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WORLD HEALTH ORGANIZATION

ORGANISATION MONDIALE DE LA SANTÉ

INTER-REGIONAL CONFERENCE ON MALARIA FOR THE EASTERN MEDITERRANEAN AND EUROPEAN REGIONS

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INFORMATION ON THE MALARIA CONTROL PROGRAMME IN JORDAN[1]

1. Present status of malaria control in the country

1.1 Recently estimated population of the country: 1 330 021 approximately.

1.2 Number of inhabitants living in malarious regions: nearly all the country is malarious.

1.3 Malaria morbidity and mortality statistics: malaria is a notifiable disease.

Over the last 15 years the malaria incidence as reported by the Ministry of Health of East Jordan and West Jordan (ex-Palestine) fluctuated between 1000 and 6000 cases a year.

The morbidity and mortality of this disease was very high in the past, on account of lack of proper control and effective treatment. However the incidence of infection and mortality has declined considerably during the last decade so that the number reported as primary infection does not exceed 200 cases a year and that not more than 50 deaths have been registered. This decline is obviously due to the thorough control and regular treatment of all the possible breeding places in the country. The relapses are many in number. The UNRWA policlinics in Jordan reported the following clinical malaria cases among the refugees registered in Jordan:

July 1950 - June 1951:	52 477 (Pop. 463 126)
July 1951 - June 1952:	44 030 (" " ")

1.4 Total population directly protected against malaria, by any method of control, in 1953: 500 000 approximately.

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[1] From the report submitted by the Ministry for Health and Social Affairs in March 1955 to WHO, Regional Office for the Eastern Mediterranean.

1.5 Areas where the population was directly protected in 1953:

Jordan Valley - about 200 000

Zerka, Amman and Irbid towns - about 150 000

Western Jordan towns and refugee camps - about 150 000

1.6 Data detailed in Annexe I.

1.7 Information on the evaluation of the results of the campaign: evaluation of results can be noted from the monthly reports submitted by the various District Health Offices of the country, which show clearly a remarkable decline in the incidence of anopheline breeding and of primary malaria infections. This is due to the thorough control of all breeding places, their treatment with larvicides, and spraying with DDT and other insecticides of all villages near the water courses.

1.8 Information available, if any, on general improvements that may have followed malaria control:

(a) In the field of public health:

(1) a notable decrease in malaria morbidity;

(2) a notable reduction in infant mortality rate;

(3) increased productivity and energy of inhabitants.

(b) In the social and economic fields:

(1) the settlement of Bedouins as can be noted from the replacement of their hair tents by mudbrick homes, especially in the Jordan Valley;

(2) places once uninhabited are now put under cultivation, after the malaria hazard has been eliminated;

(3) the inhabitants are becoming conscious of the malaria problem and demands for malaria control are streaming from the areas not yet protected.

2. Organization, methods, and training facilities of the present programme

2.1 Organization

There is no independent antimalaria service in the Ministry for Health and Social Affairs. At the present time the antimalaria activities form a part of the duties of the Medical Officers in the various Health Inspectorates of the country located in the following towns: Amman, Irbid, Jerash Ajloun, El-Salt, Ma'adaba, Kerak, Tafileh, Ma'an, and Aqaba. There are five malaria inspectors helping the Medical Officers of Amman, Irbid, Jerash, El-Salt, and El-Karak, and their main responsibilities during the malaria season - which extends from April to December - are to guide and see that the owners of the gardens clean their canals and prevent their overflowing or stagnation. They inspect the wells and rain cisterns and see that they have hermetically sealed covers and are provided with pumps. With the authority given to them by the malaria law, they can oblige the inhabitants of villages or members of tribes to give labour to fix and align a nearby stream, under their technical supervision. Oiling of wells is done in some places, but owing to the shortage of both oil and personnel, it is not done regularly. Drainage and clearing operations are being carried out in certain areas under the supervision of the Ministry of Health and there is a limited sum of money for the labour involved. The municipalities' health programmes are under the direct supervision of the Ministry of Health, and their antimalaria activities are guided by the medical and sanitation staff referred to previously.

UNRWA has its own antimalaria programme in Jordan which it implements through its own sanitation staff and with the co-operation and support of the Ministry's health personnel. An agreement has been signed lately between the Hashemite Kingdom of the Jordan and UNRWA to subsidize a malaria control programme covering the Yarmuk-Jordan Valleys.

2.2 Methods of malaria control

2.2.1 Residual spraying is done in some frontier villages and in areas where extensive breeding places occur. Apart from clearance of most of the wadis in Jordan, larvicidal operations are carried out in most of the towns where *A. claviger* breeds

in water cisterns, and in the whole Jordan Valley as well as in the valleys near Zerka, Nablus, Ramallah, Hebron, and in Fara'a, Amman and Jerusalem towns. In 1953, 25.5 million square metres were treated with 2.5% DDT in solar oil during the eight months' operation of the Yarmuk-Jordan Valleys.

2.2.2 Antimalarial drugs are used for treatment and not for prophylaxis. The drugs used are:

(1) Chloroquine - 14 700 tablets

(2) Proguanil - 215 790 "

(3) Amodiaquine - 12 430 "

Pyrimethamine has been used as a prophylactic in one village in East Jordan by the US Co-operative Mission to Jordan.

2.3 Training facilities

The Yarmuk-Jordan antimalaria centre in Jordan, staffed with a WHO malariologist, entomologist and sanitarian, has facilities for training all categories of personnel required in the control programmes. The Government's laboratory is sharing with UNRWA the responsibility of training malaria technicians.

3. Plans for the future

1954 - Malaria control of the Jordan Valley, including Jericho (about 200 000 inhabitants)

1955 - Malaria control of the Irbid and Ajlun (about 200 000 inhabitants)

1956 - Malaria control of the Amman, Salt and Madaba (about 200 000 inhabitants)

1957 - Malaria control of the Nablus, Genin and Ramallah (about 250 000 inhabitants)

1958 - Malaria control of the Jerusalem, Hebron, Kerak and Tafileh (about 300 000 inhabitants)

ANNEX I

Year: 1953

1. Area of operations: 1800 km^2 completely protected
1871 km^2 semi-protected by Government

2. Number of houses and all other structures sprayed: 1st cycle: 5501
2nd cycle: -

3. Population directly protected (i.e. living in sprayed structures): 11 345

4. Population protected by other methods of control: 200 000 protected by larviciding
250 000 semi-protected by "

5. Number of sprayings in the year: 1

6. Insecticides and formulations used: total annual consumption:

75% DDT wettable powder - 505 kg
50% DDT wettable powder - 585 kg

7. Average dose of insecticide per m^2 for each spraying:

DDT (in terms of technical grade): 2 g

8. Types of sprayers used: four oak compression sprayers

9. Are all structures sprayed? Yes, spraying included all existing rural premises.

10. Average superficial area sprayed during each spraying per inhabitant directly protected: 32.2 m^2

11. Cost of residual spraying operations

11.1 Total cost per year: US$ 1361

11.2 Percentage of the total sum expended on insecticides formulations: 67.5%

11.3 Annual cost per capita of the population directly protected by residual spraying: $ 0.12

Annex I

12. Cost of operations by other methods of anopheles control

12.1 Total cost of operations per year: $ 45 116 (protected area of Yarmuk-Jordan valleys)
$ 28 000 (semi-protected by Government)

12.2 Annual cost per capita of the population protected by the above methods:

$ 0.22 protected area - $ 0.11 semi-protected.

13. Cost of control operations by drug prophylaxis

Nil