Provisional Agenda Item 25

MEDICAL EDUCATION

Replace Table 3, Page 17, Annex to Document CD19/16, by the attached Table.
TABLE 3

TOTAL YEARS OF SCHOOLING REQUIRED FOR COMPLETION OF THE MEDICAL DEGREE COURSE, BY COUNTRIES AND NUMBER OF MEDICAL SCHOOLS

1967

<table>
<thead>
<tr>
<th>COUNTRY</th>
<th>TOTAL OF SCHOOLS</th>
<th>YEARS OF STUDY</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>17  18  19  20</td>
</tr>
<tr>
<td>ARGENTINA</td>
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</tr>
<tr>
<td>BOLIVIA</td>
<td>1</td>
<td>1   2  3   4</td>
</tr>
<tr>
<td>BRAZIL</td>
<td>3</td>
<td>4   5  6   1</td>
</tr>
<tr>
<td>CHILE</td>
<td>1</td>
<td>2   3  2   3</td>
</tr>
<tr>
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<td>2   3  2   3</td>
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<td>1   1  2   1</td>
</tr>
<tr>
<td>CUBA</td>
<td>1</td>
<td>1   2  3   3</td>
</tr>
<tr>
<td>DOMINICAN REP.</td>
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<td>1   1  1   3</td>
</tr>
<tr>
<td>ECUADOR</td>
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<td>1   1  1   3</td>
</tr>
<tr>
<td>EL SALVADOR</td>
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<tr>
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<td>1   1  1   1</td>
</tr>
<tr>
<td>HAITI</td>
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<td>1   1  1   1</td>
</tr>
<tr>
<td>HONDURAS</td>
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<td>1   1  1   1</td>
</tr>
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<td>JAMAICA</td>
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</tr>
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<td>MEXICO</td>
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<td>14  7  3   1</td>
</tr>
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</tr>
<tr>
<td>PERU</td>
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</tr>
<tr>
<td>VENEZUELA</td>
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<td>1   1  1   1</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>20  55  31  4</td>
</tr>
</tbody>
</table>

* Including primary, secondary, pre-medical, general and medical studies in medical schools with full degree courses

3.1 Primary and secondary schooling

The duration of primary schooling in Latin America is fairly uniform. In 17 of the 21 countries included in the survey, primary education covers six years. At the secondary level, the variations are greater - ten countries have a cycle of five years, nine a cycle of six years, and two a cycle of seven years.

3.2 Premedical and general studies

In a number of medical schools, over the last few decades, a transitional course has been inserted between secondary schooling and professional studies. This comprises two categories: general studies and pre-medical studies.
MEDICAL EDUCATION

The rational development of human resources for health has been a constant concern of the Governments of the Member Countries of PAHO during the last few years.\(^1\), \(^2\), \(^3\)

The Special Meeting of Ministers of Health of the Americas held at Buenos Aires, Argentina in 1968 carried out an exhaustive review of the problems of the development of health manpower and adopted concrete recommendations which have been used as guidelines for PAHO's policy in this field.

The training of physicians is a very important aspect of any program for the development of health manpower. For this reason, medical education has been receiving preferential attention from PAHO. The purpose of this document is to analyze the problems and trends of medical education today, with special reference to Latin America and the activities being carried out there by PAHO.

I. The universal call for change

Medical education in Latin America, like higher education generally and medical education the world over, is seeking a new definition of its meaning.

\(^1\) Declaration to the Peoples of America, Resolution A.2, para. 1.d., Punta del Este, Uruguay, 1961.


\(^3\) Meeting of American Chiefs of State, Action Program, Chapter V.C., Punta del Este, Uruguay, 1967.
Two fundamental questions impose on medical education the inescapable need for change. These are, in highly industrialized and scientifically and technologically advanced countries, the research explosion and the overwhelming flood of new knowledge; and in the so-called developing countries, the clearer realization that medicine as a profession and health as a condition have an important role to play in the emergence of societies towards ways of life more in keeping with their growing aspirations.

Hence it is hardly surprising that in both groups of countries, developed and developing alike, there are at the present moment palpable signs of a search for new paths in medical education.

In the United States of America, the radical reorganization and rationalization of medical schools, undertaken as a result of the Flexner report at the beginning of the century was followed by about 40 years during which little change took place. Following the Second World War and at the beginning of the 1950's, a twofold reform movement took place in American medical education: on the one hand there was the desire to impart knowledge to the student in an "integrated" manner, and on the other there was the tendency to shift the emphasis, which until then had been placed on the individual in isolation, to the community and to the individual in the context of and in close relationship with his environment. The first experiment with the "integrationist" trend in the American medical schools curriculum, was that carried out in the Western Reserve University Medical School. In social medicine or community medicine, Cornell University played a prominent part in the early stages. These experiments were in due course followed by a great many other schools, and at the present time most of the leading medical schools in the United States are carrying out or planning changes in their curricula. Developments over the last few years have included the establishment of departments of behavioral sciences, which involves the introduction of new theories in relation to the teaching of subjects such as psychology, social psychology, anthropology and sociology. However, one of Flexner's main principles, which divides the curriculum, is divided into a basic part and a clinical part, has undergone relatively little change. Although for a number of years now there has been talk of the need for giving the students experience of working with patients at an early stage, and although it is true that universities like Harvard, Columbia and others have carried out experiments in this direction, it is likewise fair to say that the emergence of new medical schools with a relatively high degree of basic clinical integration is a very recent occurrence. It might be said that, with few exceptions, the changes of curriculum in the American medical schools have had little structural effect; in some cases they have been confined to the addition of new subjects, and in others they have merely involved methodological changes.

One of the virtues of the Flexner report was that it stood alone and was universally accepted, which speaks well for its indisputable consistency and its historical oppositeness within the framework in which it originated. On the other hand, the multiplicity of "schemes", "patterns", "models", etc. for curricular change which have emerged since the end of the Second World War indicate either that really satisfactory answers to present-day needs have not been found so far - hence the continued search - or that the situation is far more complex than it was in the United States at the beginning of the century, as seen first and foremost in the speed with which ideas evolve in an essentially changing world. Of these two alternatives, the second would appear to be the more plausible, and it is reflected in a statement made during a recent international meeting on medical education,¹ in which the conclusion was reached that medical schools should have curricula capable of being revised and changed at any time. But the real point is surely that what is happening is a process of gradual change which has so far not completely crystallized.

France, a country with a long tradition of medical education, a few years ago undertook a process of university reform, which naturally included the reform of the medical schools. The inconsistency of the reform, or its almost immediate loss of viability is reflected, among other causes, in the violent uprisings of May 1968.

In the United Kingdom, the tendency to hold fast to tradition did not prevent a high level Commission appointed by Queen Elizabeth in 1965, from making recommendations in 1968 for substantial changes in the organization of medical education at both undergraduate and graduate levels.² Canada too, has made considerable efforts in this direction; while in the Soviet Union and other socialist countries, the training of health personnel has been along different lines, embodying the system of training of medical personnel at various levels according to the needs of the medical care programs.

II. Medical education in Latin America

The Pan American Health Organization, working through its Department of Human Resources Development and using survey procedures, has carried out an investigation of Latin American medical schools and an particular of the teaching of preventive medicine. The document annexed to the present study³ outlines such general data obtained through the investigation, as it has been

¹/ International Congress on Evaluation in Medical Education, Edmonton, Alberta, Canada, June 1969.
³/ García, César; Department of Human Resources Development: "General Characteristics of Medical Education in Latin America", 1969, PAHO/WHO, Washington, D. C.
possible to analyze up to the present time. The comments made below on medical education on Latin America are the outcome partly of the experience and observations of the Department of Human Resources Development of PAHO, and partly of the findings of the survey in question.

1. Integrated teaching and the teaching of preventive and social medicine

Medical education in Latin America, originally patterned on that of the universities of Salamanca and Paris, came strongly under the influence of the French school during the later years of the XIX century and the first half of the present century; but after the end of the Second World War, the ideas originating in the North American continent began to seep through. This is reflected in examples of manifest attempts to achieve integration along the Western Reserve University or Stanford University lines. While the trend towards social or community medicine emerged more or less simultaneously in the two halves of the Continent, the fact is that in Latin America, because of the peculiar conditions existing in the various countries and the encouragement given by national and international bodies, this trend has developed more strongly, with the result that practically all the medical schools are already on a varying scale implementing programs for teaching preventive and social medicine. It may be said that the starting-point for this phenomenon in Latin America was the recommendations arising out of the seminars on the teaching of preventive medicine (Viña del Mar, Chile, 1955, and Tehuacán, México, 1956) both of them held under the auspices of the Pan American Health Organization.

2. Departmentalization

Side by side with this, many medical schools in Latin America have begun to view with interest and have tried to incorporate into their own structures the North American concept of departmental organization. There are good reasons to doubt the success achieved here; in most cases the change has not gone beyond minor alterations in nomenclature or the establishment of superstructures which do not work satisfactorily.

3. Limitation on the admission of students

During the last two decades, many of the Latin American medical schools have leaned toward the system of limiting admissions and selecting candidates. The assertion often made that candidates intending to study medicine go up to the university with an inadequate educational background has encouraged the establishment of "pre-medical", "basic" or "general studies" courses.

4. Current problems

The impact of the changes referred to above on Latin American medical education, has not as yet been properly assessed. But it can be said with
little fear of contradiction that in most instances the appropriate and essential changes in attitude have been lacking to transform the innovations into real changes made in the traditional concept of the educational process in the light of clearly-defined objectives. The medical schools in Latin America are, for the most part, still faced with the following problems:

(a) Extremely rigid structures which make for separation into more or less watertight compartments.

(b) Closely interdependent curricula and administrative structures. Since the latter are rigid, the curriculum becomes excessively static; or else any change, however small, can only be made by dint of great effort, and once it is carried out, no further adjustment is possible.

(c) Shortage of material resources and teaching staff, the latter being mostly part-time teachers having their main commitments outside the university sphere.

(d) In consequence of (c), teaching essentially theoretical and based on the mere imparting of knowledge not necessarily kept up to date.

(e) Inadequate spiritual communication between professors and students.

(f) Number of would-be medical students far beyond the real capacity of the medical schools, which means that admissions have to be limited and a surplus student population is created, leading to social and political problems.

(g) A high proportion of students whose progress is irregular (repeating a year or making up courses missed the previous year). This lengthens the duration of the medical course for many students and increases the cost of producing doctors proportionately.

(h) Inefficient systems of registration of data and lack of built-in evaluation.

(i) Failure to include manpower training adequately in national health plans, and lack of coordination between the instruments for manpower training and the needs of the market.

It is fairly obvious that these problems are not confined to medical schools but apply to the Latin American university generally.

5. The trend today

Looking at the matter from another angle, we must realize that the health problems of the developing countries, and in this particular
instance the countries of Latin America, cannot be solved merely by the production of a type of professional practitioners highly qualified from the scientific point of view. If the graduate is not technically and emotionally trained to face the health problems in regions with scanty resources and a frequently hostile environment, and if Governments are not in a position to meet economic demands increased by the unusual length of the medical man's university career, and the considerable prestige and social status that habitually go with the rank of doctor, we shall have to go on facing the problem of an over-concentration of services in the large towns and a "brain-drain". Some individuals, and some medical schools in Latin America, have begun to realize this and to realistically at their own responsibilities as going beyond the training of a standard type of health personnel.

In the light of what has been said above, there is no argument about the fact that the medical education, and by extension all higher education in Latin America, calls for thoroughgoing changes. The question which arises at once is: How are these changes to be brought about? If we look at the present panorama we may discern among others the following means of taking action:

(a) Studies of health manpower and the inclusion of medical education in health sector planning

If the training of doctors is to be carried out rationally, it requires a clear awareness both of the existing situation and of the needs in quantitative and qualitative terms which must be met within a given period of reference. The information needed for a definition of teaching programs must comprise the following:

The medical care system, according to the social-cultural and economic peculiarities of the various countries;

The existing health personnel, by professional field, method of exercising their profession, localization, level of training and personal characteristics;

Personnel requirements to cope with the existing services and those it is proposed to set up;

Institutions for training health personnel;

Factors making innovation and change in the educational system easier or more difficult.

This information is beginning to be compiled, analyzed and incorporated into health plans in various countries. Improvement in the methodology used for this purpose will make it possible to extend the process and make it more flexible.
(b) Determination of the functions of medical schools and educational objectives

A technical and scientific approach to the problems of medical education in the Latin American countries calls for a clear-cut agreement in regard to the function of the medical faculty or school and the educational objectives of any given academic program.

In defining the functions of a medical school we must determine, in the light of the resources available and local requirements:

Whether it is to be limited to the training of doctors up to graduation;

Whether teaching is to extend to the postgraduate training of specialists and to refresher courses for practicing doctors;

Whether the school is to participate in the training of other types of health personnel, and to what extent;

Whether research programs are to be carried out, and if so, whether they are to be limited to what is strictly necessary to maintain an adequate scientific level among the teaching staff and to provide good teaching, or whether the research is to have its own independent purposes and scope;

Definitions similar to those for research must be drawn up in respect of service.

If the objectives are to be of any value in an educational planning process, they must be conceived and expressed in terms of the changes in outlook it is hoped to produce in the students. Each of these objectives must be translatable into a specific teaching approach calculated to attain them and into sound methods of evaluation to measure the extent to which the objective is reached at each stage of the educational process. The task of determining the educational objectives must be undertaken with the characteristics and needs of the community and of the students in mind, and with due regard to the resources available. This presupposes social and psychological research in most cases, and as far as possible it should not be the result of mere subjective or emotional judgements.

A satisfactory method of establishing educational objectives as part of a program for the training of doctors should begin with a description of the functions which in the light of the economic, social and institutional circumstances a recent graduate from the medical faculty will be expected to perform. Once these functions have been defined, it will be necessary to determine in each individual instance the knowledge, ability and outlook indispensable for their effective execution. These qualities of knowledge, ability and outlook, properly
arranged in order, would be the real objectives to be sought in behavioral terms, and the content and methodology of the curriculum would be conditioned by them. Unfortunately, the lack of integration of the medical care institutions in the various countries, and the wide variety of ways of exercising the profession, face the recent graduates in medicine with different working patterns - which complicates the task of outlining a single set of functions. This is undoubtedly a drawback, but it should not be regarded as an insurmountable obstacle, and careful study, combined with the introduction of elastic and imaginative curricula and the coordination of planning efforts on the part of medical faculties and medical care institutions should help to solve the problems satisfactorily.

(c) Administrative structure and the curriculum

It is clear that the administrative structure of a faculty or school of medicine must be geared to the functions and objectives laid down for it; and if the premise is accepted that the constant evolution of medical education calls for periodic review of the curriculum, special care must be taken that the curriculum and the various subjects it comprises do not become subordinated to and dependent on the administrative structure, which by its very nature and for practical reasons must be more or less permanent, once it is established satisfactorily.

Within the administrative structure, the terms faculty, school, department, chair, section, unit, etc. should be clearly defined in respect of their concept and purpose, whatever the pattern of organization adopted.

(d) Better utilization of resources

As part of the basic problems outlined above, special importance attaches to the scarcity of material and human resources, and to the peculiar conditions in which the latter are used. Unfortunately it must be recognized that in many of the Latin American countries this poverty of resources and unsatisfactory conditions of work are likely to persist for some time. Hence it is essential to work out methods of using resources which will ensure the maximum benefit for them.

(e) Health science centers

The establishment of health science faculties or centers, bringing together resources at present dispersed and including as part of their functions the training of health personnel in various areas and at various levels is a solution which looks attractive at the present time. Apart from the implied pooling of resources, the advantage of this approach is that it would inculcate in students a spirit of teamwork and a multidisciplinary outlook on health problems.
Another advantage of health science faculties or centers, at any rate in theory, would be the fact that they would cater for a greater proportion of the candidates who are at present turned away and take up other professional activities than those of health. A health science curriculum properly integrated and organized to produce categories of health personnel staggered at increasingly high levels would make it possible at the outset to absorb larger numbers of candidates who at the present time merely want to study medicine but under such a system could be redirected on a fairly large scale towards levels of activity at least as necessary as that of the medical practitioner as such.

Clearly, a faculty or center of health sciences on the above lines would be something more than a mere gathering together under a single common administration of faculties, schools and courses at present functioning separately. Nor indeed would it be sufficient for joint departments to share the task of organizing the teaching of courses at various levels. The idea presupposes a radical departure from traditional thinking and the creation of entirely new structures and mechanisms. This apparently Utopian idea is beginning to be seen as something which could actually come about.

(f) **Changes in the outlook of professors and students**

During the last few years, various movements for the reform or renewal of the university have emerged in the Latin American Region. In some instances the lack of similarity of approaches to new ideas on the part of professors and students may have jeopardized the success of these ideas. Again, where there has been active participation by professors and students, there has not always been the necessary dispassionate study of the situation and a quiet, unhurried search for solutions, the more satisfactory in so far as they were not subject to ephemeral factors having little to do with the essentials of the teaching process. The conscious or unconscious leaning towards traditional structural concepts has likewise stood in the way of a really bold approach leading to genuine reforms in higher education.

It is essential to realize that satisfactory and lasting results can only be achieved through a dispassionate, unprejudiced and disinterested study of the problems, with liberal participation by the various sectors involved. If this is not possible, there is no point of speaking of universities at all. Conversely, if this is possible, it would be the most decided indication of the essence of the university idea.

(g) **Teacher training for faculty members**

It is clear that if this process is to be carried out, something more than good will is needed. The definition of educational objectives in terms of changes in outlook involves a well-established technique
and calls for a fairly complete acquaintance with the social situation and the interests, motivations, outlook, capacities and background knowledge of students admitted to medical schools.

Before the strategy to be adopted to attain the educational objectives defined above can be worked out, we must be acquainted with the psychological mechanisms of learning and familiar with the various methods of teaching suitable for use to this end. Similarly, for determining and subsequently applying evaluation procedures, it is essential to be au fait with the appropriate evaluation techniques.

The humanization of relations between professor and students and the task of directing the attention of both more and more towards the interests of the community they have to serve, must supplement the basic technical training so as to ensure the success of a task which would otherwise be doomed to failure or at best to a long and awkward period of uncertainty.

III. Activities of PAHO in the field of medical education

With these points in mind, the Pan American Health Organization, through its Department of Human Resources Development, has been anxious to collaborate with Member Countries and their institutions of higher education in finding the appropriate channel for measures aimed at changing the general approach and structure of medical education.

An important step in this direction was the study carried out in the medical schools of the Region, some of the findings of which are given in the annexed document already mentioned. This is all the more important in that any action designed to improve the efficiency and quality of institutions and programs for the training of health personnel requires, if it is to be fully effective, as much prior knowledge as possible of the particular environment in which teaching and learning process is to take place.

Simultaneously with the execution of such research, and in an attempt to draw attention to the growing demand for concrete action in the field of medical education, the Department of Human Resources Development of the Pan American Health Organization has sponsored programs for the solution of some of the many problems already duly identified.

1. Special studies

With a view to helping to assess requirements in the way of health personnel, including the need for doctors, and to encourage the inclusion of this information, and the inferences to be drawn from it, in health sector planning, PAHO has sponsored and helped to carry out studies on health manpower in various countries. The experience acquired in this field and the continuing study of the methodological problems that arise
have helped steadily to improve the techniques used. The present task is to work out simplified procedures for building up a permanent register of resources being used, and of requirements, so that this type of study can be extended to as many countries of the Region as possible at a realistic cost.

As a consequence of the first studies carried out, valuable practical results have been achieved and new areas of research have been identified which are beginning to be explored. The study of health manpower carried out in Colombia with the collaboration of PAHO and the Milbank Fund, was used as a basis for drawing up the Colombian National Health Plan and for the reorganization of the Ministry of Health. It also proved useful in providing guidelines for the changes called for in medical education. The study pointed out among other things, the necessity for training auxiliary personnel in growing numbers and delegating to them some of the functions at present performed by professional staff. With financial assistance from the Agency for International Development of the United States Government, PAHO has been collaborating with the Ministry of Health of Colombia and the Colombian Association of Medical Schools in operational research on the evaluation of methods of training auxiliary personnel, the delegation of functions to such personnel, and the effect of such action on the coverage of medical care services. The findings of this study should be reflected in changes in the current programs for the training of doctors, if it should prove feasible and practical to delegate functions in this way.

The study on Latin American medical schools which led to the publication of the report annexed to this document produced valuable information which, once it is duly tabulated and analyzed, will be placed at the disposal of Member Governments and teaching institutions in a series of successive reports. Plans are also being drawn up for collaboration with Governments to establish procedures for keeping this information up to date.

The impact of the resolutions aimed at incorporating the teaching of preventing and social medicine in the curricula of Latin American medical schools can only be properly assessed after the findings of the study already completed on the subject have been published. It will also be useful to have information on the views of Latin American students of medicine on medical education in the Region and specifically on the teaching of preventive and social medicine. This study has also been completed and is now being analyzed, and it is hoped that publication will be possible within a short time.

There is no doubt that once the studies in question have been analyzed, they will furnish vital information for medical education planners in the Region; and the findings should throw light on areas which call for further exploration, and thus stimulate and provide guidance for the development of further research.
2. **Advisory services to medical schools**

Collaboration with medical schools in the study and solution of specific problems has gradually been expanded, and due account has been taken in its development of the work done by the Governing Bodies of the Organization. Wherever an opportunity has arisen, an attempt has been made through advisory activities to bring closer together the medical schools and the government departments responsible for medical care services.

In addition to expanding the scope of advisory services to medical schools, efforts have been made to bring the recommendations made in various countries and to various institutions more consistently into line. This is the consequence of the gradual development of a clear-cut policy on the subject, and the resolutions which the Governing Bodies of PAHO have adopted on the subject at various times have helped considerably to bring this about.

In its advisory services to medical schools, PAHO has tried as far as possible to maintain close coordination with the associations of faculties of medicine in the various countries.

3. **Training of teaching personnel**

In addition to helping the training of teaching staff for the medical schools of the Region through its fellowship program, PAHO has undertaken and continues to develop and encourage training activities in the form of seminars, laboratories and workshops, for the purpose of improving the quality and the technical and educational qualifications of the medical educators of the Member Countries.

The Laboratories of Human Relations and Medical Teaching, set up in 1964 under the auspices of PAHO, have continued to develop, and it is calculated that by the end of 1969 a total of approximately 1,400 Latin American medical educators will have taken part in the experiment.

Seminars on the administration of medical schools have continued to be organized and conducted. This activity began in 1968 with one such seminar held in the Republic of El Salvador and attended by senior personnel from all the medical schools of Central America.

The need for training the teaching staff of medical schools in modern techniques for defining educational objectives and drawing up the curriculum has led to specific schemes for training in this field, and these will begin to operate shortly.

Because of the growing tendency to include the teaching of the behavioral sciences in the medical school curriculum, it has been felt that seminars on the teaching of this discipline should continue to be organized.
The growing complexity of the task of planning and executing medical education programs has gradually developed these activities into a really specialized occupation. In its concern to offer medical schools in Latin America the possibility of training its administrators in this field, PAHO has made contacts with a number of institutions with a view to devising institutionalized programs for the training of medical educators, in conformity with the recommendations made on the subject by the Governing Bodies of the Pan American Health Organization.1/

IV. Textbooks for medical students

One of the most awkward problems of medical education in Latin America, apart from those already mentioned, is undoubtedly the fact that the student body as a whole does not have access to the books used or recommended as textbooks in medical faculties. The main reason for this is that the great majority of students cannot afford to buy medical books, which are extremely expensive.

In 1965, the Pan American Health Organization (PAHO) invited a group of consultants to visit a significant sample of medical schools in Latin America with a view to pinpointing and analyzing the problem and making appropriate recommendations.

The report of the group confirmed the seriousness of the problem for students and teachers of the shortage of textbooks and the widespread recourse to makeshifts unsatisfactory from the scientific and teaching viewpoint, such as "lecture notes" and mimeographed lectures.

The report also pointed out other factors which have tended to complicate medical teaching in Latin America, such as the insufficiency of educational texts in libraries to cope with the demand, and the inadequate use made of such books as there are, either because they are written in foreign languages, or the editions available are out of date, or for other reasons.

The PAHO Program of Textbooks for Medical Students, established for the purpose of helping to improve this situation, has been proceeding most satisfactorily and has been welcomed in a manner exceeding all expectations, which is an indication that the Program satisfied a real need.

In the course of the current year, the Program of Textbooks entered the phase of production and distribution of works previously selected by the various committees. To date, 70 medical schools in 17 countries are enrolled in the Program and already have in their possession and are handing out to their students pathology, biochemistry, pharmacology and physiology textbooks; and very shortly they will have one on pediatrics. The

1/ Special Meeting of Ministers of Health of the Americas, Recommendation 5, Chapter X, Development of Health Manpower; Buenos Aires, Argentina, 1968.
committees on preventive and social medicine and internal medicine have already met, and their recommendations are now being processed.

As a part of the same Textbook Program, each committee has been asked to make recommendations regarding periodical publications and other work of reference which it is felt it would be desirable to have in school libraries. Arrangements have already been made to make available in the near future to libraries not possessing them, such reference works and periodicals as are recommended by the various committees. In this way the Program will not only enable the student to acquire the basic textbooks for each course, but will place at his disposal, through the medical school library, the bibliographical material he needs to round off his knowledge and to stimulate habits of reading and study.

The Regional Library of Medicine set up jointly by the Brazilian Government, PAHO and the United States National Library of Medicine, will place at the disposal of Latin American medical educators and researchers the latest procedures for the registration and supply of scientific data. Medical school libraries, acting as intermediaries for the use of such facilities, will increase their capacity to serve without any increase in costs. A further device will thus be made available for raising the scientific qualifications of the medical profession and medical education.

V. Fellowships

The recommendations of the Governing Bodies of PAHO and the growing interest on the part of the Governments of the Member Countries have produced an increase in the number of applications for fellowships for training or refresher courses for the teaching staffs of medical schools. In 1968, 189 fellowships were awarded for medical education, out of a total of 1,004 fellowships granted by the Organization. The holders were from 23 countries.

A project for the evaluation of the PAHO Fellowship Program has completed the stage of testing of the machinery and work is proceeding at present with a view to completing the study.

The resolution adopted by the Executive Committee of PAHO recommending the granting of fellowships within the country of origin of candidates when specific conditions are fulfilled\(^1\) should make for smooth running of the machinery through which PAHO collaborates with the various countries in their personnel training programs. There is no doubt that this will be reflected in the training and improvement of the teaching staffs of medical schools.

\(^1\) 61st Meeting of the Executive Committee of PAHO, Resolution XXIII, Washington, D. C., 1969.
Similarly, the Resolution adopted by the Directing Council of PAHO at its XVIII Meeting¹ and now on the point of being implemented by the establishment of "institutional fellowships", furnishes a valuable tool for the training of highly-qualified staff capable of participating in the responsible task of guiding and directing the educational programs of the Member Countries.

Finally, it is important to point out that medical education in Latin America, within its natural limits and in the face of its many problems, has made unquestionable progress and seems distinctly likely to do even better. The awareness on the part of medical educators of their duty towards the community has increased and institutions are approaching nearer and nearer to the ideal of close coordination of measures and efforts to improve conditions and solve the health problems in the countries of the Region.

Annex

GENERAL CHARACTERISTICS OF MEDICAL EDUCATION

IN LATIN AMERICA

Dr. Juan César García

Department of Human Resources Development

PAHO/WHO

August 1969
I. Introduction

In Latin America, the improvement, reform and modernization of the teaching of preventive medicine is a matter of concern, but it is also a matter of great interest. Various attempts have been made to improve the level of teaching in this branch of medicine. With that end in view, in 1955 and 1956, the Pan American Health Organization (PAHO) organized two seminars in Chile and Mexico respectively, with the participation of almost all of the medical schools of the Continent.

Since then, both PAHO and other institutions have continued to assist medical schools and to encourage their interest in this subject. But in the meantime, no evaluation had been made of those activities calculated to influence medical schools, nor was it known precisely what was the status of preventive and social medicine in those schools.

For these reasons and because PAHO was anxious to continue to work with the medical schools, the Director of PAHO invited a group of experts to advise the Organization on appropriate principles and techniques for studying the teaching of preventive and social medicine in Latin America, in the light of the recommendations by the two seminars mentioned above. The group of experts met in Washington, D.C., in December 1964, and recommended that a study be carried out on the teaching of preventive and social medicine, to be used by the Organization as a framework for replanning its activities in this field.

In March 1967 the Advisory Committee again met in Washington, D.C., with a view to advising the Organization on the various possible decisions which might be taken in the light of the research scheme drawn up and tried out in 15 medical schools in Latin America.
The group approved two amendments to the original plan: a) the scheme would be explanatory rather than descriptive; b) it would investigate medical education with special reference to the teaching of preventive medicine rather than confine itself exclusively to this latter subject.

For the compilation of data, carried out at the end of 1967 and the beginning of 1968, a number of helpers were selected and specially trained, and in most of the countries valuable assistance was given by the National Associations of Medical Faculties. The persons who collected the data by means of questionnaires devised and tested by the Department of Human Resources Development were:

**Argentina:**
- Dr. Mabel Munist
- Dr. José María Paganini

**Bolivia:**
- Dr. Orlando Montero Vaca

**Brazil:**
- Dr. Guilherme Abath
- Dr. Celia Lucía Monteiro de Castro
- Dr. Hesio Cordeiro
- Dr. Augusto Leopoldo Ayrosa Galvao
- Dr. Guilherme Rodrigues da Silva

**Central America and Panama:**
- Dr. Tito Chang Peña

**Chile:**
- Dr. Alfredo Hidalgo
- Dr. Celia Lucía Monteiro de Castro

**Colombia:**
- Dr. Raul Paredes Manrique

**Ecuador:**
- Dr. Miguel Márquez

**Haiti:**
- Dr. Victor Laroche
- Dr. Raoul Pierre-Louis

**Jamaica:**
- Dr. Miguel Gueri

**Mexico:**
- Dr. José M. Alvarez Manilla
Special mention should be made of the technical and financial assistance given by the Milbank Memorial Fund at all stages of the study.

The present report deals with the more general aspects of medical education in Latin America and comprises an analysis of part of the data obtained through the survey. This analysis, though only partial, makes it clear that at the present time medical education is faced with serious problems of such magnitude and scope that they should be taken into account in health manpower planning. Similarly, this preliminary analysis suggests areas for future research.

This study is the first of a series of publications analyzing in depth the problems of medical education, the teaching of the preventive and social aspects of medicine, and the attitude and behavior of students in relation to medical education.

Valuable suggestions in connection with the report were made by Dr. Ramón Villarreal, Chief of the Department of Human Resources Development, and Dr. José Roberto Ferreira and Dr. Jorge Andrade of the same Department. Dr. José M. Alvarez Manilla, temporarily attached to the Department of Human Resources Development, gave valuable assistance in the analysis of the data.
The first faculties of medicine in the New World were established in Santo Domingo and Mexico City in the sixteenth century, as part of universities or studia generalia modeled on the pattern of the University of Salamanca, in other words, they were institutions of higher education for the arts, theology, law and medicine.

The shortage of doctors and the low esteem in which medicine was held during the days of colonization and conquest made it almost impossible to keep the medical faculties functioning on a regular basis. Thus, the Faculty of Medicine of Santo Domingo was closed down shortly after it was established, to be reopened in the eighteenth century.

In Spanish-speaking Latin America various phases can be distinguished in the growth and development of medical education:
a. A slow growth in the number of medical schools during the sixteenth, seventeenth and eighteenth centuries; five faculties of medicine were set up, but there were frequent interruptions in their operation.

b. A rapid growth in the number of medical schools at the beginning of the nineteenth century, under the auspices of the Governments born of the independence movements. In the course of the century, the prestige of medicine began to rise from the low opinion held of it in colonial times.

c. A slow and steady growth from 1840 to 1940, the changes in quality being more important than the quantitative changes during this period.

d. A rapid and gradual increase in the number of medical schools and a considerable increase in student matriculation from the end of the Second World War.

In Brazil medical education evolved quite differently. During the colonial period (1500 to 1808), young men wishing to study law or medicine had to do so at European universities, particularly at the University of Coimbra in Portugal. The first medical school was set up in the city of Bahia in 1808, after the arrival of the Portuguese monarchy in Brazil as a result of the Napoleonic Wars. Between 1808 and 1910, only three schools were founded. The decade 1910 to 1920 witnessed the establishment of six other faculties and the first university in Brazil. Since 1950 there has been an extremely rapid movement to set up medical schools which seems likely to continue for the next few years.

Today there are 151 medical schools in Latin America, the breakdown being as follows:
<table>
<thead>
<tr>
<th>COUNTRY</th>
<th>NUMBER OF SCHOOLS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Argentina</td>
<td>9</td>
</tr>
<tr>
<td>Bolivia</td>
<td>3</td>
</tr>
<tr>
<td>Brazil</td>
<td>69</td>
</tr>
<tr>
<td>Colombia</td>
<td>9</td>
</tr>
<tr>
<td>Costa Rica</td>
<td>1</td>
</tr>
<tr>
<td>Cuba</td>
<td>3</td>
</tr>
<tr>
<td>Chile</td>
<td>5</td>
</tr>
<tr>
<td>Dominican Republic</td>
<td>2</td>
</tr>
<tr>
<td>Ecuador</td>
<td>4</td>
</tr>
<tr>
<td>El Salvador</td>
<td>1</td>
</tr>
<tr>
<td>Guatemala</td>
<td>1</td>
</tr>
<tr>
<td>Haiti</td>
<td>1</td>
</tr>
<tr>
<td>Honduras</td>
<td>1</td>
</tr>
<tr>
<td>Jamaica</td>
<td>1</td>
</tr>
<tr>
<td>Mexico</td>
<td>22</td>
</tr>
<tr>
<td>Nicaragua</td>
<td>1</td>
</tr>
<tr>
<td>Panama</td>
<td>1</td>
</tr>
<tr>
<td>Paraguay</td>
<td>1</td>
</tr>
<tr>
<td>Peru</td>
<td>7</td>
</tr>
<tr>
<td>Suriname</td>
<td>1</td>
</tr>
<tr>
<td>Venezuela</td>
<td>7</td>
</tr>
<tr>
<td>Uruguay</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>151</strong></td>
</tr>
</tbody>
</table>

Brazil has 44 per cent of the medical schools in Latin America today. However, since most of them have been set up during the last few years, they have not yet built up a full degree course.

Unlike the Brazilian schools, the Mexican medical schools, with one exception, all have full degree courses, and they represent 15 per cent of the total number of schools in Latin America.

1. **Characteristics**

1.1 **Size**

Fifty-four per cent of the Latin American medical schools with full degree courses have under 500 students, which means that small schools are in the majority.

Some 23 per cent are medium-sized, with 600 to 1,000 students. Schools with over 1,000 students constitute 24 per cent of the sample, and
of these only nine have more than 1,500 students. It should be pointed out, however, that these nine schools account for 42 per cent of all the students studying medicine in the Region, and some of them, for example the University of Buenos Aires and the National Autonomous University of Mexico, are among the largest medical schools in the world.

CHART 2
NUMBER OF MEDICAL SCHOOLS* BY SIZE

*SCHOOLS WITH A COMPLETE CURRICULUM
Ten of the 22 countries included in the analysis have only one medical school, and with the single exception of Uruguay, all of them come within the category of small schools, i.e., having less than 500 students each.

It is interesting to note that in the countries having more than one medical school, there is invariably one which has greater prestige within the country than the rest and sets the pattern. As a general rule it is national in status and of a certain antiquity, it is situated in the capital, and it is larger than any of the other medical schools in the country. However, in the last few years we find that the smaller schools with less prestige are tending to challenge the position of the leading school as a model on which the curriculum is based, at times by law, and are trying out
new systems of organization and new curricula, for the truth is that the national schools, because of their size and national tradition are powerless to undertake radical reforms in their system of teaching.

1.2 Nomenclature

The institutions set up for the training of medical practitioners in Latin America are sometimes called faculties of medicine, sometimes medical schools.

The term faculty appears to have been used in the past to describe a particular type of teaching body grouping together a number of schools teaching related professions. But, nowadays, the word faculty is used without relation to a specific type of structure, and in any event it continues to be the title most frequently given to medical teaching institutions. However, in the last few decades, many establishments have preferred to be called medical schools, and in one case only, an integrated structure for the teaching of various health subjects is described as a Division of Health Sciences.

1.3 University affiliation and legal status

From the outset, medical education in the Spanish-speaking countries of Latin America was characterized by its affiliation with, or dependence on, a university and its status as a public institution, and it has kept these two main features throughout its history. The case of Brazil is different; here medical schools are set up in isolation or independently, and predominantly by private initiative. The medical school set up at Bahia in 1808, like those established subsequently, was not affiliated to a university. The first Brazilian university was established in 1920 at Rio de Janeiro
through the amalgamation of three already existing institutions: the Polytechnic School, the Faculty of Law, and the Faculty of Medicine.

In the sample studied, 74 per cent of the medical schools are attached to a university or other institution of higher education, which means that this affiliation constitutes an important feature of Latin American medical education. The individual schools, in other words, those which do not belong to a university or other institute of higher education, are to be found almost entirely in Brazil. This is explained by the fact that the Brazilian Government is anxious to increase the number of medical students by setting up new schools, which is so much easier to do when they do not form part of a university. In Brazil, a teaching institution is recognized as a university under the relevant legislation when it comprises at least five faculties; hence, it seems likely that this unattached character of medical schools will be maintained for a long time.

As may be seen in Chart 4, most of the Latin American schools of medicine belong to a government university; they are set up by the State to cater to a public need and they are endowed out of tax or treasury funds appropriated for the purpose and are given a measure of administrative autonomy. According to the government department to which they are attached, they are either national or federal, or state or provincial, and only exceptionally, as in the case of Brazil, are they municipal. Hitherto there had been a growing tendency for medical schools to be set up and financed by state or provincial governments, so that the emergence of municipal medical schools in Brazil is a new departure.
The private medical schools shown in Chart 4, as the name indicates, represent institutions set up by private persons or bodies and authorized or approved and supervised by the State. Their financing comes in most instances, and in large measure, from the private sector, although there may be government subsidies; in the case of Brazil, these represent a substantial contribution.

These private schools are religious or secular according to the identity of the private sponsor.

The private religious medical schools are all Catholic with a single exception, and all come under the hierarchy of the Church to which they are affiliated or belong, the connection being reflected in the inclusion of certain subjects in the curricula.

A tendency for the secular private schools to increase has been seen in the last few years (Chart 5) and may be due to a growing awareness
on the part of the private sector or an interest in helping to solve the problems facing medical education throughout the Continent. However, this possible explanation should be regarded with great caution in the light of the following:

A. Most of the secular private medical schools are Brazilian, and it has been traditional in Brazil to federalize such institutions; in other words, they are founded by private enterprise on the assumption that as time goes on, the Government will take a greater and greater part in their financing, until finally they are established as official public bodies.

B. Both the secular and the religious private schools obtain a substantial part of their financial resources through direct or indirect contributions from Governments.
This reluctance to accept wholeheartedly the increase in the private sector's contribution to the problem of medical education and the evident and growing tendency for Governments to intervene in the financing of higher education, and of medical education in particular, applies not only to Latin America but to other countries as well, since the underlying reason for it is the growing cost of this type of education, which cannot easily be borne on a permanent and regular basis by the private sector.

Table 2 below shows that the percentage of private medical schools is slightly lower than the percentage of private universities or institutes of higher education.

<table>
<thead>
<tr>
<th>Legal status</th>
<th>Universities and Institutes of Higher Education (1)</th>
<th>Faculties and Schools of Medicine (2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public (Federal or National)</td>
<td>47%</td>
<td>48%</td>
</tr>
<tr>
<td>Public (State or Provincial)</td>
<td>20%</td>
<td>24%</td>
</tr>
<tr>
<td>Private</td>
<td>33%</td>
<td>28%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>100%</td>
<td>100%</td>
</tr>
</tbody>
</table>


(2) Study on Medical Education in Latin America, PAHO/WHO.

The fact that most of the Latin American medical schools are attached to a university and are public in character is a striking feature which seems likely to prevail in medical education throughout the Region
in the future; and its importance is underlined by the fact that the num-
bers of students enrolled in public university medical schools and the
numbers of graduates produced by them are considerably higher than the
corresponding numbers in private medical schools.

1.4 General comments on organizational structure

As pointed out already, the term faculty was used in earlier times
to designate a certain type of grouping of professional schools, and in the
case of Mexico, the inclusion of a post-graduate school or division within
the unit. At the present time, this type of organization or grouping still
subsists, but it no longer corresponds exactly to the term faculty. In
some cases we find that the faculty is in actual fact a different body, on
a higher level than the existing medical school, in which case there is a
dean of the faculty and there are directors of the various schools of which
the medical school is one. In other cases, the dean of the faculty is at
the same time the director of the medical school, while the other schools
under the same administration have their own directors.

Of the 134 medical schools studied, 32 per cent form a group with
other kindred schools, those of obstetrics and nursing being the ones
most frequently associated with them. This grouping under the authority
of a dean does not imply the integration of the teaching of the various
subjects with a view to greater professional coordination or to economics
in administration. On the contrary, with few exceptions, the separation
of the various schools is quite marked.
2. **Levels of authority**

To a greater or lesser extent, the system of authority in the Spanish-speaking, Portuguese-speaking, and French-speaking medical schools in Latin America follows the pattern of the medieval university in the same way as other institutions of higher education, the tradition being passed on through the Universities of Salamanca, Paris and Coimbra.

The medieval university, at a given moment in its development, had the following levels of authority:

a. The Rector, who was the representative and visible head of the University, elected by the Congregation and the members of the University Council;

b. The Congregation - the assembly of the students' corporation and the professors, this being the highest authority in the University; and

c. The "Consiliarii", a sort of executive board representing the various constituent parts of the University.

These three basic levels of authority were adopted as time went on for governing the various faculties.

Today, we likewise find three levels of authority in most schools:

a. The Faculty Assembly, which in Brazil still keeps the name of Congregation, is the highest level of authority. In some countries it consists of professors, undergraduates and graduates; in others, of undergraduates and professors; and in others again, of professors only. As a general rule, this authority meets only a few times a year; it deals with matters relating to the statutes and it elects the Dean or the Director of the school;
b. The Board of Governors or Trustees, consisting of a small number of persons representing the teaching staff, and in some schools, graduates and undergraduates also; and

c. The Dean or Director, who represents the executive arm of the faculty. He is subordinate to the Assembly and the Board of Governors, although his powers actually go beyond what is laid down in the statutes and regulations of the institution. It should be explained that in Latin America, the titles of Dean or Director are used without distinction to describe this executive post except in a few countries where the two posts are differentiated.

During the last few decades, a new type of authority has grown up - the Departmental Council. This consists of the heads of departments of schools where the Chair has been replaced by the Department as unit. This Council tends to fill a gap in the faculty structure of authority, since it links the higher authority levels with the authorities of the administrative and teaching units. Essentially, it also replaces the Board of Governors, but in many schools, both exist side by side as two power groups in an anomalous situation which makes administration difficult and slows up the decision-making procedure.

In spite of the fact that in most schools, the regulations do not give the Dean sufficient independence to cope efficiently with the running of an institution as complex as a medical school, urgent necessities extend his powers beyond what is laid down in the statutes, and he acquires effective authority, especially in the cases where the particular holder of the post devotes sufficient time to the activities connected with it.
Traditionally, the position of Dean consisted essentially of representing the Faculty, while the day-to-day running of the school was in fact in the hands of the incumbents of Chairs, who enjoyed a high degree of autonomy. As the notion of integration of subjects and of administrative and teaching units has gained ground, the idea of a full-time executive director has become more and more the rule. This new trend is evident if we analyze the number of hours devoted to the exercise of the duties of the deanship. We can distinguish at a glance those who spend their full time on these activities and those who devote only a few hours a week to them.
Of the 130 deans included in the study, 48 per cent devoted over 36 hours a week to their work, some of them devoting their entire time to this work. At the other extreme, we find 38 per cent of deans who spend only 6 to 25 hours a week on these specific duties. Between these two groups, we find another, consisting of deans who work between 26 and 35 hours a week, which probably indicates that in those schools a change is going on in the concept of the post. Historically, the dean came from one of the clinical departments, the deanship in many instances representing the peak of prestige within the teaching profession. The fact that the dean came from the clinical departments is largely explained by the prestige enjoyed by specialists in these departments within the medical profession. This has been demonstrated by a number of studies. At the present time it is generally agreed among the members of the medical profession that the type of medical specialty is of little importance as a
criterion for selecting a dean, while the notion is gaining ground in Latin America that there is a need for knowledge of educational science, administration, and behavioral science in the person selected for executive duties in medical schools.

Some 62 per cent of the deans in Latin America today are from the clinical departments, a fact which can be explained by the prestige already mentioned and the fact that clinical specialists are in a majority among the teaching staff. However, it should be pointed out that 38 per cent of deans from departments other than clinical is a relatively high figure, reflecting important changes occurring at present in the medical schools, especially as in five schools the dean is a professor of preventive and social medicine.

3. **Length of the medical course**

The undergraduate medical course, leading up to the entitlement to practice medicine, is preceded by schooling for a number of years which, added to those spent on medical studies proper, give us the total time required for graduation in medicine. In the Latin American countries, this ranges from 16 to 20 years. The variations to be observed between one country and another are also found between schools within particular countries.

The minimum total time statutorily required may be prolonged if irregularity occurs at one or other of the educational levels.
### Table 3

**Total Years of Schooling Required for Completion of the Medical Degree Course, by Countries and Number of Medical Schools**

<table>
<thead>
<tr>
<th>Country</th>
<th>Total of Schools</th>
<th>16</th>
<th>17</th>
<th>18</th>
<th>19</th>
<th>20</th>
</tr>
</thead>
<tbody>
<tr>
<td>Argentina</td>
<td>9</td>
<td>4</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bolivia</td>
<td>3</td>
<td>1</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brazil</td>
<td>31</td>
<td>31</td>
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</tr>
<tr>
<td>Chile</td>
<td>3</td>
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<td></td>
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<td>Colombia</td>
<td>7</td>
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<td>5</td>
<td>1</td>
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<td></td>
</tr>
<tr>
<td>Costa Rica</td>
<td>1</td>
<td></td>
<td></td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cuba</td>
<td>2</td>
<td></td>
<td></td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dominican Rep.</td>
<td>1</td>
<td>1</td>
<td>1</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Ecuador</td>
<td>3</td>
<td></td>
<td></td>
<td>1</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>El Salvador</td>
<td>1</td>
<td>1</td>
<td></td>
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<td>1</td>
<td></td>
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<td>Guatemala</td>
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<td>Haiti</td>
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<tr>
<td>Honduras</td>
<td>1</td>
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<td>1</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Jamaica</td>
<td>1</td>
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<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mexico</td>
<td>21</td>
<td>13</td>
<td></td>
<td>7</td>
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<tr>
<td>Nicaragua</td>
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<td></td>
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<td></td>
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</tr>
<tr>
<td>Panama</td>
<td>1</td>
<td></td>
<td></td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Paraguay</td>
<td>1</td>
<td>1</td>
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<td></td>
</tr>
<tr>
<td>Peru</td>
<td>6</td>
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<td>4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Uruguay</td>
<td>1</td>
<td>1</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Venezuela</td>
<td>6</td>
<td>6</td>
<td></td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>102</td>
<td>1</td>
<td>20</td>
<td>55</td>
<td>22</td>
<td>4</td>
</tr>
</tbody>
</table>

*Including primary, secondary, pre-medical, general and medical studies in medical schools with full degree courses*

#### 3.1 Primary and secondary schooling

The duration of primary schooling in Latin America is fairly uniform. In 17 of the 21 countries included in the survey, primary education covers six years. At the secondary level, the variations are greater—ten countries have a cycle of five years, nine a cycle of six years, and two a cycle of seven years.

#### 3.2 Premedical and general studies

In a number of medical schools, over the last few decades, a transitional course has been inserted between secondary schooling and professional studies. This comprises two categories: general studies and pre-medical studies.
General studies include scientific subjects such as biology, chemistry, physics, mathematics, and in some instances, languages. They are designed to serve as a background for students embarking on various university disciplines and as a rule they are organized and imparted by the scientific faculties or by schools set up for the purpose by the universities. In seventeen medical schools, general studies are a compulsory requirement for admission to the study of medicine.

General studies covering one to three years - two years being the usual duration - have come about in response to the feeling that secondary school leavers are inadequately trained. They represent an effort to solve the problem of the poor scholastic performance of students in the professional schools.

Pre-medical studies include the same type of subjects as the general studies already mentioned, but they are taught in the medical school and their purpose is merely to prepare the students for admission to the school, in some instances representing the first part of the medical curriculum.

In 18 medical schools, pre-medical studies are compulsory for admission to the medical course, and in five, they are optional. Pre-medical studies like general studies are similarly designed to prepare students who wish to take up medicine, and some schools have introduced them as a way of coaching applicants for the entrance examination, thus institutionalizing what has come to be called the "hidden educational system". Through this unofficial "cramming" system applicants are coached for the entrance examination by private institutions not officially recognized, and the difficulty has arisen of approving this entrance examination.
Up to the present, no evaluation has been made of general and pre-medical studies as a solution to the problem of "irregularity" (repeating courses), and it has not been possible to determine whether the prolongation of the medical course as a result of these studies is offset by the benefit derived therefrom. It would also be desirable to establish whether the medical school itself should provide this type of education or should merely lay down regulations, leaving it to the other university bodies to carry out the program.

3.3 Medical studies at the undergraduate stage

The variation in the number of years officially required to qualify as a medical practitioner is due mainly to the variations in the length
of the undergraduate medical studies. Medical studies as such, not including internship, vary between four and seven years, five years being the average length.

The duration of medical studies does not appear to bear any relation to the number of hours prescribed in the curriculum and hence it is necessary to consider how far exceptionally long medical courses are due to the fact that the professors and students devote only part of their time to it, or to unsatisfactory teaching methods.

Insufficient data are available to enable us to state that doctors trained by means of seven-year courses are better than those trained in four-year courses. It is equally necessary to assess the effect of a long curriculum on the cost of the education and the cost-benefit ratio.

The total length of university medical studies in Latin America ranges between five and eight years if we include the obligatory general or pre-medical studies, undergraduate medical studies and internship.
The data shown in Chart 9 suggest the need to study the question of adding further academic requirements or increasing the length of the medical course, or on the other hand, to consider whether different solutions should be sought, e.g., through careful planning of the curriculum, the introduction of new methods of educational administration, and the improvement in the teaching methods.

4. Students

From the Second World War onwards, we find in Latin America a boom in the demand for education such as had never occurred in any previous period. In part this is explained by the population increase, and especially by the value placed on education by the people as one of the few ways of rising in the social scale.
The rate of expansion of education at the primary and secondary school level has exceeded the most optimistic forecasts, and today, in consequence, we find a growing social pressure on the higher educational system. Such importance is being given to the demand for education that educational systems today are classified as open-ended or closed according to their degree of tolerance in the face of this growing pressure.

Because of this, and because the student body constitutes one of the key inputs of the educational system, it is most important to make an analysis of the characteristics of the student population in studying medical education in Latin America.

4.1 Matriculated students

In the last decade, the growth of the university and higher education student population in Latin America has exceeded the growth of the population and the increase in per capita income, with the result that there have been anomalies between these sectors of society.

During the period 1960 to 1966, the increase in matriculations in universities and institutions of higher education was 9.5 per cent a year, the number of enrollments in 1966, amounting to 878,900.\(^1\)

Even though the ratio between the number of students at this level and the population between 20 and 24 years of age is still very low compared with that in the highly industrialized countries, the failure of the economic sector to develop at a similar rate, and hence the standstill in the labor market is producing total or partial unemployment in some professions. It seems fairly evident, therefore, that the mere acceptance

of the social demand for education unfortunately cannot be the only desirable alternative in educational planning at the national level, particularly if account is not taken of the relationship with the economic situation.

The lack of diversification at the university level in many countries has produced a concentration in regard to the traditional professions. Thus, for example, in eight of the 20 Latin American countries the course with the largest number of students is law. Students of medicine constitute 11 per cent of the total number of students in universities and institutions of higher education in Latin America.

The ratio of medical students to total number of university students varies considerably in the different countries referred to, and as may be seen from Chart 10, in Bolivia and Haiti more than 20 per cent of university students are enrolled in medical courses.
The differences between countries as regards the percentage of students enrolled in the various faculties is the outcome of a variety of factors, including the greater or lesser degree of diversification of university courses, the system of admission in the various countries, and the lack of a policy of student placement, especially when there is no vocational guidance.

Thus, in some countries the medical schools have a compulsory entrance examination and limit admissions, whereas other university faculties do not. In the countries where no limit is placed on admissions, as for example in Uruguay, enrollment is more or less fortuitous or the student enrolls as a medical student because medicine has considerable social prestige. We know that the decision to study medicine is influenced
by factors which have little to do with the real needs of society, and there is an obvious conflict between the interests of the individual and the interests of the community, or at times a lack of awareness of the social function of university studies. The figures therefore indicate the need for overall planning of university education.

![Chart 11: Population and Medical Student Population in Latin America, by Countries (1967)]

Another noteworthy point is the distribution of medical students over the different countries. Matriculations in three countries (Argentina, Brazil, and Mexico) represent 76 per cent of all the medical students of the Region, although there is no close relationship between the breakdown of the population and students of medicine, as there should be if the distribution of students by countries was not affected by factors of an economic and social nature.
4.2 Students repeating courses ("Irregular" students)

A feature of the system of university and higher education in Latin America is the difference in type of matriculation according to the status of the student within the system. At least four types of registration may be distinguished:

a. "Regular" students. Those who are taking all the subjects prescribed for the scholastic year in which they are enrolled for the first time and have completed all the subjects for the previous years, where they are not first-year students.

b. "Repeaters". Students repeating one or all of the subjects for a particular year and not following the syllabus for the succeeding or the previous year, if any.

c. "Conditional" students. Students taking all or some of the subjects for the year in which they are enrolled without having passed all the subjects of the previous year, but not concurrently taking subjects left over from previous years.

d. "Incomplete" students. The name given to students taking some of the subjects prescribed for the year in which they are enrolled and making up courses for other years at the same time.

These four types are not to be found in all medical schools, but most of them have at least three of the categories mentioned. For future reference the last three categories are grouped together as "irregular" students.

The existence of these irregularities in the status of the student, as reflected in the type of matriculation under which he is enrolled, would seem to be at variance with the theoretical notion of the university
system in Latin America, which essentially consists of a university course covering a number of subjects in the syllabus for a particular academic year, it being assumed that before the student can move on to the next year he must have passed the previous one. In actual practice, the system is more flexible than that, as may be seen in the recognition of the so-called "conditional" and "incomplete" students; and the departure from the theoretical notion of the curriculum has led to a number of different measures, so that actually there is an eclectic or transitional system at work. Thus in some medical schools, the situation has led to the need to establish certain restrictions, e.g., the requirement that all the subjects of the basic years must have been passed before starting on the clinical courses, or that certain subjects must have been passed before other specific subjects may be taken.

The irregularity in the system, as defined above, involves a methodological drawback inasmuch as we are taking as our basis students matriculated at a given moment without regard to chronological variations involved.

The definition of irregularity as involving the prolongation of the medical course beyond the length of time laid down in the curriculum will be used for the analysis of students passing out of medical schools.

The percentage of irregularity reflected in matriculation is bound to be lower than that obtained from a study conducted over a long period of time, since many medical schools allow a course to be repeated more than once and/or allow the student to interrupt his studies for a time and resume them later without this being shown in the matriculation registers.
Nevertheless, irregularity as reflected in the type of matriculation does serve as a rough guide in judging the internal efficiency of the medical education system.

In 1967, 25 per cent (22,547) of the matriculations in 17 Latin American countries represented irregular students. This relatively high figure is due to the large number of irregular students registered in the schools of five countries: Argentina, Bolivia, Guatemala, Mexico, and Venezuela. In 11 countries, irregularity, as reflected in the number of matriculations, was under 10 per cent.
Theoretically, the variations between the countries with which we are concerned may be affected by a number of factors, including the extent to which the curriculum requires full-time attendance by the student; the extent to which the medical school system in the various countries is tolerant of irregularity, and other purely academic factors.

According to some research undertaken, it would appear that the student who is not subject to strict regulations and is not required to carry on his studies full-time, tends to seek outside paid work, even when such extra-curricular activity is not based on economic need; and because of his work, he finds himself unable to sit his examinations at the proper time and ultimately becomes an irregular student. The study by Ruth Sautu and Gino Germani\(^1\) found a correlation between paid work and student irregularity, but no similar correlation was found between student irregularity and social class.

In the same way, it would seem that tolerance of irregularity in the schools is the cause of the differences found, since in some institutions it is permissible to repeat one or more subjects more than once, whereas in other schools only a single repeat is permitted.

Among the academic factors referred to may be mentioned, for example, the larger number of subjects which must be passed in a single year and the difficulty of passing tests in what the school regards as key subjects and in many instances uses as a basis in selecting students.

The consequences of the system of student irregularity are well known. They may be classified as follows:

a. Those which reduce the efficiency of the system by prolonging the medical course, increase the cost per student and lower the quality of the teaching by increasing the number of students per teacher.

b. Those which affect the student individually causing frustration and unnecessary expense.

It would seem desirable that in countries where there is a high proportion of irregular students, a study in depth should be made of the causes and effects of the phenomenon, so that decisions with a view to correcting the situation can be based on prior knowledge and on justice.

4.3 Women medical students

The extent to which women participate in the labor force has been regarded as an indicator of social change. Participation by women in university education, and especially in the study of the medical course, could likewise be regarded as an indicator of social change.

The medical profession has been traditionally regarded in Latin America as a man's job, just as primary school teaching has been regarded as essentially a woman's. This tendency to separate the professions on the basis of sex is changing notably and rapidly in some countries as the image and concept of the role of the woman in society is moving away from its traditional content and definition.

The increase in the number of women applying to enter medical schools has led some medical educators to suggest that admission should be limited, on the argument that there are likely to be more irregular students and drop-outs among women medical students. Up to the present, there are no specific studies confirming such an allegation; on the
contrary, the data we have at our disposal do not appear to confirm it. For example, the proportion of women matriculated as irregular students in 17 Latin American countries in 1967 was 23 per cent, a figure slightly lower than that for irregular men students.

If we consider that with few exceptions, in the countries referred to, there is no limit on the admission of women to medical schools, it might be said that the number of women thus matriculated reflects, in each country, the effective demand of women for medical education. This demand has increased rapidly in Latin America, so much so that in 1967, 21 per cent of students matriculated were women.
The proportion of women in medical schools varies considerably from country to country, ranging from 33 per cent of the matriculations in Venezuela to 5 per cent in Guatemala. In Cuba, the proportion of women studying medicine is greater than in Venezuela.

Like other variables relating to medical education, the variation in the proportion of women in medical schools in the various countries would appear to be affected by different factors, among which may be mentioned the degree of urbanization of the country and the extent of the social change taking place, both these factors being in turn bound up with the emancipation of women in respect to the choice of occupation.

4.4 Increase in student admissions to first-year medicine

The increase in the number of students entering first-year medical courses was rapid each year between 1962 and 1967, the annual rate of increase - 7.4 per cent - being slightly more than twice that of the 15 to 19 year age group, which increased by 3 per cent a year over the period 1960-1965.

The increase in the number of students enrolled in the first year of medicine was not homogeneous throughout Latin America, however. In four of the countries surveyed, the increase was below the average for the Region, in two countries there was no change, and in two others the number of admissions fell. Brazil showed the highest figure, with an annual rate of increase of 18 per cent.
In 13 of the 18 countries covered by the analysis, the percentage increase in the number of medical school entrants was higher than that of the 15-19 years age group, while in Argentina, Honduras, Nicaragua, Paraguay and Venezuela, the annual increase in this age group was higher than that of students admitted to the first year of medical studies. In some of the countries this may be the result of a policy of restricting admissions, while in others, such as Argentina, the low matriculation rate is bound up with the slackness of demand for medical studies.

In Brazil the rapid increase in matriculations for first-year medicine went hand-in-hand with the establishment of a large number of new
medical schools, as explained earlier in this report. Even so, the average number of enrollments per school increased. In other countries, the increase in the number of medical school entrants was not accompanied by the establishment of other institutions or by proportionate investments to expand the human and material resources of the medical schools already existing. This would appear to presage a possible falling-off in teaching standards in the early years of medicine, with repercussions on the level of excellence of the teaching in the clinical years a little later on. Nor would this appear to be an ephemeral problem, since everything suggests that the increase observed will continue, and it must be realized that if the rate of increase in the number of students admitted to the first year of medical studies, namely 7.3 per cent, is maintained, it will mean that by 1975 there will be approximately 36,000 students, an increase of nearly 80 per cent. Ideally, this expansion should be accompanied by a proportional increase in the teaching body, a target which would be difficult to achieve in eight years. Even if in making projections, account was taken of the ratio between the number of admissions and the growth rate of the 15 to 19 years age group in 1967, the magnitude of the problem, though less marked, would still be considerable, especially in view of the fact that, as already realized, the system of teaching leaves much to be desired in respect of quality and quantity of human, financial, and material resources.

All this would seem to indicate that even more than the rest, those countries where there has been a rapid and considerable increase in the number of medical school entrants, must take urgent steps to find an alternative, either curbing the expansion of the system by introducing selectivity, or investing funds on a scale commensurate with the needs which arise.
4.5 Applicants for admission to medical studies

One of the areas in which, unfortunately, data are most scanty and not very reliable, is that of the number of persons applying for admission to medical courses. In view of the fact that the majority of the medical schools have some system or form of selection or examination, there is a gap between the number of candidates for admission and the number of those finally accepted and allowed to take a university degree course.

Nevertheless, it was only possible to obtain information from 11 countries, and the present analysis is based on this, though the results might be applied generally to the rest of Latin America. The countries not taken into account are for the most part those which have introduced so-called general studies into higher education. This allows the student to
follow various degree courses, so that it is impossible to discover exactly how many students originally intended to take up the medical profession.

In the countries covered by the analysis, the annual rate of growth in the number of applicants was far higher than that of admissions. The number of applicants would seem to reflect the social demand for these studies, and this demand is not being properly satisfied if we bear in mind that according to the figures, in 1967, out of 57,390 applicants for admission in 11 Latin American countries, only 14,963 were accepted. In other words, 42,427 young people wishing to study medicine were refused. Even though we know that in some countries dual enrollments are possible, this figure is still very high.

**Chart 16**

**Comparison between growth in number of applicants for admission to first-year of medicine and number admitted**

(10 Latin American countries)

BASE: 1962 = 100

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- Applicants for admission to first-year courses
- Admissions to first-year courses
Some medical educators regard this as a good sign, since they feel that it would make it easier to choose the best candidates for medical studies, but this would appear questionable in view of the fact that entrance examinations are definitely not always satisfactory, and the large numbers of persons refused must inevitably include many students who are just as able as those accepted.

Table 5
NUMBER OF APPLICATIONS AND ADMISSIONS TO FIRST-YEAR MEDICAL COURSES

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Argentina</td>
<td>6030</td>
<td>6601</td>
<td>7210</td>
<td>8037</td>
<td>8697</td>
<td>7639</td>
<td>4.6</td>
<td>4557</td>
<td>5569</td>
<td>5280</td>
<td>4836</td>
<td>4829</td>
<td>1.4</td>
<td></td>
</tr>
<tr>
<td>Bolivia</td>
<td>705</td>
<td>704</td>
<td>726</td>
<td>785</td>
<td>815</td>
<td>865</td>
<td>4.0</td>
<td>292</td>
<td>262</td>
<td>205</td>
<td>612</td>
<td>468</td>
<td>491</td>
<td>9.9</td>
</tr>
<tr>
<td>Brazil</td>
<td>15552</td>
<td>20463</td>
<td>21646</td>
<td>20265</td>
<td>23080</td>
<td>31260</td>
<td>13.3</td>
<td>2051</td>
<td>2355</td>
<td>3375</td>
<td>3323</td>
<td>3958</td>
<td>5419</td>
<td>18.0</td>
</tr>
<tr>
<td>Colombia</td>
<td>1882</td>
<td>2153</td>
<td>2526</td>
<td>2617</td>
<td>4240</td>
<td>5382</td>
<td>19.2</td>
<td>1346</td>
<td>1582</td>
<td>629</td>
<td>661</td>
<td>669</td>
<td>857</td>
<td>9.2</td>
</tr>
<tr>
<td>Chile</td>
<td>2164</td>
<td>1948</td>
<td>2315</td>
<td>2419</td>
<td>3144</td>
<td>6128</td>
<td>19.1</td>
<td>335</td>
<td>376</td>
<td>375</td>
<td>340</td>
<td>392</td>
<td>428</td>
<td>4.7</td>
</tr>
<tr>
<td>Dominican Rep.</td>
<td>245</td>
<td>28</td>
<td>143</td>
<td>167</td>
<td>165</td>
<td>539</td>
<td>14.7</td>
<td>245</td>
<td>258</td>
<td>168</td>
<td>167</td>
<td>165</td>
<td>539</td>
<td>14.7</td>
</tr>
<tr>
<td>Ecuador</td>
<td>991</td>
<td>2458</td>
<td>2568</td>
<td>437</td>
<td>549</td>
<td>644</td>
<td>5.2</td>
<td>228</td>
<td>97</td>
<td>119</td>
<td>338</td>
<td>401</td>
<td>425</td>
<td>11.9</td>
</tr>
<tr>
<td>Jamaica</td>
<td>178</td>
<td>215</td>
<td>276</td>
<td>283</td>
<td>294</td>
<td>320</td>
<td>11.2</td>
<td>53</td>
<td>54</td>
<td>77</td>
<td>86</td>
<td>92</td>
<td>9.7</td>
<td>9.7</td>
</tr>
<tr>
<td>Paraguay</td>
<td>85</td>
<td>127</td>
<td>154</td>
<td>139</td>
<td>120</td>
<td>115</td>
<td>6.0</td>
<td>40</td>
<td>40</td>
<td>40</td>
<td>40</td>
<td>40</td>
<td>40</td>
<td>0.0</td>
</tr>
<tr>
<td>Uruguay</td>
<td>342</td>
<td>415</td>
<td>442</td>
<td>492</td>
<td>638</td>
<td>855</td>
<td>17.0</td>
<td>342</td>
<td>415</td>
<td>442</td>
<td>492</td>
<td>638</td>
<td>855</td>
<td>17.0</td>
</tr>
<tr>
<td>Venezuela</td>
<td>1172</td>
<td>1656</td>
<td>2202</td>
<td>2477</td>
<td>3317</td>
<td>8642</td>
<td>20.4</td>
<td>986</td>
<td>1071</td>
<td>1165</td>
<td>1079</td>
<td>1036</td>
<td>988</td>
<td>0.0</td>
</tr>
<tr>
<td>TOTAL</td>
<td>28949</td>
<td>34535</td>
<td>37881</td>
<td>38098</td>
<td>45059</td>
<td>57389</td>
<td>13.1</td>
<td>9663</td>
<td>10191</td>
<td>12104</td>
<td>12217</td>
<td>12609</td>
<td>14963</td>
<td>8.6</td>
</tr>
</tbody>
</table>

* No data obtained for one of the medical schools.

Considered by countries, the rate of increase in the number of applicants was not in every instance greater than the rate for students admitted. Thus Bolivia, Brazil and Ecuador show a rate of increase of applicants lower than that of admissions to medical courses, and in the Dominican Republic and Uruguay no difference is to be observed, since there is no policy of limiting numbers.

Nevertheless, the trend would appear to be towards an increase, and the lower rate of increase in applications in relation to admissions in the
countries where this is the case, would appear to be merely a passing phase since in Brazil, for example, the increase in the number of applicants has been considerable from 1967 to 1969. The possibility must not be ruled out that the considerable increase in applications throughout the Region will be one of the factors exerting greater pressure on the university medical educational system in the next few years; hence one or two questions may be appropriate:

a. Does the increase in the number of applicants for medical courses signify an imbalance in the demand for university studies?

b. Is there adequate vocational guidance to steer the demand in other directions?

c. Can medicine offer sufficient diversification of fields of study to the student body?

The problem should be considered on two levels:

1. Greater diversification at university level; and

2. Greater diversification in medical studies, especially in the direction of shorter courses.

Vocational guidance is a possibility which should be considered for manipulating the social demand for studies, diverting it towards problem areas and branches of knowledge which are more appropriate and necessary.

The decision to study medicine is a process involving at least three stages: the thought of taking up medicine; the definite decision to do so; and enrollment in a medical course.

The findings of surveys in various contexts would appear to show that the point of time in each phase is the same everywhere, so that a general policy on the subject would seem justified. Thus guidance
activities should begin in the early stage of secondary schooling, when the student is beginning to play with and formulate the idea of studying medicine. Actually, the survey covering students in the faculties of medicine in the Universidad del Nordeste (Argentina) and the University of El Salvador (San Salvador), elicited the fact that the bulk of the students began to think of taking up medicine between 13 and 14 years of age.

TABLE 6

STAGES IN THE DECISION TO STUDY MEDICINE OF STUDENTS IN TWO LATIN AMERICAN MEDICAL SCHOOLS

<table>
<thead>
<tr>
<th>Schools of Medicine</th>
<th>Nordeste Univ. (Argentina)</th>
<th>El Salvador Univ. (El Salvador)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Decision to Study Medicine</td>
<td>Average Age</td>
<td>Standard Deviation</td>
</tr>
<tr>
<td>1. First thought of studying medicine</td>
<td>13.7</td>
<td>3.4</td>
</tr>
<tr>
<td>2. Definite decision</td>
<td>16.8</td>
<td>2.4</td>
</tr>
<tr>
<td>3. Entered medical school</td>
<td>18.4</td>
<td>2.1</td>
</tr>
</tbody>
</table>

5. The graduate

The question of determining the quantity and the quality of the doctors needed in a given country over the short and long term, is one which links medical education planning with health sector planning.

Unfortunately there is no consensus of opinion as to the concept of future demand and the best way of estimating this. Some of the reasons explaining this lack of consensus are vagueness in the definition of the functions to be fulfilled by each of the members of the health team and the difficulty of determining exactly what the future needs of the Latin American population by way of medical care will be.
There are various methods\(^1\) of establishing roughly the number of doctors required. Some of these are:

a. The use of past trends as a basis for estimating future requirements. This procedure consists of extrapolating the trend of growth in the number of doctors over a long period and correlating them with population growth and the increase in the gross national product and in production. The curve thus obtained is used for projecting future demand. Critics of this method point out the difficulty of obtaining reliable information and argue that the future in the developing countries is likely to be different from the past.

b. Analysis of the labor market prospects. This links the planning of medical education with economic planning, and in general it implies severe restrictions on the number of professionals graduating in medicine. These restrictions are based, especially in Latin America, on the time lag between a rapid growth of the medical education system and a slower rate of expansion of employment opportunities. However, some critics of this method point out that the lack of adequate information makes it impossible to establish precisely what is the extent of saturation of the market, especially in countries where the private sector is more active than the State in regard to general medical care. They also maintain that the rapid assimilation of large masses of the population at present hardly participating in the use of certain services would create an unsuspected level of demand.

The discussion up to now, at any rate in Latin America, has remained on the theoretical level, with a fair measure of agreement as to the need

for closer study of the advantages and drawbacks of such a system; it would appear unwise, in any case, to pay unduly close attention to economic demands in determining the number of doctors who should graduate each year unless we are sure about the future of the employment market.

c. The establishment of social objectives, based on the identification of the shortcomings in the educational system and projecting future needs on the basis of the estimated population growth and the public demand for medical education. The number of doctors needed over the long term is determined by taking the figures recorded for countries whose social development is considered desirable. Probably the ratio of one doctor per 1,000 inhabitants, regarded as an ideal target by many Latin American countries, has its origin in a similar approach to that discussed here.

One of the difficulties in applying this method is the lack of correlation with economic planning, and consequently, with national health plans. It is for this reason in particular that the classical indices showing the ratio of number of doctors to numbers of population would appear to have lost the target value it had until a short time ago.

d. Analysis of targets of national health sector plans. National plans lay down certain priorities and direct investment towards certain sectors, and the labor market may change as a result of the conditions they establish for achieving the targets proposed. In any event, the need for human resources will depend on the medical care system adopted, and nowadays fundamental changes are taking place in the concept of these systems, as a result of the growing realization that it is impossible to train enough doctors to keep up a system which clings to the traditional definition of
the doctor's role. Thus experiments in the delegation of functions to other types of professional workers or other personnel could change the demand for doctors very considerably.

At the present time, medical education in Latin America would appear to be divorced both from the economic system and from health sector planning as regards the annual number of students graduating. Generally speaking, the number graduating each year is the outcome of the demand for medical education and the interplay of factors within the educational system, especially financial factors. Apart from a few exceptions, there is no planning of the number of graduates required each year based on the needs arising from a health plan.

In Latin America we must differentiate between completing the medical course and graduating. The former term implies taking and passing all the subjects required by the curriculum, while the graduate is one who has fulfilled all these requirements together with others which entitle him to a diploma or right to practice the profession.

The requirements for a diploma or title may be either a professional examination, the presentation and defense of a thesis, or the rendering of certain services to the country, such as medical practice in a rural area.

In 1967 the number of graduate doctors in 20 Latin American countries was 9,455, 70 per cent of them being accounted for by three countries: Argentina, Brazil, and Mexico.
The growth in the number of graduates in Latin America during the period between 1963 and 1967 was 7.8 per cent a year, a figure higher than the growth of the population during this period. Not all the countries showed an increase in graduates; in some there was a marked decline. Countries like Chile, Colombia, and Paraguay, where there is no increase in the graduating figures, also show a relatively low rate for doctors per head of population, whereas in other countries such as Argentina and Uruguay, with figures above 11 doctors per 10,000 inhabitants, the number of graduates has continued to grow. This paradox is explained by the policy adopted by the various countries in regard to admission. Thus, as was pointed out earlier, Chile, Colombia and Paraguay, among other countries, have imposed a rigorous limitation on admissions over the last twenty years.
The situation described above in respect of countries with a low per capita figure of doctors and little likelihood of a change in this ratio calls for a radical reform in the system of medical care, and hence for changes in health manpower planning. Thus in some of the countries mentioned above, experiments are being made with the delegation of some of the responsibilities of the doctor to so-called sub-professional staff, and it is hoped in this way to reduce the need for training more doctors. This type of medical care requires an increase in the so-called sub-professional personnel, whose training is no doubt more rapid and less costly.

Finally, it should be noted that although projections of the number of students graduating over the next few years in Latin America indicate a substantial increase in the absolute figures, the increase will still be insufficient to change significantly the ratio of doctors to numbers of population.

**CHART 17**

**ESTIMATE OF NUMBER OF DOCTORS GRADUATING**

(20 LATIN AMERICAN COUNTRIES)

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**ESTIMATED ON THE BASIS OF THE ANNUAL GROWTH TRENDS OF ADMISSIONS TO FIRST-YEAR MEDICINE DURING 1962-1967 (7.3 PERCENT)**
6. The teaching faculty

Within the medical school, the faculty enjoy the most prestige, consequently it is they who give the medical course its characteristic slant.

In 1967, there were 18,310 persons teaching in the 102 Latin American medical schools having full degree courses.

The time spent on teaching by the faculty members is one of the most potent factors in determining the character of the medical education system. Hence this question of time devoted to teaching has been a salient feature of all surveys of medical education, since it is regarded as vital to the quality of the teaching. In this respect, the majority of the medical schools in the Region have increased the number of full-time staff devoting themselves wholly to teaching during the past few years, but the proportion is still far below the level regarded as ideal. One of the reasons preventing this level from being reached is that university work in Latin America enjoys great prestige but is poorly paid, so that it tends to be treated as an adjunct to professional medical practice.

Of the total number of faculty members included in the analysis, it was found that 18.2 per cent were employed full-time, some of them devoting themselves exclusively to teaching and giving up over 36 hours a week to it. There were 14.4 per cent teaching from 20 to 35 hours a week, and 68.4 per cent had duties involving less than 19 hours teaching a week. Thus the findings confirm that there is a predominance of teachers in the medical schools whose essential interest is not centered on teaching.
If we analyze the situation by countries, we find a wide range of variations as regards the time devoted to teaching in medical schools. The percentage of full-time teachers varies between zero and 80 per cent. At the one extreme we have Cuba and Jamaica with over 70 per cent of full-time teachers and at the other Haiti, where there are no teachers employed full-time.
The ratio between the number of full-time teachers and the number of medical students in Latin America is 1 to 26.

The ratio of full-time teachers to students is highest in Chile, Colombia, Costa Rica, El Salvador, and Honduras, and lowest in Argentina, Bolivia, Ecuador, Mexico, the Dominican Republic and Uruguay.

Any reform in medical teaching would involve the question of increasing the ratio of full-time teachers to students, and in some countries this would be a difficult and long-term matter. Meanwhile, alternative solutions might be sought, including better distribution of the time devoted to teaching by the faculty during the scholastic year.
7. **Financing**

By financing of the medical education is to be understood the sum total of funds needed to cover the expenditure incurred for the medical education system. The medical school budget used for analyzing the financing of medical education is the concrete expression of financial planning, and it is as a general rule the result of adjusting estimated expenditures to the funds available in any given financial year.

The study of the financing of medical schools presents certain difficulties, notably the lack of information due to the fact that some schools do not directly administer their budgets, and differences in the way in which financial reports are presented. Nor is there any agreement as to the items to be included, or as to what should be regarded as educational expenditure.

The financing of Latin American medical schools, like that of universities and institutions of higher education generally, derives essentially from the public sector: in 72 per cent of the 135 medical schools existing in 1967, the source of financing was the State.

With a view to analyzing the finances of medical schools with a reasonable degree of accuracy, use was made of the 1967 figures for 72 schools with full degree courses.

7.1 **Medical school expenditure**

By expenditure is meant the budgetary spending of the medical school over a given period.

For the purpose of this study the following items of expenditure were ignored:
a. As far as possible, the budget heads covering welfare in relation to teaching;

b. The proportion of the overheads of the parent higher education institution payable by the medical school;

c. Any expenditure covered by extra-budgetary funds.

In analyzing the expenditure of a medical school, two main categories were considered: Operational or running costs, and investments. The total amount spent in 72 schools during 1967 was US$59,425,705; of this, 86 per cent represented operational costs and 14 per cent investments.

CHART 19

EXPENDITURE INCURRED BY 72 MEDICAL SCHOOLS
IN 17 COUNTRIES OF LATIN AMERICA, 1967
7.2 Operational costs

Operational costs include salaries and social security benefits for teaching and administrative staff, expendables, maintenance costs and expenditures such as fellowships, per diem allowances and publication costs. Operational costs in the 72 schools amounted to $50,947,222, of which 86 per cent represented remuneration of teaching and administrative staff.

Even though payment of teaching staff eats up almost the entire budget, professors' salaries in most of the Latin American countries are low as compared with earnings from private practice.

Any increase in salaries would need to go hand-in-hand with more efficient use of the time spent by the professor in teaching and by a greater differentiation between the remuneration of full-time and part-time teachers.

[Chart 20: Operational costs incurred by 72 medical schools in 17 Latin American countries, 1967]
7.3 Investments

Investments, i.e., expenditure on the acquisition of permanent plant and on construction, amounted in 1967 to $8,478,483 in the 72 schools analyzed.

The proportion for construction was higher in the medical schools of Bolivia, Colombia, Ecuador, Mexico, and Peru, whereas expenditure on permanent equipment and materials was greater in Argentina, Chile, El Salvador, Guatemala, Honduras, Jamaica, Panama, the Dominican Republic and Venezuela.

7.4 Annual cost per student

The annual cost per student was calculated by dividing the amount of the operational costs plus 10 per cent of the investment costs by the
total number of students. The purpose of adding 10 per cent of the investment costs was to ensure that the annual cost per student included depreciation on the assets acquired during the year, on the assumption that plant must be written off over a period of ten years.

Table 9

<table>
<thead>
<tr>
<th>Country</th>
<th>Cost U.S.</th>
<th>Number of Students</th>
<th>Annual Cost per Student</th>
</tr>
</thead>
<tbody>
<tr>
<td>Argentina</td>
<td>9,004,493.40</td>
<td>25,721</td>
<td>350.08</td>
</tr>
<tr>
<td>Bolivia</td>
<td>735,431.88</td>
<td>2,179</td>
<td>172.29</td>
</tr>
<tr>
<td>Brazil</td>
<td>10,803,946.95</td>
<td>8,928</td>
<td>1,210.10</td>
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<tr>
<td>Chile</td>
<td>6,448,657.32</td>
<td>2,159</td>
<td>2,956.87</td>
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<tr>
<td>Colombia</td>
<td>2,461,946.16</td>
<td>2,144</td>
<td>637.07</td>
</tr>
<tr>
<td>Costa Rica</td>
<td>272,972.21</td>
<td>109</td>
<td>1,433.94</td>
</tr>
<tr>
<td>Dominican Republic</td>
<td>769,808.00</td>
<td>1,009</td>
<td>753.03</td>
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<tr>
<td>Ecuador</td>
<td>292,907.70</td>
<td>1,660</td>
<td>176.65</td>
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<tr>
<td>El Salvador</td>
<td>318,321.92</td>
<td>323</td>
<td>1,902.85</td>
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<tr>
<td>Guatemala</td>
<td>309,465.54</td>
<td>331</td>
<td>561.64</td>
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<td>Honduras</td>
<td>137,567.58</td>
<td>178</td>
<td>781.65</td>
</tr>
<tr>
<td>Mexico</td>
<td>4,073,352.10</td>
<td>16,287</td>
<td>250.22</td>
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<tr>
<td>Nicaragua</td>
<td>286,969.20</td>
<td>245</td>
<td>1,008.03</td>
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<td>Panama</td>
<td>309,428.00</td>
<td>113</td>
<td>2,090.70</td>
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<td>Peru</td>
<td>4,128,034.84</td>
<td>2,310</td>
<td>1,785.29</td>
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<td>Venezuela</td>
<td>9,996,344.44</td>
<td>4,927</td>
<td>2,038.89</td>
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<tr>
<td>West Indies</td>
<td>1,997,448.47</td>
<td>381</td>
<td>3,667.84</td>
</tr>
</tbody>
</table>

1/ Basis of calculation: operational costs plus 10 percent of investment costs.

The average annual cost per student for the 72 schools was $1,340. The highest figure was that recorded for the medical school in Jamaica - $3,667 - and the lowest was that for Bolivian medical schools, namely $125. The wide gap between the values at either end of the scale no doubt reflects the diversity in numbers of faculty members and time spent by them on teaching, since in actual fact the schools where the cost per student is high have more full-time and half-time teachers than those where the annual costs are low.
INTRODUCTION

This Addendum to Document CD19/16 (Provisional Agenda Item 25) is intended to provide the latest information concerning the financial support for the Program of Textbooks for Medical Students. It will be recalled that an essential element for implementation of the Textbook Program was the creation of a revolving fund to provide working capital for purchase of books and operations pending receipt of income from sales. For this purpose negotiations were undertaken with the Inter-American Development Bank with a view to obtaining a loan. The Governing Bodies have repeatedly expressed interest and support for the Textbook Program, and have requested the Director to continue his efforts to obtain financial support, with particular reference to his negotiations with IDB. (Resolution XV of the XVII Pan American Sanitary Conference in 1966; Resolution XIX of the 56th Meeting of the Executive Committee in May 1967; and Resolution XXI of the XVII Meeting of the Directing Council in 1967).

GRADUAL IMPLEMENTATION – NEGOTIATIONS WITH IDB.

To demonstrate the feasibility of the Program, as well as to make a start toward achieving its objectives, the Organization has undertaken a gradual implementation using existing funds, particularly those available in the Special Fund for Health Promotion. This action is based on recommendations and authorizations of the Executive Committee at its 56th Meeting, and of the Directing Council at its XVII Meeting contained in the resolutions
cited above. As a result of the increased interest of Governments and the demonstrated practicability of the Program, negotiations with IDB have progressed favorably and there is reason to believe that a loan may be approved in the near future.

PAN AMERICAN HEALTH AND EDUCATION FOUNDATION

Although the IDB appears to be giving favorable consideration to financing the Textbook Program, PAHO cannot be the recipient of a loan since the Bank has a policy against lending to other intergovernmental organizations. However, a foundation whose purposes include the promotion of medical education would be eligible. For this purpose, as well as for the broader objective of supporting health and education activities in the Americas, it is proposed to activate the Pan American Health and Education Foundation. The Foundation would apply to IDB for a loan for the Textbook Program, which would then be carried out as a joint project of the Foundation and PAHO.

There is attached as Annex a copy of the Articles of Incorporation of the Pan American Health and Education Foundation, a non-profit organization incorporated in the District of Columbia of the United States of America. To activate the Foundation, the incorporators will appoint the initial trustees who will approve a set of by-laws. It is intended that an expanded Board of Trustees would then be formed to include wide representation of outstanding leaders throughout the Americas.

The relationship between the Foundation and the Pan American Health Organization will be established in a general agreement which will assure that activities of the Foundation shall be consistent with the policies of PAHO. Joint projects, such as the Textbook Program, will be the subject of an agreed plan of operations which establishes the objectives, method of operation, executive responsibility and the respective financial commitments.

The Directing Council is invited to consider the essential role of the Foundation in the Textbook Program, with a view to giving support and approval for its activation.

INTERMEDIATE FINANCING

Pending approval of a loan to finance the Textbook Program, it is desired to continue with its gradual implementation. Additional funds may be needed to finance the purchase of books pending receipt of income from sales. For this purpose the Directing Council is invited to consider authorizing the Director, subject to approval by the Executive Committee in specific cases, to make temporary advances from the Working Capital Fund to purchase books. To the extent such advances are needed and approved by the Executive Committee, they would be made during periods of least demand on the Working Capital Fund, to be reimbursed not later than June when the Working Capital Fund usually falls to its lowest point.

Annex
ARTICLES OF INCORPORATION

OF THE

PAN AMERICAN HEALTH AND EDUCATION FOUNDATION

We, the undersigned natural persons of the age of twenty-one years or more, acting as incorporators of a corporation adopt the following Articles of Incorporation for such corporation pursuant to the District of Columbia Non-Profit Corporation Act:

FIRST: The name of the corporation is the Pan American Health and Education Foundation.

SECOND: The period of duration is perpetual.

THIRD: The purposes of this corporation shall be exclusively charitable, scientific, and educational and through them to advance the fundamental objectives of the Pan American Health Organization. In furtherance of these purposes, the corporation is authorized to carry on and engage in the following activities:

a) To promote, and stimulate efforts to combat disease, lengthen life, and promote the physical and mental health of the people, especially in the countries of the Western Hemisphere.

b) To plan, promote, encourage, aid, and assist in the improvement and expansion of health and medical care services, expansion of water supplies and sanitation facilities, and elevation of the level of nutrition of the people.

c) To promote, develop and assist in the education and training of health workers at all levels through expansion of educational facilities, introduction of advanced techniques of pedagogy, increasing the numbers and raising the standards of teaching personnel, and facilitating the use of books, equipment and other teaching supplies and material.

d) To foster, encourage and assist in research, including the training of research personnel and the creation and improvement of research centers.

e) To examine and, as appropriate, foster, conduct or participate in charitable, scientific, and educational projects and programs that might be financed by organizations or groups interested in promoting the health, education and welfare.
f) To accept, hold, administer, invest and reinvest, and disburse for such purposes such funds as may from time to time be given to it by any person, persons, corporation or corporations. It is specifically authorized to create and maintain endowment funds for the purpose of carrying out its objects and purposes, provided that no part of the net earnings of such fund or funds inure to the benefit of any private shareholder or individual and no substantial part of the activities of this corporation shall be the carrying on of propaganda or otherwise attempting to influence legislation.

g) To do all things that may appear necessary and useful in accomplishing the purposes hereinabove set out, doing and performing all of such objects either alone or in cooperation with the Pan American Health Organization and other organizations, societies, and institutions organized and operated for religious, charitable, literary, scientific, and educational purposes. All of the assets and net earnings shall be used exclusively for the purposes hereinabove set forth, including the payment of expenses incidental thereto, and no part of the net earnings or property of the corporation shall inure to the benefit of any private member, director, trustee, or individual. In the event of dissolution, all of the remaining assets of the corporation shall be distributed only for charitable, scientific, and educational purposes.

h) The corporation shall have the power and authority to receive, buy, pledge, mortgage, encumber, sell, lease, and otherwise acquire by bequest, devise, gift, purchase, or lease, either absolutely or in trust, for the objects and purposes expressed above or any of them, any property, real, personal, or mixed, without limitation as to amount or value, except such limitations, if any, as may be imposed by law; to hold, use, lease, pledge, mortgage, encumber, sell, convey, dispose of, invest, and reinvest any such property and to deal with, collect, expand, and disburse income and principal thereof exclusively for any of such purposes without limitation except such limitation, if any, as may be contained in the instrument under which such property is received; to receive any property, real, personal, or mixed, in trust under the terms of any Will, Deed of Trust, or other trust instrument exclusively for the foregoing purposes, or any of them, and in administering the same to carry out the directions and exercise the powers contained in the trust instrument under which the property is received, including the expenditure of the principal as well as the income for one or more of such purposes as authorized or directed in the trust instrument under which it is received: to purchase, receive, take title to, hold, and use the proceeds and income of stocks, bonds, obligations, or other securities of the Government of the United States or any state or other political subdivision thereof, or of any person, corporation, or corporations, domestic or foreign, and in respect of any such securities to exercise any and all rights and privileges of ownership thereof, but only for the foregoing purposes or some of them; to borrow money; and, in
general, to exercise any, all, and every power for which a non-profit corporation organized under the provisions of the laws of the District of Columbia for charitable, scientific, and educational purposes can be authorized to exercise, but not any other power.

i) The Board of Trustees shall have full authority and power to invest and reinvest the moneys and property of the corporation in any class of investments or property whether the same are or are not of the character or class regarded by many laws as legal investments, and the Board of Trustees shall have the further power and authority to retain any and all property which may be delivered to the corporation or otherwise come into its possession or control without being required or obligated in any way to convert the same to an investment authorized hereunder, except that the Board of Trustees may at any time from time to time, in their sole discretion, sell and dispose of all or any part thereof.

j) The Board of Trustees shall, in the distribution of the funds of the Foundation for charitable, scientific or educational purposes review and give consideration to such projects and organizations as shall be recommended or sanctioned by the Pan American Health Organization.

FOURTH: The number of its Trustees for the first year of its existence shall not exceed twenty-five (25).

FIFTH: Each Trustee shall be entitled to an equal vote in connection with any corporate matter.

SIXTH: The initial Trustees shall be selected by the incorporators to serve until their successors are named. The manner in which future Trustees shall be selected shall be set forth in the corporation's By-Laws.

SEVENTH: In the event of the dissolution of the corporation, any assets remaining after payment, satisfaction, or discharge of any existing liabilities or obligations and after lawful provisions for the administration or disposition of any property held in trust by or for the corporation and all other acts required to adjust and wind up its business and affairs having been done, the corporation's assets shall be collected and distributed entirely to or among one or more organizations devoted exclusively to educational, scientific, or charitable purposes and exempt from Federal taxation. No private member or individual shall have any right, title, or interest to any remaining assets of the corporation. No distribution of assets shall go to any organization any part of whose net earnings inure to the benefit of any private individual shareholder, nor shall any assets be distributed to any organization, a substantial part of whose activities is carrying on propaganda, or otherwise attempting to influence legislation, or which participates in or intervenes in any political campaign on behalf of any candidate for public office.
EIGHTH: The address, including street and number, of its initial registered office is Pan American Health Organization, 525 - 23rd Street, N.W., Washington, D.C., and the name of its initial registered agent at such address is
Agenda Item 25

FINANCING OF THE PROGRAM OF TEXTBOOKS FOR MEDICAL STUDENTS

The Director has the honor of submitting to the Directing Council the letter received from Dr. Felipe Herrera, President of the Inter American Development Bank on the financing of the program of textbooks for medical students.
(TRANSLATION)

INTER AMERICAN DEVELOPMENT BANK
WASHINGTON 25, D.C.

26 September 1969

Dr. Abraham Horwitz, Director
Pan American Sanitary Bureau
Regional Office of the
World Health Organization
Washington, D. C.

Dear Dr. Horwitz:

With this letter I am pleased to confirm what I told you in our recent telephone conversation, that the Administration of the Bank after consulting the Board of Executive Directors, is preparing the pertinent loan document for the request made by the Pan American Health Organization; in a few weeks it will be submitted to the Board of Directors for final consideration.

I cannot let this occasion pass without again emphasizing to you the interest with which the IDB has always followed the activities of PAHO for the improvement of health conditions in Latin America and without thanking you for the always prompt and effective assistance that your agency has rendered the Bank in carrying out joint programs.

Yours sincerely,

(signed)
Felipe Herrera