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STATUS OF MALARIA ERADICATION IN MEXICO

UNITED STATES OF MEXICO
Ministry of Public Health and Social Welfare
National Malaria Eradication Service

STATUS OF MALARIA ERADICATION IN MEXICO[1]

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INTRODUCTION

For the sixth consecutive year I have the honor to report to the Directing Council of the Pan American Health Organization, Regional Committee of the World Health Organization, on the status of the malaria eradication campaign in Mexico. The present situation is the outcome of more and more strenuous and more and more enthusiastic efforts to reach our goal.

As on previous occasions I should like to take this opportunity to again thank the Pan American Health Organization and United Nations Childrens Fund for their interest in, as well as their support of, the malaria eradication campaign in Mexico.

REORGANIZATION OF THE DIVISION

Since 1960 was the last year of complete coverage envisaged in the original plan of operations, it became necessary to reorganize the Division so as to adapt its operations to the consolidation phase, which in 1961 was initiated in the greater part of the malarious area of the country. The changes made were based on the following principles:

1) Simplification: The number of departments was reduced from 6 to 4.

2) Expansion of epidemiological operations.

3) Gradual transformation of spraying operations into case-finding operations, as a support to epidemiological evaluation.

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4) Incorporation of logistic functions into field operations, which include both spraying and case-finding.

5) Merger of training, health education, and public relations under the same department.

6) Transfer of research functions to the pertinent agencies of the Ministry of Public Health.

A chart showing the present organization of the NMES based on the above-mentioned principles is attached.

MALARIA SITUATION

As was reported in earlier years the planned attack phase was completed prior to the target date in certain parts of the malarious area in which transmission was considered to have been interrupted. In others, however, spraying operations are continuing.

At the end of 1960 epidemiological evaluation operations showed that transmission had been interrupted in 63% of the original malarious are that the situation was doubtful in 17% of that area - the report that there were no known cases being considered unsatisfactory; and that, in the remaining 20%, attack measures --spraying and drugs-- would have to be continued until transmission was interrupted, owing to the presence of the plasmodium. Subsequently, in May, 1961, after the central technical staff had made a thorough survey in all zones, the doubtful areas were eliminated. The present classification is as follows: 75% of the original malarious area is in the consolidation phase; the remaining 25% is still in the attack phase and constitutes what has been called a problem area with persistent transmission. This area contains only 18% of the dwellings and has been delimited in such a way as to allow a margin of safety.

Epidemiological investigation of about 3,250 cases has revealed certain factors that may be the determinants of that persistence: in dwellings treated normally, changes in the spraying, lack of sprayable surfaces, and the inhabitants' custom of sleeping outside the dwelling, interfere with the protection that the insecticide could confer; in unsprayed houses and localities --the latter generally consisting of a sing house---the absence of insecticide was due either to recent construction or to operational omissions; moreover, a correlation has been observed between the presence of cases and considerable movements of the population. Special mention should be made of the areas in which dieldrin was sprayed - in some for as long as three years: these are now considered problem areas because the attack program with effective insecticides began at a late date rather than because of the persistence of transmission after effective spraying.

The positivity indices, which at the end of 1960 had fallen to 0.29 cases per 100 films examined, rose in 1961, reaching 0.55 at mid-year. This rise is attributed to the following factors:

1) Intensification of case-finding, in particular in problem areas.

2) Epidemiological investigation of all known cases, leading to the detection of secondary cases.

3) Special continuing surveillance in positive localities as soon as the first case was discovered.

ACTIVITIES

Epidemiological operations

Case-finding: Since 1960 special emphasis has been placed on improving the case-finding system both in quantity and in quality. Stress is laid on the fact that blood specimens should come from persons who have or recently had fever, except in special investigations. Case-finding by the notification posts is stimulated by various means and is complemented by that carried out by the NMES staff. The network of voluntary collaborators in the malarious area is constantly being improved: (a) by establishing such posts in all localities in which it is possible to do so; (b) by providing the notifiers with the necessary equipment for collecting blood specimens; (c) by training them in the appropriate technique; (d) by informing the public of the existence and activities of each post. The last-mentioned activity, which tends to greater production by the notifiers, has been called "channelling". The NMES staff assigned to the promotion of notification posts and "channelling" also carry out active case-finding in localities in which there are no notifiers.

The number of blood films being collected is constantly increasing.

During the first six months of 1961 the number of blood specimens collected was 639,264 or 59% more than the 401,769 obtained during the corresponding period of 1960.

As for quality, it should be pointed out that, thanks to the insistence placed on active case-finding, the positivity index of the blood films collected by NMES personnel (0.38%) has risen above that of the blood films produced by the notifiers (0.35%), which until recently had been the greater.

We have planned a program of activities aimed at making the best possible use of the medical officers of health in the country, in particular in the collection of blood specimens: the necessary steps have been taken to make these officers responsible to the NMES for surveillance in urban areas; as a result the staff of NMES itself can deepen their penetration into rural areas. It should be borne in mind that in Mexico there are thousands of localities with a population of less than 100.

With a view to continuing to improve case-finding two experiments have been carried out, one in Zone I (Merida) and the other in Zone VII (Ciudad Victoria): there, a comparison has been made of the output and productivity of case-finding by voluntary collaborators and of that by NMES personnel as well as of the relative effectiveness of case-finding by means of varying intensity of coverage, ranging up to total coverage which included monthly reports from a 100% of the localities. The results showed that a network of the last-mentioned type is prohibitively expensive and is unnecessary; satisfactory information is obtained by means of a network which covers all localities with more than 100 inhabitants and 25% of localities with a lesser population. The present NMES case-finding network follows this pattern.

Epidemiological investigations: With the aim of leaving medical malariologists free to devote more time to an exhaustive study of cases and their radical treatment, it was decided to transfer the responsibility for the handling of case-finding personnel to the Spraying Operations Department which, because of this, was converted into the Field Operations Department. Special attention was paid to the administration of radical treatment to all the malaria patients discovered. Drugs were also given to neighbors and members of the patient's family who were exposed to the infection. In some instances, mass treatment was carried out, and its results are at present being assessed.

Spraying operations

The reduction in spraying operations, which was appreciable in 1960, was further accentuated in 1961, when only 18% of dwellings were sprayed.

Spraying was discontinued in 863,519 dwellings in 25,830 localities before the target date; the greatest reduction was in Zones I and VII. The localities in which spraying was discontinued included almost all those which were being protected by means of barrier spraying.

In another considerable number of dwellings, which previously had been sprayed twice a year, spraying was reduced to a single cycle.

From the month of May onwards the DDT dose applied was changed. In about 73% of the dwellings in the malarious area the dose was reduced from $2g/m^2$ to $1g/m^2$. This reduction was based on epidemiological considerations and on field studies on the persistence of the toxic action of the insecticide carried out in various zones by the NMES. The conclusions of the WHO Expert Committee on Malaria Eradication (Washington, March 1960) on this topic and the report of the ICA Expert Committee confirmed that this decision was pertinent.

As a result of investigations of the wear and tear of nozzles and its effects on dosage, it was decided to reduce the concentration of DDT suspensions from 5% to 4.5%; spraying technique remained unchanged.

During the second half of the year the use of dieldrin, which had been decreasing since 1959, was completely stopped; since then, only DDT has been used.

The number of houses sprayed in 1960 was 3,270,740, of which 96.5% were sprayed with DDT (75%). Owing to the change in dosage 1,278,753 dwellings were first sprayed with a dose of 2g and subsequently with 1g.

In addition to 5,918,572 routine sprayings, 50,886 extraordinary sprayings were effected in localities with problems of transmission.

In the course of these operations 2,359,456 kilograms of DDT (75%), 56,408 kilograms of DDT (100%), and 4,380 kilograms of dieldrin (50%) were used.

The number of dwellings per man/day continued to rise: from 10.6 in 1959 to 11.0 in 1960. This is the result of the very praiseworthy efforts of our spraymen.

In the first six months of 1961, 1,582,503 dwellings were sprayed with DDT. In addition, 11,897 extraordinary sprayings were made in seven zones. 736,239 kilograms of DDT (75%) and 10,650 kilograms of DDT (100%) were used. The number of dwellings per man/day was 10.54, despite the fact that most of them were situated in areas difficult of access.

Logistic operations

Logistic operations --supplies and maintenance of transport-- continued normally. As in previous years, the Ministry of National Defense continued to collaborate closely with the program by assigning staff officers to be responsible for these operations.

Good maintenance of motor vehicles has resulted in a great many of them continuing to function satisfactorily after five years of use. On the average, 81.1% of 647 vehicles are operating normally. The mileage covered by them during the year was 8.84 million kilometers or approximately 1,400 kilometers per month per vehicle in service. The campaign also has at its disposal 1,500 pack animals and 12 launches.

Health education

Since 1960 the primary objective of health education activities has been to promote notification posts.

In addition to NMES personnel, trained voluntary helpers have assiste in these activities and have done good work with the health education teams in 21,980 localities.

Training

Six international training and re-training courses were conducted at the central level: two of them were for medical practitioners and engineers, one for chiefs of sectors, two seminars for former students the International Malariology Center, Kingston, Jamaica, and one for former students of the School of Malariology in Maracay, Venezuela. These courses were financially aided by PAHO.

At the local level, the practice of re-training field personnel in the course of service was continued.

During 1960, 101 visitors were taken care of, and during the first six months of 1961, 88 visitors, from 37 countries.

Research

During 1960, the routine quality testing of insecticides in accordance with the standards laid down by WHO was continued. In addition, a rapid insecticide sedimentation test for use at the zonal level was instituted.

Research on anti-malaria drugs and the habits of malaria vectors in the country was continued.

Financial status

The appropriations made by the Government, which have always been greater than those foreseen, increased in 1960 when the budget passed rose to 70.2 million pesos or 1 million more than in the previous budgetary period. For 1961, 60 million were budgeted.

Conclusions

We should like to repeat our conviction, already stated in earlier reports, that we are on the threshold of the final stage of eradication. The Government and the people of Mexico are persisting in their decision. But it must be recalled that the decision to eradicate malaria in Mexico was taken not only with a unilateral aim but with the much broader objective of placing the country in its proper position in an American continent free from malaria. We have a common aim and we must persist in our joint efforts in order to reach it within the time limit laid down. More than ever before we need the cooperation of international organizations in three fields -technical, administrative and financial- which are recognized by the World Health Organization as the key to eradication.

Mexico, D.F., August 1961