

Pan American Health Organization

PAHO/ACMR 12/8
Original: English

TWELFTH MEETING OF THE
ADVISORY COMMITTEE ON MEDICAL RESEARCH

Washington, D.C.

25-29 June 1973

MEDICAL RESEARCH IN EUROPE

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SYMPOSIUM ON THE ORGANIZATION OF
BIOMEDICAL RESEARCH IN LATIN AMERICA

MEDICAL RESEARCH IN EUROPE

Can a study of Europe help us to improve medical
research organizations in Latin America?

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It may seem too elementary to start this paper by posing the question "Why should a country support medical research?" but since there are several different answers to this basic question, our assessment will depend on the priority we give to these different answers.

As a base line for this paper, I would like to suggest the following reasons why each country must undertake medical research:

1. Educational. To ensure that medical students develop a scientific and critical attitude and maintain it throughout their careers as doctors. To be able to do this, they must have teachers who are doing or have done research themselves.
2. Operational. To solve local problems.
3. Cultural. To keep the people with the most original minds in their home country to help solve its problems, to teach the next generation and to generally help progress.
4. To advance medical knowledge.

The order of priority in this list will differ according to the stage of development and the wealth of the country but it will also

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depend on its university and medical care organization. Thus, if a country has no medical school, it will concentrate on operational problems. This was the case in former colonial territories.

When a country has its own medical school, the first priority and an essential element will lie in ensuring that students are taught scientific medicine based on research. This teaching can only come about if the teachers are given the time, facilities, and income to allow them to undertake research. If university research is supported, then it is essential to create in addition, a method that will allow those who show outstanding ability to develop their talents. If no such system is available, there will not be sufficient encouragement to the best people to develop their abilities. This will lead to frustration and the most able will tend to leave their country. A country which has to provide these opportunities for academic research is also bound to provide facilities for solving local problems, whether they be operational or scientific.

Finally, if a country is sufficiently wealthy, it can, in addition, provide facilities aimed primarily at the advancement of knowledge for its own sake. This is, of course, much the same as the provision of the opportunity for the development of talented people who arise in the academic system but on a more lavish scale.

An examination of the countries of the world permits a classification along these lines and enables one to see where and how they have failed to make the necessary arrangements. I wish to illustrate this theme from material that was prepared for a 3-day symposium held last March in London. This symposium was arranged jointly by the Wellcome Trust and the Ciba Foundation and will be published by the end of 1973. A selected person from each of 24 countries in Europe was invited to write a critical account of the medical educational care and research systems in his country and the way in which these systems affected the development of research. Twenty-two countries wrote accounts and 21 attended the symposium. Only Russia and Czechoslovakia were missing, having previously accepted. The meeting was devoted to discussion of the way in which various systems affected the development of research.

I propose in this paper to deal with this material to show the difficulties that various countries have encountered, and the solutions that are being tried. At the end of the paper, I will suggest how some of the European problems may have their counterpart in the Western Hemisphere. What one can say at the outset is that in all countries, it is not the lack of potentially suitable people, but the constraints of the organizational and educational systems that is the main impediment to the development of research.

Medical Research and the Medical Educational System

There was general agreement that medical students should be taught to have critical scientific judgment and that this could only come from teachers who were active in research, or at the very least who were entirely conversant with the methods of research. It was also considered that students who had the necessary attitude should be given the opportunity to develop their originality during their undergraduate training. This ideal was only sometimes achieved, although some opportunities were available in most countries. It was clearly not possible in those countries with an unlimited entry to medical schools, where there was inadequate room to teach or provide practical experience. An entry in excess of facilities is found in Portugal, Spain, Italy, Germany, France, Belgium, Denmark, and Holland. The process, adopted in most of these countries, of eliminating 50 to 75 percent of those who enroll seemed very wasteful and arbitrary, if the subject could not be taught properly. Another impediment to originality was thought to be a rigid school curriculum. This was particularly emphasized by Professor Doxiadis from Greece. Lack of flexibility in the medical school courses, combined with the heavy load of factual learning, often left little room for thinking in depth and therefore, for originality.

In other countries, it was apparent that the staff were poorly paid, the facilities very limited, and with large numbers of students to teach, there was little time for research. Some members of the

faculty were expected to supplement their income by private practice and this practically eliminated any time they might have had for academic work. Undoubtedly the position was most satisfactory where the staff were employed full time and where the student numbers were sufficiently low to give the staff time for research in addition to their other duties. In countries where this basic situation had been achieved, various methods of introducing the student to research had been developed. Thus in Britain some students break off for a year between their preclinical and clinical studies, to take an honor's degree in physiology, biochemistry, etc. In Britain, in addition, elective periods of 3 months can be used to develop research talent. In Romania and Poland, student research circles have been tried but have not been very successful because of the pressure of other studies. All countries considered that the very long training programs, extending also into the postgraduate years, had an inhibitory effect on the development of originality, there being a fairly general view that if you have not shown originality in your twenties, you are unlikely to embark on research later. The opportunity must therefore be provided in the systems. There are therefore impediments in most countries either in the entry system to universities, the teaching system, or the staffing arrangements, which effectively inhibit training and research activity in universities. It is impossible to give factual evidence to prove that those countries that have the worst difficulties produce less good doctors although they are certainly likely to produce less flexible minds. They certainly produce fewer research workers.

The chief impediment to medical research seems to be the educational system and in many cases it would take a revolution to alter it. Numerus clausus is a very hot political matter with students. University structure is a very strongly defended bastion. Medical schools are the most costly university faculties. Thus the government, the students, and university staff are acting for different reasons against the rightful place of medical research in medical education. It is not therefore simply cost but also ignorance and conservatism that is preventing the development of scientifically based medical education.

In Italy, no solution has been found to this problem of the universities, and so they have fallen from their former greatness. In France, it also seems impossible to reform the university system and so INSERM (Institut National de la Santé et de la Recherche Médicale) is developing a powerful research activity alongside the universities but independent of them. It is hoped that this will affect the university system by example. In Germany, there has been a tendency to develop research institutes outside the university framework. This has been made to look more necessary because of the considerable student unrest and participation in university government, which makes the universities difficult to work in. Institute development tends to encourage university staff to move to research institutes and create an internal brain drain away from the universities. In Spain and Portugal, the university system has almost totally inhibited research development. In Britain, the entry to medical school is limited but there is a tendency to increase numbers without the same proportionate staff increase and so time and opportunity for research by university staff is being affected.

In the educational system in Europe we thus see many problems that affect both the training and opportunity for medical research, and these effects are not for the most part due to lack of money.

Clinical Research and the Medical Care System

It is obvious that the clinical care system also affects research. If patients have to pay fees, they will be reluctant to stay in hospital longer than necessary. If the doctors are entirely in private practice, they will find it difficult to make time for research. If the facilities for clinical research are lacking, the opportunity will be reduced. These factors, though important, did not, however, appear to be as vital in Europe as the problems created by the educational system.

Organization of Medical Research

If we now look at the organization of research, we find that it is greatly affected by the university system. If the university system is satisfactory so that the staff can be active in research, extra funds can be provided for them and specialized units created. If the university system is not satisfactory, then there is a tendency to produce special institutes, either around individuals or around subjects. These institutes act against the development of the universities by drawing away their most talented staff.

There are many reasons for setting up research institutes and even the meaning of the word "institute" varies from country to country. Some institutes are set up to solve special problems, and here the needs of the country are paramount. Thus we have institutes of industrial medicine or institutes for special diseases. In other cases they are created by well-meaning private donors, either to help solve a special problem or to give some leading scientist a special opportunity. In other cases they are created (sometimes by governments, occasionally by private donors) to give full-time opportunities in research to people who cannot develop their abilities on a part-time university basis.

All one can say is that each type of institute has its special problems and that unless they are large and well-endowed, they usually only have as long and as good a life as their director. They tend to become progressively less satisfactory as years go by.

We come finally to the problem of organization of research and especially the problem of operational versus academic research, or more realistically the ratio of these. It is my thesis that academic research is an essential part of the medical educational system and so it should not be in competition with operational research at the university level. The question of competition only arises when a government has to consider the extent to which it will supplement the basic level of university research by supporting the projects of quality

put forward by the university staff. If funds are really limited, it then will have to balance the danger of creating a degree of frustration in the universities against the lack of adequate work on pressing national health problems.

I find operational and academic research to be two separate problems to be undertaken by different organizations. Research by university staff should be supported on the basis of its quality; operational research on the basis of the end that it is necessary to achieve. It may well not be possible to get operational research undertaken by university staff and in that case a special staff will have to be created. What is a mistake is to try to weigh the value and ultimate usefulness of basic research against research being undertaken for operational ends. But this error is regularly made. If a Ministry of Health administers funds for research, it will put priority on results of practical usefulness (this is very obvious in the socialist states of Eastern Europe). There is therefore a need for quite separate budgeting and planning for operational and academic research.

In Europe the problem of the organization of medical research is very controversial. The arguments between relevant and basic, fundamental and applied, or operational and academic continue. In those countries where research is the responsibility of the Ministry of Health, there is emphasis on applied research; in those where it is the charge of the Ministry of Education, the emphasis is on fundamental aspects and the applied element tends to be neglected. In the socialist countries where the Ministry of Health tends to have the main say, the Academies of Science play a role in supporting centers of excellence. The universities, however, tend to get limited support for academic research and medical research does less well than non-medical scientific research.

In Summary

Biomedical research requires an organizational structure that is threefold:

1. Educational To create universities which have the capacity, time, and facilities to undertake research. This structure being financed as part of the educational function of the Government.
2. Cultural To provide support for the men of excellence who develop within the university system to expand their ideas. Financed by central government.
3. Operational To allow operational and locally relevant problems to be evaluated and arrangements to be made for their solution either by interested members of the universities or by special research teams employed for the task. Financed by the Ministry of Health.

These three activities should be separately budgeted and managed. They may all be called medical research but in fact their aims are quite different, the first is educational, the second is cultural, and the third is operational and their programs cannot, therefore, be weighed one against the other.

I believe the lesson to be learnt from the numerous solutions attempted in Europe is that research has developed as a force that is of importance in medical education and the management of medical care and that it also affects a country's ability to keep its most talented citizens as residents of their own countries. It has, despite these really important national functions, been treated as a luxury that can be disregarded or dispersed with and so the universities, hospitals, and governments have not given it its proper place. The result has been the survival of archaic

universities or nonscientific medical education, with a resultant brain drain to those countries that have recognized the true place of research.

I made the suggestion at the meeting last year that the medical research position in Europe may be more suitable for comparison with Latin America than that of the United States. Going with this is the suggestion that some of the systems that have developed in Europe may be more useful to consider as a pattern for future development. I believe this view still to be substantially correct in that it is easier to understand the developments in Latin America if we recognize the historical relationship of these to those in various European countries. The influence of Spain and Portugal is obvious and in the West Indies, Britain's role is predominant. These and other European-type systems have been transported to many countries of the world and have set the pattern. Unfortunately, some of the systems that were transported have not proved suitable for modernization, even in their country of origin. Unfortunately for Latin America, the principal educational culture that was adopted has not proved to be adaptable enough to encompass the development of science. It is not surprising that Latin America has also found the adaptation even more difficult when faced also with major tropical and economic problems. Some systems, notably those in Scandinavia and Britain, have shown sufficient flexibility to adapt to modern science. Those in Eastern Europe are also finding a way to promote scientific medicine after first trying to tackle numerous political problems. But those that have a hierarchical university system have had great difficulty in giving medical research its proper place in the education and care systems. If one then moves on to the problems of relevant and operational research one realizes that the same impediments occur but even more strongly. If a university does not do any research, it is unlikely to be able to take on operational tasks. The first stage is to get people into academic research. The climate will then be ripe for enlisting them for the type of research that would be relevant.

Europe faces the same problem. Those countries that have a strong academic research tradition can hope to change the emphasis, if they wish, to more practical issues. There is resistance but the movement will take place. Those that lack such a tradition of research cannot move into research and particularly relevant research at one step.

I would like to suggest that if the PAHO Advisory Committee on Medical Research wishes to pursue the topic of the organization of biomedical research in Latin America, it should make a close examination of the European situation and derive from it the ideas that will be of use to Latin America. I believe the answers are available in Europe.