

WORLD HEALTH  
ORGANIZATION

REGIONAL OFFICE FOR THE  
EASTERN MEDITERRANEAN

الهيئة الصحية العالمية  
المكتب الإقليمي لشرق البحر الأبيض

ORGANISATION MONDIALE  
DE LA SANTÉ

BUREAU RÉGIONAL DE LA  
MÉDITERRANÉE ORIENTALE

REGIONAL COMMITTEE FOR THE  
EASTERN MEDITERRANEAN

Tenth Session

Agenda item 12

EM/RC10/Tech.Disc./3  
12 August 1960

ORIGINAL: ENGLISH

TECHNICAL DISCUSSIONS

TUBERCULOSIS CONTROL WITH PARTICULAR REFERENCE TO  
DOMICILIARY TREATMENT

INFORMATION FROM GOVERNMENTS

The Regional Committee for the Eastern Mediterranean at its Ninth Session chose "Tuberculosis Control with Particular Reference to Domiciliary Treatment" as the subject for Technical Discussions at the Tenth Session.

Accordingly, on 11 December 1959, the Regional Director sent a questionnaire to Member States with organized tuberculosis control services asking them for information concerning tuberculosis in their countries to form a basis for a comprehensive review on the subject to be prepared by the Regional Director for consideration by the Committee.

The present paper gives for purposes of record the replies to the questionnaire received to date from the following countries:

Aden Colony, Aden Protectorate, Cyprus, Ethiopia including Eritrea, Israel, Jordan, Lebanon, Libya, Pakistan, Somalia, Somaliland (French), Sudan, Tunisia, and the Provinces of Egypt and Syria of the United Arab Republic.

### Question 1

How was the domiciliary chemotherapy service organized? By chest clinic? Tuberculosis hospital? Out-patient department of a general hospital? Health centre (dispensary)?

#### ADEN COLONY

The tuberculosis service was started on an organized basis in 1945. This included a limited number of beds in the Civil Hospital under the care of one doctor who also did a certain amount of home visiting.

Eventually by 1954 a Tuberculosis Section incorporated in the Civil Hospital had been formed with a greatly increased number of beds and a domiciliary service whose aims included the supervision of patients in the home with chemotherapy.

At that time there was a waiting list for admission to hospital. Treatment was started in the home for 3 - 6 months before admission was possible. After discharge domiciliary visiting was normally not necessary because in most cases the patient was then ambulatory; treatment was however continued at home.

Because of the increase in work it was found necessary to appoint a full time home visitor. This was combined with BCG vaccination for which, in 1952, a qualified nursing sister was engaged, together with a clerk. Between them they have been responsible for:

- (1) Home visiting of domiciliary patients
- (2) Tuberculin testing of contacts of new cases
- (3) BCG vaccinations

The patients on domiciliary treatment were originally provided with medicines by the home visitor who visited each patient once a fortnight. This was particularly necessary when treatment was started at home before admission.

Now that there is virtually immediate admission for new cases, and that seriously ill chronic cases can be isolated in hospital, domiciliary treatment is concerned primarily with ambulant cases.

The domiciliary patients, therefore, are now responsible for collecting their own medicines once fortnightly. These are distributed from the central chest clinic in the Queen Elizabeth Hospital and three satellite treatment centres situated in the three main centres of population. Collection of medicines is written on each patient's history card and periodic checks are made to see that patients continue their treatment.

This appears to be a satisfactory arrangement as it has increased the time available for "contact work" and made a continuous house to house BCG vaccination campaign possible.

#### ADEN PROTECTORATE\*

Suspected cases are registered at health units and hospitals, the latter duplicating the records of the daughter health units in master registers. Confirmation is by sputum examination and clinical examination by doctors on tour, with X-ray examination when possible or desirable. After hospitalization of selected cases, cases registered as confirmed and willing to accept treatment are placed on Pasinah (Wander) or more recently Pycamisan (Smith & Nephew) both combinations of PAS and INH. This is issued from the local hospital or health unit. There are 7 hospitals and some 65 health units. Home visiting is usually arranged as part of the integrated routine duties of subordinate sub-professional staff. In some places doctors themselves do a certain amount of check home visiting. The staff have most functions integrated with one exception, a part-time doctor with specialist diploma running the tuberculosis work in Mukalla special clinic and wards.

\* Non-pulmonary incidence in Aden Protectorate appears to be about a third of pulmonary incidence as shown by statistics recorded of cases seen at hospitals. All replies to the questionnaire relate to pulmonary cases.

#### CYPRUS

The domiciliary chemotherapy service was organized by chest clinic. (In Cyprus there are five chest clinics one in each of the principal towns).

#### ETHIOPIA

The domiciliary chemotherapy service has been organized in the chest clinic (Tuberculosis Demonstration and Training Centre of Addis Ababa, governmental project assisted by WHO) which has been opened to the public since July 1959.

#### Eritrea

The basic organization for the treatment of tuberculosis in Eritrea is supported by tuberculosis hospitals; in Asmara there is inside the "Itegue Menen Hospital" an Infections Ward for tuberculosis patients; in other towns, where there are hospitals (Massawa, Adi Ugri, Adi Caieh, Keren, Agordat, Tesenei) there are sections for tuberculosis patients.

In Asmara, the Eritrean Government is building now a new hospital, outside the town, for tuberculosis patients, with modern schemes.

#### ISRAEL

Domiciliary chemotherapy is being carried out in a countrywide network of 16 chest clinics.

#### JORDAN

Since the inception of the WHO-assisted tuberculosis project on 21 November 1957, a domiciliary chemotherapy service has been organized on a large scale in Jordan. Domiciliary drug treatment is carried out in tuberculosis centres or clinics - Government tuberculosis centres in Amman and Jerusalem, and in the UNRWA Nablus tuberculosis clinic. Institutional drug treatment is carried out in the Government Tuberculosis Hospital Amman, in the Nablus UNRWA Tuberculosis Hospital and the Arroub Missionary Tuberculosis Sanatorium.

Domiciliary drug treatment is not carried out in out-patient departments of general hospitals or health centres.

#### LEBANON

The domiciliary chemotherapy service is provided by the Quarantine Tuberculosis Centre.

In addition to this organized service, ambulatory treatment is applied in the country by some dispensaries as well as by private practitioners.

#### LIBYA

The domiciliary chemotherapy service is not organized yet.

#### PAKISTAN

The domiciliary chemotherapy service in Dacca city has been organized by the Tuberculosis Control and Training Project, Dacca.

#### SOMALIA

It is only the antituberculosis dispensary of Mogadishu which in certain particular cases, applies chemotherapy with isoniazide.

#### SOMALILAND (FRENCH)

Although the domiciliary chemotherapy of tuberculosis is widely spread in French Somaliland, both in urban and rural centres, it is mostly practised on an ambulatory basis and to an insignificant extent at home.

In fact, the only categories of people treated at home are the following:

- (1) Well-to-do people, who do not come under our control, since they are treated by private practitioners.
- (2) Lying-in bed patients unable to receive active hospital therapy or to go to the chest dispensary for medical care.

This category of patients may be evaluated at 2%. The number of patients with record-cards, in French Somaliland now amounts to 4,300, a nursing nun alone being in charge of the treatment.

There is no need for us to expand home therapy any further, as our tuberculosis equipment has been so far sufficient to enable us to combine hospitalization with ambulatory treatment to meet the requirements best and with satisfactory efficiency.

#### SUDAN

There are tuberculosis wards and a chest clinic in the civil hospital, Wad Medani.

#### TUNISIA

The domiciliary chemotherapy service is provided by:

- (1) Hospital out-patient clinics
- (2) Tuberculosis dispensaries (for Tunis area)
- (3) District dispensaries
- (4) All-purpose (polyvalent) dispensaries
- (5) Rural dispensaries
- (6) Dispensaries belonging either to public agencies or to other similar bodies such as the SNCFT (National Society of Tunisian Railways) or to private bodies such as OSE (Child Care Society).

#### UNITED ARAB REPUBLIC (PROVINCE OF EGYPT)

The planned scheme of domiciliary treatment is being carried out by the General Association against Tuberculosis, and financed by the Ministry of Public Health. The term "Domiciliary" is chosen intentionally to distinguish it from "Ambulatory" because every effort should be exerted to make the treatment "not ambulatory".

The antituberculosis scheme in Egypt is conducted by the Ministry of Public Health, but there is a gap in the existing scheme: it is during the time which

passes between the diagnosis of the case in the chest dispensary and the availability of a bed in a tuberculosis hospital.

Shortening the period of hospitalization can be achieved if a well organized scheme of domiciliary treatment with specific antituberculosis drugs is carried out. The scheme has been based on the existing chest dispensaries and their staff, by working in the evening hours using its equipment, e.g. X-ray and laboratories. Additional nurses have been appointed (apart from the original staff of the dispensary) and they work all day.

UNITED ARAB REPUBLIC (PROVINCE OF SYRIA)

The chemotherapy at the tuberculosis control centre in Aleppo is organized as follows:

Antituberculosis drugs are never served separately - this being a basic principle - for fear of the appearance of bacterial resistance, and as the centre has no laboratory in which the sensitivity of tuberculosis bacteria to the various antituberculosis drugs can be tested, we usually employ the following method:

The patient is given PAS pills together with isoniazid pills, leaving streptomycin for necessary emergency cases, in which the patient needs a surgical intervention, another reason being the lack of injectors in the villages. We however give later the streptomycin with isoniazid when the patient has already taken a quantity of PAS and we find that its effect is not satisfactory, as shown by the tuberculosis phenomena appearing in the X-ray films; and we give streptomycin intermittently, i.e., one gram every three days.

Question 2

What are the number and categories of personnel making initial and follow-up examinations and home visits?

ADEN COLONY

Initial - Follow-up Examinations:

1 doctor	1 female nursing orderly
1 SRN assistant	2 clerks

Home Visiting:

1 SRN nursing sister	1 BCG nurse
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ADEN PROTECTORATE

	<u>Initial</u> <u>Examinations</u>	<u>Follow-</u> <u>Up</u>	<u>Home</u> <u>Visits</u>
Doctors	14	14	8
Sub-professional staff	65	80	80

CYPRUS

At the chest clinics two tuberculosis specialists and two assistants are employed in the initial and follow-up examinations. Home visits are carried out by five tuberculosis health visitors.

ETHIOPIA

Initial examination is done by routine tuberculin test and 70 mm X-ray with the collaboration of:

- 1 technician for tuberculin test
- 2 technicians for X-ray under the supervision of WHO technician
- 1 technician for the reading

Follow-up examinations are made by:

- 1 medical officer
- 2 nurses

Home visiting is carried out by:

3 home visitors (for the time being) as this section has started only recently and this number will be brought up to six for future expansion. Nurses and home visitors are working under the supervision of a WHO public health nurse assisted by a national counterpart.

Eritrea

Initial and follow-up examinations are made by qualified doctors; patients with tuberculosis are then sent to the tuberculosis hospitals. Home visits are made in Asmara by the nurses of the Nursing School.

#### ISRAEL

The number and categories of personnel making initial and follow-up examinations are:

- 25 chest physicians
- 50 chest clinic nurses
- 9 social workers
- 13 X-ray technicians

In addition, in rural areas home visits are made by the public health nurses of the district, as part of family care. Bacteriological examinations are not carried out in the chest clinics themselves. 3 clinics, which are situated on hospital premises, are served by these hospitals. Otherwise, bacteriological specimens are being sent, through an efficient messenger service, to the nearest regional public health laboratory for examination.

Since the work-load in our chest clinics is unequal, some of the social workers and X-ray technicians cover more than one clinic.

#### JORDAN

There are three full-time medical officers in the Amman centre, two in the Jerusalem tuberculosis centre, and one in the Nablus tuberculosis clinic. In addition, there is a WHO senior tuberculosis adviser and his national counterpart, the chief of the tuberculosis section in the Ministry of Health.

There are also two social workers in the Government tuberculosis centres one for each centre, two staff nurses and twelve practical nurses in both centres for home visiting.

#### LEBANON

Four tuberculosis doctors, four social workers and three X-ray technicians. This staff worked in 1959. As for the new staff organization of the centre, it is based on a different pattern.

#### LIBYA

No staff has been appointed to make initial and follow-up examinations and home visits.

#### PAKISTAN

Initial and follow-up examinations are conducted by a medical officer, deputed to the Chemotherapy Project from the existing staff of the Tuberculosis Control and Training Project, Dacca.



Four lady home visitors appointed by the Government are entrusted with the task of visiting the patients at homes and their care.

The medical officer in charge of the Chemotherapy Project also goes out for home visits occasionally to supervise the work of the lady home visitors.

#### SOMALIA

There is no staff employed in direct control or domiciliary treatment. However, every month such patients are controlled at the dispensary by the staff employed there.

#### SOMALILAND (FRENCH)

See reply to Question 3.

#### SUDAN

Two national doctors - one WHO doctor, one WHO public health nurse.  
One national senior health visitor (on a one-year study course).  
Thirteen health visitor trainees (at present only three working in the clinic).

#### TUNISIA

The number and categories of personnel making initial and follow-up examinations and home visits are not the same in all health institutions. They vary from one institution to another because of:

- (a) Local needs in relation to the number of patients to treat
- (b) Lack of qualified personnel

As a rule, the hospital out-patient clinics are provided with: a tuberculosis doctor assisted or not by a medical assistant; a qualified male nurse; one or several assistant male nurses or assistant nurses; one assistant social worker.

The chest dispensaries have: a tuberculosis doctor, one or several qualified male nurses; one or several assistant male nurses; one or several assistant social workers or assistant social workers.

The polyvalent dispensaries are staffed as follows: a tuberculosis doctor, a qualified male nurse; one or several assistant male nurses or assistant nurses; a medical secretary and sometimes one or several assistant social workers. The polyvalent dispensary is not always provided with a social worker for domiciliary treatment; but in spite of this deficiency, there is a regular attendance of treatment-seeking patients.

The rural dispensaries are provided with: a general practitioner; one or several male nurses either settled or itinerant.

The district dispensaries include: a general practitioner; one male nurse and one or several male nurse assistants.

The dispensaries belonging to private agencies or bodies are provided with: one doctor; one nurse and one social worker.

UNITED ARAB REPUBLIC (PROVINCE OF EGYPT)

- 1 full time doctor
- 20 half time doctors (for the 20 units)
- 11 full time social workers
- 10 half time social workers
- 15 full time social technicians
- 13 half time social technicians
- 1 half time statistician
- 1 half time chief nurse
- 17 half time X-ray and laboratory technicians
- 27 half time clerks
- 7 full time clerks
- 98 full time nursing visitors
- 3 workmen in the central office
- 28 half time workmen

NB Total expenses per month LE.1852.

UNITED ARAB REPUBLIC (PROVINCE OF SYRIA)

- 1 doctor for screening and microfilm examinations
- 1 male nurse - without diploma - for the clinic test and BCG vaccination
- 2 X-ray and microfilm officials
- 1 laboratory assistant
- 1 social nurse to give advice to patients. (Home visits were stopped since over three years owing to the lack of qualified nurses)

### Question 3

Please give an outline of your plan and conduct of examinations and therapy in these clinics or hospitals. If children are included please give the scheme used.

#### ADEN COLONY

All examinations are carried out at the central chest clinic incorporated in the Queen Elizabeth Hospital.

Cases are referred by other doctors, attend directly to the chest clinic, or are discovered on routine chest radiography. All suspected cases, if not already X-rayed, are sent for an Odelca 100 mm chest film. Children under 14 years are X-rayed on full sized plates. Most cases unless the small film appearance is unequivocal will have a full sized chest film taken to confirm radiological diagnosis.

Thereafter follow-up X-rays are taken on the small size film thus saving expense. Apart from history and clinical examinations and X-rays, full use is made of tuberculin testing microscopy of sputum for tubercle bacilli and culture of sputum for tubercle bacilli and drug sensitivity. Guinea pig inoculation is not available.

After discharge from hospital frequent follow-up X-rays are taken during the whole course of treatment and at six monthly or yearly intervals when possible after chemotherapy has been stopped.

#### Plan of Treatment:

All new cases are advised admission to hospital for a variable period of six weeks to three months. An average stay for an uncomplicated case would be about two months. During this time the adult patients are given Streptomycin 0.1g daily INA H 300 mgm daily, PAS G.12 daily in combinations of two. Where drug resistance is suspected patients are put on all three until sensitivity tests are available.

Children are given proportionately small doses. Artificial pneumothorax, pneumoperitoneum, complicated rest and exercise regimes have been virtually abandoned. Chest surgery is available on a very limited scale. After discharge from hospital the patient continues his domiciliary treatment on an ambulant basis, that is, not confined to bed and responsible for collecting his own medicines. Treatment is then carried out with PAS.G12 and INAH 300 mgms daily, where possible for not less than 18 months and it is hoped

for two years from time of diagnosis. Under this regime in which the patient is encouraged to return to normal life as soon as possible, a reasonably early return to work is expected.

Basically the initial period of hospital treatment is to isolate the patient until his sputum is rendered negative to examination for acid fast bacilli and no patient is discharged until this has been attained for several weeks.

All cases that are known or are found to have a positive sputum are wherever possible re-admitted until sputum conversion is attained. Therapy with PAS and INAH combined in a single tablet will be used on a larger scale next year.

Cases resistant to drugs are treated according to sputum culture and sensitivity tests but fortunately complete resistance to Streptomycin PAS and INAH is a small problem at present.

Viomycin and Terramycin are held in reserve for difficult cases of drug resistance.

Children are given prolonged courses of Streptomycin and INAH without any apparent ill effects from treatment.

Some children can be persuaded to take a liquid preparation of PAS or INAH and others will take the appropriate dosage in combined tablet form dissolved before administration. Children are, if possible, admitted to hospital, but domiciliary treatment can be arranged provided the parents can take the child once daily to the nearest outlying clinic for injections.

#### ADEN PROTECTORATE

For plan and conduct see reply under first question. As regards therapy, the aim is to provide two months' hospitalization of tuberculosis patients when possible prior to domiciliary chemotherapy. The patients receive Streptomycin and INH and one week prior to discharge commence oral therapy of 10 grams daily for adults of combined sodium PAS and INH. On release from hospital they receive one month's supply of medicine. Subsequent follow-up of the domiciliary treatment is from the hospital or for rural patients from the health units.

#### CYPRUS

##### Outline of the Plan:

Domiciliary chemotherapy is advised for the following categories:

Early pulmonary cases;  
Non-pulmonary cases not requiring hospitalization;  
Persons reluctant to be admitted to a sanatorium;  
Persons of good financial status and adequate home facilities;  
Children - except those of poor parents and those presenting  
extensive disease

#### Conduct of the Examinations:

Patients on domiciliary treatment attend the chest clinic every four weeks. Sputum examinations (direct and culture) or gastric washings cultures are performed normally every four weeks; and more frequently if necessary.

#### Therapy

A combination of the three standard drugs is normally prescribed for a period of three months; the dosage is Strept.1 gr. daily, Isoniazid 100 mg three times daily, PAS 5 g. twice daily. This is followed by the combination of PAS-Isoniazid for a further period of 9 to 21 months.

#### ETHIOPIA

All attendants are examined by routine examination and all pathological cases are referred to the medical officer for complementary examination (BSR - sputum examination, culture etc.)

Positive cases and also those strongly suspected are treated by ambulatory treatment with Isoniazid, children go through the same process and receive Isoniazid according to their body weight.

#### Eritrea

In Asmara, a patient who is suspected of tuberculosis from his past history and from the symptoms collected with an initial medical examination, is examined ambulatory with his sputum; when this is positive, he is directly sent to the tuberculosis hospital; when sputum is negative for b. Koch, he is sent to a normal medical section for other examinations. In the tuberculosis hospital all patients have a clinical card in which all data are collected:

- (a) History with eventual previous specific treatment;
- (b) Physical examination;
- (c) Clinical examination (RW, urine, blood cells count with formula, sedimentation rate, tuberculin test, X-ray of chest and all other eventual laboratory tests needed);
- (d) Medical diary;

- (e) Treatment with obtained results. The treatment which is regularly followed in the tuberculosis hospital in Asmara is based on: Hydrazide of isonicotinic acid; paraminosalicylic acid; streptomycin; at the normal dosage followed by all doctors. Trials have been made with cicloserin with results still under observation. Selected cases receive surgical treatment of pneumothorax with the classical schemes.

### ISRAEL

Our plan and conduct of examinations can be summarized as follows:

#### Referral of Patients

Patients are referred to chest clinics by our mass radiography units, by private physicians or out-patient service of the various sick funds which provide medical care for the majority of the population. In addition, each chest clinic engages in group examinations in its own district.

#### Diagnosis

Adults are given a tuberculin test and microfilm 7x7mm. Those showing abnormal X-ray findings are recalled for interview with the physician and further study which includes:

Clinical examinations

Taking of specimens of sputum, if present for direct examination and culture or, alternatively, larynx swabs, or gastric contents - for culture

Full PA and lateral X-ray plate

Frontal and lateral tomography where indicated.

Children are given a tuberculin test only. Positive reactors are referred to the physician for further study. Since BCG vaccination has been carried out in Israel on a considerable scale for some years, the referral of "positive reactors" for further study presents a problem. Some physicians claim to be able to distinguish positive tuberculin reactions after BCG vaccination from those due to tuberculous infection occurring in another way. However, we have also to be guided by the general picture presented by the child and the reason for its referral.

The medical investigation is completed by a home visit carried out by the chest clinic nurse or public health nurse of the district, and an interview with the social worker.

### Selection of Patients for Domiciliary Chemotherapy

Among the factors determining the decision as to whether this form of therapy should be carried out we may mention:

(1) The physician's attitude, that is to say, whether he believes that treatment for active tuberculosis is best carried out or, at least, started in hospital. This attitude is now less frequently encountered.

(2) Home conditions - it is obvious that the medical staff would only under exceptional circumstances recommend domiciliary chemotherapy, unless certain minimum home requirements are met, and especially so, since any patient needing treatment can now be hospitalized promptly.

(3) Size, composition of family and special family problems - difficulties which would be created by prolonged absence of a parent from home, the need for boarding out children during the mother's hospitalization and the danger of marital estrangement have often prompted the patient to ask for home care before it had even been suggested by the medical staff.

(4) Distance, accessibility of chest clinic - in rural areas, problems of transportation and therefore, the possibility of effective chest clinic supervision during treatment have often been determining factors.

(5) Personal aspects - the patients educational level, his cultural background and attitude towards his illness allow judgement as to the degree of co-operation to be expected from the patient and his family during domiciliary therapy.

(6) Severity of the illness - severe toxic states and complicating illnesses demanding special measures are an indication for hospitalization rather than domiciliary chemotherapy.

### JORDAN

An intensified case-finding programme is carried out in the Government tuberculosis centres and in the UNRWA Nablus tuberculosis clinic. This includes the following groups:

- (a) Patients referred by doctors,
- (b) Persons who come on their own initiative,
- (c) Contacts, and
- (d) Persons belonging to group examinations. Children are included.

Domiciliary drug treatment was conducted without bed rest.

#### LEBANON

The process undergone by the patient is the following: tuberculin test; sputum sample taken from the patients and sent to the central laboratory for K.B. detection; microfilm. Any suspected patient is subjected to: a radio-photography (large film); a clinical examination; in most cases, a test on the speed of blood sedimentation. In the light of these examinations, it is then decided whether the patient must be hospitalized or may follow an ambulatory treatment.

In the latter case, the patient receives from the pharmacy of the centre the treatment deemed appropriate to his condition, namely: one of the following three antibiotics or a combination of all of them - INH Streptomycin - PAS for a maximum period of one month. This treatment is renewed every months to enable us to follow-up the patient.

The social worker is notified at the same time in order to carry out social investigations and to call in the family and the immediate associates of the patient.

Children: some of them are admitted to hospital after consideration of the family conditions; others are treated at home.

Some children with positive test without specific abnormal radiological picture, were submitted to treatment.

#### LIBYA

An outline of the plan and conduct of examinations and therapy in these clinics or hospitals will be made after the survey.

#### PAKISTAN

At present the domiciliary chemotherapy project is confined in the Dacca city, but later on it may be extended to other district headquarters, namely, Rajshahi, Chittagong and Sylhet where there are secondary tuberculosis control centres.

In Dacca city our field of operation is the Municipal area. But later on it may be extended up to Narayanganj and Tejgaon area.

As the project in Dacca city is organized by the Tuberculosis Control and Training Project, Dacca, the initial examinations like Mantoux testing, X-ray and laboratory examinations and diagnosis of the case are done in the various



departments of this training project. The medical officer in charge of the chemotherapy project also selects re-treatment cases from the clinical section of the Institute for inclusion in the chemotherapy project. Patients after inclusion in the chemotherapy project are treated with INAH tablets supplied by UNICEF (dose-300 mgm. daily for adults and 150 mgm. for children). Patients are also given medicines like Multivitamin Calcium tablets, Iron tablets, Cod liver oil and cough mixture from the dispensary of this Institute. Injections like Morphine, Coagulen ciba, Vitamin K. etc., are also supplied from this Institute to check haemoptysis of patients. Medicines are supplied to the patients at their homes by the home visitors. Patients are to attend the centre only after every three months for review.

We were so long taking only sputum positive virgin cases; but at present we have started including re-treatment cases even with negative sputum result but with positive X-ray finding.

#### SOMALIA

At the Mogadishu sanatorium, the following plan of treatment is followed: for 30 to 50 days approximately, in cases treated for the first time, one gram per day of Diidrostreptomycine + isoniazide at a dose of 5 mmg. per day for each kilogramme of weight. Afterwards, Diidrostreptomycine every three days with the same dose of isoniazide. In certain cases of intolerance to Diidrostreptomycine, it is replaced by PAS at an average dose of 12 gr. every day. For children, the doses of Diidrostreptomycine are reduced to half or one quarter according to the age and we give instead 10 mmg. of isoniazide by kilogramme of weight.

#### SOMALILAND (FRENCH)

The corner stone of our programme is the urban chest dispensary, Jibuti:

- (1) It centralizes the files of all tuberculous patients
- (2) It provides ambulatory treatment to most of the patients
- (3) It is an active centre of detection and control

The detection involves three categories of people: patients; communities; contacts of tuberculous patients.

Suspected tuberculous patients are referred to the tuberculosis dispensary by the urban dispensary, Jibuti, the rural dispensaries and medical stations and other clinics.

Systematic case-finding is carried out:

- (1) as a routine (usually) with regard to civil servants, school children with positive tuberculin reaction, persons attending maternal and child health clinics and maternity hospitals for consultation, police forces prisoners.
- (2) In an embryonic way, in respect of people attending rural dispensaries for consultation and showing a respiratory functional symptomatology.
- (3) Exceptionally, in connexion with the mass health campaign at present in progress (covering the population of Jibuti as a whole). A street to-street and house-to-house tuberculin testing of the population is carried out; the following operations take place: reading, examination of the positive cases and BCG to the negative.

The detection tests consist of examinations carried out at the chest dispensary. If the examination shows a suspected picture, the following operations are carried out: a tuberculin reaction; a chest radiography (electroradiological service of the hospital); KB investigations in sputum (direct examination and after homogenization) after a gastric tubage (children); culture in rare cases. (These examinations are carried out in the bacteriological laboratory of the hospital); speed of blood sedimentation.

The personnel of the dispensary consists of: a doctor, a medical secretary a nurse in charge of domiciliary care and detection of contacts, three male nurses and one nurse.

Treatment - at the hospital:

In most cases, the detected patient is sent to hospital. The hospitalization premises consist of: an autonomous phthisiology service and one hundred and fifty beds for tuberculous patients, distributed in the medical services.

All patients are given:

- (1) Streptomycin or dihydrostreptomycin: adults 1 gr. per day, children 3 cg per kilo of weight during one month, then intermittent therapy.
- (2) Isoniazide adults, from 5 to 8 mg. per kilo of weight, children from 20 to 10 mg. per kilo of weight.
- (3) To this basic therapy are diversely associated:
  - (a) PAS given orally: 10 to 15 gr. per day in adults - 30 cg. per kilo weight in children

- (b) Intra-venous PAS, 10-15 gr. course of 30 perfusions separated by an interval of one week of oral therapy - 2-3 courses.
- (c) Sulfones: in the form of iron disulfone
- (d) Vitamino-calcic therapy (Vitamin C, Vitamin D, Calcium)

After two months, the whole situation is reviewed (expectoration, radiology, sedimentation speed) and it is decided whether collapse therapy should be associated or not. This association is very rare, as the patients, when discharged from the hospital, are unable to continue their treatment in Jibuti; moreover, they show very extensive lesions.

At the end of the third month, the situation is reviewed again. The majority of the patients are then put under ambulatory treatment. A minority continues to follow the hospital treatment.

After discharge from the hospital, the treatment differs according to whether the patient involved belongs to a rural or to an urban community.

#### Rural patients:

- (a) If the patient is a nomad and does not live in a rural centre provided with a dispensary, he is given an amount of Pasiniazide sufficient for a 3-month treatment, at the end of which he must report to the chest clinic for a check-up.
- (b) If the patient lives in a centre provided with a dispensary, the combined therapy prescribed by the hospital physician is carried out by the male nurse of the medical station. At the end of the treatment, which last three months, the male nurse refers the patient to Jibuti for a general check-up.

#### Urban patients:

- (a) Drug therapy is practised twice per week (streptomycin injection, distribution of sulfone INH and PAS)
- (b) Collapse therapy twice weekly, every Monday and Thursday.

The review of the results gained through the therapy is carried out every three months (KB, sedimentation speed investigations, or radiography). In most favourable cases, the therapy lasts one year at least. If a marked improvement is noticed before this period, the administration of Isoniazid is maintained, but is preferably combined with Streptomycin, PAS, or Disulfone. In case of aggravation of the patient's condition, it is decided to re-admit the patient to hospital and if his condition does not allow for any hope of

improvement through hospital treatment, home treatment is resorted to when the patient is no longer able to report to the dispensary for receiving weekly treatment.

## SUDAN

### Outline of the plan and conduct of examinations

(Tuberculosis Control Demonstration and Training Centre)

The chest clinic in Wad Medani, facilitates examination and the necessary treatment free of charge to all who attend. This is the only tuberculosis centre in the Sudan, so people will come from far distances.

Persons seen on first visit are given Mantoux test and X-ray of the chest is **taken** (children under 7 years of age are excluded from this X-ray).

On second visit the Mantoux Test and X-ray are read. All persons with X-ray pathology have their sputum examined for tuberculosis direct by smears (microscopy) and culture. Children under 7 years of age who have a positive Mantoux are screened on second visit and those with X-ray pathology have their sputum examined or a laryngeal swab is taken. Persons who are found to have a positive sputum on direct smear are given treatment immediately in the tuberculosis wards or ambulatory treatment.

(Selected cases and emergency cases start treatment in the tuberculosis wards).

Persons with negative sputum (direct smear) but with an X-ray highly suggestive of tuberculosis are as a rule put on domiciliary treatment immediate as "Suspects" pending the result of the culture.

Persons with no X-ray pathology and Mantoux reaction below 10 mm - are given BCG.

Children under 7 years of age with Mantoux reaction 0 mm are given BCG without prior X-ray examination.

Treatment: In-patients are given the combination of two drugs as follows:

- 1 INH + PAS - for three months
- 2 INH + Strep. - for three months
- 3 (INH + Strep.) and (INH + PAS) rotationally for three months

Domiciliary treated patients are most often treated with INH alone. The combination with Streptomycin can only be given if the patient is living reasonably near a hospital, or dressing station where he can get his injection.

## TUNISIA

The excessive number of consultants, on the one hand, and the lack of personnel on the other hand, has resulted in the development of a moderate plan of action for ensuring at best the treatment of the large number of detected patients.

### In Respect of Adults

After a summary examination, various examinations are required (radioscopy - radiography - bacilloscopy - sedimentation speed).

Patients showing significant evolutive lesions are in most cases hospitalized for a period ranging between 3 and 6 months for collapse therapy, extensive or limited surgical exeresis. After being discharged from the hospital, the patients remain under medical supervision with domiciliary chemotherapy. Clinical, radiological or laboratory checkings are carried out at varied intervals, as required by each case.

In respect of patients suffering from minor tuberculous lesions, the present tendency is towards ambulatory chemotherapy under the supervision of the dispensary.

### With regard to Children

For the detection of tuberculosis radiology is resorted to (examinations, radiography or microphotographs) combined with tuberculin tests (skin-test, patch-test or intradermoreaction); in case of negative tests, BCG vaccination is carried out. If the tests are positive, the detection of overt radiological anomalies results either in hospitalization in the children's chest centre, or in referral to a preventorium or in domiciliary chemotherapy. If the local available facilities as regards social workers allow the detection of infantile tuberculous cases is followed by a family or a community inquiry with a view to finding and possibly to treating the responsible contaminating agent as well as the other members of the family contaminated by him.

## UNITED ARAB REPUBLIC (PROVINCE OF EGYPT)

The system has been organized so that every patient diagnosed as active tuberculosis will immediately be treated in his home and at the same time his name will be put on the waiting list for admission into sanatoria. Dispensaries in Egypt work only in the morning hours, so the extra work for

for domiciliary treatment has to be performed in the afternoon. Each patient has a special interview by the treating specialist who explains to him the line of treatment. This scheme is used for both adults and children. Regulations of the General Association for treatment are given below:

- (1) A suitable number of nursing visitors are appointed in each dispensary according to the expected number of new positive cases during the year. The visiting nurse can manage the work in an area including 45 patients.
- (2) The doctor of the dispensary has to specialize on two fixed afternoons each week in the work of domiciliary treatment.
- (3) The doctor sees the patient and explains to him his disease and the line of treatment and the way he can follow to protect contacts from infection. Each patient is supplied with two towels and a spittoon of an efficient type.
- (4) Nursing visitor injects the patient with streptomycin in his home according to the doctor's prescription.
- (5) The doctor visits the patient in his home during the first two weeks to be sure that the nursing visitor has performed her duty in a satisfactory manner, moreover, this visit has a beneficial psychological effect on the patient.
- (6) Patients are given PAS 0.5 mg. 12 grs. to be given daily for 5 days each week, in addition to 300 mgs. of INH. Streptomycin is dispensed twice weekly in the advanced cases.
- (7) Patients are re-examined clinically in the dispensary once a month, their sputum has to be examined. They have to be X-rayed once each three months.

- (8) Each unit sends a monthly report to the General Association for the new patients entered in the registry, and the amount of specific drugs dispensed. A statistical card for follow-up is made in the Association for each patient. These cards are sent each six months to the different units to be filled in and sent back to the Association for sorting.
- (9) Duration of domiciliary treatment is 6 months, but it can be extended if there is no available bed for the patient in a sanatorium.
- (10) Special care is given to contacts
- (11) The above regulations apply to children, there are no special schemes for them.

UNITED ARAB REPUBLIC (PROVINCE OF SYRIA)

Our plan at the tuberculosis central centre in Aleppo is the same for all visitors of the centre.

The visitor starts by entering the "Saraya" section, where he is submitted to the clinic test - "Mantoux method", and he is instructed to return to the centre after three days. The result is studied (negative or positive), a micro-film is taken, or screening is done. If the chest is normal the result is given to him for his tranquility; but if his chest is normal and the test is negative and his age is below 18, a BCG vaccination is done, and he is instructed to return in about three months to go through the test again, and make known the result which had been shown by the BCG vaccination. If the condition of the chest leaves any doubt at all the visitor is given a note to X-ray his chest and another to examine direct opacity and blood sedimentation. The next day he is sent with his X-ray picture and laboratory results, to the dispensary, as a patient needing treatment. Here he is carefully examined by the doctor who prescribes the treatment, and the patient is referred to the social section where he is given the medicine prescribed and advice on prophylactic measures. He is also requested to give the names of the members of his family who are subsequently called for the necessary tests and screening purposes. As for children, they follow the same procedure, except that in the case of those who give a negative test, a BCG vaccination is given almost automatically.

Question 4

Have you made any comparative studies between cases treated on:

- (a) domiciliary basis;
- (b) ambulatory basis, from a chest clinic;
- (c) hospital treatment;
- (d) combinations of these?

ADEN COLONY

Although no detailed study has been made it is felt that the present combination of initial hospital plus subsequent ambulant treatment is the best combination under the circumstances in Aden.

Hospital treatment enables complicating diseases and pulmonary secondary infections to be adequately treated and investigated. Also a certain amount of indoctrination in the personal habits of the patient in relation to his disease and society is possible.

The sputum is rendered negative to acid fast bacilli and therefore the patients' infectivity (it is hoped at any rate) reduced. Ambulant treatment is started on the best possible footing and it is generally only necessary for the patient to continue his treatment as advised for considerable radiological and clinical improvement to occur within a few months. A short stay also avoids the demoralization which seems to appear with long periods of hospitalization. It encourages a more positive attitude towards getting well which is so necessary in these cases.

It also means that an earlier return to work with its consequent easement of financial matters is possible.

With this scheme of treatment the improvement felt by the patient himself encourages him to continue his treatment whereas on purely domiciliary treatment it has been found here in Aden that the patient does not realize the importance of taking the medicines strictly according to instructions. His poor progress as a result of inadequate treatment reduces his confidence in the drugs quite apart from the possibility of inducing drug resistance.

This seems to be the best possible combination at present for efficient treatment of the disease and the lowest possible cost to both the patient and government.

ADEN PROTECTORATE

No comparative studies of statistical status have so far been possible.



### CYPRUS

No comparative studies of cases treated at home or in a sanatorium have been carried out. However, we feel that patients treated in the sanatorium get on better, both clinically and radiologically, than those treated at home. It should in this respect be mentioned that the majority of our cases are made up from patients belonging to the poorest classes and, if treated at home, they could not afford to have adequate food.

### ETHIOPIA

Tuberculosis centre is in the early stage and as no sanatorium exists we have not been able to make any comparative studies.

### Eritrea

The answers to this question and to questions 5 and 6 can be given directly. Some people, after a real improvement in hospital, go back to their home work, with an ambulatory prescription; these people are, for the most part, government employees and they are regularly controlled by the ambulatory doctors. Very few of them follow the ambulatory treatment through private doctors.

The results in these ambulatory patients are, from a general point of view, not satisfactory, in at least 50% of them; the therapy is interrupted for negligence and in many cases the local population do not follow-up the medical advice on home and food conditions owing to lack of health education.

In conclusion, we have till now no possibility of making a comparison between the results obtained with treatment in hospital or at home, but many general considerations speak in favour of hospital treatment, in the present conditions.

### ISRAEL

We have not made comparative studies between cases treated on a domiciliary and hospital basis. We have, however, made an evaluation of 200 original treatment cases, i.e. cases who have not previously been treated by chemotherapy. Our evaluation covers the aspects raised under 6 a) to h).  
(Not yet available).

### JORDAN

No comparative studies were carried out between domiciliary and hospital drug treatment because the cases were not comparable.

LEBANON

- (a) No domiciliary treatment proper is practised.
- (b) Patients treated on an ambulatory basis showed: 3% recovered; 68% improved; 26% stationery; 3% aggravated.
- (c) Results from the various statistical data collected from the sanatorium of Bhamnés, where most of our patients are hospitalized, is as follows: 50, 59% recovered; 36, 52% improved; 7, 62% stationery; 0, 39% aggravated; 4, 88% deceased.
- (d) Post-sanatorium ambulatory cure: 39% improved; 3, 5% aggravated; 57, 5% stationery.

LIBYA

No comparative studies have been made.

PAKISTAN

No comparative studies have been made.

SOMALIA

In the opinion of this Department, the cures which have given the most tangible results are those obtained in sanatoria. The Somali, as a general rule is not persevering, even when under supervision, in ambulatory or home cures.

SOMALILAND (FRENCH)

See reply to question 3.

SUDAN

No comparative studies have been made.

TUNISIA

The ever increasing number of detected cases requiring either a general review, treatment or supervision, and the relative dearth of medical or paramedical personnel, account for the lack or deficiency of reliable statistical data. However, for informative purposes, we may quote the statistical returns of the tuberculosis dispensary of Ch. Nicolle Hospital, Tunis, in respect of the patients followed-up in 1959.

848 patients were under ambulatory treatment including 314 children, 534 adults of whom 218 were female, 316 male. From this total should be excluded 308 patients who had to be hospitalized and another group of 112 patients who have been under treatment for 3 months only, which is not long enough for a reliable assessment from the statistical point of view.

The three following tables show the results of the ambulatory treatment undergone by each category of patient (male, female, children) under supervision since 4 years.

MALES out of 153 cases

<u>Length of Treatment</u>	<u>3 m.</u>	<u>6 m.</u>	<u>9 m.</u>	<u>12 m.</u>	<u>15 m.</u>	<u>18 m.</u>	<u>2 y.</u>	<u>3 y.</u>	<u>4 y.</u>
45 recoveries	4	11	11	5	4	4	4	2	
78 stabilizations	10	19	9	6	5	6	16	5	2
26 aggravations	1	4	6	2	1	3	5	3	1
4 relapses				2		1	1		

FEMALES out of 101 cases

<u>Length of Treatment</u>	<u>3 m.</u>	<u>6 m.</u>	<u>9 m.</u>	<u>12 m.</u>	<u>15 m.</u>	<u>18 m.</u>	<u>2 y.</u>	<u>3 y.</u>	<u>4 y.</u>
43 recoveries	11	14	6	6	2	2	2		
48 stabilizations	8	17	8	7			5	3	
9 aggravations		2	1	2			2	2	
1 relapse							1		

CHILDREN out of 169 cases

<u>Length of Treatment</u>	<u>3 m.</u>	<u>6 m.</u>	<u>9 m.</u>	<u>12 m.</u>	<u>15 m.</u>	<u>18 m.</u>	<u>2 y.</u>
83 recoveries	32	20	15	8	4	1	3
74 stabilizations	32	24	8	7	1	2	
6 aggravations	2	1	3				
6 relapses	1	2		1		1	1

Conclusions: Ambulatory treatments as a whole:

<u>Stabilizations</u>	<u>Recoveries</u>	<u>Aggravations</u>	<u>Relapses</u>
42%	40%	9%	6%

Break-down:

Males	50%	29%	16%	2%
Females	48%	43%	9%	1%
Children	45%	49%	3%	3%

The fact remains that according to information gathered from various sources, hospitalization seems to yield better results than those obtained through ambulatory treatment applied straight away.

Bearing in mind that the hospitalized patients are either suffering from very severe or moderate lesions, in which case a 2-3 month hospitalization precedes the ambulatory treatment, it is easy to realize that with regard to the first, no comparison is possible; as for the latter, their stay in hospital implies:

- (1) A more strict and regular medical supervision resulting in the regular taking of antibiotics
- (2) A more substantial and more balanced diet
- (3) A physical rest similar to that afforded by a sanatorium cure.

On the other hand, the moral rest is useful for the unmarried hospitalized patients only, while it is of no value for bread-winners without anybody else to provide in their stead to the needs of their families.

#### UNITED ARAB REPUBLIC (PROVINCE OF EGYPT)

In the following table are given the results of treatment as reported from:  
(1) chest dispensaries (out-patient), (2) hospitals and sanatoria (3) domiciliary treatment, during 1958:

	OUT-PATIENT		HOSPITAL & SANATORIA		DOMICILIARY TREATMENT	
	<u>Total</u>	<u>Percentage</u>	<u>Total</u>	<u>Percentage</u>	<u>Total</u>	<u>Percentage</u>
Number	14601		11478		4755	
Sputum before treatment						
Positive	6687	45.7	6942	60.4	2119	44.5
Negative	7914	54.3	4526	39.6	2636	55.5
Remaining up to six months under treatment						
Sputum						
Positive	3959	28.7	4356	39.4	1117	23.5
Negative	9814	71.3	6674	60.6	3636	76.5
Weight						
Increased	9430	68.5	6790	61.6	3389	69.8
Unchanged	3262	23.7	2997	27.2	819	17.2
Decreased	1081	7.8	1243	11.2	618	13.0
Result of treatment						
Cured	967	7.0	1123	10.3	342	7.2
Improved	10450	75.9	8144	73.8	3491	73.4
Worse	2024	14.7	1497	13.6	801	16.9
Died	332	2.4	256	2.3	119	2.5
Remaining more than six months under treatment						
Sputum						
Positive	2754	22.4	3155	24.4	589	18.2
Negative	9517	77.6	6002	75.6	2638	81.8
Weight						
Increased	8853	72.1	6085	66.4	2393	74.2
Unchanged	2267	18.5	2231	24.3	487	15.1
Decreased	1151	9.4	851	9.3	347	10.7
Result of treatment						
Cured	1506	12.3	1170	12.8	632	19.6
Improved	9203	75.0	6447	70.4	2126	65.9
Worse	1229	10.0	1242	13.6	271	11.5
Died	333	2.7	298	3.2	98	3.0

UNITED ARAB REPUBLIC (PROVINCE OF SYRIA)

No comparative studies have been made between cases treated in hospital or the outside clinic for chest diseases; but we believe that treatment in hospital is much preferable to treatment at home or in outside clinics, even if the remedies and treatments given are the same. This is due on one hand to the low standard of living with the majority of patients, socially and economically, to mal-nutrition, and their lack of understanding of prophylactic measures and advice, also the lack of facilities for putting advice into practice; and on the other hand, due to the fact that patients' dwellings are often far from the health centre and that they are generally not able to come to the clinic in a regular manner to follow up the treatment. Moreover, the patient lives with all the members of his family, in most cases in one room, communicating to them both young and old, the germs of the disease - while if the patient is sent to a hospital or sanatorium, he is isolated from his family and in a medical environment, has enough to eat and gets the rest necessary for his recovery.

Questions 5 and 6

Have you made any statistical evaluation of your results?

If such evaluation and studies have been made please state:

- (a) Criteria for selection of cases, i.e. are they original treatment or retreatment cases? (Please give your definition of a "case" of tuberculosis) and classification of chest pathology;
- (b) Regimens of therapy used;
- (c) Length of treatment;
- (d) Interruption of therapy and reasons for this;
- (e) Examinations done before treatment (X-ray, tuberculin-test, bacteriology, resistance tests, catalase tests, others);
- (f) Criteria used for assessment of progress;
- (g) Socio-economic conditions (including home conditions, food, habits, etc.) that could appreciably affect the results;
- (h) Results

ADEN COLONY

No statistical evaluation of results has yet been made.

ADEN PROTECTORATE

No comparative studies of statistical status have so far been possible.

CYPRUS

We have not made any statistical evaluation of our results.

ETHIOPIA

A statistical evaluation of results has not been possible in so short a time.

Eritrea

See answer to question 4.

ISRAEL

See answer to question 4.

JORDAN

A statistical evaluation has been made of the results obtained after the first year of domiciliary drug treatment in connexion with the Amman tuberculosis centre.

- (a) All cases examined at the tuberculosis centres showing X-ray pulmonary pathology on the microfilm suspected for pulmonary tuberculosis, are submitted

to prophylactic treatment. Classification of chest pathology does not include enlargement of hilar region nor pleurisy cases.

Long-term chemotherapy is carried out in infectious or potentially infectious cases of pulmonary tuberculosis.

Cases of pulmonary tuberculosis were classified in inactive, in observation and in (active) treatment tuberculosis cases.

Treatment cases are those of active pulmonary tuberculosis which require treatment; the diagnosis of these cases should be mainly based upon the X-ray and laboratory finding.

Observation cases are limited to those which do not present physical signs or demonstration of tubercle bacilli by direct smears and culture, or by laryngeal swab culture, and which in the X-ray film show evidence of productive lesions tending to fibrosis.

A certain number of these observation cases may be inactive; however, the diagnosis of these cases is very difficult and in order to ascertain this further control during a period is necessary.

Recently cured active tuberculosis cases should be under observation for a period of five years.

The inactive cases of pulmonary tuberculosis consist of those which X-ray film show fibrotic or fibrotic-calcified lesions due to reinfection type of pulmonary tuberculosis.

(b) The regimen for all patients under domiciliary drug treatment is 3 mgr./kg. Isoniazid with 6 gr. PAS daily for adults and corresponding doses for children.

The regularity of attendances for domiciliary drug treatment is checked by means of treatment cards and calendar filing cards.

(c) Prophylactic treatment and chemoprophylaxis were carried out at least for a period of 6 months. During this period cases under prophylactic treatment were classified "inactive", "observation" and "treatment" tuberculosis cases.

Long-term chemotherapy was carried out at least for a period of one year in "active" tuberculosis cases and in "observation" tuberculosis cases.

(d) Therapy was interrupted:

- (i) after six months in cases under chemoprophylaxis,
- (ii) after one year in "observation" tuberculosis cases and "active" tuberculosis cases showing marked improvement (clinical cure),
- (iii) in cases where long-term chemotherapy proved ineffective, and
- (iv) in defaulters, who failed to report for treatment.

(e) The examination of persons attending the tuberculosis centres for the first time is carried out by means of tuberculin testing and mass radiography.

Patients showing X-ray pulmonary pathology on the chest microfilm are followed up by clinical, bacteriological and in some instances by further X-ray examinations. Bacteriological examination of patients from the Amman tuberculosis centre is carried out by sputum examination (direct microscopy and culture), and laryngeal swab cultures. Catalase tests were also made.

Patients submitted to domiciliary drug treatment are re-examined every two months by bacteriological means and mass radiography.

(f) Assessment of progress was based on clinical, bacteriological and X-ray examinations. Results were evaluated as deteriorated, unchanged, and improved - slight, moderate and marked improvement.

(g) Socio-economic conditions affected to a certain extent the results of drug treatment. Efforts were made to give social assistance to tuberculosis patients by means of extra-food rations to refugees, milk and vitamin tablets to non-refugee tuberculosis patients, and limited financial assistance to a few tuberculosis cases.

(h) Domiciliary drug treatment appears to be effective particularly in early cases; it reduces the spread of the disease. Favourable results were obtained in newly diagnosed infectious cases of pulmonary tuberculosis, in primary tuberculosis, in pleurisy cases, as well as in chemoprophylaxis.

Poor results were obtained in previously treated old infectious pulmonary tuberculous cases. This appears to be related to the development of drug resistance.

#### LEBANON

Yes. It is inferred that treatment in a sanatorium is preferable to the ambulatory treatment.



(a) In principle, any tuberculous patient is referred to a sanatorium for hospitalization and treatment except in cases of slight unilateral infiltration.

More severely affected patients refusing to undergo a treatment in sanatorium are treated on an ambulatory basis. These are patients treated for the first time, showing a chest pathological picture, with a positive tuberculin test and a series of laboratory examinations and clinical signs which lead the specialist to diagnose a tuberculosis case. It is not essential that KB be found in sputum for starting an ambulatory treatment.

The classification of the pathological pulmonary signs is the following: single or bilateral pathological pulmonary picture: without cavity, with doubtful cavity, with positive cavity, with fibro-sclerous element, calcifications, expanded hilum, pleuritis.

(b) Cure: INH alone or associated with PAS or Streptomycin, or all three.

(c) The cases treated by us date back to one year only. The cases included in the statistical data above are four months old and we consider that the treatment should last one year and a half.

(d) The treatment is interrupted:

1. when the diagnosis is modified;
2. when the conditions of the patient remain stationery or when the patient accepts to be treated in a sanatorium;
3. when the patient belongs to a remote area or goes back to his own private doctor.

(e) Microfilm - tuberculin test - research for detection of KB in sputum - large film - sedimentation speed.

(f) Radiological - bacteriological - clinical - blood sedimentation speed.

(g) The conditions observed in our patients under ambulatory treatment are an aggravating element of the disease in the following order: slums, under-feeding, alcoholism, opium addiction, unemployment, family disagreement, delinquency.

(h) See statistical data under question 4.

#### LIBYA

No statistical evaluation of results has been made.

#### PAKISTAN

Statistical evaluation not yet completed.

### SOMALIA

The statistical data existing in this Department concern only the sanatorium of Mogadishu and the antituberculosis dispensary. From these, it appears that approximately 40% of the cases who come for the first time, are old forms of tuberculosis, mostly mixed (exudative and fibrous at the same time), accompanied by serious cavitary lesions. Another group of about 40% is represented by old patients who report irregularly and at intervals to follow an incomplete treatment in sanatoria or dispensaries, and disappear from our control when they deem that their condition is improved. It is always these same patients who reappear after a few months, in conditions ever worse, and claim a new cure or a new recovery. Finally, 20% are represented by patients who happen to come to our observation ignoring that they are sick. These are the milder cases and mostly suffering from the initial infiltrating forms. In all cases, the usual routine radiological, bacteriological, haematological and clinical procedures are resorted to for confirmation. Therapy and treatment for all cases are generally those described in the reply to question 3.

We repeat that our experience in domiciliary chemotherapy with isoniazid is scanty, either in the control by means of tuberculin test or not, as in Somalia we have not had the possibility of developing this important part of antibiotic prophylaxis.

As it is known, the construction of an Antibiotic Centre in Somalia is under way, and it is foreseen that it will be able to operate next July 1960. With the assistance of WHO and complete and adequate equipment, it is hoped that we will be able to carry out in full an overall programme of tuberculosis control, and a more complete experiment of home chemotherapy.

Anyhow, from the long experience gained in Somalia in respect of tuberculosis, and from what was achieved through the antibiotic dispensary either in patients with positive tuberculin test or in non-controlled patients, it may be held as certain that a thorough and systematic confirmation, specially in the infantile population followed by a controlled chemotherapy and chemoprophylaxy carried out on a wider scale, with the use of isoniazide, will prove extremely useful.

### SOMALILAND (FRENCH)

See reply to question 3.

### SUDAN

No statistical evaluation has been made of the results.

## TUNISIA

In view of the reasons mentioned in the reply to question 4, we have not been able as yet to make any statistical evaluation of the results obtained.

Although statistical evaluations are at present in progress and under comparative study, it is however possible to give partial answers to the different items of this question.

The criteria for selection of cases are based on:

- (1) Clinical signs both general and pulmonary:  
emaciation, anorexia, fever, cough, expectoration, hemoptysis,  
usual signs detected through stethoscopical and acoustical examination
- (2) Radiological anomalies (X-ray standard-tomography):  
nodules, infiltrations, caverns, pleural alterations ...
- (3) Laboratory findings:  
acceleration of the sedimentation speed  
positive direct bacilloscopy or after homogenization, positive  
cultures, positive tests.

The adopted classification generally includes: gangliar forms, pleural forms, pulmonary forms (miliary, nodular, lobar, trabecular infiltrates - caverns), pleuro-pulmonary forms (chronic forms evolving into fibrothorax).

Therapy is applied according to the age and extent of the lesions, the age of the patient, the local facilities (hospitalization, ambulatory treatment).

The therapeutic methods include: streptomycin, intramuscularly injected every other day or every two days; INH (daily); PAS (orally, in most cases, and intravenously for severe hospitalized cases only); sulfones (argentic diatox) in chronic not very evolutive cases; cycloserine in cases in which daily supervision is possible.

The length of the treatment depends on the form and extent of the lesions, as well as on their response to the therapeutical agents used; this response may be limited by a possible resistance to antibiotics.

As a rule, the chemotherapy is continued two years at least and 4-5 years at the utmost (intermittent or alternating cures).

The reasons for the interruption of the ambulatory treatment are due:

- (1) To irregular attendance of patient at the clinic (about 30% of cases)
- (2) To the aggravation of the disease with the result that the patient is hospitalized and a more active therapy is resorted to (exeresis)
- (3) To the healing of the lesions or to their stabilization after a long-continued treatment.

Examinations carried out before treatment:

In adults: full-face X-ray chest examination

possibly: side-face X-ray examination and tomography

bronchoscopy and bronchography

sedimentation speed

direct bacilloscopies or, after homogenization,

possibly: tubage, laryngeal swabbing, culture of expectorations or exsudates.

In children: full-face X-ray chest examination

possibly: side-face X-ray examination and tomography

tubage

tuberculin tests.

Criteria used for assessment of progress are:

- (1) Clinical criteria: ponderal and thermic curves...
- (2) Radiological criteria; cleaning or stabilization of lesions
- (3) Laboratory criteria: negative bacterioscopies; reversion of sedimentation speed to the normal

Socio-economic conditions that could appreciably affect the results:

- (a) Housing: the tuberculosis implantation chart shows that the disease and contagion are mostly prevailing in insanitary dwellings, slums, overcrowded and pauperism areas
- (b) Malnutrition: according to Government evaluations, 3/4 of the population suffer from malnutrition
- (c) Unemployment
- (d) High birth rate
- (e) Impossibility to provide physical and moral rest to patients under treatment (family obligations)

NB. Although food assistance has been provided to tuberculous patients in some areas, this cannot be considered as an overfeeding with respect to a certain level, but as a supplement to a still insufficient and ill-balanced calory ration.

UNITED ARAB REPUBLIC (PROVINCE OF EGYPT)

Yes, a statistical evaluation of results has been made.

(a) Every patient who is diagnosed as active pulmonary tuberculosis and is living in the area of the dispensary will be immediately treated in his home at the same time his name is put on the list for admission into sanatoria. Some are original treatment and the rest are retreatment cases. Classification of chest pathology is shown below:

pleural effusion, primary, miliary, minimal, moderately advanced, and far advanced.

(b) Streptomycin + INH, streptomycin + PAS, and INH + PAS, in some cases the three drugs combined. Streptomycin is given as injection of 1 gram twice weekly, PAS 12 grams daily for adults, and INH is given in 300 mgs. daily dose.

(c) At least 6 months, may be extended or shortened till his turn comes for admission into sanatoria.

(d) Interruption of therapy is mainly due to death, transferrance to another location, and feeling of improvement of symptoms.

(e) X-ray, bacteriology and sometimes resistance tests, and tuberculin test.

(f) X-ray, bacteriology and sometimes resistance tests.

(g) Social workers take into consideration home conditions.

(h) Figures on which the results may be calculated were attached to original reply but are not reproduced here.

UNITED ARAB REPUBLIC (PROVINCE OF SYRIA)

No complete statistical evaluation of our results has been made.

(a) We have no criterium for selection of patients. Some of the cases which come to us are for original treatment and others are cases for retreatment and in which treatment had been interrupted for a long time sometimes due to lack of money; the type of the patient differs, sometimes he is a preliminary infection or secondary preliminary tuberculosis of the infiltration

or cavernous density type (advanced cases), lateral effusion, flegmatic nodes in the neck, etc.

(b) As it has been mentioned before, the current treatments are the PAS, streptomycin and izoniazid. PAS is always given with izoniazid, or we give streptomycin with izoniazid, in order to delay the appearance of bacterial resistance.

(c) The period of treatment depends on the results reached by us. We have no fixed period to interrupt the treatment.

(d) Interruption of therapy and reasons for this:

- (1) Recovery
- (2) Unchangeability of X-ray findings on consecutive X-ray films
- (3) Ceasing of the patient to come for treatment

(e) The examinations done before treatment are: tuberculin test, screening, X-ray, Koch's bacillus opacity test, blood sedimentation test.

(f) Criteria used for assessment of progress:

- (1) Chemical measures, improvement of the general condition, increase of weight, fall of temperature, better appetite, diminution of cough and opacity.
- (2) Radiological measures - improvement of tubercles on X-ray films, diminution of the size of cavern and tendency of tubercles to fibrose.
- (3) Laboratory measures: negative result for opacity and diminution of blood sedimentation.

(g) The majority of patients who come to the centre are from the poor peasants who have barely anything more than to buy the strictly necessary food, which is not the nourishing kind of food containing the right vitamins. They live in insanitary dwellings where a large number of one family sleep in one room, and it is not possible to isolate the patient from the rest of his family. The majority of the patients live in most cases far from the centre, and this compels them to interrupt their treatment because of lack of transport facilities enabling them to reach the city.

(h) Results are relatively good. By this is meant that they are good, in consideration of the difficulties encountered in following up the treatment; and the abject poverty, ignorance and unsuitable conditions for the sick;

and our being compelled to desist from giving them treatments sometimes. These results, however, must be much better if more suitable conditions are found, and the said difficulties are removed, and if it is made possible for the patient to receive treatment regularly, and his life is improved economically.

### Question 7

Have you also given chemotherapy to persons without chest pathology but with a positive tuberculin test? If so, could you give us your results, taking into consideration the points already outlined above?

#### ADEN COLONY

No chemotherapy has been given to persons without chest pathology but with a positive tuberculin test.

#### ADEN PROTECTORATE

Chemotherapy has been given to non-pulmonary cases with positive tuberculosis reactions, but insufficient data are available for any useful analysis.

#### CYPRUS

Only children below the age of 5 without chest pathology but with a positive tuberculin test are given chemotherapy; but no statistical evaluation of our results has been made.

#### ETHIOPIA

Chemotherapy has been given sometimes to very young children between 0 and 4 years of age with strong positive reaction and according also to the social and medical situation of the family. No assessment of result can be made up to date.

#### Eritrea

We have no particular experience in giving chemotherapy to persons without chest pathology but with a positive tuberculin test.

#### ISRAEL

No adults, without chest pathology have been given chemotherapy. The number of children (converters) who would fit this group is too small to allow for inferences to be drawn from the results obtained.

#### JORDAN

Children below 5 years of age, who are reactors to tuberculin without pathognomonic signs and symptoms of tuberculous disease, or young persons between 5 and 20 years of age, who are reactors to tuberculin and with enlargement of hilar glands are submitted to chemoprophylactic treatment.



The immediate results of chemoprophylaxis were very satisfactory, as no case of active disease was encountered in any of the persons submitted to chemoprophylactic treatment.

#### LEBANON

Yes, mainly in children of tuberculous parents.

Results: improvement of the general conditions; the pulmonary picture remained normal.

#### LIBYA

No chemotherapy to persons without chest pathology but with a positive tuberculin test has been given.

#### PAKISTAN

No chemotherapy has been given to persons without chest pathology but with a positive tuberculin test.

#### SOMALILAND (FRENCH)

In French Somaliland, chemotherapy which is widely practised in hospital and in an ambulatory form, is still used on a very limited scale as chemoprophylaxis. So far, the latter is only intended for tuberculous patients' children living in close contact with their relatives, showing a positive dermo-reaction and proving to be clinically and radiologically free from tuberculosis.

These tests are too recent to enable us to report reliable statistical results. It is hoped that by 1961, chemoprophylaxis will be extended to the whole school population as well as to patients attending maternal and child health clinics and showing a tuberculin positive dermo-reaction.

#### SUDAN

No chemotherapy has been given to persons without chest pathology but with positive tuberculin test.

#### TUNISIA

Chemoprophylaxis based on the daily administration of INH has been used in children under 3 years of age living in a tuberculous family environment.

Although not enough time has elapsed to allow for an evaluation, however, it seems that this chemoprophylaxis proved to be quite effective, since no tuberculosis attacks developed in children undergoing this prophylactic therapy.

UNITED ARAB REPUBLIC (PROVINCE OF EGYPT)

No chemotherapy has been given to persons without chest pathology but with positive tuberculin test.

UNITED ARAB REPUBLIC (PROVINCE OF SYRIA)

Chemotherapy in our centre is not given except to those persons in whose cases the X-ray films show tubercles in the active stage. Therefore we have no results of any such therapy as being done to persons with whom the tuberculin test was positive, because this therapy has never been used by us.

Questions 8 and 9

What are the difficulties you encountered in your programme with regard to:

- (a) Ensuring regular taking of drugs by self-administration (methods applied to check administration of drugs);
- (b) Reporting for follow-up examinations;
- (c) Cooperation in following other health rules for preventing spread of disease in the home.

What are the reasons for these difficulties?

What remedies have you tried?

ADEN COLONY

(a) The main difficulty is ensuring that the patient continues to take regular chemotherapy for long periods when patient feels well. Gastro-intestinal upset with PAS alone seems fairly common. Some patients will take INAH but will not take PAS regularly. Intermittent therapy leads to a high relapse rate and drug resistance. To overcome the danger of treatment with INAH alone, a combined therapy with PAS and INAH in tablet form is now being used.

(b) The large itinerant population in Aden and also a certain number of pilgrims are found to be suffering from pulmonary tuberculosis when they feel ill and attend a local dispensary. Some patients when they feel better leave for their home country for a few months and in most cases their treatment is not continued. On return they have frequently relapsed and may be worse than when they first attended.

Permanent residents of the Colony are generally extremely cooperative with regard to follow-up examinations. In the case of Protectorate patients they may wish to be discharged from hospital with the intention of travelling to their home country where follow-up facilities are non-existent. Where they are existent there may be insufficient drugs available to continue treatment for the necessary period.

(c) Generally cooperative as far as can be ascertained. Where unhygienic habits are ingrained in the behaviour pattern of a country or social group considerable resistance to a change of habits is to be expected.

To overcome the danger of drug resistance with INAH alone a combined therapy in tablet form is being used. Methods applied to check taking of medicines are:

- (i) Urine test for PAS without prior warning
- (ii) Regular attendance at chest clinic for clinical assessment
- (iii) A record of attendance for medicines entered on treatment cards filed in the chest clinic and checked regularly
- (iv) Regular X-ray of chest to check progress radiologically
- (v) Sputum examinations for presence of AFB when attending chest clinic

Residents of Aden are easy to trace through chest clinic records. Each patient has to provide an address where he can be contacted. Routine inspection of record cards will reveal defaulters who can easily be traced.

In the case of non-residents from Yemen we can only rely on patients' sense of responsibility?

Protectorate patients are, if possible, supervised by local dispensary in their own country.

Patients generally cooperative but when simple hygienic measures are explained to them. This is best done during initial stay in hospital.

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Provided the patients take daily chemotherapy in combined form and in adequate dosage for a sufficient length of time, i.e. not less than 18 months but preferably two years excellent results should be obtained.

In Aden ambulant treatment with chemotherapy can be as equally effective as a long term hospital treatment. Unfortunately what is possible in theory may fall short of the ideal in practice.

Our procedure is to give each patient a short period of hospitalization before domiciliary treatment. The advantages of this are:

- (a) Isolation of sputum positive cases until conversion to negative
- (b) Initial treatment with Streptomycin and INAH
- (c) Treatment and investigation of intercurrent illness
- (d) Improvement in patients' condition gives patients confidence in treatment.

Aden is fortunate in that every part is easily and quickly accessible by car. It must be explained that strict supervision of each patient is essential for success. When there is intermittent treatment drug resistance is likely

to develop. An insufficient period of chemotherapy results in high relapse rate with again the possibility of super-added drug resistance. Accurate and reliable records of attendance must be available so that a full record of each patient's attendances and progress can be checked.

In our opinion it cannot stressed too strongly that most patients probably miss out occasional doses. The dosage of drugs issued must be sufficintly high to maintain the average daily intake of PAS not less than 610 per day.

#### ADEN PROTECTORATE

(a) Occasionally home visiting reveals non-taking of the drug. No method other than enquiry on home visiting is employed to check consumption.

(b) There is difficulty occasionally in reporting for follow-ups.

(c) On the whole there is cooperation in tuberculosis domestic hygiene. Leaflets in Arabic are issued.

The greatest difficulty encountered in the programme is lack of money to buy specific drugs and X-ray films. Administrative difficulties are considerable. In most instances tuberculosis programmes are supervised by doctors without special experience of tuberculosis. They have must general work to do with routine, emergencies, and administration, and the ideal degree of supervision of tuberculosis cases tends to be rarely attainable but there is growing improvement. In many districts the patients live in remote areas which are difficult to visit. Our task is made more difficult by the heavy influx of patients from the Yemen where apparently no attempt is made to control the disease.

The remedies trieed have been home visiting, instruction and leaflet distribution. There may be added (a) improved administration, (b) more doctors and health assistants to give more refinement in coverage, and (c) attempts at receiving increased funds for supplies from normal Government and State Estimates, Colonial Development and Welfare funds and UNICEF.

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In addition to specific answers to the questions, the following points may be of interest.

Patients are originally diagnosed in the out-patient department of a hospital or by health assistants in rural units who send sputum specimens to the nearest laboratory. Wherever possible, all contacts are examined and given a Heaf tuberculin test. Negative reactors receive BCG vaccination.

Young children with severe tuberculin positive reactions are sometimes X-rayed and those with enlarged hilar glands are periodically called in for checks and receive milk and Vitamin A & D capsules, largely supplied by UNICEF. Unfortunately it is not possible to hospitalize all cases of active disease and in some instances domiciliary treatment with PASINAH or Pycamisan is given from the very beginning. Routine tuberculin surveys of school children have been done in most localities with BCG vaccination of non-reactors.

The stage of development in which this Service finds itself is one of rapid expansion to cope with many insistent needs in staff, training, procedure and funds, and necessarily, with a thin immature administration spread over a large (112,000 sq. miles) area with a sparse (750,000) population, only a very small proportion of the population affected with the disease can be hospitalized. For this reason our hope is largely fixed on BCG immunization, health propaganda, case-finding, registration and domiciliary treatment by the staff of 7 hospitals and some 65 health units. The work has barely started but the procedure is improving in quality.

#### CYPRUS

The main difficulties encountered with regard to domiciliary chemotherapy were:

- (a) Non-regular taking of the drugs; (the normal supply of drugs for four weeks may last for a longer period).
- (b) Disregard of the rules of personal hygiene.
- (c) Non-cooperation in following other health rules for preventing spread of the disease either at home or outside it; (this may be attributed to the low standard of education of many of our cases).

We have tried to overcome the difficulties mentioned under question 8 by explaining to our patients the reasons which make it imperative that they should adhere strictly to the doctor's and health visitor's advices.

#### ETHIOPIA

- (a) Patients under regular treatment are instructed in self administration of these drugs and only small quantities (for three weeks) are given at one time. Instructions are repeated each time they receive the therapy.
- (b) No actual checking has been done in their house because this will put too much strain on the home visiting service which has only recently started.

Reporting for follow-up seems generally good but we have not yet established statistics on this question.

(c) Cooperation habitually is good but health education has to be started on a very big scale.

As the town is wide-spread and our personnel has to cover very large distances it is difficult to establish a perfect system of checking. Also the population moves very easily from district to district and it is practically impossible to keep a check on their movements.

The remedy for this would be to check the patients in their home more often but this would require more health visitors and transportation and more advanced organization which cannot be attained without additional expenses.

#### Eritrea

Answers given under previous questions.

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Regarding our particular situation, the Eritrean Government is now discussing a new scheme for the treatment of tuberculosis. As said before, a new hospital for tuberculosis patients is being built; all the sections for tuberculosis in the hospitals outside Asmara will be reinforced; with the nurses of the Nursing School and with other personnel specifically trained, a control of population as large as possible will be made for detecting all the possible cases of tuberculosis. When these basic points are developed, we think we will have the possibility to discuss the application of domiciliary chemotherapy, even in Eritrea.

#### ISRAEL

To be sure, difficulties such as pointed out under question 8 (a), (b), (c) above are encountered in our chest clinics but they do not seem to present major problems. No special arrangements have therefore been made to check on self administration of drugs, except through contact of the visiting nurse with the patient and his family and through observation of progress.

#### JORDAN

Difficulties were encountered in connexion with regular attendance of patients for chemotherapy.

(a) Self administration of drugs could not be checked by means of urine tests, because of shortage of staff in the public health laboratory.

(b) The following table shows the attendances for treatment of active tuberculosis cases in the Amman tuberculosis centre.

Table I  
Attendances of patients with active pulmonary TB  
Period 21.11.57. - 31.12.59.

Regularly attending for treatment	275
Irregularly attending treatment	266
Treatment stopped (clinical cure)	174
Stopped attending for treatment	147
Did not report for treatment	159
Died	48
Total	<u>1069</u>

(c) Cooperation for the prevention of spread of the disease in homes was promoted by means of home visiting and health education.

The reasons for irregular attendances or no attendances are shown in Table II.

Table II  
Domiciliary drug treatment 1957/1960  
Patients with active pulmonary tuberculosis

<u>Reasons</u>	<u>Did not attend for treatment :</u>			<u>Stopped attending for treatment</u>		
	<u>Amman</u>	<u>Out Area</u>	<u>All Areas</u>	<u>Amman</u>	<u>Out Area</u>	<u>All Areas</u>
1. Tent	7	41	48	3	42	45
2. Moved	13	8	21	16	6	22
3. Hospitalized	5	4	9	2	2	4
4. Refused Treatment	2	-	2	6	1	7
5. Prisoners	2	-	2	1	-	1
6. Other Reasons	18	59	77	6	62	68
Total	<u>47</u>	<u>112</u>	<u>159</u>	<u>34</u>	<u>113</u>	<u>147</u>

(1) One third of the cases of patients who did not report for treatment or stopped attending, were beduins (tent families).



- (2) From Table II under "Other Reasons" these may be summarized as follows:
- (a) Economic reasons especially for patients coming from out areas, who lacked the necessary funds for transport, etc.
  - (b) Ignorance
  - (c) Disappointment in lack of results in chronic cases in response to drug treatment.
- (1) Intensified health education has been carried out in the centres and in the homes
- (2) Social assistance has been given wherever necessary and possible.

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On the whole the results were satisfactory and reassuring particularly in early cases and in newly diagnosed infectious cases of pulmonary tuberculosis.

On the other hand chemotherapy results were disappointing in hospital cases who were mostly chronic and advanced, or in chronic previously treated cases under domiciliary treatment, who had developed drug resistance.

#### LEBANON

(a) Most of the patients regularly take the prescribed treatment, report to us every month and bring back the empty bottles of streptomycin.

A small minority consult other doctors and are not followed up by us.

(b) There are no difficulties as far as reporting for follow-up is concerned.

(c) Socio-economic difficulties (housing, financial means).

Steps to remedy the situation have been taken with the Ministry of Social Affairs.

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In our country, the number of beds reserved to tuberculous patients in sanatoria allow for a shifting of the patients in order that the ambulatory treatment be primarily a post-sanatorium one. In this case, the results seem to be better.

Those patients who were obliged on account of family reasons (lack of social welfare) to work during the ambulatory treatment, have not satisfactorily responded to the treatment.

LIBYA

This question will be studied when the campaign is started.

PAKISTAN

(a) Patients are taking drugs regularly. Checked by the lady home visitor in charge of the case during her next visit.

(b) Patients report to the centre regularly for follow-up examination.

(c) Some of the patients do not cooperate in following the hygienic instruction given by the lady home visitors. Others are very eager to cooperate, but sometimes they cannot follow all the instructions due to socio-economic conditions, poor housing conditions and illiteracy. Moreover, a sense of discontentment develops in the mind of some of the patients due to prolonged medication of the drug.

To remove these difficulties the lady home visitors have been instructed to pay frequent visits to the homes of the patients and give them full assurance of cure. As home isolation is not possible in most of the cases, lady home visitors try to keep the patients partially isolated from the rest of the family members specially from the children. To ensure safe disposal of sputum arrangements have been made to give practical demonstration to the patients as well as to the other members of the tuberculous patient's family. When a lady home visitor fails to tackle a particular patient the medical officer in charge of the chemotherapy project takes up the case and tries his best to take the patient into confidence.

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In the face of large numbers of tuberculosis cases in the country and the poor economic condition of the people the domiciliary chemotherapy project, appears to be the only practical steps which can be adopted on a large scale basis. The drug is easily administered and the treatment is cheaper. To make the work of the lady home visitors easy there should be some sort of legislation against those patients who do not care to listen to our instructions and are willingly scattering tuberculosis bacilli here and there.

SOMALILAND (FRENCH)

The main difficulties encountered in the implementation of our programme are the following:

(1) Lack of qualitative or/and quantitative nutritional balance. This may be aggravated by some prevailing local customs and also by the following factors:

(2) Use of khat which hampers the patient's appetite and deprives the family budget of a substantial part of its resources.

(3) Nomadism which results for the rural patients in a discontinuation of the treatment and in a high rate of absenteeism when the general check-up is carried out.

(4) Ignorance regarding the basic rules of hygiene and resulting in the spread of the disease and in an unjustified feeling of optimism as soon as the general and functional signs improve.

(5) Carelessness with regard to the regular taking of drugs and more particularly of PAS, which is disliked by the patients.

In order to remedy the situation, we plan:

(1) To intensify basic health education and the control of khat consumption;

(2) To extend overall case-finding by systematic radiographies in rural centres;

(3) To expand BCG vaccination;

(4) To establish chemoprophylaxis at school;

(5) To give to the surgical therapy of tuberculosis the prominent place it deserves as a result of the increase in our available facilities;

(6) To increase the number of beds in hospital, to multiply long-term treatments, and to strengthen domiciliary therapy as may be required.

#### SUDAN

(a) Most of the patients cannot be seen often enough; there is a shortage of qualified personnel; insufficient transport; no facilities for urine testing.

(b) A large number of patients do not return for follow-up after the first visit to the centre, some return but very irregularly; some return only if they feel very ill.

Great difficulties are also encountered regarding follow-up of contacts.

(c) In the home visiting area patients are generally cooperative, but a few families will not accept visits to their homes.

A large number of patients are living very far from the tuberculosis centre. Many of them cannot afford to travel the distance so often. They cannot at present be visited in their homes, because of lack of facilities for home visits outside a very limited areas; Wad Medani town and villages within 20 miles of the centre.

(1) The lack of understanding of the importance of follow-up.

(2) The stigma on tuberculosis patients and their families are afraid of being known in their community as having tuberculosis if they come to the tuberculosis centre regularly and/or accept visits by home visitors from the tuberculosis centre.

(3) Financial difficulties among the patients. Many of them cannot afford to pay for the journey themselves and their families regularly.

(4) Shortage of qualified staff to teach the patients and their families.

With the limited number of qualified medical and home visiting staff at hand not much can be done - however the interviews with patients and contacts at the centre are made as instructive as possible.

The number of visits to the nearby patients have been increased. An appointment Register has been introduced for the visiting area - and this provides for an easier checking of attendance. To get better contact attendance it would probably be necessary to withhold treatment of the index case for some time

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In order to ensure good attendance and regular check-up of patients and contacts it is necessary:

(1) To have adequate, well trained staff and sufficient transport.

(2) Either to make provision for sub-centres, possibly small clinics served by a mobile unit, (bringing the clinic to the patients) or give financial assistance to needy patients and their contacts enabling them to travel the necessary distance for check-up.

Patients living in the home visiting area are more regular than patients living in remote area. There are two main reasons for this:

It seems to be an advantage if treatment can be started in an institution, particularly when we are short of qualified staff for domiciliary services.

(1) Patients in the remote areas, are not benefiting from the close supervision given to the patients in the visiting areas.

(2) The cost of travel and loss of working hours is smaller in the nearby areas.

#### TUNISIA

(a) With regard to the regular taking of drugs, it is obvious that these difficulties are only connected with the oral administration of antibiotics, since streptomycin injections are strictly controlled through a system of record-cards established by the nursing staff in charge.

As far as the regularity of the oral taking of the other antibiotics is concerned, there is no other alternative in most cases than to take the patient's word, in view of the lack of social workers.

As for the objective control methods (Hoffman-Laroche method for INH, Chanes method for PAS, Sabon et Lacroix method for PAS and INH ...) although they are of real interest, they give rise to some problems in relation to supply and increase in the number of personnel, which cannot be solved under the present circumstances.

Nevertheless, it seems that this year it will be possible through the national mass tuberculosis campaign to apply the Hoffman-Laroche method to a substantial group of treated patients.

At present, it is only through a control over the regular attendance of the patient at the clinic that it may be possible to have an idea, which is incomplete, of the problem of the regular taking of drugs. A recent study on the attendance of patients discharged from a hospital centre in Tunis gave the following results:

(1) In 1957, 68% of the patients, i.e. more than 2 patients out of 3, had abandoned on their own initiative the ambulatory treatment

(2) In 1958 and 1959, the situation reversed: 34-30% of the patients, i.e. 1 out of 3, were under this category.

Reporting for follow-up examinations: the patients return without difficulty and very willingly to the clinic, and the few cases of absenteeism are mostly observed in large population centres than in rural environments. This lack of attendance lays stress on the difficult problem of shortage of social workers.

The cooperation of the patients in the observation of adequate rules of hygiene gives rise to no difficulty whatsoever, whenever intelligent and understanding patients are involved, and when they have sufficient material resources and live in suitable houses in healthy areas.

Unfortunately, in most cases, regrettable socio-economic factors hamper the development of public and private health rules which are essential for the implementation of an effective tuberculosis control.

To remedy the deficiencies stated above it would be advisable to develop a comprehensive programme including:

- (1) The recruitment of a qualified personnel with a view
  - (a) To securing a continued and regular follow-up of the patients treated on an ambulatory basis;
  - (b) To developing in these patients a particular state of mind which is essential in inducing the patient to take personally care of his own disease;
  - (c) To allowing for an effective control over the regular taking of the antibiotics prescribed, through the application of control methods.

The recruitment of social workers remains a crucial and urgent problem in the field of hygiene and prophylaxis.

(2) The improvement of the standing of our populations (compulsory education, full-time employment, building of healthy and adequate dwellings, assistance to be called upon from outside). This is an outline of the basic points of our programme for the coming years.

UNITED ARAB REPUBLIC (PROVINCE OF EGYPT)

(a) Methods applied to check administration of drugs: inspection, which includes asking the patient himself, checking number consumed in a limited time to have idea about amount consumed daily from tablets. Streptomycin injection is given by visiting nurse.

(b) Reporting for follow-up examinations is incomplete.

(c) Sometimes we find difficulties in getting contacts to be examined in the dispensary and given BCG. Reasons for all this are shortage of staff and improper supervision.

Ministry of Public Health is now revising the role of the General Association in executing the domiciliary treatment. This treatment will be achieved by the Ministry on a sound basis in the very near future.

UNITED ARAB REPUBLIC (PROVINCE OF SYRIA)

Difficulties are encountered in our programme as regards

- (a) Ensuring regular taking of drugs
- (b) The inability of patients to come to the centre regularly because of the long distances which separate them from us, and
- (c) The lack of medicines in the tuberculosis control centre sometimes.

As regards ensuring the regular taking of drugs we have no special methods, for that but we give small quantities of drugs (sufficient for ten days in the city of Aleppo and for fifteen days to those who live outside Aleppo in order to avoid the risk of their being sold by the patients).

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As for our remarks regarding domiciliary chemotherapy, it must be stated that if the social and economic conditions are improved, and patients become capable of understanding the recommendations given to them by doctors and social nurses in regard to drug taking and protection from tuberculosis, domiciliary chemotherapy may then give good results. Until such progress is reached we suggest that sanatoriums and beds be increased in number in the Governorate so that patients can find the suitable environment for drug taking and ensuring the necessary nourishment and can make of the sanatorium a school for teaching them the kind of life which they should live when they leave hospital.

WORLD HEALTH  
ORGANIZATION

REGIONAL OFFICE FOR THE  
EASTERN MEDITERRANEAN

الهيئة الصحية العالمية  
المكتب الإقليمي لشرق البحر الأبيض

ORGANISATION MONDIALE  
DE LA SANTÉ

BUREAU RÉGIONAL DE LA  
MÉDITERRANÉE ORIENTALE

REGIONAL COMMITTEE FOR THE  
EASTERN MEDITERRANEAN

Tenth Session

Agenda item 12

EM/RC10/Tech.Disc./3 Add.1  
17 August 1960

ORIGINAL: ENGLISH

TECHNICAL DISCUSSIONS

TUBERCULOSIS CONTROL WITH PARTICULAR REFERENCE TO  
DOMICILIARY TREATMENT

INFORMATION FROM GOVERNMENTS

IRAQ

Question 1

In our country, we prefer to use the term "ambulatory treatment" instead of "domiciliary". In actual practice patients attend Tuberculosis Clinics for diagnosis, treatment and follow-up. If we agree that the word Domiciliary is synonymous to Ambulatory, we can say that this line of treatment is the basis of our National Anti-tuberculosis Control Programme.

This line of treatment has been organised on a more or less sound basis since 1954 at the Tuberculosis Control Centre in Baghdad. It is now carried out by all Chest Clinics in our Country. Tuberculosis Hospitals and Out-patient Departments in the General Hospitals do not give such medical services.

Because of want of beds and the availability of anti-microbical drugs, practically every patient, febrile or afebrile, undergoes a long period of ambulatory treatment before hospitalisation, except for those who show a marked physical incapacity who are usually given priority for admission.



### Question 2

In the Tuberculosis Control Centre in Baghdad, the number and categories of personnel are as follows:

10	Doctors, including 2 in the TB Diagnostic Laboratory
4	Graduate Nurses
2	Trained Nurses
5	Vaccinators
8	X-ray Technicians
6	Health visitors
4	Laboratory Technicians

### Question 3

The Therapy includes mainly dispensing the main three specific standard anti-tuberculosis drugs. They are given in the following combinations:-

PAS + INH.

PAS + Streptomycin

INH + Streptomycin

1.0 gm. of Streptomycin usually administered twice weekly.

300 mg. of INH is given per day for adults.

12 - 15 gm. PAS is given daily.

The duration of treatment is continued for 2 years for the majority of cases.

The regimen used for children is essentially the same, but less cases receive PAS compared with adults. INH and Streptomycin in form of injections is preferred in children under 5 years old.

We rely very much on Tuberculin Testing in the diagnosis of children under 3 years of age.

### Question 4

The comparative study is usually faced by many difficulties. The irregular attendance and taking drugs according to instructions is one of the most difficult problems.

Some may refrain from taking large amounts of tablets daily. Some may seek private treatment, which may follow other lines of Therapy. Patients may obtain drugs from private Pharmacies and manage to treat themselves.

Therefore Control Studies cannot be definitely based on scientific procedures and a satisfactory answer cannot be given correctly. Anyhow the results obtained from ambulatory treatment show that it is of great value from the Public Health and Epidemiological point of view in turning positive cases into negative within 3-6 months time of treatment.

We can expect from such line of treatment that, after the elapse of 6 months, up to 75% of positive cultures become negative.

#### Question 5

A statistical evaluation of results is not yet available.

#### Question 6

(a) The cases are supposed to be original.

Tuberculosis patients are classified under two categories for both statistics and therapy.

1. With positive culture of sputum in laryngeal swabs
2. Diagnosis based on clinical and X-ray pathology. No mycobacterium tuberculosis recovered bacteriologically.

The classification of chest pathology is followed according to WHO classification code of X-ray and Laboratory.

(b) The average is between 1 - 2 years.

(c) The interruption of treatment is one of our most difficult problems, which interferes with our treatment results. This is mainly due to:-

1. Lack of education.
2. Sense of feeling "well" after a short period of treatment.
3. Consultation of private physicians.
4. As most of our customers are villagers, they find difficulty to attend regularly for treatment, especially during winter times because of bad roads.

(d) Tuberculin Testing, X-ray examination, bacteriology and sometimes, on a very small scale, resistance tests are performed.

(e) X-ray progress.

Conversion of sputum.

- (f) The majority of our patients are from a low socio-economic stratum. Bad home conditions, malnutrition, bad habits and lack of hygienic conditions affect severely the results of treatment and facilitate materially the spread of infection.
- (h) 1. Raising the income per capita.  
2. Health Education  
3. Propaganda  
4. Insurance and security of each individual.

#### Question 7

Chemotherapy has been given to persons without chest pathology but with a positive tuberculin test on a very small scale with some children under 3 years of age, who have positive tuberculin test as a result of contact with tuberculous parents.

No follow up of the destination of tuberculin testing is available.

#### Question 8

- (a) Lack of doctors, nurses, health visitors and technicians, compared with the large number of cases discovered are the main causes which prevent us being sure that drugs given by self-administration are taken regularly by patients. For this reason also no method could be applied to check the administration of drugs given.
- (b) Reporting for follow-up examinations is followed by the minority.
- (c) The nature of living conditions, lack of health education and poverty decrease very much the cooperation and help of patients in following the health rules for preventing the spread of disease in the home.

#### Question 9

Remedies:

1. To provide more technical staff, specially trained personnel in X-ray work, tuberculin testing, BCG vaccination and laboratory techniques.
2. To have more mobile units for case-finding and treatment and follow-up, especially in remote places.

3. To build up a mature and efficient staff of health visitors and health educators.
4. Erect more chest dispensaries and treatment "segregation" homes for far advanced and crippled cases.
5. To extend our survey work in order to discover more and more early cases who can be easily managed by "Ambulatory Treatment".
6. Allocation of a special budget for this line of treatment.

#### Question 10

As far as our experience goes in this Country, ambulatory treatment seems to be an encouraging and promising procedure. With regard to bacillary conversion the prompt results seem to be favourable. A very marked and rapid diminution in cough and amount of sputum encountered in more than 85% of patients. These good results would have a very remarkable effect on the reduction of the spread of infection and the epidemiology of the disease.

As far as X-ray follow-up is concerned, complete apparent absorption of opacities have been achieved within 3-4 months and apparent closure of small cavities.

This line of treatment proves to be highly justified in our Country as long as there is an acute shortage of beds and should be the policy of treatment in the under-developed countries, because it is the easiest and cheapest method of controlling tuberculosis.