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IS IT NECESSARY TO CONTINUE INDEFINITELY
DDT RESIDUAL SPRAYING PROGRAMMES?

A D D E N D U M

Upon the request of the Secretary of the Expert Committee on Malaria, Professor G. LIVADAS has been kind enough to supply further information concerning the subject of this paper.

Page 1, paragraph 4 of document WHO/Mal/79

It might be interesting to explain that, during the period 1946-1950, DDT residual spraying in rural areas was applied to houses, auxiliary premises and stables once a year, in all endemic rural areas, and, in addition, in surrounding areas of doubtful endemicity. Such expansion of the campaign was intended to comply with the demand expressed from all sides that the malaria programme include as many as possible rural areas, mainly infested with other domestic insects of public-health importance or simply nuisance domestic pests (Phlebotomi, etc.).

Spraying was carried out during the months of May-June: on all inner surfaces, ceilings and walls. In each village 1-2 premises were left unsprayed (control stations).

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Larviciding was carried out systematically in malaria-stricken urban areas where house-spraying would have been very costly; air-spraying, owing to psychological difficulties, was applied irregularly in some large, swampy areas. In 1946, oil or Paris green were used; from 1947, DDT in doses of 0.02 g DDT technical grade per sq.m of surface. Larviciding was done with hand sprayers. The average number of urban population protected annually by this method in 1946-1950 amounted to 1,440,000.

In parallel to the above programmes, DDT air-spray of a 599,550 acres swampy area (annual average) was also carried out. The unfortunate co-application of this expensive and, under Greek conditions, questionable method, exercised such a strong psychological influence on the population (which to this spectacular method attributed mainly the results obtained), that its complete discontinuance was found impossible, in spite of the objections raised by the responsible technical officials regarding the advisability of this method.

Thus the total of the protected population in Greece during the 1946-1950 five-year period amounted to 4,864,000 (annual average), and the average yearly expenditure for the application of all three methods to \$1,281,000 or \$0.26 per capita protected.

Page 3, paragraph 1.

In 1951 not only was spraying limited to the higher part of the inner walls but kitchens had also been entirely excluded from the spraying. Certain changes were also made in regard to the time of spraying and the insecticide doses: villages with A. sacharovi were sprayed during the months of May and June, with doses of 2.0 g per sq. m of surface, as usual, but villages with A. superpictus were sprayed during the months of July and with a dose of 1.0 g DDT per sq. m of surface, the above mosquito appearing later and having a shorter duration of activity.

Other details that were omitted concern the maintenance in 1951 and 1952, of ground larviciding and DDT airspray of major swamps. Ground larviciding in malarious urban areas was continued in 1951 and 1952 throughout the country. The urban population protected during 1951 by anti-larval programme amounted to 1,520,000. The DDT airspray which was restricted as usually to large swamps, was also continued in 1951 and 1952, but whereas in 1951 it covered 307,500 acres, in 1952 only 248,750 acres were covered.

Page 3, paragraph 2. Epidemiological Investigation

The epidemiological investigation is carried out by the prefectural malaria inspectors who are touring the area during the malaria season (end of May to beginning of October). This work is supervised by the Director of the respective prefectural health centre and the regional malariologist of the area.

Each malaria inspector is responsible for the villages of his sector, which are subdivided into three categories, according to the degree of their malaria danger.

Top priority in this survey is given to villages pertaining to the first category, as well as to villages in which an emergency situation and a request for improvement is involved.

The touring inspector, in co-operation with the local doctor, if such is available, carries out an investigation of suspicious malaria cases, collecting blood smears, which he refers on, by the speediest possible means, to his superior officer for further attention. (Moreover, the local doctors are authorized to forward to the laboratory of the malaria service, for free examination, any smears from suspicious malaria cases.) The inspector makes also an entomological survey of the area and prepares the relevant bulletins on the collection of adults and the catching of larvae, which he submits immediately to his superior officer, along with other possible observations. Any positive cases detected by the microscopic examination are placed under immediate treatment through the inspector or the local doctor, duly notified of the fact. The Director of the Health Centre, on basis of collected data and in co-operation with the responsible regional malariologist, decides on the application of "repressive" house spraying.

An absolute indication for the application of "repressive" spraying constitutes the finding in a village of one or more positives associated to a high anopheline density. Repressive spraying however is also carried out in cases of only unusual increase of anopheline density, or of occurrence of more positive cases even if anopheline density is moderate. Certain changes were made in the 1953 epidemiological investigation programme, aiming at a more timely detection of sources of infection and a more systematic effort to eliminate them. For this purpose, it is planned to secure a more active participation of local doctors, increase regional smear examination centres and provide a wider use of modern synthetic antimalarial drugs, on the basis of the indications provided by the microscopic examinations.

In 1951, from the end of May to the beginning of October, 7,006 inspections, namely 8.2 surveys on an average per village, were made in Crete and Peloponnese.

In Crete the epidemiological investigation revealed no positive case - in Peloponnese, there was a total of 40 positives detected until the end of December, of which 37 vivax /and not 31 as given in the document/ and 3 falciparum. It should be noted that most of the above positives pertain to a sole prefecture (Elia) and very few to other three prefectures and all of them to areas where rice cultivation was considerably extended recently. In the remaining three Peloponnese prefectures no positive case was detected. Repressive spray was done in a total of 31 villages of that region.

In the whole country, the school and infant parasite rates taken in the fall were 0.02% and 0.03% respectively.

In 1952 in the entire country, the number of inspections made during the corresponding malaria season amounted to 27,983 and included 2,553 villages or 11 surveys on the average per village. The total of detected positives throughout the country from May to the end of December 1952 amounted to 414 (vivax 84%, falciparum 12%, malariae 3%). Specifically on the island of Crete/as said in document WHO/Mal/79/ no positive case was detected from the epidemiological investigation made, and no repressive spray was made necessary during the corresponding malaria season.

In Peloponnese there were found 56 positives until the end of December 1952, most of which pertained to the Prefecture of Elia, as in the previous year. Out of 393 infant blood smears, collected in the fall of 1952, no positive was detected, and of 2,630 school-age smears, collected in the fall of 1952 for the establishment of the corresponding rate, there were two positives, both vivax (school-age parasite rate 0.07%

In the remaining country the number of detected microscopically positive cases through the whole year up to 31 December 1952 was 358, and repressive spraying was done during the corresponding malaria season in 51 villages, in addition to the 276 villages preventively sprayed. From 2,557 infant- and 13,260 school-children blood smears, collected in the fall of 1952 in the above region of the country and so far examined, one and three were found positive respectively (all vivax). (There still remains the examination of 852 infant and 5,310 school-age blood smears.)

Page 4, paragraph 3 and Page 5 item 3.

The number of the villages apart from Crete and the Peloponnese, where preventive spraying had been carried out in 1952 should be corrected: instead of 269 this should be amended to 276. Those where A. superpictus was a vector, were sprayed with 2 g DDT per sq. m instead of 1 g as adopted in 1951 for A. superpictus villages.