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# REPORT

# ON THE GROUP MEETING ON MEDICAL RESEARCH IN THE EASTERN MEDITERRANEAN REGION

Alexandria, United Arab Republic

22-26 February 1966

WORLD HEALTH ORGANIZATION

REGIONAL OFFICE FOR THE EASTERN MEDITERRANEAN

A L E X A N D R I A

1966

PARTICIPANTS AND OBSERVERS WHO ATTENDED THE GROUP MEETING ON MEDICAL RESEARCH HELD IN ALEXANDRIA, UAR, FROM 22-26 FEBRUARY 1966

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# I INTRODUCTION

The first Group Meeting on Medical Research in the Eastern Mediterranean Region sponsored jointly by the World Health Organization Regional Office for the Eastern Mediterranean and the Medical Research Institute, Alexandria, (UAR Government) was held at the Medical Research Institute, Alexandria, from 22 to 26 February 1966.

The meeting was opened by H.E. Dr. Mohamed El Nabawy El Mohandes, Minister of Health, H.E. Dr. Riad Tourky, President of the High Council of Scientific Research, UAR, Dr. A.H. Taba, Regional Director of the WHO Regional Office for the Eastern Mediterranean, Professor M.E.A. El Kharadly, Director, Medical Research Institute, Alexandria, and Professor A.S. Darwish, Dean, Faculty of Medicine, University of Alexandria.

Professor M.E.A. El Kharadly, Director, Medical Research Institute, Alexandria, was elected Chairman, Dr. M. Ibrahim (Pakistan), Vice-Chairman, and Dr. C.M.H. Mofidi (Iran), Rapporteur.

The Provisional Agenda was adopted as proposed.

The Medical Research Programme of the World Health Organization, 1958-1963*, was distributed to all participants in advance and served as background material to the Group Meeting.

The participants were called upon to define the status of medical research in their countries as well as the problems encountered in this important field, together with possible ways and means for promotion of medical research in the Region. It was emphasized that although the attainments in medical research varied in the different countries of

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*Report by the Director-General, WHO

the Region, there were common denominators which required all-party approach at a regional level. The participants were requested to exchange experiences and pool their knowledge in an endeavour to make recommendations for the further development of medical research in the Eastern Mediterranean Region, which will be flexible enough for application in countries having varying stages of development.

## II THE NEED FOR MEDICAL RESEARCH

The main task of medical research is to advance our knowledge of human biology and to find scientific solutions for health problems.

It is customary to divide research into basic research and applied research which includes operational and field research. Such division is really artificial because research, which is regarded as basic today, frequently has practical application in the future.

The question may arise as to whether medical research, being expensive and time consuming, is a necessity for developing countries or whether these countries would be satisfied with the application of knowledge acquired elsewhere? The answer is clear if we bear in mind that many urgent health problems of developing countries are different from advanced country and may be influenced by environmental and possibly ethnic factors and that our present knowledge and resources are not sufficient for their control or eradication. Furthermore the vast amount of information which has accumulated in the advanced countries cannot be applied without further adaptive research to suit different geographic conditions, people and cultures.

## III THE RESPONSIBILITY FOR MEDICAL RESEARCH

Primary responsibility for medical research within a country may be assumed by various organizations such as universities, research

institutes, public health authorities and national research councils. They are sufficiently different in function that no one, by itself, can meet all the research needs of a country.

1. Universities

The Universities are the traditional home for research where science and scholarship flourish and where medicine has abundant opportunities for cross fertilization with the basic sciences and humanities. It is essential for a country to have such centres of independent thought, for only thus can it defend itself against its own wishful thinking. In theory, the universities have no responsibility for practical programmes and are free to follow knowledge wherever it leads. Yet more practical activities of interest to society also draw attention on a large scale. The University as part of the community has an obligation to engage in certain utilitarian projects for social benefit.

There are many reasons for having research as a main function of the university, but two of them deserve special comment. Research and higher education, particularly at the post-graduate level, support each other; in fact, they are inseparable. There is much to be gained by integrating them. The second reason is that the universities are the only source of the scientific research workers. Thus the whole scientific structure of a nation will suffer unless the universities are maintained as flourishing citadels of research.

Certain important functions of the university may limit its capacity for research. For example, the university must maintain a comprehensive and balanced coverage of the numerous branches of learning and provide a continuous flow of teachers and research workers. In the case of clinical departments the care of patients imposes a heavy

additional load which may limit the research effort. The size of the staff should be adequate to allow time for research as well as teaching and service.

2. Medical Research Institutes

To permit concentration of research effort and resources for specific purposes, medical research institutes may be established under the national research organization, university, government or other auspices.

There are two types of medical research institutes - the specialized and the general. A specialized research institute concentrates on a relatively narrow field and is only justified for the purpose of dealing with a problem of great medical importance. A general medical research institute, on the other hand, is concerned with a variety of research interests whether basic or applied and may adapt its programme to changing health needs. The medical research institutes and medical faculties are complementary and not competitive and their active co-operation enhance the total research effort and dissemination of knowledge.

3. Public Health Departments

Public health departments have the responsibility to apply available knowledge for the maintenance and promotion of health. This knowledge must be adapted to the needs of each particular country. For this reason, public health departments cannot divorce themselves from the world of research. They do not only translate research into practice, but bring lessons of experience as well as the health problems of the community to the attention of such organs of research as universities and research institutes. Public health departments provide the

proper environment for the interplay of research and practical health activities. They are particularly involved with a certain type of research, the "operational research" applied for instance to disease control programmes.

Another type of research of particular interest to public health departments is in the field of epidemiology. Epidemiological studies often need collaboration on a nation-wide basis and cannot be performed without the active co-operation and good-will of the widespread network of health services.

In addition, public health departments are well suited to undertake or co-operate in a variety of other research activities including research in administrative methods, health education and medical economics.

4. National Research Councils

In recognition of the importance, complexity and expense of research activities, many governments have established a central organization or national research council to encourage and support research. Such a body, which may provide varying degrees of guidance for the research effort of the country, usually has a subdivision concerned primarily with medical research.

## IV STATUS OF MEDICAL RESEARCH IN SOME COUNTRIES OF THE REGION

The following general information regarding research in the various countries was provided by the participants.

### 1. IRAN

Scientific investigation is an important aspect of general health development plans in Iran. Iran's Third Development Plan which began in 1962 and is to terminate in 1967, provides for an expenditure of

about $ 30 000 000 for research in various fields of science. This amount is approximately 1.2 per cent of the total investment of the Third Plan and about 0.2 per cent of the gross national product.

Funds spent on medical research by various research institutes are mostly provided by the Plan Organization of Iran. This amounts to about $ 2 500 000 per year. In addition, about $ 500 000 is spent from their regular funds by various universities and health departments on research.

Medical and public health research in Iran is undertaken by universities, hospitals, research institutes, and the Ministry of Health.

Various research projects are carried out by the departments of all seven medical faculties. In Teheran University, School of Medicine, a special laboratory for medical research was established in 1963 for the purpose of research on existing local problems and training of personnel for medical research. A graduate school of public health is being established in 1966 at the University of Teheran with WHO assistance.

There are six government-sponsored research institutes, namely:

i. Pasteur Institute
ii. Razi Institute
iii. Cancer Institute
iv. Institute of Food and Nutrition
v. Institute of Public Health Research
vi. Firouzgar Medical Research Centre.

The research institutes co-operate in many basic health research projects with other institutions such as Teheran University Nuclear Centre, Institute of Social Sciences, Institute of Economic Research,

and the Schools of Pharmacy, Dental Medicine, Veterinary Medicine and the National Statistical Centre.

The National Iranian Oil Company supports extensive research programmes in its medical and public health services.

Co-ordination of medical research at various levels is assured by the Planning Committee of the Ministry of Health, the Health Section of the Plan Organization, and by the Scientific Research Council and its Committee on Medicine, Public Health and Veterinary Science established in Teheran University in 1963.

To strengthen the co-ordination of research on a national level, initial plans are being drawn up for the establishment of a National Science Council, which will be attached to the Prime Minister's Office and will include seven scientific councils for various branches of science. One of these councils, the National Medical Research Council, will be responsible for co-ordination of medical and public health research.

2. IRAQ

Medical research in Iraq started with the establishment of the College of Medicine in Baghdad in the twenties. A small medical research institute was established in 1949 but was closed after ten years. Its building was demolished to make way for the new medical centre.

Adequate space will be available when the new medical centre in Baghdad will be in use around the end of 1966 and when the plans for enlarging the hospital at Mosul (where there is another college of medicine) are implemented. A new hospital will be built in Basrah (where another college of medicine will be established). The new laboratories of the College of Medicine in Baghdad were completed in 1965 and the new laboratories at Mosul will soon be completed.

The Nutrition Institute, established in 1955, is conducting nutritional surveys and analysis of local food stuffs. The Institute for Endemic Diseases is in charge of survey, control and eradication of endemic diseases and publishes the results of its activities in the Bulletin of Endemic Diseases. Other research institutes include: Central Pathology Institute, Pasteur Biological Institute, Radioisotopes Laboratory. A Public Health Laboratory is under construction.

A Supreme Council for Scientific Research was established in 1964 to encourage and co-ordinate research in all fields including medicine and public health.

3. LEBANON

Medical research in Lebanon is conducted chiefly under the auspices of the following:

i. Ministry of Health
ii. National Council for Scientific Research
iii. Medical Faculties in Lebanon
    a. French Faculty of Medicine and Pharmacy
    b. Medical Faculties, American University of Beirut.

The role and contribution of each of the above will be described.

3.1 The Ministry of Health

Although none of the divisions of the Ministry have funds allocated specifically for research and there is no overall direction of research by the Ministry, however, investigation of such problems as the incidence of cancer, is undertaken within the various divisions of the Ministry on individual initiative.

3.2 The National Council for Scientific Research was established as an independent agency reporting to the Prime Minister by a

Presidential Decree in 1962 to foster basic and applied research in the natural sciences including medicine. It is charged with the responsibility to recommend policy and programme for the cultivation of the natural sciences for the public benefit.

3.3 Medical Faculties in Lebanon: The French Faculty of Medicine and Pharmacy of St. Joseph University and the Medical Faculties of the American University of Beirut.

These medical faculties are private and the nature of their research programmes is determined by the scientific interests of the individual faculty members and the financial support available.

4. PAKISTAN

Medical research is conducted in the medical institution since the creation of Pakistan in 1947. For the advancement of researches the Pakistan Medical Research Council was established in 1953 and was reconstituted in 1962 with an autonomous constitution under the Ministry of Health.

The Pakistan Medical Research Council, in addition to sponsoring research in any of the twelve medical colleges and other special institutions of the country, established two small Medical Research Centres, one at Dacca and the other at Lahore. Researches are also carried out in the following institutions under the Ministry of Health:

i. National Health Laboratory, Islamabad
ii. SEATO Cholera Research Laboratory, Dacca
iii. Institute of Public Health and Hygiene, Lahore
iv. Institute of Public Health, Dacca
v. Armed Forces Institute of Pathology, Rawalpindi
vi. Malaria Research Institute, Dacca
vii. Nutrition Research Laboratory, Islamabad
viii. Institute of Family Planning Research, Karachi
ix. Bureau of Laboratory, Karachi.

Advanced research in basic science and clinical medicine is carried out in the Post-Graduate Medical Centre, Karachi. A similar Post-Graduate Medical Centre has been established recently at Dacca. Researches are conducted in five universities of Pakistan in basic and allied subjects. Pakistan Medical Research Council is also attached to the National Science Council with five other Research Councils such as Scientific and Industrial Council, Atomic Research Council, Food and Agricultural Research Council, Housing Council and Water and Power Research Council.

Recognizing the importance of research the Scientific and Technology Division has been established in 1965, under the President of Pakistan with a scientist as joint secretary.

5. SUDAN

Medical research is considered very important in view of the varying environmental conditions and the multitude of problems of an urgent nature that must be faced repeatedly in the Sudan.

Research is conducted at the Stack Laboratories which originated from the Wellcome Tropical Research Laboratories founded in 1903 for promotion of technical education, study of bacteriology and physiology of tropical disorders, especially the infective diseases of both man and animals, investigations in poisoning cases, health and sanitary matters. The Faculty of Medicine of University of Khartoum is performing a similar function.

The Stack Laboratories, built in 1928 near the Medical School and Khartoum Civil Hospital, was placed in 1935 under the Sudan Medical Service, now the Ministry of Health. To the Stack Laboratories are attached the Analytic Chemistry Branch, a small medical entomology branch, and all the clinical laboratories of the government hospitals throughout the country.

Plans are underway to develop a Medical Research Institute and to construct a new building for the Vaccine and Serum Institute. It is also planned to establish a Medical Research Council in the near future.

6. UNITED ARAB REPUBLIC

Medical research started with the establishment in 1827 of the Cairo Medical School which was later affiliated to Cairo University. At present five universities with a total of seven medical faculties are engaged in research in different aspects of medicine. A Cancer Institute is being established affiliated to the Cairo University, Faculty of Medicine.

The High Institute of Public Health, affiliated to the Alexandria University was established in 1956 with WHO assistance.

The Ministry of Public Health is the body responsible for improving the sanitary conditions of the nation. The Ministry is involved in operational research directed to its health control programmes and has established institutes concerned chiefly with applied and field research. These are the Institutes of Ophthalmology, Endemic Diseases, Medical Entomology, Nutrition, Serology, as well as the Field Research Department in Qalyub.

Recognizing the importance of science and technology to national development, the Science Council was established in 1956 "to foster scientific studies, encourage research, and suggest the appropriate policy for stimulating, co-ordinating and channelling such research, so as to secure real advancement in science and thought". The Science Council was replaced by the Ministry of Scientific Research and recently by the High Council for Scientific Research.

Some research institutes are affiliated to the High Council of Scientific Research. Its first and main medical institute is the

"Medical Research Institute, Alexandria". Two other medical research institutes dealing with two of the main health problems of the country, namely, the Bilharziasis Research Institute and the Ophthalmology Research Institute are being established. The latter is to be supplementary to the old Memorial Ophthalmology Institute affiliated to the Ministry of Public Health.

The National Research Centre in Cairo has a Medical Division composed of several units dealing primarily with medical sciences, nutrition, and industrial hygiene.

## V ORGANIZATION OF MEDICAL RESEARCH IN THE REGION

It is recognized that research flourishes in an atmosphere of freedom and that, as far as possible, the amplest scope should be left to individual initiative.

There is little doubt, however, that for the best possible use of limited national resources, and for the attainment of goals of primary importance, some form of co-ordination of research efforts may be useful and justified.

It should not provide, however, the stimulus or opportunity for putting unreasonable bureaucratic obstacles in the way of legitimate investigations.

For such purposes of co-ordination, a central research organization, attached to the highest administrative authority of the government, is a valuable asset. The purpose of this body is to encourage and co-ordinate those research activities within universities, research institutions, public and other agencies which will promote the progress, general welfare and health of the country.

The central research body may contain within its organization a medical research council or its equivalent. This council should be

composed of members with research contributions and other outstanding achievements in various disciplines of medicine or public health. It should obtain or have access to comprehensive data on scientific resources related to medical research within the country, e.g. medical and technological manpower, research facilities and financial support. The council should have a budget commensurate with national resources and the requirements for medical research and it should have the authority, in accordance with its by-laws, to disburse funds in support of medical research. The council should be empowered to permit such autonomy and freedom of action to individual investigators and research institutions receiving its support as it considers in the public interest. It should have the prerogative to approve extra allowances for research workers in lieu of private practice and to assure their security and social status.

In its grants for medical research, the council should give due priority to programmes which will have the maximal beneficial effect on health. In order to achieve this objective, it is necessary to identify the outstanding health problems of the country by thorough analysis of prevailing conditions as determined by objective and accurate surveys. Although primary consideration should be given to health issues of immediate national concern, appropriate attention should also be devoted to basic research and to the investigation of conditions which will be of increasing future importance such as cardiovascular, degenerative and neoplastic diseases, population growth, mental health and industrial hazards.

In the absence of a central research organization responsible for review of the whole field of medical research, there may be an inadequate stimulus and support for research and significant health

problems may receive insufficient attention. The fact that a central research organization or similar administrative body has evolved in many countries at different stages of evolution and with different social structures signifies that it represents a response to a genuine need.

## VI PREPARATION OF PERSONNEL FOR MEDICAL RESEARCH

The human element is the most important component of research. Excellent equipment has gone unused because of the lack of investigators with creative minds while there are numerous examples in the history of science of outstanding discoveries made with simple facilities.

Research activity varies over a wide range in its requirements for funding, equipment and facilities. The same holds true for the personnel engaged in research projects which may on the one hand be carried out by a single investigator and on the other involve a highly integrated team of research workers with widely different levels and types of training. Furthermore, the paths which lead to creation and research are many and diverse. Thus, it is not realistic to attempt to char a course of preparation for research which should be followed by all. It is however, possible to identify in general terms the steps through which will pass perhaps a majority of those destined eventually for participation in research. By giving special attention to these steps, it may be possible to increase the number and quality of research workers available. As a basis for discussion these steps can be defined as (i) selection, (ii) training and (iii) placement.

Selection. In practice it is found that research workers are most likely to be found among the most intelligent, devoted and unselfish students of medicine or other branch of science. If possible

they should be singled out early in their university training, given encouragement and an opportunity to participate in or do research. Elective time in the curriculum, credit for research work, student research fellowships and the interest of the professorial staff can do much to bring about a measure of orientation and selection among undergraduates.

More frequently, the upper academic ranks of the post-graduate or post-doctoral trainees will be the most promising source of research workers. The medical schools, through this system of selection for continued clinical or basic science training in the university, have an unusually good opportunity to choose proper candidates for careers in research.

In any case the process of selection is a continuous one and should not be a rigid one. Promising individuals may prove to have other interests or aptitudes whereas creative talent and motivation have many times appeared in unexpected quarters.

Modern medical research must be enriched by the contributions of scientists from many disciplines in addition to medicine. Physicists, biochemists, statisticians and many other categories of research workers must be recruited for medical studies. The selection of these special groups must receive increasing attention as the research effort of a country advances.

Finally, technicians, paramedical and auxiliary personnel for research must be selected from a pool which will be small or large depending upon training programmes and job opportunities. Frequently it is the lack of this essential supporting personnel which hampers most seriously an otherwise well-staffed research project.

Training. Prescription of the specific details of training of the research scientist is neither feasible nor advisable. As a general principle, it can be said that his preparation should be both broad and deep. At first broad to give him perspective in his field, later deep so that he know the frontiers of knowledge and be well equipped to explore them.

The medical and science curricula should be so ordered that the basic science subjects including biostatistics receive emphasis. In some cases this may necessitate the strengthening of the basic science departments which are of critical importance in setting the standard of medical education and in laying the foundation for research interest in the future graduate.

Opportunities for medical and science students to participate in research projects within the university or in the field should be provided when possible as this will reinforce the natural interests of the students and develop their research abilities in a manner not equalled by didactic course work.

The masters and doctorate programmes in all branches of science are the most travelled roads to careers in research.

This serves once more to draw attention to the role of the universities in the research programmes of a country. At this point also it may be observed that the preparation of the researcher should include the requirement that he conceive and complete creditable research, usually within the university. For this reason it is clear that the research potential of a country will depend ultimately upon the strength of its universities.

It is appropriate at this juncture to call attention to the importance of advanced training opportunities made available through the

fellowship programme of WHO. Utilization of fellowship grants for selected candidates will frequently be the most practical manner in which the research personnel of a country can be augmented.

The preparation of research assistants and technicians and auxiliary research personnel in general is a problem of another type. Certain important aspects of this problem can be noted. First, the university has responsibilities because research assistants and higher grades of technicians are chiefly to be found among science graduates. Second, the health and education authorities may find it advisable to establish technical schools where training of technicians can be provided.

Placement. It is impossible to proceed energetically with the selection and training of research personnel until the problem of their utilization and support is solved. This emphasizes the importance of sufficient funds for research either through the national budget and national research council, through generous university research budgets or other mechanism. In so far as national planning is required to solve this problem, it usually will fall to the national research council or equivalent agency to take initiative. Mention is made elsewhere of the necessity for the inducements of adequate income and social security to be kept in mind when the placement of research personnel is considered.

In summary, the preparation of research personnel involves a dynamic cycle of activities, each stage of the cycle depending upon the others. Careful selection leads to economy of investment in the training of scientists because they have been well screened. Training for a career in research will not be attractive unless placement opportunities are good. In the countries of the Region, each phase of the cycle may profitably be studied and solutions sought in accordance with local conditions.

## VII THE NEEDS OF THE COUNTRIES OF THE REGION FOR MEDICAL RESEARCH FACILITIES

An effective teaching and research centre must aim at having a full-time, well-paid staff with a large measure of control over the funds and sufficient space and equipment needed for their work. However, part-time workers could also make valuable contributions to research.

In many instances, the kinds of research that can be undertaken in a country are limited by the lack of technological infrastructure particularly in the absence of facilities and personnel to maintain, repair and replace scientific instruments, or to develop new instruments specifically designed for particular research problems. However, much needed research could be carried out without highly elaborate facilities. Many scientists have produced excellent data by their work on theoretical problems or by collection of basic data and conduct of research in such fields as taxonomy and ecology of diseases which require the simplest and most common instruments. This is particularly applicable to several countries of the Region where the most pressing problems are in the fields of communicable diseases, environmental health and nutrition. Furthermore, there exists a great need for fundamental and reliable data about the incidence and pattern of various diseases.

Provision of ample space for research is a pre-requisiste for good work by a research institution. This covers, among others, research laboratories, offices, animal houses, operating theatres, workshops and field stations. When planning for construction of a building for a medical school or a teaching hospital, ample space should be provided for research. Basic science departments should receive special attention in terms of space for the routine work and for research and its future expansion.

Investigators should spend a reasonable time in planning and specifying the kinds of equipment they want to order and use for their work. Much equipment is not being used because of inadequate planning with reference to choice, maintenance or repair. Special attention should be given to preventive maintenance, availability of spare parts and trained repair technicians. Many institutions require that the manufacturers and vendors arrange for the establishment of a repair shop in the recipient country. This system is worthy of encouragement.

Provision of ample facilities for field research including field laboratories with adequate living quarters for the field workers will help in the better conduct of the work under the often strenuous conditions of rural areas.

Pooling of complicated equipment in a special laboratory to be used by all investigators of an institution and maintained by an expert technician will save a great deal on the budget and organization and will avoid duplication. In this case a time-table could be agreed upon and respected by all scientists who want to make use of the equipment in the pool. In some instances, a categorical laboratory of this nature could serve several institutes of a city or even a country. Simple equipments, however, should not be pooled.

Another important component of a research unit is the library together with easy access to a documentation and reference centre. Pooling of knowledge is essential in research whether on national or international basis. A registry of all types of research being conducted in the country and the relative bibliography available at a national documentation centre will save much valuable time to scientists. Such centres should be in regular contact with the international documentation centres, for the rapid exchange of documents and for obtaining

data needed by individual scientists or research organizations throughout the country. Although the publication by the documentation centre of a bibliography in the local language would be of great help to the workers of a country, in view of the rapidly increasing number of articles published, the documentation centre should have at its disposal a highly qualified staff of translators and adequate printing equipment. This ideal organization is almost impossible of achievement and, consequently, research workers should have a good command of an international language so as to be able to follow the literature or make use of the international abstract journals.

Ample funds with a free hand for their administration are essential for the proper operation of a research institution. National development plans should include the allocation funds for medical research. However, the research institutions should not overtax the budget by requesting elaborate apparatus that is not of essential use and should do so only when its full use and maintenance is assured.

In spite of the emphasis already laid down in this report on the need for research facilities it should be stressed that it is the atmosphere of the institution, whether a university or a research institute, and the attitude of the professor, the research workers and scientists that determine the success of research and training programmes.

In many institutions, staff are not required to work full-time. Many professors and scientists are involved in other duties and private practice. It is of utmost importance that this system be corrected. This could be done either through the payment of adequate allowance or the adoption of full-time geographic practice. In this way not only the time of scientists but also space and facilities will be fully utilized for the benefit of the institution and the country and for promotion of research.

VIII THE REGIONAL APPROACH TO SOME MEDICAL RESEARCH PROBLEMS

This important subject was considered by the group from different aspects.

1. Provision on regional basis of reference and documentation for initiation of research projects

Some methods of implementation would be:

i. production of a regional bibliography of medical research, including information about the research projects undertaken in the region. This idea could be referred to WHO for further consideration.

ii. free exchange of Medical Journals and Reprints.

2. Regional co-operation for training of research personnel

Certain research institutes of the Region may be able to accept research workers for training if possible with WHO assistance.

3. Regional approach regarding research facilities

Pooling of equipment on regional basis is neither possible nor advisable. However, selected centres or institutions could be made responsible to carry certain specific types of research of interest to the countries of the Region. This does not imply that other institutions should not develop their own programmes.

4. Dissemination of knowledge

Widening the scope of the panel on medical education of the Eastern Mediterranean Region by the addition of research scientists could be very helpful for promotion of research and its dissemination in the Region.

Regional conference on medical research where scientists will meet and become familiar with each other's work and programmes would be convened by rotation in countries of the Region. This does not necessarily have to be under WHO sponsorship which however would be highly desirable.

5. Exchange Scientists and Organization of Visiting Tours

Great mutual benefits could be obtained by contacts of research workers to discuss and demonstrate their work and research methods and experience. The WHO programme on exchange of research workers could be of help in this context.

6. Common Co-ordinated Effort on a Special Problem by several Institutes of the Region

It is of interest that the same problems be tackled by several institutes according to a commonly accepted protocol using standard nomenclature and methods of work. This approach might elucidate many unknown problems of comparative epidemiology and ecology of different areas. Areas without a certain disease would be used as control areas for certain projects on that problem of interest to another country with full realization of requirements. Of course, a great amount of time and money will be spent on coming to a mutual agreement on the protocol, because it implies several and repeated meetings of research workers.

The subject chosen might not be a priority problem for one or both countries collaborating but it might be of scientific interest.

Subjects which could be proposed for this collaborative effort include malaria, bilharziasis, vector control, cholera, hookworm, coronary heart diseases, liver cirrhosis, cancer of gastro-intestinal tract

and bladder, trachoma, Kala Azar, diabetes mellitus, industrial hazards, stones of urinary tracts, tuberculosis and diarrhoeal diseases and others.

It is possible that WHO might consider helping by providing exchange of research workers' grant and some other support if the protocol of collaborative projects could be submitted and approved.

## IX CONCLUSION AND RECOMMENDATIONS

There is a great need in the Region for promoting medical research particularly with reference to the most important health problems. Already several research institutions have been established in the countries of the Region which are conducting research in many aspects of medicine and public health, but there is still room for expansion of activities and improvement in quality and standards. To achieve this goal, provision of adequate personnel, supplies and equipment, physical facilities, funds and necessary services such as libraries, workshops, should be provided.

Particular attention to the training of personnel has been stressed throughout the deliberations. Status of research could be further promoted in the Region if closer contacts and easy communications could be established between scientists in the various research centres and institutes operating within the Region. The advisability of setting up a National Science Council or Medical Research Council was pointed out.

In view of the above the Group would like to recommend that:

1. Medical research is essential for health advancement in each country, and every effort should be made to promote medical research by provision of the necessary manpower and facilities.

2. Each country should, whenever feasible, have a Central Research Organization in the form of a Medical Research Council or an equivalent body for the purpose of promotion, planning and co-ordination of research in medicine and public health.

3. Co-operation amongst the countries of the Region should be further developed through exchange of scientists and scientific information. In this connection, the Group recommends that WHO would facilitate the exchange of scientific workers in the Region.

4. The Group invites the medical scientists of the Region to make better use of the existing opportunities provided by WHO for training and research.

5. Research workers are both born and made; great care should be taken in their selection and training. In this connection it is recommended that WHO should sponsor the training of technicians and scientists in collaboration with existing institutions.

6. It is recommended that WHO/EMRO would consider the inclusion in the Regional Panel on Medical Education, of medical research scientists in the region.

7. It is recommended that WHO/EMRO would continue to sponsor meetings intended for the promotion of medical research.

8. Research workers should be encouraged to devote all their time to research; to achieve this goal they should receive adequate allowance or be given chance to work full-time on the basis of geographic practice.

9. Countries of the Region are requested to create a cadre of research workers enjoying security and social status.

10. Every effort should be made to encourage the participation of voluntary organizations in support of medical research.

11. The group expressed the wish that WHO, through its proposed Revolving Fund for educational materials, would provide as far as possible the essential equipment, including spare parts, and supplies for medical research.

## X APPRAISAL OF THE MEETING BY PARTICIPANTS

Participants were requested to express their opinions on the Meeting by replying in writing without signature to four questions. In the light of responses received from seven participants, the following information was provided:

1. What do you consider were good features?

The general concensus of opinions of the participants was that:

i. the idea of the Meeting was excellent;

ii. the preparation and administrative arrangements were very good;

iii. the relatively limited number of participants was an advantage to allow free exchange of views.

2. What features do you consider were not so good?

Some participants felt that a few items on the agenda were overlapping in several respects. No other comments were made in reply to this question.

3. What suggestions do you have which would improve similar group activities for another time?

In answer to this question, opinions were expressed as follows:

i. Daily minutes should be drafted and read to the Group each morning;

ii. Explanatory notes should be provided for each item of the provisional agenda included in the letters of invitation to governments;

iii. Group Meetings on medical research should be organized in future to review research on a specific subject, i.e. cancer, cholera, etc.

iv. It was also recommended by one participant that a larger number of participants should be included when similar activities are organized in the future, and that a WHO consultant who has made outstanding contribution to medical research should be invited to take an active part.

4. How do you propose to make the results of the Group Meeting known to your country and also to follow them up?

The great majority of participants expected the WHO Regional Office for the Eastern Mediterranean to distribute copies of the Report on the Meeting to all those concerned including Ministries of Health and Education, universities and research institutes. Some participants intended to submit individual reports to their governments.

## ACKNOWLEDGEMENT

The Group unanimously expressed their deep gratitude and appreciation to the Government of UAR and the Medical Research Institute of Alexandria for the kind hospitality extended to them and the wonderful arrangements made to secure success to the meeting. The Group also thanked the World Health Organization Regional Office for the Eastern Mediterranean, for having co-sponsored the meeting and for placing its facilities at the disposal of the group.

# FINAL LIST OF PARTICIPANTS

## PARTICIPANTS

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- Teaching activities.

- Further WHO assistance.

- Summary of recommendations.

## II CURRICULUM OF TEHERAN UNIVERSITY SCHOOL OF MEDICINE

According to the current regulations, the main objective of the School of Medicine is to prepare general practitioners who will be able, immediately after completion of internship, to take over the responsibility for providing integrated health protection to the population.

After having studied the curriculum of the School of Medicine (see Annex I) and discussed the matter with the responsible authorities, it is felt that a general comment would be that practically all the teaching is carried out within the hospital walls and that there are no available adequate extramural teaching bases (health centres, health units, etc.). However, all graduate students are supposed to work in practice up in the country, out of hospitals, for two years. In addition, at least 50% of the graduates will afterwards stay in general practice. Therefore, they are to be prepared for that purpose during the undergraduate study i.e., they should also learn to work under the same conditions in which they will work as general practitioners.

To the hospital are admitted selected cases, severe cases, and rare cases. They are not representative of any disease, having in mind the natural course of disease. However, the bulk of diseases never come to the hospital but are treated in outside health institutions and at home where the student is able to observe the natural course of disease, the prodromes, the inception of disease, the mild and banal forms of diseases, etc. In order to meet these requirements, it seems essential to establish (a) an urban training and demonstration area, and (b) a rural training and demonstration area (see later).

The health centres should be developed and upgraded for teaching purposes. They must provide an integrated, comprehensive health protection as defined by WHO (promotion and maintenance of health, prevention and control of diseases and disabilities, early detection and early treatment of diseases and rehabilitation from the beginning of an injury or a disease).

During work and study at the health centres, the student should acquire and apply scientific methods in providing health protection. He should learn to think epidemiologically and socially, for disease is not only a clinical but also an epidemiological and social phenomenon.

Since teamwork with various medical and paramedical personnel is essential for adequate health protection, the student should be taught the usefulness of teamwork at the health centres.

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| | | |
|---|---|---|
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