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PROMOTION OF MEDICAL PRACTITIONERS' INTEREST IN PREVENTIVE MEDICINE

Twelfth Report of the WHO Expert Committee
on Professional and Technical Education of
Medical and Auxiliary Personnel

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

Geneva, 13-19 August 1963

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Twelfth Report of the WHO Expert Committee on Professional and Technical Education of Medical and Auxiliary Personnel

The WHO Expert Committee on Professional and Technical Education of Medical and Auxiliary Personnel met in Geneva from 13 to 19 August 1963. Dr M. K. Afridi was elected Chairman, Dr V. V. Kovanov, Vice-Chairman, and Dr A. L. Banks, Rapporteur.

The meeting was opened by Dr F. Grundy, Assistant Director-General, on behalf of the Director-General. Dr. Grundy stressed that this Committee was not concerned with the training of the specialist in public health. The objective is to help to promote preventive activities in the practice of medicine. The attitude of the medical practitioner towards prevention is of the utmost importance, and the interest in and knowledge of the subject instilled during the years of undergraduate medical studies need to be stimulated and maintained throughout the period of active practice. Quite apart from his interest in the protection and promotion of health, and the prevention of its deterioration in individuals, the medical practitioner can make a most notable contribution to the mass prevention and control of disease. For example, the keeping of systematic records and accuracy of certificates provide the basic material on which governmental and, indeed, international policy may well be based.

1. INTRODUCTION

The terms of reference of the Committee were to study ways and means whereby the practice of preventive medicine may be integrated more fully and as a matter of ordinary routine with the normal curative work of all groups of medical men and women whose work brings them into personal contact with the public.

It began its deliberations with full awareness of the wide concept of preventive medicine, and in this was actuated by the consideration that

prevention should be the pervasive idea throughout all teaching. The Committee noted the description given by the WHO Study Group on Internationally Acceptable Minimum Standards of Medical Education :

“ Essentially, the teaching of preventive medicine is based on the fundamental concept of human ecology (interrelation between man and his environment). This concept is expatiated in such disciplines as biostatistics, demography, and epidemiology and applied to environmental sanitation, food hygiene, housing, and major public health programmes such as mother and child care, school health, venereal diseases, tuberculosis, leprosy, vaccinations and in many countries malaria control or eradication. ”¹

The subject of preventive medicine has been under discussion on a number of occasions, and it is not necessary to do more at this stage than to reaffirm conclusions reached in previous WHO meetings. Preventive medicine may be made easier to understand and to accept as a precise concept if it be sub-divided into the prevention of the occurrence of disease and the prevention of the progress of a disease once started. When considering prevention, the physician applies to individuals the knowledge and techniques derived from medical and social sciences for the purpose of preventing the occurrence of disease, injuries and associated disabilities. When these conditions cannot be avoided, he endeavours to prevent their progression or to minimize their ill effects. The medical practitioner, by tradition, can usually deal only with persons who seek his help after the symptoms of illness have developed. His work may be expected to change considerably in the coming years, as he plays an ever-increasing part in the prevention of disease and the promotion of health.

Public health specialists, on the other hand, pay major attention to the prevention of disease by approaching their problems on a community basis, in contrast to the medical practitioners' individual approach. Both are, however, concerned with the prevention of the progress of disease, particularly among persons with chronic debilitating diseases, now one of the major health problems in some countries. The reduction or elimination of environmental hazards to health, in air, water, food and the physical surroundings are essentially matters for the public health worker. In the highly industrialized communities the medical practitioner co-operates with his public health colleagues in these activities, but he does not necessarily bear responsibility for them. In the developing countries, on the other hand, one physician may have to carry responsibility for all these problems.

The unique characteristic of preventive medicine is its relevance to every specialty of medical practice and to the work of the medical practitioner. The role of preventive medicine in such specialties as paediatrics,²

¹ *Wld Hlth Org. techn. Rep. Ser.*, 1962, 239, 13.

² *Wld Hlth Org. techn. Rep. Ser.*, 1957, 119.

gynaecology and obstetrics,¹ pathology², psychiatry³ and others has been dealt with by other WHO committees. The specialist in internal medicine realizes only too well that his main chance, and often the only one, of helping many of his patients to avoid permanent impairment and premature death is by prevention. This applies particularly to diseases of the cardiovascular and pulmonary systems. The surgeon practises preventive medicine in his daily life and not least by anticipating the biochemical, bacteriological and other complications that may follow his operative procedures.

From these examples it is apparent that every specialist is involved in prevention, and that significant benefits can be reaped by the systematic and continuing application of the knowledge and skills which are now available. The prevention of disease, however, requires more than skills and techniques for it is the bed-rock of medicine itself. To enable future practitioners to fulfil adequately their preventive role, qualified professors of preventive medicine in the medical schools are required, with well-equipped departments, staff to teach, to carry out research and to co-operate with their clinical colleagues in improving the practice of medicine in the community.

To help solve the major health problems facing the world in the years ahead it is necessary for physicians of the future to acquire an understanding and to apply the broad concepts of the preventive aspects of medical care. Students should become familiar with the social and economic implications of illness and disability to the individual, the family and the community, and their effect upon disease.

The public demand for medical care of high quality and the prevention of disease is growing. The medical practitioner will everywhere (including those countries which have nationalized health programmes) remain the key figure in the provision of personal services. The quality and range of his knowledge and his attitude towards his work will largely determine the health of the individuals and families making up the communities of the world. It is, therefore, essential to organize as many as possible of the preventive medical services around the medical practitioner.

In its deliberations, the Committee took note especially of reports of other WHO meetings which have taken place recently, such as the eleventh report of the Expert Committee on Professional and Technical Education of Medical and Auxiliary Personnel, entitled "Training of the Physician for Family Practice",⁴ the report of the Study Group on Internationally Acceptable Minimum Standards of Medical Education,⁵ the report of the

¹ *Wld Hlth Org. techn. Rep. Ser.*, 1963, 266.

² *Wld Hlth Org. techn. Rep. Ser.*, 1959, 175.

³ *Wld Hlth Org. techn. Rep. Ser.*, 1961, 208 ; 1963, 252.

⁴ *Wld Hlth Org. techn. Rep. Ser.*, 1963, 257.

⁵ *Wld Hlth Org. techn. Rep. Ser.*, 1962, 239.

Technical Discussions at the Sixteenth World Health Assembly, entitled "Education and Training of the Physician for the Preventive and Social Aspects of Clinical Practice",¹ and some conclusions of the fourth report of the Expert Committee on Maternal and Child Health, entitled "Social Aspects in the Teaching of Obstetrics and Gynaecology".² Reference was also made to other reports, especially that of the Expert Committee on Training of Health Personnel in Health Education of the Public,³ the eleventh report of the Expert Committee on Mental Health, entitled "The Role of Public Health Officers and General Practitioners in Mental Health Care",⁴ and the sixth report of the Expert Committee on Professional and Technical Education of Medical and Auxiliary Personnel, entitled "The Foreign Student and Postgraduate Public Health Courses".⁵

2. THE NEED FOR PREVENTION

2.1 The reduction of disease and disability

The urgent need for prevention will be clearly understood in the light of the changing pattern of disease throughout the world, however complex and difficult to impart the subject may be. In industrialized communities the major health problems include the cardiovascular diseases, cancer, mental disorders and the special problems of urbanization, such as industrial accidents, chronic alcoholism and drug addiction. It will be noted that most of these conditions carry with them important social and economic implications. To these might also be added such questions as juvenile delinquency, illegitimacy and adoptions.

The advances in medicine and surgery have brought with them the difficulties of providing adequate facilities for treatment, and it is becoming increasingly clear that, on economic grounds alone, no country can afford to rely entirely on attempts to cure disease.

The advances in such fields as maternal and child health, and in the control of the major infectious diseases, have involved many communities in such special problems as the care of the physically and mentally handicapped, who may now survive to adult life and old age. There are also the environmental hazards to health, including injuries and disabilities caused by accidents in factories, at home or on the road. One of the most urgent problems of all countries, but more particularly of the

¹ A report on these discussions appears in *WHO Chronicle*, 1963, 17, 350.

² *Wld Hlth Org. techn. Rep. Ser.*, 1963, 266.

³ *Wld Hlth Org. techn. Rep. Ser.*, 1958, 156.

⁴ *Wld Hlth Org. techn. Rep. Ser.*, 1962, 235.

⁵ *Wld Hlth Org. techn. Rep. Ser.*, 1959, 159.

highly industrialized societies, is the effect of mental stress, and this may be manifested in many ways.

The physician of the future, working in such communities, will require a different outlook, and the assistance of a number of techniques and skills, which were not needed by his predecessor at the beginning of this century. The public increasingly expects not only a high standard of medical care, but also that the medical practitioner should be well versed in ways and means of promoting health and preventing disease. Developments which were not thought of a few years ago include screening procedures whereby such diseases as cervical cancer and diabetes may be detected before they produce symptoms.

It is not necessary to dwell at length on these conditions, for they are well recognized. What is not so readily appreciated is that the developing countries will shortly be facing similar problems, for it is often a difference of time rather than pattern which separates their disease problems from those described above. At the moment they are concerned with the acute infections, some of which become chronic and produce marked debilitating effects on large numbers of people of all ages. Other serious health hazards in these countries are the contamination of water, food and soil by human excreta, with resulting infection and infestation; and the diseases spread by animal and insect vectors. Underlying all these conditions are the problems of poor housing, poverty, illiteracy, malnutrition, and deeply rooted customs, habits and beliefs.

Physicians in such areas must play a multiple role. They must undertake the treatment of disease in the individual, they may have to act as health officers and administrators, and also undertake research into the basic conditions of their areas. For this reason it is necessary to teach the practitioners working in such countries the fundamental principles of preventive medicine, as well as to train specialists in public health and hygiene. In short, there are still large areas in the world where the first problem is to prevent premature death.

It is imperative that the medical profession should accept the preventive idea wholeheartedly and that this should become part of its basic way of thought. Already the amount of preventive work undertaken is considerable. We are, in fact, dealing with a new and advancing frontier.

2.2 The improvement of medical practice

The financial burden of medical care would, in itself, be a good reason for a review of the teaching and practice of preventive medicine. Population changes likely to occur in the near future carry with them dangers sufficiently obvious to all. The need for preventive medicine and for physicians equipped to practise it will be of increasing importance as the century progresses. There is need to prevent the diseases which play a large part

in restricting the population's ability to produce more food, to maintain healthy populations for industrialized societies, and to fulfil the demand for health on the part of the people of the world.

Today many medical schools are engaged in reviewing their curricula, and it is therefore inevitable that they should wish to discuss the teaching of preventive medicine at a time when all medical teaching is under scrutiny. This need is reinforced by the increase in the numbers of new medical schools, for between 60 and 70 medical schools have been established in the past five years and many more are contemplated. It would be unfortunate if these schools were to follow too rigidly the patterns of teaching which have been customary in the more highly developed countries in the past.

The knowledge, skills and attitudes that the physician acquires as a student, and which govern his practice during his entire career, set the level of quality in health services. The doctor must be the leader of the health workers, both professional and auxiliary, and he needs training and experience in organizing and administering the activities of his associates and helpers. This applies equally to the administrator of a large health department, to the staff of a large hospital, and to the medical practitioner working in the community. If a doctor is not willing or able to assume this leadership it will pass to other hands, to the detriment of the health of society.

The medical practitioner will have to serve as a family and personal adviser on health and also on the need for special services and facilities. At present, the usual doctor-patient relationship requires that he must devote most of his working hours to the problems of diagnosis and treatment; the lack of time and incentives to do preventive work looms large. The reorganization of his practice activities may embrace, in some countries, prepaid medical care and group practice. But there are other changes which will aid the medical practitioner in finding the time to give more attention to the preventive aspects of his work. For example, he needs to review his office hours, his priorities and his appointments, to keep accurate and complete records, and to use clerical assistants for non-medical tasks. He can lighten his professional duties by greater use of public health nurses and medico-social workers. He can profit by using modern business methods in the management of his professional affairs. The efficient practice of medicine demands sound organization and administration, as well as professional skills.

There can be no second opinion that by improving and applying preventive techniques the medical practitioner can serve his patients more effectively, enlarge the scope and interest of his practice, contribute appreciably to community health, and complement the specialized services of his colleagues, both in the hospital and in the public health services.

The medical practitioner is already supported in his preventive efforts by his colleagues in the public health service who can assist him in many

ways, such as the prevention of occurrence of communicable diseases by immunization and the sanitary control of water and food. Unless, as a medical student, he is effectively taught the resources available to him, and unless his curiosity has been aroused, he will not acquire the requisite knowledge.

The medical student of today in a developing country will be the general practitioner of tomorrow in a developed country. Now is the time to prepare him for his future role of protecting the health of the people who will be under his care. For this teachers are of course necessary, and one is, therefore, thrown back always to the first essential: that every teacher in a medical college or school shall be inspired by the preventive idea, whether in the basic or clinical sciences.

2.3 Contributions to other disciplines

The value of a department of preventive medicine is sometimes questioned by clinical teachers in established specialties. They ask what contribution towards the general body of knowledge can be made by such a department. The justification must ultimately depend not only on the status of the head of the department, but also on the effective part his department can play in the teaching of students, in the postgraduate orientation of practitioners in the new advances of medicine, and in research. The requirements for a teacher are dealt with later in this report (see page 11). Here it is only necessary to mention briefly such matters as the value of biostatistical services with the necessary equipment and technicians, of medico-social workers, of experience in administration, knowledge of the organization of community services, and of research techniques required in, for example, surveys and clinical trials. A trained epidemiologist can help clinical departments in the study of infectious and occupational disease and also of cardiovascular and similar conditions. If the ecological approach and the preventive idea is to permeate all aspects of medical teaching, it will be facilitated by experienced staff members who have acquired specialized knowledge. Included here are communication techniques and health education as a preparation for the counselling which the physician is so often called upon to undertake.

In many universities the medical school is a somewhat isolated unit, often separated physically from the rest of the university buildings and unpopular because of its high cost. It is sometimes thought by the university authorities to be making little or no contribution to the general body of knowledge outside medicine. The Department of Preventive Medicine can contribute to the general body of knowledge by offering the special skills of its staff to other faculties in fields of mutual interest—sociology, anthropology and psychology, in the geographical aspects of disease, the economics of health and welfare services, and law and administration.

Schools of veterinary medicine are playing a great part in the prevention of disease in human beings as well as in animals, for example in the control of the zoonoses. The subject of comparative medicine is one which will require much attention in the future. The faculty of agriculture is, of course, directly concerned with the successes or failures of medical care, through its impact on food production.

2.4 The preventive idea

Many young people are drawn towards the study of medicine because they desire to be of service to their fellow men. While there may not always be the high degree of intellectual detachment characteristic of the motivation of the physicist or the chemist there is on the other hand an emotional reaction, which displays itself at first in an intense interest in the drama of the operating theatre or in the major clinical life-saving measures. It takes some time for the student to grasp the wider setting in which he will work, and sometimes this may never occur if teaching of the preventive idea, with its social connotations, is inadequate. There is a need to inspire students with a sense of urgency regarding the prevention of disease.

In some ways it is easier to provide the necessary stimulus in the developing countries than in the highly industrialized communities. A young student taken out to a poverty-stricken area and shown the conditions under which the people live and work, the deaths of mothers in childbirth, the malnutrition in small children, the ever-present risk of infectious disease or infestation, the many tuberculous, grasps quickly the need for prevention. In more sophisticated surroundings the urgency is less apparent. It is essential that this interest be stimulated and maintained so that it becomes a vital part of the doctor's thinking.

3. PREVENTIVE MEDICINE IN UNDERGRADUATE TEACHING

To improve the teaching of preventive medicine to medical students, three suggestions were made. First, that the undergraduate curriculum should contain a substantial amount of teaching in preventive medicine in all departments. Secondly, this teaching should be organized in large measure through professorial departments of preventive medicine. Thirdly, that particular attention should be paid to the status of the subject—which is, of course, reflected in such things as the quality of the teaching staff, salaries, research grants and equipment, as well as in such matters as recognition by professional colleagues, the teaching time available, university examination regulations, and the number of teaching staff engaged. A complete survey is not necessary, for this has recently been the subject of the Technical Discussions at the Sixteenth World Health Assembly

and of a number of other reports. The following questions have been particularly discussed.

3.1 Who is to teach preventive medicine ?

Two groups of teachers are involved. The teachers of all the pre-clinical and clinical disciplines must be able to contribute to the preventive aspects of their particular specialty. In addition a professorial department of preventive medicine in each undergraduate medical school is essential, fully and adequately staffed by teachers qualified in public health and related subjects. Only by such a special department could the status of the subject be recognized within the school and the highly technical content of modern preventive methods be demonstrated adequately. Other reasons given for the existence of separate departments of preventive medicine were the urgent need for a high quality of research work and also the co-ordinating and catalytic effect of such a department. Such a department would foster the integration of medical subjects, and also act as a "service" department by offering statistical, epidemiological and other services (see page 9). It was also agreed that the department might act as an important bridge between the hospital and the community.

Apart from the professorial heads of departments and their medical and other health staff, the department of preventive medicine should lean heavily upon teachers from other related disciplines. Statisticians, and other scientists such as social anthropologists and psychologists, are seen as part of the team and as contributing greatly to the teaching in addition to the staff of the local and state public health departments.

The qualifications of the teachers of preventive medicine must vary with the needs of different countries as, of course, must the syllabus of the courses taught. Where possible the teacher of preventive medicine should have a clinical background in addition to his teaching and basic science experience in medicine. Apart from their general value such qualifications would lend status to his work and help him gain recognition by his clinical colleagues. It was also agreed that he should have undertaken research of high quality, with appropriate publications. He should have acquired experience in a health department, including field experience and a sound knowledge of the administration of health services. It would be essential, of course, that he should have a postgraduate public health qualification or its equivalent.

3.2 When should preventive medicine be taught ?

A feature of the development of modern teaching has been the elasticity of curricula in different universities and medical schools, and many experiments are being conducted in new groupings of subjects throughout

the world. Different curricula will be able to accommodate the teaching of preventive medicine in different ways. However, action may be guided by the following considerations :

(1) Preventive medicine is not a special subject, such as ophthalmology, for example. It is an aspect of all subjects. It follows that preventive aspects should be taught at all stages of the curriculum, and this has been emphasized in a number of WHO publications (e.g., reports) on the basic medical sciences¹ and pathology.² Once the student has acquired the preventive concept, it will stay with him during his entire professional career.

(2) Certain parts of the course—for example, the epidemiology of a chronic disease such as tuberculosis—should be taught at the same time as the subject itself, and should be dealt with by the clinical teachers.

(3) In rapidly developing countries early consideration of the principles of prevention of the mass diseases will be necessary.

(4) When the preventive approach is taught in all subjects by all departments, in a continuous process from the beginning of medical studies, the department of preventive medicine may concentrate its major teaching within the clinical years. Even so, certain subjects, such as medical statistics, social psychology and sociology, may be taught in the pre-clinical years so that they can form the background for later studies.

(5) There is evidence of greater enthusiasm among students for study of prevention before they experience hospital medicine, at which stage the drama of clinical work tends to obscure the earlier impressions. To sustain this enthusiasm the preventive aspects of medicine should be taught throughout the course.

3.3 What should be taught ?

Difference of emphasis will spring from the varying medical needs of countries and, as noted earlier, developing countries will be preoccupied with major mass diseases, hygiene, environmental control and problems of nutrition. With the growth of industrialization a greater emphasis on the organization and administration of health and welfare services might, perhaps, be expected, and on the diseases of urban and industrial life and aging populations.

The central and dominating group of subjects in preventive medicine is, of course, found in the traditional syllabus of public health and environmental control, but a number of new and special subjects are also advocated,

¹ *Wld Hlth Org. techn. Rep. Ser.*, 1961, 209.

² *Wld Hlth Org. techn. Rep. Ser.*, 1959, 175.

of which examples are now given. These do not make a comprehensive list, but the epidemiological method takes first place :

- (1) the epidemiology of diseases, injuries and disabilities ; methodology
- (2) medical statistics
- (3) medical aspects of sociology, social psychology, and anthropology ; interaction of disease and society
- (4) elementary genetics
- (5) the social and economic aspects of medical care ; social security
- (6) the organization of health and welfare services.

In addition, certain subjects may require special emphasis. They include industrial medicine, housing, the control of radiation hazards, drug addiction, the problems of adolescence and delinquency, and the use of health indices. The Committee also agreed that the subject of nutrition in its new context of the population explosion was of major importance. This was true also of some knowledge of international health problems.

Finally, it is rarely sufficiently emphasized how much the practitioner must rely on his ability to communicate with the families under his care. It is therefore recommended that the essentials of communication techniques, with particular reference to health education, be included in preventive medicine courses. As pointed out by the WHO Expert Committee on Training of Health Personnel in Health Education of the Public, the future doctor should acquire some understanding of :

“ (a) the cultural and social factors affecting people’s ideas and actions about health ; (b) the learning process ; (c) the psychological factors which influence the behaviour and learning capacity of individuals or groups of individuals who come together as learner and teacher, doctor and patient, or doctor and other health workers ; (d) educational methods and techniques.”¹

3.4 How and where should preventive medicine be taught ?

The methods and the place of teaching are treated together because they are related. Only the main features of the Committee’s discussions will be mentioned.

The Committee was particularly concerned to emphasize the motivational value of active, as opposed to passive, work in the teaching and learning of preventive medicine. Participation in laboratory work, surveys, field projects, outpatient and peripheral services, domiciliary care and rural health programmes, so long as they involve some degree of personal responsibility, are strongly advocated as teaching methods. The lecture was recognized to be an economic but sometimes uninspiring method of teaching, and the seminar was favoured, particularly when original material

¹ *Wld Hlth Org. techn. Rep. Ser.*, 1958, 156, 21.

was presented. It was also agreed that tutorial methods should be adopted wherever possible. The student should be encouraged to participate in research.

As noted above, taking part in community health schemes, including clerkship or residency in supervised services, has been shown to be of great value, especially when the medical school has formal access to general medical practices or field training areas. In this latter respect reference was made to an earlier report of the WHO Expert Committee on Professional and Technical Education of Medical and Auxiliary Personnel.¹ A number of other teaching devices were also favoured by the Committee. They included interviews, talks and lectures by the students themselves, group discussions, demonstrations and group presentations, and visits to community projects, including industry. (The visits are, however, sometimes too passive, and therefore become boring to the student.)

Ideally, the teaching of preventive medicine takes place in the community, in and around the homes of the patients. Such extramural experiences serve to counteract in some measure the traditional emphasis on the "case" in the hospital bed which has so often been the main feature of clinical teaching in the past. It is now possible to influence the physical, biological, social and economic environment of the patient and his family, as well as his habits and ways of living. This could not be done to the same extent in former times. When this can be demonstrated to the student it is of double value, for it not only arouses his immediate interest, but is of lasting practical use to him during his professional life. It provides the link, hitherto missing, between work in the laboratory and at the hospital bedside or outpatient department, and work in the community. The achievement of this object is also greatly facilitated by the social service which students are required to render during vacation as a part of undergraduate education in some countries.

Of particular importance are demonstrations of the different ways of organizing community health services. A general medical practice, for example, can be carried on in a number of ways. Some of these foster preventive ideas and some do not. The student should have the opportunity of working, perhaps as a junior assistant, in a general practice or health centre with practitioners who are familiar with prevention. In some countries it will be useful to assign students to the departments of preventive medicine, as is done in the other clinical departments. They may then participate, under supervision, in the work of rural health centres, and may be given opportunities to study the health and welfare of families in the villages.

The Committee was in favour of integrated textbooks in which the prevention of disease takes its place with the description of causation, diag-

¹ *Wld Hlth Org. techn. Rep. Ser.*, 1959, 159.

nosis, prognosis, treatment, and rehabilitation. It was agreed that further consideration should be given to encouraging developments of this kind, in addition to the production of special textbooks on preventive medicine.

This Committee strongly advocates integrated methods of teaching, about which much has been written. In theory, at least, such integration should stem from the attitudes and approach of all teachers, but there should be combined teaching on an organized basis as well. Joint appointments of teaching personnel by the department of preventive medicine with clinical and other departments would greatly facilitate the process. Other important types of integrated teaching include the combined case study, the long-term family study, and the contributions of preventive medicine teachers to clinico-pathological conferences.

The purposes of integrated teaching are seen, firstly, as a reinforcement of the learning process and, secondly, as an attempt to bring together the divergent specialties in medicine.

4. AIDING THE PRACTITIONER IN THE PREVENTIVE ASPECTS OF HIS WORK

4.1 The general practitioner and the community

There is, usually, a great scarcity of medical practitioners in developing countries. Even when the number is adequate, the general practitioner finds many obstacles in his way when he tries to practise preventive medicine. He practises alone and is often isolated from colleagues in health centres, teaching hospitals and medical schools. Most persons who come to him for care do not ask for or know about preventive medicine. They may be unable to follow his advice for social or economic reasons. Often he is paid only for special treatment, such as injections and prescribing drugs, and not for giving advice on the social or emotional problems of the patient and his family, or for mass screening of disease or prophylaxis. In some areas he has to compete with non-qualified healers who are sometimes paid equal fees.

This functional isolation of the general practitioner in many countries can be overcome only by assistance from government or other agencies. It includes financial assistance for preventive actions (especially mass prophylaxis, counselling and health examinations) and for the provision of postgraduate education that will help the general practitioner to keep up with new developments in all aspects of medical practice. Too often, health services make little use of general practitioners and leave them out of their plans, largely using their own staff. This is particularly true of national campaigns of disease control—for instance, malaria, tuberculosis, trachoma, and bilharziasis.

In many developing countries, the poverty of the people prevents them from carrying out treatment and other recommendations offered by the general practitioner. Moreover, in such societies there is so much illness and disability that the general practitioner, overwhelmed with the tasks of diagnosis and treatment, has little time for mass prophylaxis or screening, or for family counselling on the social and psychological complications of illness.

No easy solution is at hand for improving the performance of the general practitioner in the preventive aspects of medicine in developing countries. But it is clear that the governments involved can help, once their health leaders recognize the potential value of general practitioners in the prevention of disease, injuries and disability, and provide the organizational framework, the financial assistance and opportunity for postgraduate education.

National planning of health and medical services may profitably include the role of the general practitioner in both preventive and therapeutic medicine. He may be paid for mass prophylaxis and screening whenever he actually participates in mass campaigns, or serves schools, industries and communities. He may be paid for family counselling on the social and psychological complications of disease even though no drugs are prescribed. He may be attached to the nearest health centre or community hospital to enable him to keep up with and to participate in new developments. Even though serving only part-time, he might be designated a regional or local medical officer of health to give him status in his community.

Postgraduate courses in general medicine and its preventive aspects could be given by the nearest medical schools or teaching hospitals to groups of general practitioners at regular intervals. Teaching teams could also be sent from these institutions to health centres, to teach, to give consultations and in turn to learn about the problems of health and medical care outside the protected environment of the hospital.

To help governmental medical officers assigned to rural areas to give all types of medical and health services, courses in preventive medicine should be mandatory.

Paramedical and auxiliary personnel could be assigned to isolated general practitioners to help with screening examinations and record-keeping. They could assist with home visiting to uncover family social and economic problems that hamper successful medical treatment. Precise instruction would help paramedical and auxiliary personnel to be most effective in this assignment. Guides for carrying out preventive services for common diseases and disabilities would also be useful to the general practitioner and local medical officer. They should be relevant to the region and should be kept currently refreshed.

Many campaigns of disease control falter unless the general practitioners participate actively. As an example, in one developing country in which

the advanced stages of a malaria eradication campaign had been reached but in which progress was slow, when the general practitioners were given a specific role, supplied with materials and told to treat newly diagnosed patients with drugs supplied freely, the results were impressive.

4.2 The interest of the practitioner in prevention

In aiding the medical practitioner to practise preventive medicine, we must first gain his attention, his acceptance of the importance of the subject and, finally, persuade him to apply preventive techniques in his daily work. It is equally profitable, and can be as intellectually satisfying, to prevent disease and disability from occurring as to treat or correct it when it exists. Unless the practitioner has an opportunity to become convinced of this, the motivation for preventive medicine will be lacking.

Preventive techniques are usually actions which the medical practitioner, rather than the "patient", initiates. The doctor's work in this field turns upon factual knowledge, particularly of vulnerable groups, and so leans upon adequate record systems. Some examples of preventive techniques follow :

- (1) prevention of communicable disease by vaccination ;
- (2) early diagnosis of chronic disease by pre-symptomatic screening or the prevention of chronic disease from occurring by examining " high-risk " groups ;
- (3) prevention of accidents, e.g., by education, design, engineering ;
- (4) influencing personal habits and ways of living, e.g., alcohol, smoking, overweight, malnutrition, exercise ;
- (5) reduction of damage from the newer environmental hazards, e.g., by education, safety devices ;
- (6) prevention of some disabilities in the aged, e.g., through preparation prior to retirement ;
- (7) prevention of transmission of genetic defect, e.g., by eugenic counselling ;
- (8) prevention of social breakdown, such as delinquency, e.g., by co-operation in family case-work ;
- (9) reduction of venereal disease, e.g., by health education and early diagnosis.

Here are some additional ways to interest the general practitioner in the preventive aspects of medicine :

- (1) by the demonstration of preventive services in vulnerable age and sex groups of the population ;

- (2) by assigning him an active role in mass campaigns against diseases such as malaria, leprosy and tuberculosis ;
- (3) by exchanges and visits to areas where preventive work is already well done by general practitioners ;
- (4) by providing manuals and guides on the preventive aspects of disease and disabilities commonly seen in practice ;
- (5) by the promotion of public demand for more preventive services ;
- (6) by encouraging changes in the policy of medical journals and medical associations to include more articles on the preventive aspects of medicine ;
- (7) by attendance at international meetings where new developments are presented and new techniques demonstrated ;
- (8) by promoting the interest of foundations, official and voluntary organizations, in granting funds for postgraduate education and the organizing of regional demonstrations ;
- (9) by prompting surveys of the need for postgraduate education by health agencies, the medical schools and medical associations acting together.

The medical practitioner's interest in preventive activities needs, indeed, to be supported by his colleagues in the public health and community agencies. They can assist him in many ways, such as a mass approach to communicable diseases and environmental contamination. The practitioner and the health officer can, and do, work jointly on such matters as epidemics of diarrhoeal disease of the newborn, infectious hepatitis, and health education campaigns among families, among school groups, or in entire communities.

Public health nurses and medico-social workers assist the general practitioner with his hospital or home-bound patients when social and economic problems arise. Voluntary organizations may be useful sources of referral and of help in following up recommendations in difficult social and psychological family problems. Preventive measures taken when the social components of illness are still of a minor nature may help to avoid serious problems that might become insoluble.

The medical practitioner needs to be kept informed about the health and welfare resources of the community, and should be helped to make frequent and continuous use of them. The community has indeed certain responsibilities and many opportunities to assist the medical practitioner to practise preventive medicine. It can, for example, provide him with laboratory services to aid him in early diagnosis. It can make rehabilitation services and facilities available for his patients with chronic and disabling conditions. In these centres he can also learn the use of modern rehabilitation techniques to apply in his office and in the patient's home.

When an epidemic of special interest occurs, or a new technique of prevention is developed, or a new drug produces untoward results, a brief report could be sent to each doctor in the area from the health department and the medical society. Such a statement, covering the preventive aspects and authoritatively signed, would be read and followed. It is essential that such information should be prepared and distributed promptly.

4.3 Postgraduate education in prevention

As many as possible of the preventive services established should be organized around the medical practitioner. This can be done by increasing systematically his knowledge and skills in the preventive aspects of medicine through modern methods of postgraduate education. This teaching differs from that given to medical students. Undergraduate teaching is essentially concerned with scientific methods and the basic principles of prevention. The practitioner, as is clear from his designation, is interested in the day-to-day practice of medicine. The content and methods of instruction suitable for him must be different: the teacher concentrates on gaining and holding his interest in the preventive aspects of the diseases that he sees daily. This cannot usually be achieved through formal study of biostatistics, epidemiology or administration, but by short courses and demonstrations which relate the new preventive ideas to diseases which are of concern to the practitioner.

One can achieve results within a few years if careful planning, financial support and the necessary personnel are provided. This programme should be under the aegis of the medical association, the medical school, and the health department. If there is a medical school in the area, its department of preventive medicine may well take the initiative. Joint plans can be made by the three groups concerned to set up demonstrations of programmes of postgraduate education. These can be extended to adjacent areas as funds become available. The essentials are high quality, continuity, and involvement of the majority of practitioners.

The teaching of medical students and general practitioners can proceed simultaneously: often it may be conducted from the same medical school, teaching hospital or health centre. But the strengthening of teaching of preventive medicine in medical schools takes longer. It cannot be considered separately from the over-all effort to improve the teaching and learning in the medical schools, and the medical curriculum.

Opportunities should be open to young graduates for training not only in the clinical specialties but also in preventive medicine at health centres and health departments.

In some countries the general practitioner serves as a part-time medical officer of health because of lack of qualified personnel, lack of organized services, or both. In other countries medical practitioners, both general

and specialized, serve full-time in organized health departments engaged in both preventive and therapeutic medicine. Formal courses in preventive medicine can be given at regular intervals to these doctors as part of their official duties.¹

What is taught to general practitioners in the preventive aspects of medicine will vary, of course, with the prevailing pattern of disease, i.e., the morbidity and mortality in different regions and countries at different periods of time. It is these characteristics of disease which will determine the scope of the new material. A balanced array of knowledge and techniques is essential, based both on the wishes of the practitioners and on the current needs as determined by the medical faculties.

New concepts in medicine, particularly the influence of social factors in disease causation and chronicity, are continually appearing. New techniques are developed in prevention applicable to families and groups, in industries, schools and hospitals. The detection of early mental illness, before institutional care becomes inevitable, is an example of these new concepts. These preventive actions help also to get older disabled patients out of bed and up and about, so that they can look after their own personal needs instead of being dependent upon others.

There is need for new training methods that appeal to the practitioner and conserve his time, such as short-wave radio postgraduate courses, cinema films and closed-circuit television demonstrations and special publications.

Short postgraduate courses could be organized in connexion with medical meetings, reunions of former students of medical schools, as well as special clinical days in peripheral hospitals.

In their everyday work practitioners need communication skills in explaining diagnosis and treatment and good health habits. Skilful communication is especially necessary in the preventive aspects of medical practice because the medical practitioner becomes involved in explaining social, emotional, economic and cultural factors and their effect on disease and on health. Health education techniques can be learned by any practitioner, for "every medical act provides an opportunity for useful educational work" in health.² Instructions to patients are an essential part of treatment. Instructions to the family, for example on medication, nutrition, isolation, and rest, often determine the success or failure of therapy.

These skills in communication will be particularly useful in the preventive aspects of medical practice, and in the counselling of families on their medical problems where early treatment can often prevent the occurrence of disease and avoid serious *sequelae*. They will also help the medical

¹ See also the report of a Conference on Public Health Training of General Practitioners (*Wld Hlth Org. techn. Rep. Ser.*, 1957, 140).

² *Wld Hlth Org. techn. Rep. Ser.*, 1958, 156, 11.

practitioner in participating in general health education activities, if so required.

It becomes evident from this report that the support and participation of consultants and specialists in medical schools and teaching hospitals are essential. It is therefore important that they are also imbued with the preventive idea. One of the real obstacles which has to be overcome is inertia or resistance to change, and a word of caution should be added on the problems of postgraduate education, for this is not easy to initiate or keep going. It requires money, staff and skilful planning. Yet postgraduate education is essential to ensure progress in the practice of medicine of high quality.

5. CONCLUSIONS

The Committee, after reviewing the evidence, concentrated on certain elements for immediate attention in promoting the preventive aspects of medicine. It has done so under three main headings. These are: the need for prevention in medicine, the teaching of preventive medicine in the undergraduate curriculum, and the help required by the medical practitioner in the preventive aspects of his work.

5.1 The need for prevention in medicine

5.1.1 A new urgency for prevention stems from the changing patterns of disease, from the massive increase in populations, and from advances in knowledge in preventing and delaying the onset of disease. The financial burden of medical care is reason enough for a review of the teaching of the preventive idea.

5.1.2 The unique characteristic of modern preventive medicine is its relevance to every specialty of medical practice, and particularly to the work of the medical practitioner. The medical practitioner is the key figure in the provision of personal medical services in all countries, including those with nationalized health programmes.

5.1.3 Because of the urgency for prevention, it is necessary to teach the physician of the future to understand and apply the broad concepts of the preventive aspects of medical care, and to ensure that those already in practice are given every opportunity to learn about the preventive aspects of their work. Such teaching can enable the medical practitioner to serve his patients more effectively, enlarge on the scope and interest of his practice, contribute to community health, and complement the specialized services of his colleagues, both in the hospital and in the public health services.

5.2 The teaching of preventive medicine in the undergraduate curriculum

5.2.1 The undergraduate curriculum should contain a substantial amount of teaching in preventive medicine and there should be a professorial department of preventive medicine in each undergraduate medical school, fully and adequately staffed by highly qualified teachers.

5.2.2 The status of such a department must be assured. This will ultimately depend on the quality of the teaching staff, the research undertaken, and the effective co-operation with other departments and with community services.

5.3 Aiding the practitioner in the preventive aspects of his work

5.3.1 To encourage and enable the medical practitioner to apply the preventive idea, he requires the wholehearted support and combined planning of the medical schools, the medical associations and the health authorities; postgraduate education of the medical practitioner requires a special approach.

5.3.2 Appropriate organizational and financial provision should be made, within the limits of the resources of the community, for the medical practitioners' activities in prevention, including postgraduate and continuing education.

5.3.3 Among several preventive features of postgraduate education discussed by the Committee were included the teaching of communication techniques for educational work with patients and their families, and the use of various kinds of demonstrations—e.g., pre-symptomatic screening for chronic diseases, genetic counselling and the rehabilitation of the disabled.

5.3.4 Additional methods of interesting the medical practitioner in the preventive aspects of medicine include personal participation in immunization and other campaigns, exchanges of information on new techniques, provision of manuals and textbooks, and active involvement of the medical practitioner in teaching and research.

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