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**EXPERT COMMITTEE ON
PROFESSIONAL AND TECHNICAL
EDUCATION OF MEDICAL
AND AUXILIARY PERSONNEL**

Second Report

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**EXPERT COMMITTEE ON PROFESSIONAL AND TECHNICAL EDUCATION
OF MEDICAL AND AUXILIARY PERSONNEL**

Second Session

Nancy, 3-9 December 1952

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The report on the second session of this committee was originally issued in mimeographed form as document WHO/Educ/76, 12 January 1953.

* Was unable to attend, owing to illness.

EXPERT COMMITTEE ON PROFESSIONAL AND TECHNICAL EDUCATION OF MEDICAL AND AUXILIARY PERSONNEL

Second Report ¹

The members of the committee were welcomed to Nancy by Professeur J. Parisot, Dean of the Faculty of Medicine, and the meeting was formally opened by Dr. E. Grzegorzewski, as representative of the Director-General.

Introduction

The attention of the committee was called to the terms of reference for the current session which were based on the suggestion made at the first meeting of the committee, namely: "The committee suggested that the Director-General be requested to convene a meeting of experts in undergraduate medical education ^{1*} but felt that the terms of reference of such a committee should be drawn in such a way as to indicate broad objectives rather than detailed consideration of curricula."²

It had also been suggested that the following points be considered:

- "(a) premedical ^{1*} training content, particularly as to social studies;
- (b) incorporation of social and preventive concepts early in the medical curriculum;
- (c) opportunities for personal observation and study, in the clinical period of social components of disease

* Definitions of the terms thus indicated in this report are given in the glossary (see Annex 1, page 25).

¹ The Executive Board, at its eleventh session, adopted the following resolution:
The Executive Board

1. NOTES the second report of the Expert Committee on Professional and Technical Education of Medical and Auxiliary Personnel;
2. THANKS the members of the committee for their work; and
3. AUTHORIZES publication of the report.

(Resolution EB11.R52, *Off. Rec. World Hlth Org.* 46, 22)

² *World Hlth Org. techn. Rep. Ser.* 1950, 22, 7

- (d) opportunities to apply preventive measures to patients and their families as a part of the clinical training ;
- (e) integration of preventive and social concepts throughout all clinical teaching ;
- (f) opportunities for student participation in community programmes of health protection ; and
- (g) teaching of certain special subjects, such as physical and mental rehabilitation and care of the aged.”³

It was against the background of these charges that the committee expressed its concern about the continuity and breadth of the student's education under present systems. More specifically, it noted that the curriculum of the medical school* could not be dissociated from the education the student received before entering medical school, or from his continued education after graduation. In order to focus sharply on the undergraduate medical curriculum, the committee decided to study the important elements of medicine and its relation to the individual, to society, to the medical teaching institution, and to the medical student. The committee then agreed that it should concentrate on the examination of the basic principles involved so that these principles could be applied in any part of the world and under any sort of social and environmental conditions. It was felt that attempts to standardize curricula or to promote uniformity of practices are, to say the least, premature at this time.

The committee recognized, early in its deliberations, that, whatever different kinds of practitioners* are produced by total medical education, the process of undergraduate medical education must terminate in a “lowest common denominator”. This means that the graduate of a medical school is, at that point, prepared to enter further studies which will qualify him for a particular branch of medicine. In all countries, irrespective of their stage of development, the most important of these branches is general practice.

1. Fundamental Concepts

1.1 Medicine, the individual, and society

The character of medicine at any time and in any place is mainly determined by two factors — the stage of development of scientific and technical knowledge, and the social, economic, and cultural structure of a given civilization. Although, theoretically, the body of scientific facts available to one society is also available to another, the variations in the utilization of this knowledge are related to the great differences in the societies.

³ *World Hlth Org. techn. Rep. Ser.* 1950, 22, 8

Such factors as standards of living, religious beliefs, and degree of urbanization and industrialization must necessarily form the setting against which medicine must be examined.

Medicine has now become highly technical and specialized. Within the medical profession itself it has become impossible for a physician to utilize all the knowledge available today. This has resulted in the development of a corps of specialists who are able to place modern advances at the service of the community. In addition, certain parallel professions have evolved whose utilization must be made a part of comprehensive medicine. Therefore, the practice of medicine of today is a co-operative effort of many groups of health workers, including physicians, dentists, nurses, social workers, technicians, public-health engineers, chemists, and many others. The manner of such co-operation cannot be set forth under any universal formulation, but must be approached and solved within each society in accordance with its own concepts. It must, however, be emphasized that the central figure in any medical and health service is the general practitioner.

Whatever attitude a community adopts towards medical services, the reason for the very existence of medicine has always been, and will continue to be, the patient*. One consequence of the increasing partition of medical science into a number of specialities has been a trend away from the recognition of the patient as a whole. An attempt to counteract this by emphasizing the close relation between mental and physical states has been described as psychosomatic medicine. Many now believe, though, that no other kind of medicine exists and that the term is superfluous. A further step is the consideration of the patient not only as a complete individual, but also as a component part of his social environment — in fact, as the fundamental, indivisible unit of society. Physicians of the future should have complete understanding of the society served as composed of individuals and groups (i.e., families) whose health and disease problems are affected by the physical, psychological, and social environment within which they live — thus, “social medicine”.

In order to avoid another fragmentation into several kinds of medicine, many persons use the term “comprehensive medicine” to include the practice of somatic, psychic, social, and preventive medicine. One of the important aims of undergraduate medical education must be to help prepare the student for his future role as a practitioner of comprehensive medicine.

1.2 The medical teaching institution

The medical teaching institution should be the focal point of medicine in its society. In order to assume such a position, the institution must

look toward the future and accept this dynamic role in the light of several functions :

(1) In its community, the medical teaching institution should be not only the repository of knowledge of modern medical science, but also the instrument for developing and adding to this body of scientific facts. It has, therefore, certain consultative functions which permit the community to draw upon it for expert advice, and it is, at the same time, a research institution.

(2) In addition to being a repository of scientific knowledge, the medical teaching institution must also know the society whereof it is a part. Only through combining the knowledge of science with its faculty's familiarity with the social and cultural milieu can it promote the purposes and objectives of medicine.

(3) The medical teaching institution, by disseminating its knowledge and attitude through the students whom it prepares for medicine, fulfils its role as an influence on the future of medicine in that society. The way in which the institution can exert a positive influence is by analysing developmental trends in its society and by anticipating them in teaching programmes.

(4) With its affiliated system of hospitals, clinics, outpatient departments*, and other health facilities, the medical teaching institution serves the community by offering a high grade of health and medical care, which should set an example.

Medical teaching institutions vary in many characteristics, the most important of which is the society served by each one. This factor in itself, despite similarities in the amount and kind of scientific knowledge attained, research accomplished, and services rendered, makes it necessary for each society to develop its own training institutions, which will evolve and work against the background of its own problems.

1.3 The medical student

The time which a student spends in a medical teaching institution must be viewed as a phase which is affected by what has passed before and which, in turn, will influence what is yet to come. In this sense, the student may be considered as the principal vehicle by which medicine is projected into the future.

The medical educational institution is the environment wherein the student continues his development. This process depends not only upon his inherent potentialities, but also, to a great degree, upon the importance and attention which the institution devotes thereto. Among the notable

aspects of the student's development are those which have been understood for many generations, namely, the acquisition of factual knowledge and skill in its application. More recently, appreciation has been shown of the institution's role in forming the student's attitudes and in assisting him in his psychological growth. Now it becomes important to develop within him a comprehension of the meaning of society in relation to his future role as a physician.

2. Preparation for Medical Studies

2.1 Educational requirements

During the pre-professional* school period, study should be devoted to the humanities*, natural sciences, and social sciences or, in other words, the bases of a comprehensive general education which will lay the foundation for a continued interest in man and his environment.

Education in the humanities, of sufficient intensity and duration, helps to establish in the student's mind a broad picture of human thought and accomplishment. The acquisition of language skills is of particular importance since clarity of expression and comprehension are the bases of learning. Facility in one or more foreign languages will greatly increase the extent of scientific and medical literature at the disposal of the individual.

Study of the biological and physical sciences should provide basic understanding of the phenomena of living organisms and their adaptation to their environment. One specific tool needed for future professional competence is mathematics to give an understanding of quantitative methodology — an urgent requirement for the careful evaluation of scientific advances and therapeutic proposals.

The social and behavioural sciences* will help the student develop those concepts necessary to understand and appreciate human behaviour and its variability. The essence of psychological preparation is the development of the student's own insight into his educational process to the end that he comes to feel more secure and more aware of his own attitudes and interests. The pre-professional training of the future medical student should give him a sense of service as well as the necessary knowledge and balance essential to the study and, later, to the practice of good medicine.

When and where these several subjects are presented to the student vary from one society and culture to the next. Time schedules are less important than continued thoughtful attention to progressive development of a balanced programme.

2.2 Selection of students *

The committee considered various procedures of selecting students for medical education. It was felt that all had some merit but that no one or any combination of those in use fully met the needs for proper or adequate selection.

The committee firmly supported the concept that each medical institution must determine its optimum training capacity and use this as a definitive basis for the selection of the maximum number for admission. When inevitable selection is allowed to take place through attrition during the course of medical studies, there is great waste of the time, effort, and resources of the faculty and the institution, as well as of those students who complete only part of the medical course. A community's need for medical manpower may lead it into the false path of demanding greater production from its medical institutions than can be accomplished effectively with existing facilities and staff. To maintain adequate standards, facilities must keep pace with needs.

The selection of a student should be based upon an evaluation of the applicant's intellectual ability and attainments, psychological potentialities, social orientation, physical capacity, and moral character. It must be kept in mind that effectiveness as a practitioner depends as much on personality as on the other qualities. Evaluation needs to be as disinterested and objective as is possible within the scope of present and developing methods.

It was suggested that this matter should be given continued study and research.

3. Professional Education

3.1 Basic studies

The student, on entering professional education, should be equipped to proceed easily with what is, at that stage, a continuation of his general education. The student's previous education should have prepared him for his medical studies * by giving him some understanding of the function of medicine in the community, the physician's specific job in the health and medical services, and the degree of responsibility which a physician must assume for the person who comes to him asking for help. If the student has this degree of insight, his professional education, with its great opportunity for broadening his own understanding of man and society, will be undertaken with purpose.

Professional education, like all education, is self-education. The effective academic teacher inspires, arouses curiosity, and teaches method. On the other hand, over-reliance on lectures for the theoretical purpose of systematic coverage of a subject often has a stultifying effect on individual student effort. The student must have time and opportunity to read, to learn how to think in terms of the biological processes of health and disease, and to learn how to observe and search, on his own initiative. Instruction should emphasize practical work — in the laboratory, in the clinic, and in the community — in order that the student may engage in responsible inquiry and exercise of judgement.

3.1.1 *Active co-ordination of basic science* teaching*

Within the medical school (a particular kind of setting) the student continues his observation and study of the human being which began with the normal contact with life that anyone his age has experienced. The first steps are to learn the structure and function of the human being. From his basic science studies, the student should be able to construct for himself the fundamental concepts of the function and behaviour of man, acquiring that knowledge which is necessary for him to develop the skills used in rendering health and medical service. For example, he learns of the genetic influence on the constitution; the growth, development, and structural composition which make up the underlying basis of the function of a living organism; the concepts and mechanisms of homoeostasis*; and the processes of living matter. Psychological and allied studies give point to biological study by showing that man's behaviour in his environment must be interpreted across a broad spectrum of understanding, ranging from the purely physical to the psychological and intellectual. It is thus that all of the sciences familiar in medical study must contribute to an understanding of the living person as a growing, developing, and maturing organism in an active and living environment.

The principal point which the committee wished to emphasize is that helping the student develop the concepts implied in the foregoing is not the task of any single department* or group. All the teachers of beginning medical students must participate through truly effective co-ordination by presenting their material so that the student can formulate and organize these concepts within his own processes of learning. This is not a simple task but one which takes time, thought, and concerted effort, with the recognition that individual departments, Chairs, or institutes lose some of their effectiveness when instruction is isolated. Examples of different ways to accomplish this with considerable degrees of success are available in several institutions.

3.1.2 *Early introduction of social concepts*

If social concepts are introduced early in the study of medicine, it becomes not only natural, but also necessary, that man be understood as a social organism. As such, he reacts to, and in turn influences, directly or indirectly, all other elements involved in his environment, whether they be physical, psychological, or social. It is in this context that the student can begin to appreciate early the true significance of the patient-physician relationship. The student is destined to become an important element in his patient's environment and, as such, his job will be to help the patient maintain or regain equilibrium. At this early stage, the student can be introduced to the concept of health and illness as manifestations of degrees of man's ability to adapt to environmental situations. Knowing the value of initial orientation, it is natural for the student to begin the study of the living human being as the core around which he organizes the large variety of factual knowledge from the physical, psychological, and social sciences.

3.1.3 *Early contact with patients, man in his social environment, and community programmes of health protection*

It will thus not be long before the student will have to extend his observations to the community by following the same basic principles of scientific study which he has learned in the laboratory, i.e., observation, measurement, description, and interpretation. Consideration of the community setting of people will obviously cover such matters as housing, food, educational facilities, occupations, working conditions, health facilities, etc. Here is the point at which the future doctor can begin to acquire, through actual experience wherever possible, the idea that medicine is a basic and far-reaching community function. The effective use of community facilities for the instruction of students at any point of medical education requires proper co-ordination between school and community agency. This is likely to be most successful when carried out through a university department of preventive and social medicine*, in which connexion this subject is further discussed below.

3.1.4 *Introduction to future co-workers in parallel professions*

As the student sees the ramifications of health and medical activities, he realizes the amount of personnel, facilities, skills, techniques, and organizations which are necessary to deliver health and medical care to the public. He learns that the doctor is a pivotal figure in this complex organization of service, but also that the doctor cannot, except in relatively simple situations, work alone. As a part of the medical student's training,

therefore, it is necessary that he learn something of the working of other professional services in the health field, and of the principles and necessities of the organizational structures within which such services are rendered. Among the professional personnel with whom the general practitioner will work are the public-health nurse, the social worker, and the administrator of community activities, as well as those physicians who are specialists in the several aspects of public health and environmental medicine.

3.2 Clinical studies

Although the medical curriculum is usually divided into successive steps, there can, in fact, be no sharp lines between them. Wherever this division exists, there should be an effort to close the gap in the interests of a smoothly flowing educational sequence. This, the committee observed, can be accomplished on the one hand by extending certain aspects of the basic studies into the later years of the curriculum and, on the other, by bringing certain aspects of clinical studies into the early years. In the latter instance, this does not mean the premature study of disease but rather the use of living persons, whether well or ill, to illustrate to the student the phenomena of total behaviour, i.e., a human being, both in terms of his inherent nature and of his reaction to his environment. Obviously, a variety of methods can be used to accomplish this purpose, but it was generally agreed that the student does need access to the living person in order to make his basic studies more fruitful.

3.2.1 *Experience in the practice of medicine*

As the student advances from the study of normal structure, function, and behaviour against the background of environmental influences, he learns that illness or disease is often traceable to a failure in the adaptive or homeostatic mechanisms. When the student, in the later years of his medical studies, engages in intensive work with patients in the outpatient clinic* and hospital wards, he is able to explore the circumstances contributing to the illness of a particular patient. He uses his basic training to formulate an understanding of illness processes through the succession of changes which take place in the alteration of structure and function. He will see, either in the single patient or in the group of patients with whom he works, all the stages of failure of normal function and activity to the point where the patient is incapacitated.

It is quite obvious that the student does not learn all the characteristics of every specific illness or the appropriate methods of treatment in any single department. The division of medical activities into specialities means that each has a particular task to do and a particular contribution to make, but only in rare instances can the medical problem of an individual

patient be completely cared for in one of the so-called special fields of medicine. Not only is the student faced with the problem of putting together for himself the contributions which all the parts of modern medicine can make, but, further, he has to arrange his information and knowledge in terms of time. The patient is not a static phenomenon — he is never the same from one moment to the next. The committee believed that the student must be given the opportunity to learn the natural history of the patient's life and illness. Any one of several mechanisms can be developed for following patients through a period of time sufficiently long to observe movement or change in the patient's situation. This involves seeing him in his natural community-setting, as this is necessary to illumine the nature of the patient's total problem. In turn, there needs to be co-ordination of study in the outpatient department, in the ward, and in the home and community.

The order of courses and the amount of time allocated to various clinical fields ought to be planned in the light of the general needs of every physician. He will be concerned primarily with appraisal, decision, and medical therapy, while surgery and surgical techniques will play a relatively smaller role, except as he develops them in graduate work. To equip him for independent responsibility he needs graded experience under supervision of gradually lessening intensity. This experience with patients, in which the student is given the feeling that he is a responsible member of the team giving care, should begin early in his academic course and should not be confined to the last period. As independent work with patients begins, the student needs access to clinical laboratory facilities of high quality so that he can participate in the work and learn the rigorous norms of scientific evaluation of the patient's status. The clinical teaching material available must provide the essentials, including both acute and chronic disease, inpatient and outpatient service, patients of all ages, and a reasonable sampling of common diseases. The committee was concerned that many university hospitals, for financial and other reasons, did not provide the breadth and balance of desired material.

3.2.2 *Preventive and social medicine*

In view of the fact that individual departments in the hospital and medical school are so busily engaged with their specific jobs of service, teaching, and research, it is little wonder that they cannot give primary attention to the integration of their fields of endeavour with others. Although there is increasing awareness that no aspect of medical care is independent of any other aspect, it is nevertheless urgent to continue to emphasize this so that individual clinical departments will go as far as they can in the integration of their work with that of others. As regards environmental relationships, a separate department or Chair of preventive and social medicine is

needed to assume primary responsibility for that part of the student's education which is dependent upon the study of the patient in his environmental situation. But, as a department of preventive and social medicine assumes this responsibility, it also finds itself in a position to facilitate the integration of the activities of other clinical departments in the interest of complete care for the patient and consideration of the total circumstances of his illness. To fulfil its purpose, the department of preventive medicine must use the community as a laboratory for the study of health and illness phenomena under the same rigid standards that apply to the study of those aspects of disease which must be observed in the science laboratory and the hospital ward.

The committee called attention to certain conditions which are essential for proper organization of the teaching of preventive and social medicine :

(a) status as an independent department, with professorial rank for the head of the department (holder of the Chair) ;

(b) support by the administration of the university and the school, including the provision of an adequate budget ;

(c) support and co-operation from the other members of the medical faculty ;

(d) research facilities in some field related to activities in preventive and social medicine ;

(e) responsible participation in a clinical programme, interpreting the word "clinical" as covering any activity with human beings. To make the teaching of preventive medicine vital and interesting to the student, it must be based on work with people ; preventive medicine cannot be taught in a vacuum.

In the work of the Department of Preventive and Social Medicine, as has been pointed out earlier, close co-ordination with the community health agency is mutually advantageous and strongly desirable. The professor and teaching faculty should carry a measure of direct responsibility in community health work. Thus, teaching may become more practical ; and, at the same time, more highly qualified persons may be brought into public health administration. The committee noted with approval the high degree of correlation evident in several instances known personally to the members present, but recognized that there were unquestionably many more such admirable situations elsewhere in the world.

3.2.3 *Teaching of social and preventive aspects by other departments*

The Department of Preventive and Social Medicine cannot, and obviously should not, undertake all those phases of specialized clinical activity which

are of a preventive nature. It must therefore collaborate with, and encourage, other departments in emphasizing the preventive aspects of their work. To give a few examples :

(1) Internal medicine may, through the development of more refined diagnostic and therapeutic methods, intercept disease processes in their earlier stages and minimize subsequent handicaps, as well as anticipate certain illnesses and prevent their onset.

(2) Paediatrics has these functions and, in addition, is becoming more and more a matter of the rearing of normal children through the crucial periods of rapid growth and development, involving psychological and mental aspects as well as the purely physical.

(3) For years, obstetrics has recognized the primarily preventive character of prenatal care.

(4) Surgery, now that it is being relieved of the time-consuming tasks of treating infections, is able to turn more attention effectively to the prevention of future disability and the restoration of normal function through the correction of congenital abnormalities, early and active treatment of traumatic conditions, and the treatment of chronic deformities and distortions of body structure.

(5) Psychiatry is one of the foundation stones on which preventive and social medicine rests and deals with the total behaviour of a person in his environment. It is often impossible to classify etiological factors of disease as physical, psychological, or social ; they are intermingled, and illness results from the failure of an individual, in a given set of circumstances, to resist, or adapt to, influences to which he is subjected. An extension of the understanding of the interrelationship between psychological and physical factors has helped clarify bodily manifestations of psychological disturbances, emotional disorders related to physical disease, and the concept of multiple causation of illness. Thus, correlation of preventive teaching logically begins from the first days of study of human psychological growth. This field is relatively new, and much remains to be learned of realistic goals and methods.

3.3 Supervised experience after completion of formal course

In most medical curricula there is some provision for practical training after completion of the formal course. The latter, to be sure, usually contains provision for practical experience in the nature of a ward or outpatient " clerkship " during which the student works with patients under fairly close supervision. After termination of the course for which the medical school is directly responsible, practical training is pursued

in a hospital or similar institution. During this period the young physician is variously known as "assistant", "house officer", or "intern". Usually he lives in the institution and has no outside medical activity.

This period, then, is one of intimate contact with patients, but now the student works more independently. If, however, his groundwork in preventive and social medicine has been sound, he will spontaneously give thought and concern to these matters. He works with the medical staff of the institution, who are his professional supervisors, with the hospital administration, and with the nursing staff. All these, if properly oriented, can help direct the young physician to the importance of the preventive and social aspects of his patients' problems. This will be facilitated if the work of the hospital is co-ordinated with the community health programme.

4. The Medical Student

4.1 Physical welfare

Physical capacity has a prominent place among the essential requirements for admission to medical studies. Clearly, then, it is incumbent upon the institution to provide a setting for maintenance, and even improvement, of the student's health. Medical education makes great demands on physical resources, it increases the probability of exposure to communicable disease, and it tends to impose an intensively competitive atmosphere. Furthermore, ability to learn and physical well-being are closely related.

On the other hand, in contrast to other university faculties, the very nature of medical studies offers an unparalleled opportunity to keep a close watch on the health of the student. In addition, the results of student health and medical care procedures may be used for instruction, individually, with regard to each student himself and, in the mass, anonymously, with regard to the group. The functions of a student health service should be primarily preventive and educational and should comprise preventive examinations, treatment, sanitary supervision, and the teaching of hygiene. Ideally, this kind of programme in a medical school should be a continuation of the school health service which the student has experienced in his earlier years.⁴ In this way, he is more likely to appreciate the aims of continuous health supervision and its applicability as a preventive measure.

⁴ See report on the first session of the Expert Committee on School Health Services, *World Hlth Org. techn. Rep. Ser.* 1951, 30.

4.2 Psychological attitudes

By the time a person begins medical studies, his personality structure is already well formed; but the attitudes which he will develop towards his profession will be greatly influenced by his experiences in medical school. The latter, therefore, has a dual task — to evaluate personality during the process of selection, and encourage the formation of positive attitudes.

In selecting students for admission, the institution should consider the personality characteristics which are deemed valuable in its particular community. Mature individuals capable of accepting responsibilities as physicians in modern society will provide the medical faculty with more satisfactory "raw material" than if no attempt were made to choose on this basis. Methods of evaluating personality are still not fully developed, but the committee felt that the institutions with the greatest potential influence in this respect are medical schools. Further experimentation is recommended.

Just as primary- and secondary-school teachers influence a child's attitudes, so is the medical-school teacher the most important professional factor in the student's psychological environment. The professor's own feelings about medicine, science, patients, and other elements in the study and practice of the profession are invariably communicated to his students, whether openly expressed or not. Also, the picture of human suffering and wretched living conditions which medical students see in their work may have depressing effects upon sensitive young men and women who come from relatively protected surroundings. The guidance of students through these professionally formative years should be the acknowledged responsibility of the medical school and should be placed in the hands of persons skilled in the psychological sciences.

4.3 Social welfare

While the student is a member of a distinct and special community — the medical school — he is, at the same time, part of the more general society to which the institution belongs. Within the medical school the student has his well-defined position and function, but in the community at large the circumstances of his life are often not well known to the faculty. His living conditions, nutrition, family status, economic problems, etc. have a strong influence upon him academically, physically, and psychologically; and any outside work he may perform, especially the conditions attendant upon it, likewise affects his medical-student career. The medical college therefore has the responsibility for at least being aware of the

students' socio-economic conditions, and taking such action as is within its power. When the institution makes provisions for assuming a more active role in student welfare, its selection process may then be modified so as to include representation in its student-body from all socio-economic segments of the total community which it serves.

4.4 Medical ethics

If a student is brought into early contact with patients, as suggested in this report, he must learn at an early stage of his medical education how, in his particular society, the physician is expected to conduct himself within his working environment. In other words, the code of medical ethics prescribed for that society must be taught early in medical studies, preferably as part of the course dealing with the position of physicians in society, their responsibility to the community, and the broad relationships of physicians with each other, with parallel health professions, and with their patients.

5. The Medical Faculty

5.1 Creation of educational environment

Throughout this report emphasis has been given to the student's own intrinsic responsibility for learning. From the faculty standpoint, this calls for attitudes which are nicely balanced between encouraging independence to allow a maximum of freedom, and using the greater experience and knowledge of the teachers to direct the student along profitable lines. On the one hand, then, there is the danger of putting the student so much on his own that he flounders and uses his time ineffectively. On the other, there is the danger of "spoon-feeding" — of prescribing all material to be read, exercises to be carried out, and information to be acquired. The bright student will usually make his way successfully in spite of this method; average students, however, are affected very directly by the manner in which their education is conducted.

To accomplish the kind of balance asked for is not easy and requires a considerable depth of understanding among the faculty members. They ought to offer sympathetic guidance and to stimulate independence, while maintaining constant supervision; to be regularly available for consultation, and, under no circumstances, to consider their task completed at the end of a formal lecture or demonstration. By the same token, teaching to pass examinations has serious limitations as an educational goal. Obviously, there must be reasonable agreement among faculty members concerning the teaching methods to be employed. The adoption by any one Chair

of a rigid, over-specific approach can negate the efforts of the rest of the faculty to adopt a broader attitude. Frequent faculty meetings to exchange views on these matters will help break down some of the firm barriers now existing between various departments of the medical school.

In addition, some institutions may experiment with the utilization of students' associations in helping to create and maintain a desirable educational environment.

5.2 Selection and training of faculty members

The manner in which faculty members are selected varies considerably in different countries but, in general, has grown up within the local academic tradition. Usually, prime attention is given to intellectual and scientific attainments and contributions to medical literature. Although it is important for a teacher to have first-hand knowledge of his subject through the conduct of individual inquiries, the consideration of research interests sometimes outweighs evaluation of teaching experience and ability. The committee believed that, in many parts of the world, greater attention needs to be paid to the latter factor and that emphasis should also be given to the personality characteristics which might affect an individual's worth as a good teacher. Among the most important qualities which a professor must have is the ability to transmit knowledge, create a situation wherein the student may learn more readily, stimulate students to learn, and inspire high ideals in the practice of the profession. If faculties agree that these qualities are important, they will find ways and means of assuring themselves that candidates considered for appointment possess them.

Although formal pedagogical training of faculty members in professional colleges has not been developed to any great extent, there are several means by which a professor may acquire the qualifications which he will need. Metamorphosis from student to teacher is strongly affected by early physical, intellectual, and psychological environment. In the teacher's own student days, his professors, consciously or unconsciously, set patterns for his possible emulation. Although the undergraduate period is not generally considered as training for future academic work, faculties ought to realize that their influences in this regard do begin at that stage of development. During his experience as junior faculty member in a position such as demonstrator, preceptor, or laboratory assistant, the young teacher may learn much of teaching techniques and attitudes if his professor acts as a mentor and pays regular attention to his responsibility in this regard. This is the time-honoured technique of apprenticeship and often results in a rather personal identification of teaching methods. On the other hand, a promising teacher should be capable of reasonable eclecticism in learning from his senior.

In some places, junior faculty members from several institutions have been brought together and given a short training course in the art and science of "education", on an experimental basis. Although no definite conclusions can be drawn concerning the value of this procedure, there is considerable room for further experimentation of this kind.

5.3 Curriculum planning

The medical curriculum needs to be analysed in the light of the community's existing and future needs. Qualitatively, decisions must be made on the subjects and fields of study to be included, and, quantitatively, on the amount of time assigned to each in relation to the general time-sequence of the medical course. In certain countries, relative homogeneity has resulted in a standard curriculum for all the medical faculties, sometimes formalized through governmental decree. In other countries, there is great latitude, limited only by the requirement that the student pass a broad, final examination. Both systems have advantages and disadvantages. Identical curricula facilitate movement of students from one faculty to another; by the same token, under this system, educational experiments, except within a particular department or Chair, are sharply limited.

Within each unit of the faculty the curriculum should be constructed in relation to the comprehensive overall plan. Content must be geared to current advances in knowledge and methodology. It is most important that content in two parallel courses, such as biochemistry and physiology, be correlated so that the student may more easily appreciate the influence of one upon the other. Similarly, in the clinical years, co-ordination is important not only between departments, but also with community health agencies.

Through frequent meetings, consultations, and periodic examination of aims and methods, the medical faculty must keep the curriculum a dynamic representation of medicine in its broadest sense, both currently and in projection into the future.

6. Promotion of Improved Standards

6.1 Medical institutions

In this report the committee has reviewed a number of changes which medical schools might consider adopting. The suggestions range from the modification of methods to the re-orientation of basic principles. Some have been tried and have become established as acceptable practice in

one or more places ; others are experimental ; and, in yet other instances, the committee has pointed toward possibilities for experimentation. In the final analysis, the medical school is the fundamental operating unit of medical education within which improvements will be made and progress measured.

Whatever the organizational position of a medical school may be, its authoritative body and its directing head must take the responsibility for analysing the qualitative and quantitative physician-needs of the community, for determining the institution's objectives, and for taking steps to meet these self-imposed obligations. Only within the frame of an organization adequate to put new ideas into effect, and compatible with the culture in which it flourishes, can the medical teaching institution truly meet the challenge of the future.

6.2 National co-operation

Within each country, medical schools should have relationships among themselves, and with government agencies, professional associations, and the public at large. Although its primary duties lie within the institution's own walls, communication must be maintained with these, and other, outside agencies.

The best method for disseminating new ideas and results of experiments in medical education is for medical schools to communicate with each other regularly and freely. In some countries, medical teaching institutions have grouped themselves into formal associations so that information can be exchanged more readily. The appointment of a professor from the faculty of another medical school has become an accepted practice in some places, this being considered an excellent method of trading experiences which might otherwise remain confined to one institution.

Although medical schools are under the complete or partial jurisdiction of the government in some countries and entirely dissociated in others, a close relationship with at least one government agency is necessary, namely, that which deals with public health. Whatever its stage of development in a particular country may be, the official health agency is generally the best source of information as to the health status of the population and the resources needed for meeting the problem. In trying to chart its course, the medical teaching institution must take these facts into account.

Medical schools must also maintain a close relationship with the governmental agency which is responsible for examining, licensing, and qualifying physicians for practice. Changing needs will lead to different requirements

which, in turn, will influence policies in medical education. Close contact and co-operation are necessary in order to shorten time-lags as much as possible.

In some countries, professional associations have taken the lead in promoting improved standards of medical education. By maintaining close relationships with such groups, medical teaching institutions can achieve widespread professional support for the implementation of new ideas and experiments.

It is axiomatic that public support is an important factor in the success of a venture, and medical education is no exception. Medical schools must continue to inform the population they serve about their activities, especially through the many agencies which, on the one hand, are interested in health and medicine, and which, on the other, represent the public.

6.3 International collaboration

Although the World Health Organization is acknowledged in its Constitution as “ the directing and co-ordinating authority on international health work” and has as one of its functions the promotion of “ improved standards of teaching and training in the health, medical and related professions ”,⁵ the activities of other agencies and groups in this respect are recognized and commended. From a historical viewpoint, collaboration between two countries in medical education antedated any efforts by organizations to promote such actions. These suggestions by the committee, therefore, refer to activities which may be carried out without attempting to delineate any of them as the exclusive province of any specific group :

(a) stimulation of national activities, such as studies of the problems of developing medical educational institutions ;

(b) strengthening the organization or teaching in a medical school by the assignment of personnel, teaching equipment, or both ;

(c) dispatch of visiting scientists, singly or in groups, to consult with medical teachers and to facilitate exchange of recent developments ;

(d) award of travel grants and fellowships to permit medical teachers to observe medical education practices in other countries and study advanced scientific developments ;

(e) organization and support of seminars, symposia, courses, and other forms of group educational activities in addition to international congresses, conventions, and conferences ;

⁵ World Health Organization (1952) *Handbook of basic documents*, 4th ed., Geneva, pp. 4, 5

(f) dissemination of information as widely as possible, especially of epidemiological or health statistical data, so that the teaching of preventive and social medicine may have broader scope ;

(g) exchange, on a regular basis, of teaching staff between two selected medical colleges in different parts of the world ;

(h) special assistance to students from "underdeveloped" areas of the world, in an attempt to overcome deficiencies in general education ;

(i) study and survey of educational trends, and publication of results ;

(j) constant unrestricted flow of information on medical education on a worldwide basis.

7. Summary

The formulation of international standards of medical education advocated in many quarters was considered by the committee not to be feasible at the present time. Owing to differences in social environments, as well as present needs and minimum aims, it would be difficult to recommend optimal standards with the expectation that they would be uniformly adopted. However, it is desirable to emphasize that certain minimum essentials in undergraduate medical education should be universally accepted, in particular, the extent of general education, including natural sciences and the humanities ; teaching of the basic medical sciences ; clinical practice in both curative and preventive aspects of medicine, including experience outside the hospital, clinic, and outpatient department. Fundamental attitudes must be consistent with the role of the physician in his society.

Patterns of medical education in most countries are usually the result of a long process of accumulated developments, partly of an incidental, and partly of a planned, nature. Historical reasons, cultural background, and specific conditions peculiar to a country and the stage of its general development have hitherto determined the main existing trends.

In several countries, careful studies have been made aiming at the "reform of medical education", i.e., its adjustment to present conditions or even to changes anticipated in the foreseeable future. Sometimes, even repeated efforts of this kind were not satisfactory, particularly with regard to the reduction of traditionally accumulated material to make place for inclusion of newer knowledge. Usefulness of even an excellent pattern within different sets of historical, cultural, social, and economic conditions depends on careful adaptation to these circumstances. Mere imitation does not bring good results. Effective adaptation should concern, among

other elements, structure and content of medical curriculum, teaching methods, and inter-departmental co-operation. Not infrequently, medical education may also need to provide correctives to make up for deficiencies in general education or cultural background of students.

To enable a measure of advice to become available on the changing trends of undergraduate medical education, and with due deference to a country's needs and circumstances, it may be necessary to constitute a national medical council which will be representative of varied interests so as to bring about a balance in ultimate decisions. Such a council may consist of those actively engaged in medical education, representatives of the health authorities, the medical profession in general, and related groups wherever necessary. A critical review of the changes needed in medical education is an important recurring necessity. This is particularly so in some countries which are in the process of rapid development.

8. Conclusions

The committee found that :

(1) Each country or region should have adequate medical education facilities to provide itself with high-quality general practitioners to serve its needs.

(2) The medical school should assume its logical role of leadership in the community and should co-operate actively with all those agencies concerned with the health of the people by demonstrating and teaching the kind of medicine (including preventive) which deals with the individual's health and illness problems in the community setting.

(3) The well-trained general practitioner must be equipped to serve as a pivotal member in the group of medical specialists and representatives of other health and allied professions necessary to meet all the health needs of the people.

The committee considered that, to accomplish such ambitious tasks effectively :

(1) Medical schools should not accept a number of students beyond that for which their capacity enables them to provide a good education.

(2) Students should come from a background of broad general education which will enable them, as professional men and women, to understand and help the highly diversified human material with which they will work.

The committee also considered that, in order to provide more adequately an education of the desired scope and character :

(1) The medical school should establish, maintain, and give full support to a department of preventive and social medicine which is staffed and equipped, and whose logical responsibility it is, to teach these aspects of health and medical care and to co-ordinate its efforts with all the departments of the school, both basic and applied.

(2) The department of preventive and social medicine should join forces with all other departments in the selection of faculty members of the highest personal, moral, and scientific attainments, capable of formulating a curriculum and educational programme which will prepare students for their continuing education, future professional services, and community leadership.

Annex 1**GLOSSARY**

The changing usage of many expressions and the construction of new ones for the description of recent developments and concepts make it advisable to have an explanation of terms. It has been found that, even among those speaking the same language, different groups of people attach different meanings to the same expression. The glossary given here is not an attempt to standardize terminology, but merely an explanation of the sense in which these words and phrases have been used in this report. The committee hopes that, as such, it will be acceptable.

Basic sciences

The group of non-clinical subjects which a medical student studies, e.g., anatomy, bacteriology, biochemistry, embryology, histology, morbid anatomy, pharmacology, physiology, etc.

Behavioural sciences

The group of studies which describes man's reactions to stimuli and to circumstances. Prominent among these are anthropology, cultural anthropology, psychology, etc.

Departments

The units into which a medical teaching institution is organized, such as Department of Biochemistry, Department of Dermatology, Department of Surgery, etc. In certain instances, this term may be used interchangeably with "Chair" (e.g., Chair of Biochemistry) or with "Professor" (e.g., Professor of Dermatology).

Homoeostasis

The tendency of the body mechanism to attempt to restore and maintain biological equilibrium.

Humanities

The group of studies which are concerned with man's relationships in the world in contrast to those which are unaffected by man's presence or absence, except for the fact of his discovering them and developing

their content. Among the humanities may be listed economics, literature, philosophy, sociology, etc.

Medical education or studies, or professional studies

Considered to be that phase of a student's education which begins with the study of human anatomy and human physiology.

Medical school

Synonymous with the following terms: Faculty of Medicine, College of Medicine, School of Medicine, Medical College, medical educational institution.

Outpatient clinic or department

The institution or agency which cares for the ambulatory patient who comes for diagnosis, treatment, and follow-up care. It is usually associated with a hospital or inpatient establishment, and patients are referred between the two institutions.

Patient

A person, whether ill or not, who has a relationship with a physician acting in his professional capacity.

Practitioner

A person who is a qualified physician and engaged in the practice of his profession as a general practitioner, specialist, research worker, etc.

Pre-medical or pre-professional studies

The educational phase prior to the study of human anatomy and human physiology, without regard to the kind of institution under whose auspices this phase is conducted.

Preventive and social medicine

Includes hygiene, public health, preventive medicine, and social medicine.

Selection of students

The process whereby a medical school chooses, from those who have applied for admission, the individuals whom it shall permit to enroll in the entering class.

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