members of the armed forces, school-children, etc) to whom a weekly dose of mepacrine (Acrichine), proguanil

(Paludrine) or chloroquine is distributed. In some countries chemotherapy has also been applied to pregnant women and nursing mothers.

In each country malaria control is under the responsibility of a national service, attached to the Department of Public Health, though often decentralized in so far as field operations are concerned. Co-ordination committees, advisory committees, or expert committees (working independently as in Yugoslavia and Greece, or in collaboration with parasitology and malariology institutes as in Rumania and Bulgaria) ensure the uniformity of programmes, epidemiological methods and operations, or, as in Turkey and Greece, confine themselves to epidemiological research and the training of personnel.

The Conference expressed the fear that as soon as malaria has been eliminated, health administrations may demobilize their malaria control services. It recommended that such services should not be dissolved as the tasks to be fulfilled decrease, but should be called upon to undertake new health activities.

Among the countries represented, only Greece has reported cases of anopheline resistance to insecticides. In September 1951 A. sacharovi was found to be resistant to DDT. In 1952, the same species had developed resistance to chlordane. At the present time, resistance seems to be developing in other species (A. maculipennis and A. superpictus), but this cannot be confirmed until the study, at present in progress, has been completed.

Forms of epidemiological surveillance vary from country to country. In Greece, an active watch is kept over villages known to be malarious; they are visited by inspectors every 10, 20 or 30 days according to the gravity of the threat to the village. Inspectors are required to detect suspected cases of malaria, to take blood samples for examination, and to administer treatment, which is continued if the result of the examination is positive. These inspectors are also responsible for periodic determination of the anopheline density in their zones.

In other countries, cases of malaria are usually detected and registered either at dispensaries or by health personnel in their visits to homes.

In either case, epidemiological investigations are also carried out; in Rumania, for example, imagocidal operations in a village must not be suspended unless at least 80 per cent of the population of all age-groups has been examined for splenomegaly and blood parasites. Any person found to be carrying parasites is registered on a card and the case subjected to epidemiological investigation; all the inhabitants of the same house and of neighbouring houses undergo haematological control.

In Bulgaria, a complete epidemiological survey is made of all villages in which there are more than three cases of malaria. The survey consists in interrogation of the whole population, examination of the blood of all children under 14 years of age, and of all the inhabitants of the houses adjacent to those of persons suffering from malaria.

It is evident that no country can safely interrupt operations with insecticides if there is, at its frontiers, a zone where malaria is not controlled or where gametocyte carriers and infected anopheles are present.

In response to the wishes of all delegations present, the Conference recommended that measures be studied and adopted by which accurate information on the malaria situation in the common frontier zones might be regularly and rapidly obtained. Such information would make it possible for the countries concerned to take adequate steps.

During the period devoted to the final objective of eradicating malaria, the Conference recommended not only the periodic exchange of epidemiological information, but also the application of measures to ensure effective control in the frontier zones. This recommendation could be implemented by the adoption of bilateral agreements between the countries concerned.

The Conference also recommended that a "protective zone" to a depth of about twenty kilometres be established on each side of the frontiers, within which uniform steps must be taken, including the compulsory notification of all cases of malaria, epidemiological investigation of each case, and the

microscopical examination of blood samples from patients, persons living in the same house as the patient and persons living in neighbouring houses. Monthly reports indicating new cases detected in the zone during the month should be exchanged between countries signatory to the above bilateral agreements, and the appearance of micro-foci should be notified immediately by telegram.

The Conference further recommended that research on the susceptibility of anopheles to insecticides should be undertaken in each country, employing uniform and comparable methods. Bilateral agreements should provide for the immediate notification of any development of resistance to insecticides on the part of the insect vectors.

The Conference noted with satisfaction that several participating countries had already established close cooperation and were exchanging information on malaria in frontier regions. Bilateral agreements already exist between the Kingdom of Greece and the Turkish Republic, and between the People's Republic of Bulgaria and the People's Republic of Rumania. A wider agreement relating to communicable diseases in general (and, therefore, covering malaria) has been signed between the People's Republic of Bulgaria and the Federal People's Republic of Yugoslavia. A similar agreement is being prepared between the Kingdom of Greece and the Federal People's Republic of Yugoslavia.

Participants expressed the opinion that bilateral agreements were very effective instruments for the exchange of information. While it was for the respective governments to define the level at which information should be exchanged, the Conference particularly recommended that this exchange be effected directly between the national health administrations.

As an example of a bilateral agreement, the Conference wished to draw attention to the Protocol signed on 20 and 21 July 1955 by the representatives of the Greek and Turkish Governments. This Protocol provides for a regular exchange of information on malaria control in both countries and particularly in the Evros river frontier zone. It also provides for reciprocal visits to the sites of the technical operations and for monthly meetings of a permanent Graeco-Turkish committee on malaria control in the Evros area.

Further, in view of the fact that airspraying of larval breeding places is a widely applied practice in Greece, the agreement provides that Greece shall be responsible for larval control in certain breeding areas (marshes and rice fields) in Turkish territory, the evaluation of the operations to be made by the Turkish health authorities.

Greek and Turkish experts have agreed that in a zone extending 10 kilometres on each side of the frontier, the malaria control measures applied in the rest of both countries will be very strictly applied, including epidemiological inspection of all villages in the "protection zone" to be undertaken every ten, twenty or thirty days according to the presence or absence of malaria or the extent to which the village is threatened. Personnel responsible for these inspections must make an active search for suspected cases of malaria, treat them immediately with schizontogametocytocides, and have the blood of the suspected persons subjected to laboratory examination.

The information as referred to in the Protocol must include data on the number and location of confirmed cases, anopheles density ascertained by the same method, malaria index and, of course, any important details with regard to the malaria control operations.

The Bulgarian delegation, on the basis of its experience, proposed that in the "protection zone" all cases of malaria should, in so far as possible, be hospitalized and undergo compulsory treatment consisting of a period of therapy followed by clinical prophylactic ("suppressive") treatment or anti-relapse treatment. All suspected cases should be treated as well and haematologically controlled three times during the first year and once, in the spring, in the following year. While they should not be compulsorily notified, suspected cases should, nevertheless, be entered in a special register. The "focus" and the "para-focus", i.e. the patient's home and the neighbouring houses, would have to be sprayed with insecticides.

The Conference expressed its satisfaction with the results achieved at the Belgrade meeting and recommended that other conferences be convened periodically to discuss the following points:

- a) results of the implementation of measures recommended by the present conference;

- b) residual transmission foci and methods to be adopted for their extinction;
- c) data ascertained on the sensitivity of vectors to insecticides.

During such meetings there would be general exchanges of information on the development of malaria control programmes in progress.

The Conference expressed the hope that WHO would collaborate in the organization of the meetings in question.

The Conference expressed its thanks to the Government of the Federal People's Republic of Yugoslavia for its hospitality and collaboration, which had greatly contributed to the success of the meeting.

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