

THE MEDICAL
RESEARCH PROGRAMME
OF THE
WORLD HEALTH ORGANIZATION

1958 - 1963

Report by the Director-General



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GENEVA

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PREFACE

The intensified medical research programme of the World Health Organization is in its sixth year. Conceived in 1958, this programme has already become a very important factor in international medical research, and the primary role played by the Organization in the promotion and co-ordination of medical research is now generally recognized.

The review of WHO's medical research programme contained in the present volume is concerned primarily with progress since 1958. Since, however, medical research was conducted by WHO before 1958 as an integral part of its programme activities, it has been considered useful to include such of those activities as have a bearing on the present WHO research programme. Furthermore, WHO's research programme encompasses not only projects assisted financially, but also projects stimulated and co-ordinated by WHO but not receiving financial aid. Both are reported on in this volume; it was not possible, however, to list these latter projects separately, and therefore no acknowledgement has been made to the large number of persons and institutions that have co-operated with WHO during the last fifteen years. Their contribution to the progress of medical science is recognized by WHO and I take this opportunity to express to them the gratitude, not only of the Organization, but of all those who have benefited and will benefit from their devotion.

The presentation of each subject is preceded by a short review of the present trends in research. No attempt has been made to make these reviews exhaustive; they simply highlight certain trends in order to clarify the place of WHO's research within the total research aspects of each subject. The bibliographical reference lists at the end of each chapter refer to projects promoted or co-ordinated by WHO, regardless of whether they were financially assisted or not.

I should like to take this opportunity to pay tribute to all those who have made this programme possible—to the members of the Advisory Committee on Medical Research and of various scientific groups, to the research workers and consultants, and to the many other persons who in one way or another have contributed to the success of the programme.

A handwritten signature in dark ink, appearing to read 'M. G. Candau'. The signature is fluid and cursive, with a large, stylized 'M' and 'C'.

Director-General

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Introduction

The Origin of the WHO Medical Research Programme

The WHO research programme originated in a proposal made by the delegation of the United States of America to the Eleventh World Health Assembly, held in Minneapolis in 1958. The World Health Assembly then adopted a resolution requesting the Director-General "to organize and arrange for a special study of the role of WHO in research and the ways in which the Organization might assist more adequately in stimulating and co-ordinating research and developing research personnel".¹ However, both the proposal of the United States delegation and the subsequent resolution of the World Health Assembly were the outcome of a natural process of evolution. The need for intergovernmental co-ordination and promotion of medical research was felt long before, and especially after the expansion of medical research and the impetus given to it by many national organizations after the Second World War. This need was recognized in the early years of the World Health Organization and its development foreseen by the authors of the WHO Constitution when they required the Organization "to promote and conduct research in the field of health".

The promotion of medical research has been one of the basic activities of the World Health Organization since its inception; the resolution of the Eleventh World Health Assembly resulted in an intensification of this activity and the formulation of the role that the World Health Organization can play in the promotion and co-ordination of world-wide medical research.

The study requested by the World Health Assembly was made possible by a special contribution of \$300 000 from the United States of America. Two meetings of internationally recognized leaders in medical research, who were conversant with WHO's research activities, were held in Geneva in August and October 1958. Their recommendations were embodied in a report to the Twelfth World Health Assembly in 1959.

The Twelfth World Health Assembly approved in principle the plan of research presented to it and the proposal to set up an Advisory Committee on Medical Research to provide the Director-General with the necessary scientific advice. Financial provision to the extent of US \$500 000 was made in the regular budget for 1960 and a Special Account for Medical Research, to receive voluntary contributions, was opened.²

¹ Resolution WHA11.35.

² Resolution WHA12.17.

Thus the WHO intensified programme of medical research was launched by the World Health Assembly. In the following pages the salient features of this programme will be discussed.

The Nature of the Medical Research Programme

Various important considerations affect the nature of the WHO research programme. It has always been a principle of WHO to work through existing national organizations and to avoid duplication. WHO aims to assist the development of national research institutions and to stimulate collaborative research based on national research workers and institutions.

There is also a financial consideration. The financial resources at the disposal of WHO are limited and the Organization needs to exercise considerable care if it is to make the best use of them. However, experience has shown that, thanks to its prestige in the medical world, the World Health Organization can mobilize resources much greater than could be reflected in its annual budget. It is this catalytic function that enables WHO to embark on extensive programmes of collaborative research and research co-ordination, in spite of relatively meagre financial resources.

In planning its research programme, WHO keeps constantly in mind the international scope of the Organization. It is the duty of the Organization to stimulate research in countries where medical research is not sufficiently developed, as well as to make available knowledge and techniques from countries where medical research is highly developed. Furthermore, WHO encourages, as far as possible, research in problems of international importance.

The balance between basic and applied research in any WHO programme has to be carefully maintained. In order to maintain this balance, WHO makes full use of its advisory scientific bodies.

Finally, due consideration is given to the fact that many WHO-sponsored projects require support for a number of years. It has therefore been the policy of the Organization that projects started with funds from the Special Account should be transferred as soon as possible to the regular budget. Since the budgetary cycle of the Organization requires programme planning and budgeting two years in advance, urgent projects must be financed, at least initially, from the Special Account and only later transferred to the regular budget. However, this expediency should not be regarded as splitting the research programme into two distinct programmes. There is only one WHO medical research programme, regardless of how it is financed.

The Role of WHO in International Research

At the first meeting of international leaders in medical research held in Geneva in 1958, it was concluded that WHO should concern itself primarily with:

- (1) the solution of those problems which are better resolved by world co-operative endeavour than by local groups; and

(2) the solution of major problems when local effort is inadequate, either because the research potential of the area is limited or because of the nature of the problem.

As these recommendations are implemented, and as WHO's medical research programme develops, the important role of the Organization in international research becomes increasingly apparent. There are certain aspects of the WHO programme that can be achieved only by an international organization. The following are some outstanding examples:

The standardization of nomenclature, techniques and procedures. Research workers in many parts of the world are now looking to WHO for the supply of these standards, which are so essential for the international communication between research workers and for comparative studies. WHO performs this function by arranging frequent meetings of scientists, by the establishment of reference centres, and by the promotion of research projects especially designed to test techniques and procedures.

The pooling of knowledge. By bringing together research workers from many countries, periodic reviews of available knowledge are accomplished. These reviews are the pooled knowledge of the foremost workers in the field and are extremely useful in detecting gaps and in pointing out avenues of research. During the period 1958-1963, 106 such meetings took place under WHO auspices.

Collaborative research. This comprises WHO-initiated projects which require the efforts of investigators and research institutions in several countries. Some studies, such as the vector control study, involve workers in different scientific fields—chemists, biologists, pharmacologists, epidemiologists, etc. Others, like the study of leukaemia in patients treated with radiotherapy for cancer, involve more than thirty clinical departments in a number of countries.

Exchange of research workers. This programme allows research workers to visit other countries and to become acquainted with research in their own and related fields.

Training of research workers. Under this programme, WHO assists countries in increasing their research potential.

The above are just a few examples of the role played by WHO in international research. There are also some instances of local research. The yellow-fever project in Ethiopia and the cholera vaccine trials in India are outstanding examples.

The Objectives of the WHO Medical Research Programme

The WHO medical research programme, as it has operated since 1959, has the following four objectives:

- (a) to support medical research;
- (b) to provide services for research;
- (c) to train research workers;
- (d) to improve communications between scientific workers.

(a) *Support of Medical Research*

The major activity under this heading is related to collaborative research, in other words, research performed in various countries by various investigators on a subject defined by the WHO technical unit concerned and under its guidance and supervision. The individual projects are planned by the technical units and are based on the advice given to the Director-General by scientific groups and by the Advisory Committee on Medical Research.

Other activities under this heading are projects or studies designed to strengthen national research and benefit national institutions. Finally, a small number of grants is given annually to individual investigators working in association with universities or research institutions. These grants are given at the request of the investigator.

In all the above, WHO support consists of grants for personnel, equipment, material, etc.

(b) *Services to Research*

This term comprises activities which, while not in themselves involving research, are an important element in the conduct of scientific investigations. There are two major activities under this heading: reference centres and scientific group meetings.

Reference centres, international and regional, are selected for the high scientific standard and ability of their workers and the availability of adequate scientific equipment. They are responsible for the standardization of techniques, reagents, etc., and are available for consultation to other research workers in their region or in other parts of the world. The contribution of these national institutions has made possible much excellent service at little cost to the Organization.

Scientific groups are *ad hoc* groups of renowned experts in a medical field called by the Director-General to advise him on the avenues of research suitable for WHO. At the same time these groups perform a service to research by reviewing the present status of knowledge in any particular field.

(c) *Training of Research Workers*

The rapidly increasing awareness of the problems of health and sickness that modern science has given rise to, and the solutions that await discovery, clearly call for many more trained workers. One of the principal aspects of the WHO programme of medical research is the assistance it gives in the training of research workers in order both to increase the research potential at national levels and to further the WHO research programme. WHO offers two types of research training grants:

- (i) senior research training grants for periods of up to one year;
- (ii) junior research training grants for periods of up to two years.

(d) *Improving Communication between Scientific Workers*

The communication of knowledge and experience between scientists by word or personal contact is an important factor in research. The WHO research programme includes grants for the exchange of research workers, which are intended to facilitate visits between scientists so that they can discuss their work and difficulties.

Besides the above, other activities designed to improve communication between scientific workers are scientific groups, symposia and seminars.

A start has been made on the collection of information on national medical research organizations and the institutions and laboratories they support as a first step towards bringing workers in broad fields into touch with each other. Much more work will, however, be needed before this activity can be effective.

Fields of Research

The first projects sponsored under the expanded programme of medical research were related to and constituted an extension and intensification of work already being done by WHO. It was to be expected therefore that these projects would relate to communicable diseases (malaria, tuberculosis, treponematoses, bilharziasis, virus diseases, etc.), vector control and insecticides, nutrition, and biological standardization. However, a start was made, even in the early stages, with studies concerned with cardiovascular diseases, cancer and radiation medicine. As the programme developed, a larger number of communicable diseases was covered (rabies, cholera, leprosy, yellow fever, trachoma, etc.) and new fields were entered. Examples of the latter are: public health practice (including medical care), immunology, drug evaluation, genetics, and the biology of human reproduction (see Figs. 1, 2 and 3, pages 9 to 11).

In view of the world-wide public health responsibility of the World Health Organization, it was natural that the balance of its research programme should be tilted towards the study of communicable diseases and vector control. Throughout the world the communicable diseases are still a great danger to health, and in many parts they are still the most important health problems. Furthermore, WHO's programme of malaria eradication has brought to the fore a large number of unsolved problems related to the mosquito vector, and this has increasingly involved the Organization in a number of basic research projects. Insecticides and insecticide resistance continue to engage the attention of the Organization, but other factors in vector control, such as the biotic factors, are being actively studied. A great deal of attention is also being given to active immunization against various communicable diseases, and the development and testing of various vaccines, in the field and in the laboratory, constitute a fair proportion of the research programme.

In nutrition, intensive investigations in many parts of the world have been stimulated by WHO. The largest part of these studies is concerned with the understanding of nutritional anaemias and the role of nutritional factors, such as iron, folates and vitamin B₁₂ deficiencies. Protein deficiency is also being studied.

In cardiovascular diseases and cancer, the Organization's primary concern was in the standardization of techniques and nomenclature. Various epidemiological studies are also under way.

Research in public health practice is a relatively new field. The various projects principally concern research into the methods and patterns of providing medical care, especially those relating to such problems as costs, utilization and quality. The integration of preventive and curative medicine, the relation of mass campaigns to the national health services, and similar problems, are being studied.

The fields of immunology, drug evaluation and the biology of human reproduction are now under close scrutiny by WHO and plans for active research in these fields are under preparation. A good beginning has been made in genetics and radiobiology. Studies of congenital abnormalities, of population genetics, and of populations living in areas of high background radiation are progressing satisfactorily.

Responsibility for Research

The technical responsibility for medical research rests with the headquarters technical units. The chiefs of the various technical units are responsible for initiating and supervising the research projects; they advise the Director-General as to which investigators might be invited to collaborate, and also advise on the proposed membership and agenda of scientific group meetings, and on the employment of consultants. Some additional professional staff were provided to enable the units to fulfil their functions in the planning and supervision of research projects.

The administrative responsibility rests with the Office of Research Planning and Co-ordination at WHO headquarters, Geneva. This office was established in 1959. It is responsible to the Director-General for the maintenance of consistent policies and procedures in the planning and operation of research, for the co-ordination with the research programme of the Pan American Health Organization, for the processing of applications for the various grants. The Office is also responsible for servicing the Advisory Committee on Medical Research and for collecting information on research organization, institutions, etc.

From the above, it is clear that medical research is the responsibility of WHO headquarters. However, WHO regional offices are kept fully informed. They receive copies of relevant correspondence and their co-operation is sought in many aspects of the research programme. Special memoranda for the information of the regional directors are prepared periodically by the Office of Research Planning and Co-ordination.

Financing of the WHO Medical Research Programme

The WHO research programme is financed both from the WHO regular budget and from contributions to the Special Account for Medical Research. The Twelfth World Health Assembly approved an expenditure of US \$500 000 in 1960 for this purpose and an additional \$250 000 was approved for each subsequent year. The Government of the United States of America has been contributing \$500 000 a year to the Special Account since 1960. The Swedish National Association against Heart and Chest Diseases has been contributing Swedish Kronor 25 000 (\$4800) in the form of research fellowships, and the United States Public Health Service has contributed \$610 000 each year to the same Account (see Fig. 4, page 12).

The Development of the WHO Medical Research Programme

The effectiveness of research organizations, whether national or international, depends largely upon the confidence placed in them by research workers. The Organization's

policies must be technically sound, and scientific merit must have preference over any other consideration. This confidence in the scientific integrity of an organization is the basis for the acceptance by scientists of guidance from it and for their willing co-operation in its programme.

In developing its research programme the World Health Organization was acutely aware of the need for the maintenance of high scientific standards and sound scientific practice. In order to attain this aim the Organization relies on (a) the technical units; (b) the scientific groups; and (c) the Advisory Committee on Medical Research.

(a) *The Technical Units*

The technical units of WHO are headed by experts in the various fields of medicine and public health. These experts are assisted in their work by expert advisory panels and by expert committees. They keep in touch with workers and investigators all over the world, both through correspondence and through personal contact during their travels. And finally, they are in continual contact with specialists in their own field who are working in the WHO regional offices. The chief of the technical unit acts as the secretary of the relevant scientific group.

(b) *Scientific Groups*

A scientific group comprises six to eight experts in a particular field. The group is convened by the Director-General to assist the Secretariat in reviewing the field concerned, in assessing the present knowledge and in indicating where knowledge is lacking and where WHO might most usefully and effectively take action. The proceedings of these meetings are informal.

In the selection of the participants of scientific groups, a wide geographical distribution, as far as is compatible with scientific knowledge, ensures a wide range of opinion and advice from the varied experience in different areas.

A scientific group may also be called upon to advise the Director-General on the progress made in a specific WHO research project and to indicate priorities for further work.

A number of smaller, informal meetings, to advise the Secretariat on technological matters rather than on scientific problems, are also held from time to time.

The following table shows the number of scientific groups and other research meetings held since 1958.

	Scientific groups	Other research meetings
1958	2	3
1959	19	6
1960	11	2
1961	7	6
1962	13	8
1963	15	14
	—	—
Total	67	39
	—	—

The reports of the scientific groups to the Director-General are restricted documents and are distributed to participants in the meetings, members of the Advisory Committee on Medical Research, members of relevant expert advisory panels, and WHO staff members concerned at headquarters and in the regional offices.

(c) *Advisory Committee on Medical Research*

The Advisory Committee on Medical Research (ACMR) is composed of a chairman and eighteen members, all scientists of great experience and representing as wide a variety as possible of medical disciplines. In accordance with the resolution adopted by the Twelfth World Health Assembly,¹ the ACMR is provisionally considered as an expert advisory panel. Accordingly, whenever applicable, the Regulations for Expert Advisory Panels and Committees² govern the ACMR, except that the chairman is appointed by the Director-General. Membership is for four years.

The ACMR considers the reports of the scientific groups or informal scientific meetings, which are introduced by the responsible member of the Secretariat (usually the chief of a technical unit). It also considers communications by the Director-General arising from a number of sources, such as resolutions or recommendations of the World Health Assembly, the Executive Board, or of non-governmental organizations, calling attention to the need for additional research in a certain field.

The primary purpose of the ACMR is to advise the Director-General on the fields of research suitable for WHO and on priorities for research. Furthermore the ACMR reviews the WHO programme of research and indicates to the Director-General what it considers should be the future trend of the programme.

The first session of the ACMR was held in October 1959 and it has met yearly since then. The names of the members, past and present, of the ACMR are given in Annex 1.

Future Development of the WHO Medical Research Programme

The future development of WHO's research programme will depend on two broad factors—the scientific and the financial.

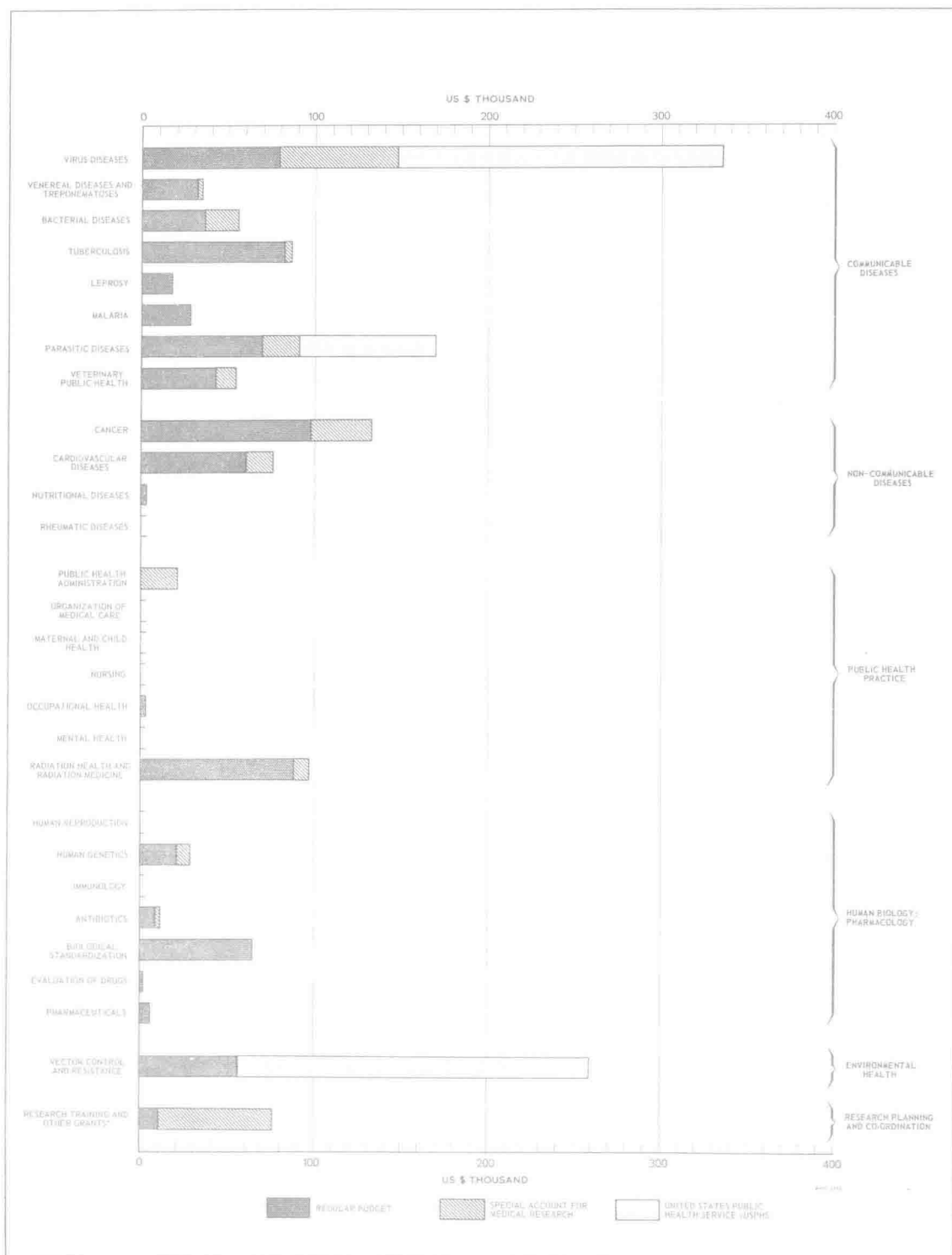
New developments in the medical field, and new scientific discoveries, will be brought to the attention of the Director-General from many sources, including staff both at headquarters and in the regions, the World Health Assembly, the Executive Board, expert committees and non-governmental organizations. He will thus be in a position, with the advice of scientific groups and of the Advisory Committee on Medical Research, to plan the future lines of development of the programme.

The limited funds available from the regular budget do not reach the amount required. Thus the financial factor will restrict the development of the research programme to meet the many important calls made upon it. The Special Account for Medical Research offers to Member States the possibility of making voluntary contributions in further support of the medical research programme of the Organization.

Resolution WHA12.17.

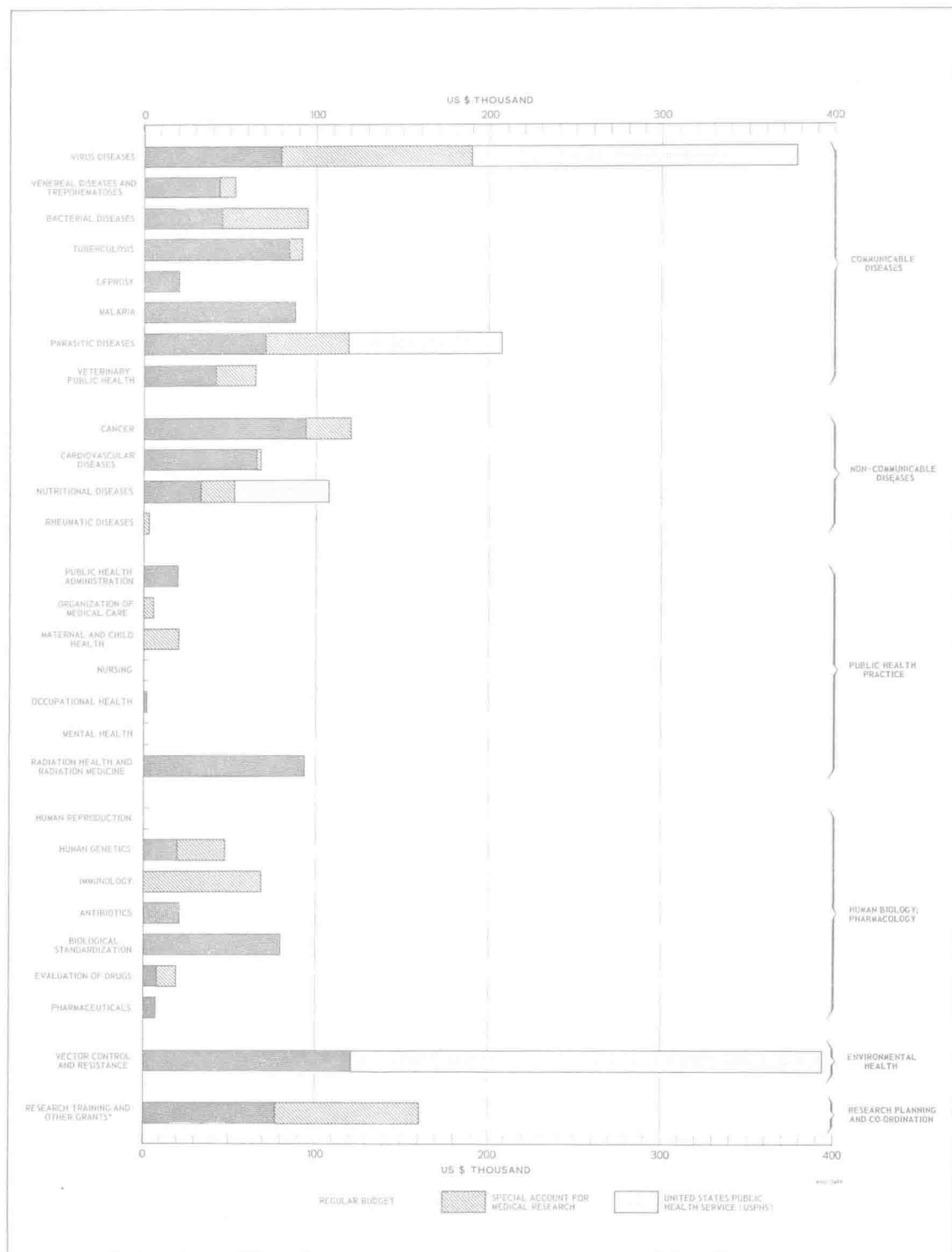
² *Basic Documents*, 14th ed, p. 88.

FIG. 1. WHO MEDICAL RESEARCH EXPENDITURE, 1961



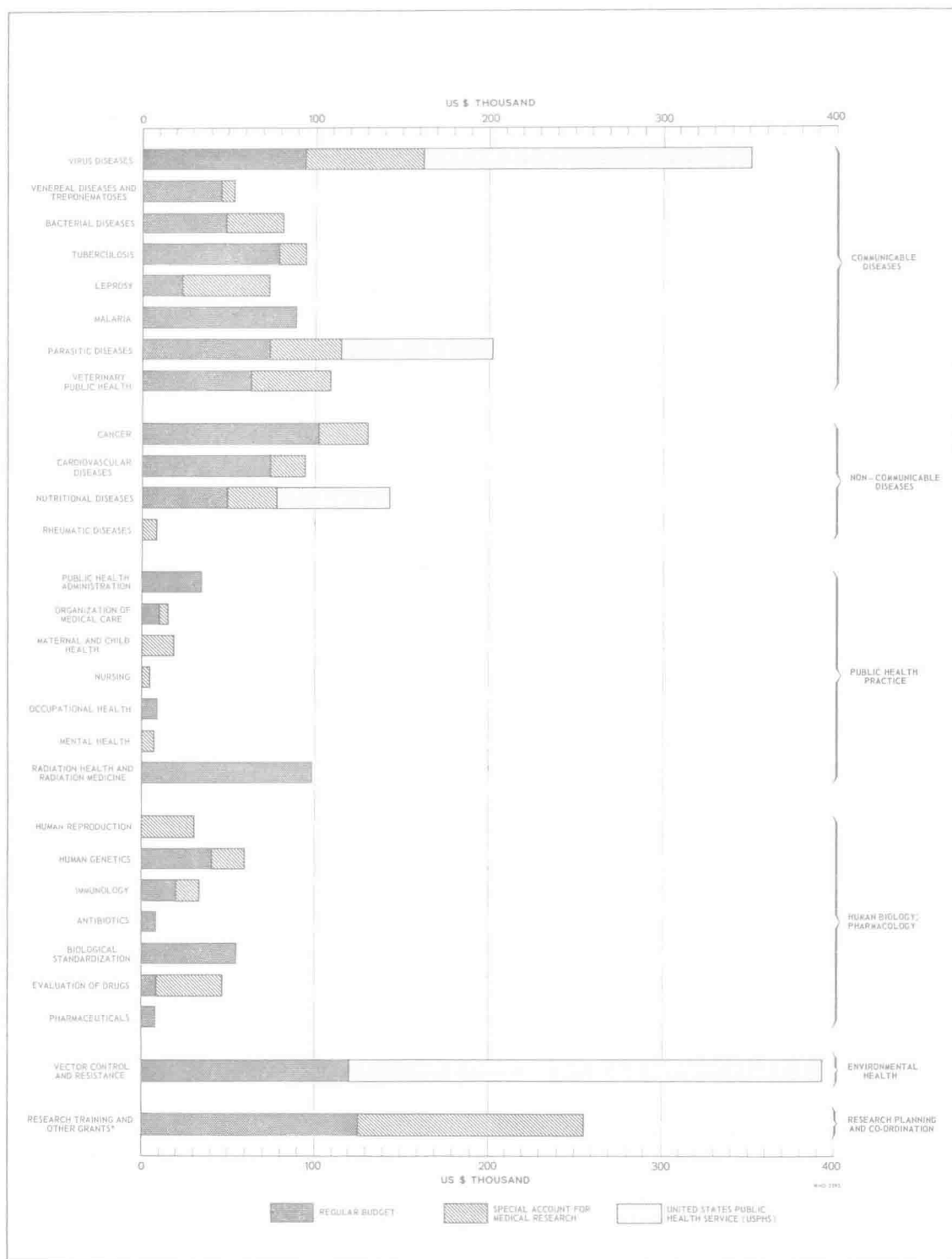
* These comprise junior and senior research training grants, exchange of research workers grants, and research grants to individual investigators.

FIG. 2. WHO MEDICAL RESEARCH EXPENDITURE, 1962



* These comprise junior and senior research training grants, exchange of research workers grants, and research grants to individual investigators.

FIG. 3. WHO MEDICAL RESEARCH EXPENDITURE, 1963



* These comprise junior and senior research training grants, exchange of research workers grants, and research grants to individual investigators.