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MULTINATIONAL CENTERS
FOR ADVANCED TRAINING AND RESEARCH
IN THE HEALTH SCIENCES:
A Program of the
Pan American Health Organization

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FOREWORD

This report is a working document prepared for discussion at the 6th Meeting of the PAHO Advisory Committee on Medical Research, 12-16 June 1967. On the basis of critical review at that meeting, a revised document will be prepared for submittal to the Directing Council of the Pan American Health Organization at its meeting on 2-13 October 1967.

This report is supplemented by more detailed proposals relating to specific scientific areas (e.g., RES 6/1.1 in Arbovirology and RES 6/1.2 in Pathology).

MULTINATIONAL CENTERS
FOR ADVANCED TRAINING AND RESEARCH
IN THE HEALTH SCIENCES*

1. Introduction

The Pan American Health Organization has for several years advocated the strengthening of existing centers of research and advanced teaching in biology and medicine as a means of strengthening these fields and of advancing their capacity to contribute to economic and social development. (See Annex, Section 9). The Organization has studied the principles that should govern such efforts. It has also applied these principles to the development of specific proposals by requesting outstanding groups of scientists from Latin America and the United States to draw up plans for action. In accordance with Resolution XVI adopted by the XVII Pan American Sanitary Conference in September, 1966, the Organization has brought both the general study and specific proposals up to date. This document summarizes the results of the general study. Other documents present specific proposals in various fields.**

As a consequence of completed work, the Organization is prepared to make detailed recommendations relating to the establishment of multinational networks composed of outstanding laboratories in several fields of biology and medicine in Latin America.

1.1 The Punta del Este Declaration of April 1967

For the first time in the history of meetings of heads of States in the Western Hemisphere, the Declaration of the Presidents of the Americas at Punta del Este, 12-14 April 1967, contained a strong statement on the place

* Prepared for the Sixth Meeting of the PAHO/ACMR, 12-16 June 1967, by Dr. Charles V. Kidd, Executive Secretary, Federal Council for Science and Technology, in his capacity as PAHO Consultant.

**Arbovirology, Biochemistry, Pathology, and Regional Library.

of science and technology in development:

"Science and technology offer genuine instruments for Latin American progress and must be given unprecedented impetus at this time. This effort calls for inter-American co-operation, in view of the magnitude of the investments required and the level attained in such knowledge."*

This general declaration was followed by the specifications of a plan** that called both for intensified internal efforts - which are the responsibility of each member nation - and for multinational efforts in the form of a Regional Scientific and Technological Development Program.

The Regional program to which the Presidents committed themselves contains the following seven elements:

- 1.1.1 The Program should be related to economic development and should be related to the characteristics of each country.
- 1.1.2 The Program should encompass scientific and technological research, training of research personnel and transfer of technology to Latin America.
- 1.1.3 The Program should be conducted through national agencies responsible for scientific and technological policy, and through national or international agencies (public or private) which exist or which may be created.
- 1.1.4 Multinational technological and scientific training and research institutions at the post-graduate level should be established, and institutions of this nature already existing in Latin America should be strengthened.

A group of high ranking, well qualified persons should be established to recommend to the Inter-American Cultural Council such matters as their organization, administration, financing, location, etc.
- 1.1.5 An Inter-American Fund for training of scientific and technological personnel at high levels should be established.
- 1.1.6 The Program should be promoted by the Inter-American Cultural Council, in cooperation with CIAP (Inter-American Committee on the Alliance for Progress).

*OEA Documentos Oficiales, OEA/Ser. K/XIV/1.1 Doc. 4 (English, 14 April 1967).

**Part V, B, of the Declaration.

- 1.1.7 The Program may be financed by contributions of member states, inter-American or international institutions, technologically advanced countries, universities, foundations and private individuals.

The commitment by heads of states to this program is potentially one of the most significant events in the development of science and technology in Latin America.

1.2 Steps Following the Punta del Este Meeting

The Inter-American Cultural Council convened a special meeting on May 25, 1967, to set the terms of reference of the study called for by paragraph 4 of Part V (B) of the Punta del Este Declaration, and to select the members of the study group.

The terms of reference of the group were broadened to cover the study of the entire program in science and technology.

Intensive study has begun, and the study group will actually convene in July 1967. The group will probably report by November, 1967.

The President of the United States has requested the Congress of the United States to provide \$10 million in grant funds for the year beginning July 1, 1967, for the scientific, technological and educational activities proposed in the declaration.

The Pan American Health Organization has indicated to the Organization of American States its strong interest in participating in the medical and biological aspects of the total Regional Scientific and Technological Development Program.

2. Biological and Medical Research as Part of a Broader Program

No well-designed program for the development of scientific and technological research in Latin America can be established without a strong biological-medical component for the following reasons:

2.1 Biomedical science and technology, including preventive medicine and public health, play a central role in increasing the productive capacity of the population and in achieving a better balance between the expansion of population and the expansion of food supplies.

2.2 The biomedical sciences deal essentially with the phenomena of life. It is generally agreed that the next decades will witness developments in these sciences whose significance for mankind may well transcend that of the exploration of the atomic nucleus during the past two decades. Any region of the world that cannot understand and participate in these developments will not be able to benefit fully from them.

2.3 For historical reasons the biomedical sciences are more fully developed than any other field of science in Latin America. There are more internationally recognized scientists in this field than in any other field. Moreover, even though many of them must operate in relative poverty, there are more outstanding institutions in this field than in any other in Latin America. This situation is the consequence of the deliberate efforts, over the past three decades, of both national governments and private groups, most notably the great private foundations of the United States, to build up outstanding centers for advanced teaching and research.

2.4 As a practical matter, planning for the development of advanced training and research is more advanced in the biological and medical fields, and the existing organizational structure on which further efforts can be built is stronger. Biomedical science is better organized nationally and internationally than any other field of science in Latin America. The objectives, organization and limits of multinational collaboration in this field have been explored more extensively and in greater detail than in any other.

3. The Relative Significance of National and International Efforts

Multinational and international efforts in science and technology should always be planned on the assumption that the great bulk of research and training will be done in national laboratories and with national financing.

Most of the answers to the problems facing medical science and education will be found in the countries themselves. Most of the resources will be national. Most of the decisions affecting the contributions which medicine can make to development will be taken by national governments.

The underlying significance of national efforts does not mean that multinational efforts are not important. It simply provides guides to the primary needs and to the kinds of efforts which are likely to be most significant.

The major reasons why international collaboration is needed are as follows:

3.1 In most countries resources are inadequate and must therefore be supplemented. The enhancement of material resources often requires the

investment of funds from outside sources; the human resources in a given country must often be supplemented by the help of outstanding leaders from other countries.

3.2 Most institutions for advanced teaching and research in individual countries are specialized and relatively small. International collaboration is needed to help them become more effective. This collaboration can be helpful in several ways:

By widening training opportunities for national students;

By expanding opportunities for collaborative research;

By decreasing the isolation of national laboratories, and the danger that isolation may bring obsolescence.

3.3 An international standard of quality needs to be established as a goal for national efforts. Some of the national problems which can be more effectively approached through exposure to an international standard include:

3.3.1 Less than full understanding in the higher levels of government of the indispensable role of science and technology in economic and social development.

3.3.2 Not enough adequately remunerated full-time university positions combining research and teaching.

3.3.3 An atmosphere inimical to investigation in many universities.

3.3.4 Inadequate attention by scientists to important social and national problems.

3.3.5 Incomplete communication between Latin American educators and scientists, between scientists and engineers, and between scientists and national policy makers.

- 3.3.6 A general tendency to produce too many poorly trained persons in the professions (law, engineering, and medicine, for example) and too few highly trained persons.
- 3.3.7 Advanced teaching and research are sometimes carried on in an atmosphere characterized by instability of leadership and of support.

All of the problems of developing science and technology in individual countries cannot be solved by wider international efforts, but the exposure of national practices and customs to scrutiny and comment by scientists from other countries should exercise careful pressures.

3.4 International collaboration can enhance the prestige of national institutions by recognizing them and by calling the quality of their teachers and scientists to the attention of national authorities.

3.5 International collaboration can help give institutional stability to a field of teaching and research and thus offset the instability of individual departments and laboratories.

4. Strengthening Existing Institutions and Creating New Institutions

A critical policy question in the field of medicine and biology is the relative emphasis, priority and timing of efforts to use and strengthen existing institutions as contrasted with establishing new institutions. Whether action should be taken to strengthen existing institutions or to establish new ones is a question to be decided on a pragmatic basis. The essential question is the return to be expected from a given investment.

For the most part, the return on investment in the health sciences is greater through strengthening existing centers. The major considerations are as follows:

4.1 In many biomedical fields, the level of excellence achieved in one or more centers is such that a new institution is not needed to establish standards of excellence.

4.2 Indigenous growth of national centers in the biomedical sciences can be promoted most economically and effectively by putting these centers more solidly in an international context rather than by establishing a new supra-national center.

4.3 Despite the relative strength of the biomedical sciences in Latin America, the establishment of a large new center would either draw a large proportion of the best investigators from their own laboratories, or result in second-rate staffing of a new laboratory.

4.4 While there may be in the United States as many as 100 excellently trained Latin American investigator-teachers in biomedical fields, it is not certain that they would be any more interested in going to a multinational center than they would be in returning to laboratories in their native lands.

4.5 If salaries and working conditions at a new center are set at levels designed to draw people from either national laboratories or from the United States, the existence of a new center may retard the growth of national laboratories in the biomedical sciences. The "brain drain" is best moderated by strengthening national centers.

4.6 The investment required to establish a new biomedical research and training center could be spent more effectively to up-grade existing departments, institutes or centers. Money spent on additional space in Latin America is wasted because adequate space already exists in national institutions.

4.7 Effective research and advanced teaching in biology and medicine does not require such a large investment in large equipment that no single country can afford the expenditure.

4.8 The viability of an institution and its productivity depend heavily upon the enthusiasm of people who guide it, who staff it, who set its goals and who secure resources for it. Such enthusiasm exists for strengthening existing centers in the health sciences; it is almost non-existent for the establishment of new centers.

4.9 The important goal of bringing more good Latin American biomedical laboratories more closely and actively into the main stream of scientific development is more likely to be achieved by making them active, responsible participants than by removing the best people from existing laboratories to a new one.

4.10 The important goal of securing more active and widespread participation of scientists from the United States in biomedical research with Latin American collaborators will be achieved more effectively by using stronger national institutions than by establishing a new multinational institution.

4.11 The term "Latin American" is in a sense an abstraction. A new "Latin American" center for health research (or for tropical medicine,

or for any other specialized field) is not likely to be thought of as closer to any Latin American country than are the important U.S. universities - except for the fact that the common language might be for the most part Spanish. But a new institute which did not teach fluent English would not be attractive to many younger investigators.

4.12 The difficult practical problem of deciding where to locate a new biomedical center is avoided by relying on existing ones, but this is not an important consideration.

4.13 Reliance on a number of centers provides flexibility to deal with changing effectiveness of leadership, and for shifts in relative scientific urgency. A single organization under international auspices is likely to be less flexible.

4.14 Reliance on a number of centers provides a flexible approach to teaching.

These considerations do not rule out the possibility that new multinational institutes may be called for. In fact, such a new entity is proposed by PAHO - a new South American Regional Library of Medicine. In this field, the conditions generally found in the biological and medical sciences do not apply:

There are no existing strong medical library centers;

A single strong entity is needed to link with the world's biological and medical system;

The technology involved must be developed at a single point;

The effort is so expensive that multinational efforts are indicated.

Further study may develop other specific areas where a new entity is called, but for the immediate future the greatest gains are to be made through linking together and strengthening existing centers.

5. Aims of Multinational Collaboration in the Health Sciences

Over the last five years the PAHO Advisory Committee on Medical Research and special study groups have examined the characteristics and needs of the health sciences. In the light of these studies PAHO has developed a plan covering the aims, functions, organization and financing of multinational efforts in health research and education. It proposes that, in each discipline related to health, the outstanding centers for advanced teaching and research in Latin America become formally associated so as to attain the following aims:

5.1 Increase the number of highly trained teachers and investigators by linking research and training at the graduate level. Enable teachers and scientists to pursue their work at an advanced level in Latin America and thus reduce incentives to migration.

5.2 Ensure that effective use is made of the existing material and human resources by assessing the capability of different laboratories, departments, and institutes, planning the specialization of function and equipment, and rotating advanced students and senior investigators among laboratories.

5.3 Secure international recognition of the quality of selected centers and thus enlist national support for research and training; stimulate

Latin American scientists to plan for the development of science and technology in Latin America.

5.4 Establish wider collaborative research using both the specialized talents of individuals and the resources of institutions.

5.5 Provide, ultimately for every center that aspires to excellence, organized assistance including a system for the exchange of teachers and investigators so that outstanding talent is made available to an entire discipline in Latin America.

6. Organization and Financing

The Pan American Health Organization is well equipped to serve as the agency in the area of biology and medicine for the total OAS program in science and technology. Its assets in this regard include the existence of a strong structure for research, the tradition of handling hemispheric health problems through the Organization, a strong headquarters and field staff, experience in planning and guiding research on a multinational basis, and a wide network of first rate scientific advisers and collaborators.

If PAHO did serve as the agency of OAS in this field, it would, of course, be bound by general policies applicable to the entire program. In addition, means for distinguishing the border between research related to health and other areas of investigation would have to be worked out. Both national and international research organizations have solved this problem without difficulty.

6.1 Organization

The general policy to be followed in organizing collaboration will be to amalgamate into centers under the auspices of PAHO a number of institutions of recognized standing in a given field of science. The component institutions of the centers will usually be situated in different countries, although they may all be in a single country. The directors of the centers will constitute a "board of directors" and will be responsible for making proposals on such matters as joint curriculum construction, visits by outstanding investigators and teachers, collaborative research, exchange of students, and use of expensive equipment.

The PAHO Advisory Committee on Medical Research would be prepared to review plans and assess their execution. The precise relationships between PAHO and its Advisory Committee on Medical Research, and OAS and its research structure would have to be worked out as planning proceeds.

6.2 Financing

Financing would primarily be by the countries concerned, through their basic support of the collaborating institutions. In the life sciences most of the investment for effective multinational collaboration is already being made by the countries themselves in the form of salaries of professors, support of students, provision of research and teaching space, and supply of basic equipment. The supplementary funds required from external sources to realize the potentialities of international collaboration would be relatively small - at most US\$500,000 per year per field after a period of growth during which annual expenditures would be lower.

PAHO would make funds available to selected centers on the basis of reviewed plans.

7. Specific Proposals

Supplemental papers spell out the details of proposals in specific areas, but they are summarized here to provide a concrete idea of the content, scope and cost of the program.

In three fields - biochemistry (broadly defined), virology (arboviruses), and pathology - strengthening of existing laboratories is proposed, with heavy emphasis initially on advanced training. The selection of these fields reflects in part needs and in part the existence of strong laboratories which have indicated an interest in collaborating. In each field, a competent team has assessed priority needs and has framed a specific program designed to meet these needs.

In the fourth field - improvement of medical library resources - another basic principle has been followed. That is, the creation of a new international institution is proposed, as contrasted with strengthening of a group of existing institutions. Extensive preparatory work on the need for, characteristics of, and means of financing such a new entity has been completed.

Some work remains to be done to make these four proposals consistent with each other, and to make them part of a single program. To do this, some policy questions must be resolved by PAHO with the assistance of its Advisory Committee on Medical Research. Some of the questions are as follows:

- 7.1 Is the principle of concentrating on strengthening existing institutions, but allowing for the creation of new ones, sound?
- 7.2 Has enough attention been paid to fields important to economic development and to elevation of levels of health? If not, how should this problem be approached?
- 7.3 Is the scale of financing proposed for the various fields internally consistent?
- 7.4 Has each program selected the proper points of initial emphasis?
- 7.5 Are the proper policy approaches reflected in the proposed budgets? (For example, the pathology proposal contains an item for supplementation of local salaries by PAHO, which may be unwise).

8. Conclusion

The PAHO Advisory Committee on Medical Research is asked to consider all aspects of the proposed program, and to advise not only on questions such as those outlined above, but also on any other matters which may occur to the members. After the discussion, means of taking the comments into account - including the possibility of convening a meeting of a sub-committee in July or August of 1967 - will be worked out.

A final document will be prepared for the Meeting of the Directing Council of PAHO in October, 1967.

ANNEX

9. PAHO Planning for Multinational Collaboration in the Health Sciences (1962 - 1966)

The Pan American Health Organization has carried on both general and specific studies on multinational collaboration in the health sciences.

Earlier specific studies led to these general findings and recommendations:

9.1 Migration of Health Personnel, Scientists and Engineers from Latin America. Scientific Publication No. 142. September 1966. Washington, D.C. 118 pages.

"High priority should be given to the reinforcement of existing strength in . . . medicine. . . . In general, investments in selected existing centers of high quality - organizations already in being that have good leadership, facilities, equipment, and students - will yield a greater return in terms of the training and quality of research than investments in new centers.

"In general, and as a long-range objective, emphasis should be on strengthening the areas of excellence - departments, faculties, research groups, institutes, or whatever they may be - that have a strong educational component. This, as a rule, means areas associated with universities. Some universities are so archaic, badly organized, and poorly staffed, however, that they fall far short of the ideal institution combining teaching and research. In such cases, it is necessary to consider the strengthening of nonuniversity points of excellence." (p.48)

9.2 Science Policy in Latin America, Substance, Structure and Processes. Scientific Publication No. 119. March 1966. Washington, D.C. 70 pages.

"The principle of the intellectual common market has been recognized and enunciated by informed and influential groups. It was, for example, the subject of a specific recommendation by the OAS Science Advisory Committee at its first meeting in 1958. The Committee proposed the 'expansion of the support and activities of a relatively modest number of existing research institutes, with a view to using them as Regional Centers of research on an increasingly international basis.'* In 1959 the U.S. National Commission for UNESCO proposed that at least six regional research centers should be established, including centers for biophysics, biochemistry, and microbiology.** First steps have been taken in the direction recommended by these reports. For example, the Latin American Society for the Physiological Sciences has served as the agent to coordinate ten laboratories, and the Pan American Federation of Associations of Medical Schools has strongly urged this approach. In fact, all the strong centers of research in Latin America attract and welcome students and mature scientists." (p.45).

* "The Organization of American States and the Development of Science," Final Report of the OAS Advisory Committee on Science Development. Pan American Union. Washington. D.C. 1959.

** National Science Foundation, "Science in the Americas:" Papers Presented at the Scientific Section of the 7th National Conference of the U.S. National Commission for UNESCO, Denver, Colorado, 1959.

Seven specific surveys leading to the general recommendations were:

9.3 Program for Advanced Education and Research in Pathology.
(PAHO internal document) 1966.

9.4 Immunology in Latin America: A Survey. (Ref: RES 4/7).
24 May 1965. Washington, D.C. 59 pages.

9.5 Recommendations for the Establishment in Mexico of a PAHO/WHO
Research and Training Center in Immunology. (Ref: RES 5/1). 25 October 1965.
Washington, D.C. 14 pages.

9.6 Research and Research Needs in Arthropod-borne Virus Diseases
in Latin America. (Ref: RES 1/9) 28 May 1962. Washington, D.C. 46 pages.

9.7 Prospects for Investigations of Viral Respiratory Illnesses
in Latin America. (Ref: RES 2/2) 10 April 1963. Washington, D.C. 79 pages.

9.8 A Program for the Development of Permanent Institutional Resources
for Research Training and for Exchange of Research Personnel in the Health
Sciences in Latin America. (PAHO internal document). October 11, 1962.

9.9 9.9 Proposed Regional Medical Library Center for Latin America.
(Ref: RES 4/12). 9 June 1965. Washington, D.C. 46 pages.