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**WORLD HEALTH ORGANIZATION
TECHNICAL REPORT SERIES**

No. 355

**THE USE
OF HEALTH SERVICE FACILITIES
IN MEDICAL EDUCATION**

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

WORLD HEALTH ORGANIZATION

GENEVA

1967

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PRINTED IN SWITZERLAND

CONTENTS

	Page
1. Objectives of undergraduate medical teaching	6
2. Limitations of hospital training with regard to the type of experience required	8
2.1 Main objectives of teaching hospitals	8
2.2 Main limitations of teaching hospitals as regards undergraduate medical education	9
2.3 Possible changes in orientation of teaching in the hospital	11
3. Provision of training in other institutions	13
3.1 Centres for ambulatory care	14
3.2 Domiciliary care	14
3.3 Teaching health centres	16
3.4 Other public health and social service activities	19
3.5 Field training areas	20
3.6 Regionalized health services	21
4. Education	23
4.1 The teaching-learning process in community-oriented medical education	23
4.2 Areas of knowledge and experience to be included in the curriculum	26
4.3 Teaching responsibilities and staffing of departments of social and preventive medicine	28
4.4 Administrative and technical arrangements for use of health institutions for training of medical students	30
5. Summary and recommendations	32
Annex 1. Undergraduate teaching programmes of preventive medicine and public health at the Medical School, University of Valle, Cali, Colombia, 1965-66	35
Annex 2. Phases of teaching at the Medical School, University of Valle, Cali, Colombia, 1965-66	36

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

Geneva, 26 July - 1 August 1966

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THE USE OF HEALTH SERVICE FACILITIES IN MEDICAL EDUCATION

Sixteenth 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 26 July to 1 August 1966 to discuss the use of health service facilities in medical education. Dr C. Fraser Brockington was elected Chairman; Professor G. Velázquez Palau, Vice-Chairman; and Dr B. G. Prasad, Rapporteur.

Dr P. Dorolle, Deputy Director-General, opened the meeting on behalf of the Director-General and recalled that this was but one of a long series of meetings convened by WHO to discuss the multiple problems encountered in medical education. Modern teaching of medicine relates more and more to its social elements, but often insufficient use is made by teaching institutions of the health service facilities that are available to serve as the laboratory of this social aspect. There are certain limitations to hospital training with regard to those types of experience that are required of graduating physicians, and the present tendency is to consider that the hospital should not be the only facility used for the practical training of medical students. Hence, the tasks before the Committee were to examine all other resources in the community that represent those settings in which the future physician will actually work and to study ways of encouraging medical schools to use these potentially valuable facilities for training purposes.

In examining the subject, the Committee noted some relevant previous WHO reports as well as documents issued by the Organization, including its Regional Offices.¹

¹ *Wld Hlth Org. techn. Rep. Ser.*, 1953, 69; 1962, 239; 1963, 257; 1964, 269; 1966, 320; 1966, 337; *WHO Chronicle*, 1964, 18, 423-424.

1. OBJECTIVES OF UNDERGRADUATE MEDICAL TEACHING

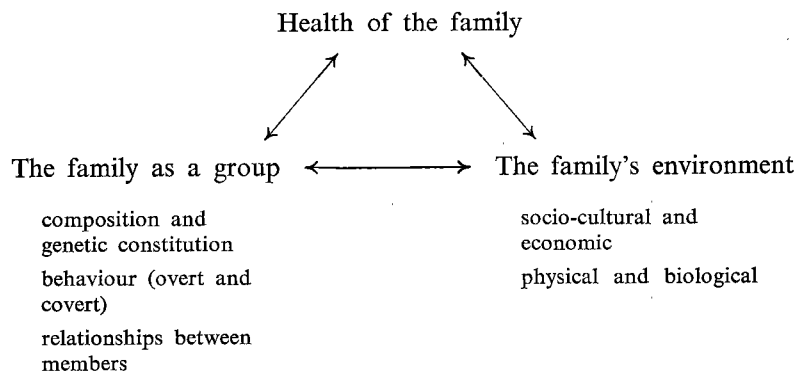
In educating the physician, one must aim to develop the knowledge, skills and attitudes necessary for the care of people in sickness and in health ; such care includes prevention, treatment, after-care and rehabilitation of all illness in the community as well as in the hospital. The achievement of this high general level of care demands as rigorous an application of scientific method in the practice of medicine in the community as in practice of medicine in the hospital.

The functions of the physician in the community can be characterized in terms of the individual, of the family and of the community as a whole.

(a) Care of the individual in the community ideally involves the physician in the direct prevention of disease and promotion of health. In the care of the sick person, either at home or as an ambulatory patient, the doctor must combine the preventive with the curative aspects of his practice. These should be integrated to provide continuity in the care of the individual.

(b) Care of the family requires investigation and diagnosis of the health status of the family as a group. The health investigation of the family should be related to an evaluation of other characteristics, such as its composition and genetic constitution ; relationships within the family ; factors regulating behaviour, values and attitudes determining daily practices affecting health, and decision-making processes of direct relevance to health ; and the belief system and framework of knowledge within which action is taken. The family's health must also be related to the physical, socio-cultural and economic environment in which it lives and functions.

These relationships may be expressed in the following diagram :



(c) Protection of the health of the community as a whole is dependent upon knowledge of the factors associated with the occurrence of disease in the mass as distinct from the individual. This requires :

(i) knowledge of the environmental, social, psychological, economic, nutritional and industrial characteristics of the community ;

(ii) specification of the causes of illness and their importance for the population as a whole, with special reference to infections, malnutrition and also chronic disease ;

(iii) study of factors affecting growth, development, aging and the degenerative processes.

In order to achieve the protection of the community's health, the best available medical care for the whole community must be ensured, and the physician, in association with other health workers, must use preventive measures adapted to it, more especially to those groups within it that are at special risk. Medical responsibility for this work usually rests in the hands of public health physicians who have been specially trained and appointed ; but in some parts of the world, particularly in rural areas, where such specially trained physicians have not been appointed or are available only in distant places, the physician practising in the community (family doctor, general practitioner or other physician) is often called upon to take a considerable measure of responsibility for local health problems. Apart from this possibility, every physician, wherever he practises and at whatever level he does so, must be familiar with the community aspects of medicine for, even if he does not himself have the direct responsibility for the administration of such services, he must none the less play an important role in their operation through health education, in providing specific measures of protection, and in carrying out surveillance.

The physician who practises in a hospital must be able to see his own work as part of a broader picture and know how and when to collaborate with outside agencies for various aspects of health protection. The physician practising outside a hospital is a first-line public health worker in his daily practice : he sees patients in their own environment ; he is the first to observe the occurrence of infection ; and he plays a role in mass screening, in health education, in surveillance of groups at special centres and in immunization. In all these ways, his work is indispensable to public health.

The education of every physician should, therefore, enable him to recognize the nature of these problems, to understand how factors affecting health can be examined and measured and to discern the practical steps that can be taken to counteract hazards ; he should know enough about the economics and priorities of public health programmes, at both the local and national levels, to recognize when the local community must make important decisions and when the national cost of health services must be balanced against those of other community services. He should understand how health services operate and are related to one another ; the principles governing the delivery of medical care, what parts are played

by auxiliaries and other health workers, and the effects of culture on demands for services and the use made of them when they are provided.

Throughout this report, the words "community orientation" are used in a special operational sense. The word "community" is used with two quite different meanings, as defined below.

(a) The community represents a geographical and political entity in which people live and health institutions function. The care of individuals and families in the community, as thus defined, therefore carries implications of great importance to all practising physicians.

(b) In a more restricted sense, the community represents a small, well-defined group, such as a neighbourhood, a factory or a school, with its own special characteristics. The concept of the whole community being the physician's patient stems mainly from epidemiological understanding and public health practice. On a smaller scale, however, this is the outlook increasingly expected of all physicians.

2. LIMITATIONS OF HOSPITAL TRAINING WITH REGARD TO THE TYPE OF EXPERIENCE REQUIRED

2.1 Main objectives of teaching hospitals

The main objectives of a teaching hospital are: (a) to provide patient care for the sick; (b) to provide medical education at the undergraduate and postgraduate levels and instruction for nursing and paramedical personnel; and (c) to provide facilities and opportunities for postgraduate medical research.

(a) *Patient care.* In order to give the best possible patient care, a teaching hospital has highly trained specialized staff in various clinical and laboratory fields. Difficult as well as rare cases are referred to these specialists for opinion, treatment and advice on management. Medical teachers working in teaching hospitals are aided by the fact that the equipment for diagnosis and treatment to be found there is often of the latest and best type. This equipment must be operated and maintained in service by highly skilled technicians who must be engaged in sufficient numbers to ensure that individual patient care is maintained at the highest level.

(b) With respect to undergraduate teaching, every effort is made to inculcate in students the scientific basis of medical practice, using as examples selected cases which reach teaching hospitals.

(c) *Research.* The pursuit of research is an essential function of a teaching hospital. Any teaching hospital that fails to encourage research fails in its duty to humanity and will quickly cease to attract or retain

professors and medical teachers of adequate calibre. Postgraduate students would cease to apply for admission to it, since it would lack reputable supervisors for their research projects. Moreover, the pursuit of research by all university teachers is necessary to undergraduate teaching, both because it ensures that teachers are actively pursuing their subjects in depth and because it is a further means to interest students in the scientific aspects of medicine. For this and other reasons, the organization of research necessarily occupies a considerable part of the time of all teaching hospital staff and involves the establishment of complex units.

Members of the community, when they are sick, expect from the teaching hospital a high level of care. In the teaching hospital, physicians see a repository of medical knowledge and skills to which they can have ready access. Adequately equipped for patient care, teaching and research, the hospital does much to ensure the pursuit of a full professional life for staff and students. A subject that requires fuller appraisal is the provision made for undergraduate medical education. Are these provisions such as to produce physicians fitted to practise medicine at a level adequate to meet the present-day needs of the community? The outline of objectives for a community-oriented teaching programme suggests that this is not the case, for the following two basic reasons: (a) the high level of specialization, and (b) the emphasis upon the individual patient rather than upon the community.

2.2 Main limitations of teaching hospitals as regards undergraduate medical education

2.2.1 Specialization

The highly specialized nature of work in a teaching hospital militates against teaching for medical practice in the community in a number of ways.

Increasing specialization of the practice of medicine in the teaching hospital tends to lead to the study of the patient in ever-narrowing fields; the individual as a whole, his family and the social aspects of life in the community are often forgotten. The atmosphere of the teaching hospital, with its emphasis upon research, which is often highly sophisticated and rarely concerned with the epidemiological or social aspects of disease, does little to support the role of the physician in community medicine. The effect is often to lead to dislike of or even contempt for the role of family physician. The high level of staffing and equipment, with everything for diagnosis and treatment within easy reach or packaged and ready for use leaves the student unable to fend for himself or to train others in simple but necessary procedures. The disease picture that he sees in hospital, which is highly selected for many reasons, teaches him little about the

patterns of disease that are seen in the community itself and the problems that will face him in practice outside hospital.

2.2.2 *Emphasis upon the individual*

Attention in hospital is focused on the diagnosis and treatment of disease in the individual rather than in the community. In the most formative years of his medical career, the student of medicine finds himself in an atmosphere where individual medical care is the prime objective; he may indeed qualify in medicine with little or no appreciation that medicine can be applied to the problems of the community or group just as effectively as to those of the individual. His training does not enable him to appreciate that medical care of the community is a scientific study, and that the study of disease as a community problem and of the factors associated with its distribution constitutes the subject of epidemiology. Epidemiology bases its work on those sciences that are the foundation of good clinical practice—in chemistry, physiology, anatomy, pathology; but it also uses other complementary sciences such as psychology, social psychology, biostatistics, sociology and social anthropology. The contribution to be made by physicians trained in epidemiology is enormous in the world today when so much of disease is preventable; the teaching of epidemiology is certainly of equal importance to that of pathology; moreover, since it studies the phenomena associated with the delivery of medical care itself, epidemiology must be seen also as necessary to the practice of clinical medicine.

Emphasis upon individual care in hospital tends to lead to under-emphasis of community needs. Thus there are many areas of medical and public health care which, not being the function of the teaching hospital, are omitted or neglected in the teaching of the medical student. Such gaps are particularly noticeable in, for example, protection of the community by immunization programmes and various services to protect special groups, such as the worker in industry or the child in school.

There is the further risk that, especially in developing countries, concentration on the elaboration of hospital services, may lead to the relative neglect of the needs of preventive services and less sophisticated methods of medical care outside hospital. Since there is a need for a balance to be struck between these two forms of service, it is important that the student should be aware of the various possibilities and know how to evaluate them. For the student who is taught only in hospital, there is the danger that he may fail to understand the significance of this problem, which faces all communities.

These two basic limitations of the teaching hospital lead to wide deficiencies in the student's understanding of the essentials of community medicine. Some of these deficiencies are listed below.

(1) The great bulk of human illness occurs in forms that do not call for hospital care.

(2) Continuous care of the individual and family is an important element of medical care, and the prevention of disease is a fundamental component of all practice.

(3) Hospital care loses much of its value if it is not interlocked, for operational purposes, with community health services as a whole.

(4) Every practising physician must play a role in the community organization for health care.

(5) Effective medical care in any community calls for :

(a) an understanding of the epidemiology of health and disease, namely : (i) knowledge of the emotional and physical health of different groups in the community and of the distribution of various diseases, and (ii) understanding of the biological, social and environmental elements determining the picture of health and disease ;

(b) use of preventive techniques, examinations and education, as well as welfare and rehabilitation ; and

(c) a team operation involving hospital and community health services (i) with hospital and community physicians, (ii) with public health nurses and social workers, and (iii) with public health and welfare departments.

In short, every medical school should now seek to organize a programme for the acquisition of actual experience to ensure that the medical student is equipped : (a) to think epidemiologically and socially ; (b) to understand the part to be played by organization of health services and its dependence upon epidemiological principles ; and (c) to comprehend his social role in relation to the individual, the family and the community.

Some of this can be done within the hospital by changes in the emphasis of teaching, but much cannot. Consequently, teaching outside the hospital setting becomes an indispensable requirement for practice in a modern society. It is first necessary, however, to examine the ways in which the hospital itself can meet the needs of students in providing a community approach.

2.3 Possible changes in orientation of teaching in the hospital

There are some areas in which a teaching hospital cannot overcome its inability to meet the needs of undergraduate training without fundamentally altering its original purpose so as to provide other services that the community expects of it. An example is the apparent neglect, by such hospitals, of the commoner ailments. Apart from the difficulty of coping with the number of patients involved, to admit such cases would be a misuse of the highly expensive equipment and specialized experience that the

hospital provides. However, medical students would learn to bear in mind the epidemiological nature of diseases in general if their medical teachers emphasized to their students, in the out-patient department and ward rounds, that the picture of disease as seen by them goes beyond the particular individual, that there are family and community repercussions as well as preventive aspects in what they see, and that, as members of a diagnostic and curative team in the hospital, they are only a part of the total structure that has been erected to ensure the health of the community. This emphasis would be a considerable advance in orienting the student to a more modern concept of medical education, and it can be applied in spite of the high degree of selection of hospital patients.

There are other ways in which, without undergoing radical modification, teaching hospitals can eliminate some of the present deficiencies in undergraduate training. For example, the work done in out-patient departments, casualty departments and wards can be re-oriented, as outlined below.

2.3.1. *Out-patient clinics and casualty departments*

Out-patient clinics and casualty departments provide excellent material for teaching the social approach required in community medicine. The patients seen in these settings are closer to their home surroundings than those in the wards. Many have not been referred and present the commoner diseases or injuries from accidents in the home or elsewhere, and various members of the family may attend together. Much can be done to improve the teaching situation by the introduction of additional professional staff, such as social workers and public health nurses. Regular teaching sessions conducted by senior clinicians assisted by these workers could include consideration of the home and community from which the patients come and thereby develop teaching to include the social, emotional and environmental aspects of patient care.

2.3.2 *Wards*

The patient in the ward, even though selected and exhibiting more advanced or rarer forms of disease, can be made the subject of social and epidemiological discussion in which students can participate.

Students should be encouraged to use epidemiological knowledge on ward rounds and clinical seminars by consideration of the patient and his disease in the context of his family and community. Variation and change in the incidence and prevalence rates of the disease in different groups might thereby be related to preventive measures for the community as a whole or, more specifically, for the patient and his family.

There is little doubt that community-oriented seminars in which the clinical teacher plays a major role would be of as much interest to the

student as is the traditional " grand round " in which a considerable body of detailed clinical knowledge is reviewed but the student is left largely uninvolved as far as the patient or the community is concerned.

3. PROVISION OF TRAINING IN OTHER INSTITUTIONS

In the last 100 years, medical education has been increasingly dominated by the teaching hospital. Under the traditional preceptorial system (see section 3.2.5), the medical student received personal training from a practising physician and was thus automatically exposed to the problems of community medicine. Some way needs to be found of reintroducing this type of exposure, although this does not mean that the teaching practices of former times should necessarily be imitated today. Present recognition of the loss of the spontaneously developed orientation to the family and community that were characteristic of the outmoded preceptorial system implies that it is now essential to develop a new pattern of education to produce the next major advance in medical education by providing students with a community orientation. It has been traditional to speak of the three-legged stool on which medical education sits : research, teaching and patient-care. It is now time to provide a solid four-legged chair by adding another support, namely, community medicine.

In present hospital-oriented teaching, there has been growing unease about its evident deficiencies. This has led, in some instances, to deliberate attempts by medical teachers to remedy these deficiencies by expanding their teaching beyond the walls of the hospital. Some educational experiments are beginning to be made. For the past 20 years it has been far easier, and obviously most appropriate, to promote community-oriented medical education in developing countries, and especially in newly established medical schools. In the USSR, there has been a constant tendency to involve medical students in the whole range of systematically organized health services. Now in the Americas and some countries of Europe and elsewhere, a rapid surge of enthusiasm for the community emphasis suggests that a major development in medical education may be imminent.

It is important to build on what has been learned in recent years. The diverse teaching experiences of various schools cannot be easily classified, because many of the functions overlap and are not clearly definable. In the categorization that follows, more attention has been paid to function than to institutional structure. An attempt has been made to identify both the organizational setting and what can be done within the framework. It should be recognized that teaching health centres (section 3.3) and regionalized health areas (section 3.6) incorporate most of the other functions.

3.1 Centres for ambulatory care

Any health facility to which patients come, usually at their own initiative, and where they can be cared for on a continuing basis without being admitted as in-patients, may be considered as a centre for ambulatory care. Included in this definition are out-patient departments, polyclinics, dispensaries, curative and preventive specialty clinics, practising physicians' offices and group practice facilities. (Teaching health centres also provide ambulatory care but are considered separately under section 3.3.)

Recent efforts to revive the preceptorial system have evoked nostalgia, but this type of training has the great limitations of being difficult to supervise and of varying greatly in the quality of experience offered. In teaching hospitals, the out-patient department or polyclinic is usually the first place at which community activities have been organized. With the increasing acceptance of epidemiology as a research discipline in the clinical setting, there are more efforts to learn about the patient in his environment.

The main value of teaching centred on the ambulatory patient is that it begins to develop an awareness of the "individual in the community", an approach that is considered more extensively in section 4.1. However, this method must be recognized as only a beginning and one with only limited impact. It is, however, the type of activity that most readily produces a spontaneously favourable response in medical students because of its obvious relevance to medical practice. Some specific examples of situations where outstanding community and general practice teaching is being done are (1) the Department of General Practice, Faculty of Medicine, Edinburgh University, where 6 full-time and 13 part-time general practitioners in family practice engage fifth-year medical students for 3-months' clerkships, participating systematically in curative and preventive services, and (2) the Continuity Clinic of Western Reserve Medical School in Cleveland, Ohio, USA, where, in a special out-patient service, final-year medical students attend one half-day a week for 6 months in order to get a comprehensive picture of the continuing care of chronically ill patients.

3.2 Domiciliary care

Any programme in which medical students see patients and families at home may be considered as one for domiciliary care. Such programmes have been developed from hospitals, departments of preventive and social medicine directly, or as part of almost any other health service.

Understanding the family is a major component of community orientation. Family medicine cannot be learned without some opportunity to work in homes. Many community-oriented clinicians have sporadically required medical students to follow-up hospital patients with home visits,

especially under the tutelage of medical social workers. A few systematically organized programmes for domiciliary care have now been conducted profitably over many years. More recently, there have been numerous "family adviser" programmes in which medical students visit one or several families repeatedly over a period of one or more years. Programmes developed in either the preclinical or clinical periods each have their strong advocates, and each has particular and distinct benefits as well as problems of implementation.

There is a wide variety of home programmes. The following summary may assist individual schools in the choice of those features most suited to their particular needs. Their characteristics can be summarized as follows :

3.2.1 *Case follow-up*

Case follow-up is probably the easiest domiciliary-care activity to organize. It has the limitations of being confined to a single episode of illness, with concentration on the social factors influencing a particular disease.

3.2.2 *Preclinical family adviser programmes*

Although the medical student may have no clinical competence during his preclinical period, his interest in social, economic and ecological factors, as they affect potential or actual patients may be encouraged and extended by means of preclinical family adviser programmes. This is also an excellent time to clarify the student's understanding of growth and development through continuing study of a pregnant woman and of a growing child. One limitation is the need to confine attention to a single family, but this can be compensated for by arranging for sharing of experiences in seminars.

3.2.3 *Clinical family adviser programmes*

These programmes should be designed to capitalize on the fact that enthusiasm for clinical activities is at its peak in medical students.

The emphasis is clearly on diseased persons, with appropriate direction to an understanding of multiple causation, social and economic determinants of disease and specific environmental considerations such as housing and sanitation. Such studies provide the best means of promoting, in medical students, understanding of organized health services and their appropriate use. The limitation that each student sees only one or a few families is again present and also should be compensated for by means of seminars.

3.2.4 *Hospital domiciliary programmes*

Some hospitals have assumed the community responsibility of providing home care services of varied kinds for patients, usually within a specified

area. Several programmes of this kind have been developed in which the medical student normally makes house calls by himself, but with constant access to skilled clinicians by telephone or immediate visit. The values inherent in such hospital domiciliary programmes include providing medical students with a satisfying sense of responsibility and the chance to work in many homes and with numerous common illnesses. Among the limitations is the lack of continuing association with or depth analysis of particular families.

3.2.5 *Preceptorial programmes in general practice*

The attachment of medical students to family physicians has been considered in the eleventh report of the WHO Expert Committee on Professional and Technical Education of Medical and Auxiliary Personnel (*Training of the physician for family practice*).¹ A considerable variety of experience is provided by different programmes, ranging from a very limited number of visits to a family physician to a full-time clerkship in family practice, either with a family physician or in a special family-practice programme such as that mentioned in section 3.1 above.

While such schemes are obviously attractive and have considerable potentiality for contribution to community-oriented medical education, many problems must be overcome to make them effective. A high standard of practice, comprehensiveness, and the willingness and ability of the physician to teach a medical student are among the essentials for success. Bearing in mind the numbers of students in the average medical school, the organization of the programme will require much planning and will involve the participation of a considerable number of general practitioners. Despite the problems involved, this approach merits careful encouragement in those countries where general practice is well developed and the family physician is a feature of the medical care.

3.3 **Teaching health centres**

A health centre may be defined as an institution providing health services to a defined community. Ideally, it should include: (a) health care, both preventive and promotive, for individuals, families, other special groups and for the community as a whole; (b) medical care of the sick, both at the health centre itself and at home; and (c) rehabilitation services in association with community welfare agencies.

In Western Europe generally, health centres are essentially preventive services, including maternal and child health clinics, immunization centres and special treatment and investigation facilities for communicable diseases such as tuberculosis. General medical care, whether of an insurance type

¹ *Wld Hlth Org. techn. Rep. Ser.*, 1963, 257.

or private practice, is usually carried out separately by physicians who are not associated with the preventive service as a whole. In Eastern European countries, on the other hand, the health centre or its equivalent is already a well-established feature of local community health services. The health centres bring together curative and preventive services and are closely co-ordinated with hospitals and other regional health services.

In the USA, the continued separation between public health practice (for the greatest part, preventive services) and private medical practice (for the greatest part, curative services) has expressed itself in the development of two types of centre. Those with a public health origin provide particular preventive services co-ordinated in neighbourhood or district health centres. On the other hand, as group practice has become an important element of private medical practice, these groups have also tended to assume a significant role in providing individual preventive services.

In some African and Asian countries in which the numbers of physicians and other professional health workers with advanced training are limited, health centres may be under the immediate direction of "medical assistants" who are responsible for much of the curative care undertaken at the centre; other staff include "health assistants"—who have special training in environmental sanitation in rural areas—midwives and, sometimes, auxiliary nurses with additional training in public health. A number of developing countries are now trying to obtain fully qualified physicians to staff health centres. In many places, these centres have a limited number of beds for the sick as well as an in-patient midwifery unit. The administrative control of community health centres in these countries is usually under the direction of a public health physician, the district medical officer. A limited number of trained specialists in public health may also be provided, such as an environmental health officer (engineer, sanitarian, health inspector), public health nurse and, more recently, professional staff with special experience and training in health education.

In most of the world, the community health centre, however simple its structure may be, is becoming the primary institution to provide curative and preventive services to the community. There is thus emerging an institution for the practice of community medicine that can be linked with medical education in much the same way as the association has developed between medical schools and teaching hospitals. While the contribution of such community health services in medical education is the central theme of this document, the role of the medical school in making the innovations that are necessary for full development of such centres must be kept in mind. It is through its close association with the modern medical school that the teaching hospital has been able to translate the advance of science into clinical medicine. There is no doubt that a similar association between medical schools and teaching community health centres could have equally effective results for the practice of medicine in the community.

Among the important factors determining the scope of a health centre programme are the administration and organization of the practice of curative medicine and public health practice. The community health centre has evolved as an institution facilitating the integration of various health services. The integration might be a purely administrative one in which various services are housed together in a single building but remain functionally independent, or the health centre service can be a highly integrated functional programme embracing a number of facets of medical care in the community.

Health centres as described here satisfy many of the essential requirements for teaching undergraduates in community medicine, for the reasons given below.

(a) There is integration of services, which is not only administrative but, more importantly, functional.

(b) There is comprehensive information about the health of an area, which makes possible the planning of services on a realistic priority basis.

(c) Medical care in health centres is ideally comprehensive, being preventive and curative as well as continuous and family centred.

(d) There is emphasis on team-work, the team being concerned with individual, family and community services, with the physician as team leader.

(e) The health-centre physician, with his team, deals with the family as a unit and is concerned with all levels of prevention, including physical and emotional disorders as well as social problems. He gives continuous, not only episodic, care and is the first person to treat the sick or injured individual. He is also engaged in screening to discover pathological changes before they are manifested. In these various ways he is able to show the student the need for and the value of preparation for rehabilitation from the outset.

(f) There is an epidemiological approach to health problems in small groups, more especially the family, and in the community as a whole.

(g) Morbidity is exhibited as it occurs naturally in the community, with less selection and in stages which for the most part are not seen in teaching hospitals.

(h) There are opportunities for observing collaboration with specialists, hospitals and other health institutions, social and community services and voluntary agencies.

In this way, the medical student sees health protection as a matter for the whole community and as a planned effort to raise standards of health, working conditions and human relations. Moreover, he can see that the health services are only one link in the health protection of a community,

and that health workers must collaborate with a wide range of community agencies.

An important contribution to teaching, research and service of teaching health centres would be made by the participation of senior clinical teachers in the practice of the centre. At present, this is not a well-developed feature of most teaching health centres, but it is considered that such participation would add considerably to the student's interest.

This is especially so in the case of teaching health centres in rural communities. The lack of willingness of physicians to practise in rural areas is a world-wide problem. It is felt that a contribution to the solution of this problem can be made by relating such teaching health centres very closely to medical school and teaching hospital departments. In this way, not only will standards of practice at such centres be maintained at a high level, but the student will see his own clinical teachers functioning in this setting as well as in the hospital.

3.4 Other public health and social service activities

A public health activity is one that is concerned mainly with health problems in the community itself, i.e., with disease in the population as a whole rather than in the individual.

Of the public health and social services that may be used for field training of the medical student, the following may be considered when selecting those most relevant for medical practice in particular areas.

- (a) Activities concerned mainly with environmental hazards.
- (b) Activities concerned with groups of individuals: (i) groups at special risk; e.g., expectant and nursing mothers, infants, schoolchildren, adolescents, workers and the aged; (ii) groups with special needs; e.g., those with tuberculosis, epilepsy, chronic diseases, venereal diseases, and the handicapped.
- (c) Mass screening techniques for detection of disease; e.g., cervical smears.
- (d) Mass eradication campaigns; e.g., those against malaria, smallpox and yaws; various forms of vaccination.
- (e) Surveys for diagnosis or descriptive analysis of community problems; e.g., follow-up studies of hospital patients, socio-medical studies of the aged.
- (f) Health education programmes.
- (g) Special community services for mental health and care of the healthy aged.
- (h) Activities in the field by special workers; e.g., the public health nurse, the home nurse, the public health inspector, the welfare officer, the

community organizer, the social case-worker, the probation officer and persons trained for home help.

(i) The work of the medical officer of health ; i.e., the person responsible for public health and medical administration, for evaluating health in a community and for administration and organization of services to protect the community.

(j) Welfare and other services concerned primarily with social needs.

(k) Rehabilitation centres for the handicapped and disabled.

These services exist in different forms in different countries. They may be grouped largely under one health authority or under several different health authorities, or they may be institutions outside the medical field.

The advantage of using public health activities and other social institutions of the kind listed above is that they are concerned largely with primary or secondary prevention of disease and disability. Their use, however, calls for careful planning and direction ; students must be carefully briefed before making visits or beginning service, and they must be supervised by means of tutorial discussions after individual visits and at intervals during assignments. Teaching must commonly overcome the resistances that hospital work builds up in the minds of many students to the application of medical thinking to community problems. For the same reason, all staff taking part in field exercises must be experienced in public health and should have a close and continuous relationship with the department of social and preventive medicine of the medical school.

The various forms of administrative control are of importance to the student, who should be able to make his own analysis of the advantages and disadvantages of unification of services, including their overlap and possible duplication, or of failure to develop some of them. He should be helped to use the opportunity to learn about the availability and value of services from the point of view of his patients in later practice.

3.5 Field training areas

The field training area is a category of institutional arrangement that is intermediate between the health centre and the regionalized health area discussed in section 3.6. It provides access to the public health services that exist in town or country and should be an administrative entity with local government boundaries, including a part or all of a city or of rural areas. A wide range of community and personal health services can be observed in operation and participated in by the student. He can correlate epidemiological concepts with clinical and other field experience and begin to understand the basis of public health action.

It is an advantage for a field training area to contain one or more of the teaching health centres discussed in section 3.3. The same high stan-

dard of staffing should be maintained, particularly the provision of a public health physician with special postgraduate training and experience.

A field training area provides opportunities to teach the student the close working relationship between the practising clinician and the public health physician, and it can show the part to be played by the family physician as a practitioner of social and preventive medicine. The field training area makes possible practical demonstration and participation in environmental hygiene and other public health activities. Thus, students can visit the training area for the demonstration of technical details; similarly, during the teaching of epidemiology, the student can undertake his own special project or survey.

3.6 Regionalized health services

Regionalization is the organizational and educational process of rationalized planning of all health services for a geographic and political region having a sufficiently large population to justify the provision of all significant categories of health activities. Ideally, clinical care would be centred in a teaching hospital that is provided with specialty services and facilities appropriate to local conditions. The next organizational level would include general and specialty hospitals. The clinical base would rest on peripheral units, which would consist either of an interlocking network of health centres and subcentres or of family physicians, practising individually or in groups. An important part of the pyramid of comprehensive care is the provision of preventive and other public health services. Although there should be integration of curative and preventive services at all stages, it is most necessary at the level of the peripheral unit.

The primary feature of regionalization is a dynamic interrelationship between all categories of health institutions and activities. An active educational process would extend outward from the specialized centres, with specialists constantly moving to the peripheral units and with provision for in-service training at all levels. Administratively, there should be decentralization, but primary central control should be exerted through the setting of qualitative standards and targets and active evaluation of implementation. Flowing toward the central institutions are patients, problems, ideas and an active and regular data-gathering process.

It must be recognized that the total complex described above can be most readily achieved in comprehensive state health services where centralization of control makes the decision-making process in planning relatively straightforward. The major difficulty for those in authority proves to be restraining themselves from exercising direct control in order to encourage local participation at all stages of the planning and implementation process.

Regionalization is also possible, although more difficult, in mixed private and public health services where institutions and activities are

under diverse control, when financing is private and when most physicians are independent. Planning here must be primarily local and decentralized, with the frequent result that, once the plan is prepared, implementation is accelerated and efficient. Major problems relate to quality control, standard setting and the centralization of data-gathering, evaluation, and co-ordination of units and activities. The central authority particularly needs to develop mechanisms for filling gaps as they appear in regional services, ideally in ways that maintain local autonomy.

The idea of building medical education into the regionalization complex is at a very early stage of development. Medical education in the USSR has been deliberately arranged to involve medical students at all stages of health activities in their regionalized services. Some interesting educational experiments in this direction have been started in a few medical schools in India, Puerto Rico, South America, Turkey and elsewhere.

The medical school may have varying responsibility in the administration of such a regionalized health programme. One pattern is for the medical school to assume responsibility for the total health care of a major administrative region that includes towns and villages. A rural hospital of 50 to 200 beds is provided for general medical care, its clinical departments assuming direct responsibility for services, with regular rotation of personnel. The rural areas are served by a number of health centres with active involvement of all departments. Co-ordination is by an assistant dean for community services or by the Department of Preventive and Social Medicine. At the other end of the administrative spectrum, where there is considerable heterogeneity in organization of services, the medical school would more appropriately confine itself to teaching and research and would not assume full responsibility for the health service of the region. In the programme at the University of Kentucky Medical School, in Lexington, a system of affiliation has been developed throughout the State that involves all levels of curative and preventive services and provides enthusiastic participation of many part-time personnel.

The values of incorporating regionalized health services in medical education are given in the following paragraphs.

(a) Regionalization provides opportunities for faculty members to become involved in community services outside the hospital. As has been pointed out in section 3.3, this may compensate for a major deficiency of some teaching health centre programmes, namely, existence of a tendency for the clinical faculty to assume that the health centre and all its work is so much a responsibility of the departments of social and preventive medicine that no one else need be involved. As the concept becomes accepted that the activities of the medical school should extend beyond the walls of the academic buildings and teaching hospital, there will be much for all members of the faculty to do in the community. A regionalized

framework provides many service opportunities for all the specialized disciplines of a medical faculty. As research reaches out to the community, numerous opportunities may be found for basic and clinical investigations that require a synthesis of laboratory, clinical and epidemiological approaches.

(b) Involvement of academic specialists in community problems leads to growing awareness on their part of the actual problems of their area. Especially in developing countries, where faculty members tend to go overseas for their advanced preparation, there is a high probability that their interest and research will focus on problems of the country in which they studied rather than the one in which they teach. No better method exists for ensuring that medical faculty members will concentrate on the problems of their own countries than to involve them, early in their careers, in local community health work.

(c) When students are provided with a total picture of the whole range of health services, they acquire a more balanced view of the relationships between curative and preventive activities. Such a comprehensive presentation during the period of basic medical education provides a sound foundation for subsequent specialization in any direction. Students will learn about the various possibilities rather than having their appreciation limited by exposure to only those areas that dominate the specialized teaching hospital.

(d) A particularly vital benefit from the interchange between the medical faculty and the regionalized complex accrues directly to the community. Direct access is provided from general community facilities to the most specialized services available ; the best use is made of the best minds and greatest experience. The accelerated referral of patients means that they can quickly get to appropriate facilities. The regular flow of information provides for more rapid evaluation and action. Quality-control and standard-setting tend to equalize the availability of appropriate health services to all groups in the community.

(e) Regionalization facilitates the accumulation of data about the health of the community and its needs. This information can then be used for more sophisticated teaching of the health characteristics of the community as a whole and for better understanding of the care of the individual patient within it.

4. EDUCATION

4.1 The teaching-learning process in community-oriented medical education

Community-oriented medical education must be developed to ensure a learning experience extending beyond hospital studies of individual patients

during episodes of illness to that of continuing care of the individual patient and to health care of the groups within which individuals function. At the same time, the necessary knowledge and skills must be provided for broadening the physician's function of responsibility for the individual patient to that of the community as a whole. Community-oriented medical education follows the same procedures that have become established in traditional clinical studies—interview and physical examination, diagnosis and treatment—and using much of the same knowledge and clinical skills. The basic sciences, including those relating to growth, development, aging and genetics, and various clinical studies all support the disciplines of social medicine. However, additional knowledge and skills are required that are more specifically related to the following needs :

TABLE 1. COMMUNITY ORIENTED MEDICAL EDUCATION :
I. BASIC DATA REQUIRED FOR HEALTH APPRAISAL

	Individual	Family	Community
1. Health	Physique : growth and aging Physiological variables Psychological state : behaviour development emotional adjustment intelligence		Special surveys : total community or sample groups for measurement of physique, physio- logical and psycho- logical variables
2. Specific disease	Clinical, laboratory and other special examinations		Case finding : special screening methods, notifica- tion of illness, examination of case records (including those of physicians, hospitals, health centres, clinics and other sources)
3. Personal and demographic data	Personal data	Family constitution and composition	Demographic variables
4. Behaviour	Personal habits and health-relevant behaviour	Values, attitudes, beliefs, and behaviour Roles of family members Relationships between family members	Special surveys eliciting information on attitudes, values, beliefs and overt behaviour of health significance
5. Environment	Home, work and other meaningful environment	Material resources of the family The home in its environment	Environmental factors

(a) community diagnosis and health care of the community as a whole, so that priorities may be set to meet the needs of the community for medical care and health protection ;

(b) understanding the ways in which the health of individuals is affected by the community groups within which they function ; and

(c) appreciating the implications of family- and community-centred care for the health of the individual.

The aims of community-oriented medical education in the care of the individual, the family and the community will be considered in relation to : (1) procedures for assessment, (2) diagnosis and prognosis, and (3) health care and treatment.

4.1.1 *Procedures for assessment*

The basic data required concern health appraisal, the occurrence of specific diseases, personal and demographic variables, and behaviour with relevance to health and environment factors, as summarized in Table 1. If students are to be able to acquire such information, their medical education should include the following subjects : (a) clinical and basic sciences of the normal medical curriculum, with special attention to growth and development, aging, psychology and genetics, and (b) survey methods in community health studies (epidemiology).

4.1.2 *Diagnosis and prognosis*

An epidemiological orientation is the central feature of community-oriented diagnosis and prognosis. It includes the use of epidemiology in clinical medicine, consideration of the family as an epidemiological unit and the use of epidemiology in community diagnosis. The elements of this approach are summarized in Table 2. The main subject to be taught is epidemiology, with the following supporting subjects : statistics, social sciences and population genetics.

4.1.3 *Health care and treatment*

Attention is focused upon decision-making processes in health and medical care by individuals, families and community on the one hand and the physician and other professional health workers on the other. This is related to the type of care needed and the cost implications, which may be summarized as shown in Table 3. The main subjects that must be taught include :

(a) health administration and practice, including : (i) community organization, (ii) health education, (iii) environmental hygiene and (iv) medical care organization ; and (b) behavioural sciences and economics.

TABLE 2. COMMUNITY ORIENTED MEDICAL EDUCATION :
II. DIAGNOSIS AND PROGNOSIS

	Individual	Family	Community
1. Epidemiology in health	Epidemiology in clinical medicine Health in relation to social and environmental factors	Family as epidemiological unit Health patterns : similarities and differences between family members in growth, development, and physiological and psychological variables	The use of epidemiology in community diagnosis Differential patterns of growth, development and other relevant variables in various groups of the community
2. Disease	Natural history of disease and multiple causation	Processes of transmission and social interaction in determining disease occurrence	Measurement of disease occurrence, incidence and prevalence rates (a) in community as a whole (b) in different groups of the community
3. Susceptibility and high-risk groups	Individual susceptibility to various diseases	Family susceptibility to various diseases High-risk families	High-risk groups
4. Ecological analysis	Ecological relation between health of individual and family on the one hand and that of the community on the other		Relationship between the epidemiological picture presented by the above analyses and determinants such as behavioural and environmental factors

The way in which the subjects to be taught will be arranged in the curriculum will no doubt vary in different medical schools. The areas of knowledge that must be included in these subjects are considered in more detail in the next section.

4.2 Areas of knowledge and experience to be included in the curriculum

Obviously, the curriculum arrangement of the subjects to be taught should be related to the overall curriculum structure of the medical school. There are areas of learning to which the student should have an early introduction, while others will provide satisfactory experience only after he has acquired a foundation in clinical studies.

The collaboration of a number of university departments is needed in the development of a desirable curriculum. University resources vary

TABLE 3. COMMUNITY ORIENTED MEDICAL EDUCATION:
III. HEALTH CARE AND TREATMENT

	Individual	Family	Community
1. Decision making by individual, family and community	Patients' choice of care (a) who is selected for provision of care (b) what care is selected (c) when it is sought	Family decisions about (a) health behaviour in the home and professional health advice (b) medical care of the sick	(a) Popular demand and differential use of services (b) Community decision-making processes — power groups and leadership
2. Professional decision about care	Physician's decision among possibilities for patient's care and treatment.	Physician's and health team's decision regarding programme for family's health	Organization of local health team: (a) priorities in planning (b) relationship to rest of health services
3. Type of care	Continuing integrated care (a) in health and illness (b) at home and in institutions (c) over period of time	Health team concerned with family as unit of care, in addition to care of individual members of family	Continuing community health education, with objective of community participation in various activities, e.g., (a) promotion of health (b) mass treatment programmes
4. Environment	Development or maintenance of healthful environment and housing		
5. Costs	Cost implications of health care of individual and of various treatments for illness	Cost of maintenance of health and of illness in various members, e.g., wage-earner, wife and mother	Cost implications of community health and medical care programmes

considerably in different parts of the world, and assistance by the staff of other suitable agencies will also be required. At this stage, the Committee is more concerned with focusing attention on the responsibility of the medical school as a whole. There are areas that are the primary responsibility of departments of social and preventive medicine themselves and others that will be best developed in co-operation with various departments of the medical school. The systematic teaching, as well as the field activities providing the student with practical experience, require the acceptance of responsibility by the faculty as a whole rather than delegation of full responsibility to a single department of the school. Table 4 summarizes the areas of knowledge that should be included in the curriculum, together with examples of supportive field activities.

TABLE 4. SUMMARY OF THE AREAS OF KNOWLEDGE THAT SHOULD BE INCLUDED IN THE MEDICAL-SCHOOL CURRICULUM, TOGETHER WITH EXAMPLES OF SUPPORTIVE FIELD ACTIVITIES

1. Basic, preclinical and paraclinical sciences		Examples of supportive field activities
Co-operative subjects involving various departments of the medical school Biostatistics Genetics Psychology Human growth and development Aging Nutrition	Department of social and preventive medicine Demography and population statistics Principles of epidemiology Social sciences related to medicine (social anthropology, sociology, economics) Environmental health	Family-adviser programmes Surveys of communities and their component groups
2. Clinical and public health practice		
Family medicine A. Epidemiology B. Treatment Maternal and child health Population problems School and university student health Occupational health Geriatrics Mental health Rehabilitation Clinical and public health nutrition	Epidemiology A. Health surveys B. Screening for case finding C. Records and analysis D. Attitudinal surveys Health administration and practice A. Community organization B. Health education C. Environmental health D. Medical care organization E. Costs of care F. Health priorities G. Communicable disease control	Clerkships in community medical practice : Preventive and curative Follow-up care Family-adviser programme Special clinics Studies in : Epidemiology Medical care and health administration Community internship Special elective clerkships

In outlining the areas of knowledge to be included, the Committee emphasizes that each area, in itself, should not be regarded as constituting an additional subject in the curriculum. They may be arranged in different ways, depending upon the departmental structure of the particular medical school and university.

4.3 Teaching responsibilities and the staffing of departments of social and preventive medicine

While responsibility for teaching will fall on several departments during both the preclinical and clinical years of the curriculum, in most medical schools the departments of social and preventive medicine will bear the major responsibility for promoting community-oriented medical education, in co-ordinating the programme as a whole and in carrying out their own teaching, research and service functions.

A department of social and preventive medicine must consist of a number of special units to meet the needs of its broad teaching programme and its varied service responsibilities in the community, in the teaching hospital, and in developing research. This department should be staffed for teaching the principles and practice of epidemiology, biostatistics, social sciences in medicine, population genetics, and health administration and practice, including environmental health and health education. Furthermore, since the teaching health centre, with its community is, in effect, the "ward" and "laboratory" of a department of social and preventive medicine, special units must be established within it in a number of clinical-public health fields, namely: family medicine, maternal and child health, geriatrics, rehabilitation and care of the chronic sick, community psychiatry, control of communicable disease and clinical nutrition. The priorities in establishing these special units will depend upon local circumstances. For example, in those countries in which the disease pattern is still dominated by infectious diseases and malnutrition, students will require much opportunity to acquire experience in these areas, both in the teaching hospital and in the teaching community health centre.

In addition to their primary functions in community health services, departments of social and preventive medicine should also have responsibilities in teaching hospitals. Explorations in this direction are still in an early phase, and it is not yet possible to indicate a desirable pattern for all teaching hospitals. Among the important functions that would be useful as hospital services are the establishment of an epidemiological surveillance unit in the hospital and the organization of after-care programmes for discharged patients, involving the collaboration of hospital and community agencies. The artificial creation of an in-hospital teaching situation having no defined service function either for the individual patient and his family or for patients and staff as a hospital community is of doubtful use and often has negative results. In clinical studies, the student would seem to learn best in a service situation which he can understand and with which he can identify. Social and preventive medicine teaching in the hospital should likewise be developed within the framework of community service.

The form of service undertaken will reflect the varying emphasis that can be put upon the word "community". In places where the interpretation gives more weight to the community in the sense of a collectivity, a mass or group, the department will most likely wish to provide an epidemiological activity for its service members in hospital. On the other hand, where the significance of "community" is nearer to the geographic sense of an area outside the hospital, the department will tend to place more emphasis on a clinical service. Departments of social and preventive medicine have for some time been developing along both of these lines, and it will be advantageous for them to continue to do so.

Medical schools would be best advised to seek to combine these two approaches. At the hospital level, this might mean that, where the head of the department has an epidemiological service function, one or more of his staff might assume clinical functions, either directly or in the form of joint appointments with clinical departments and vice versa. Such joint appointments might offer considerable scope and aim at the development of clinico-epidemiological teaching and research.

It is important to emphasize that teachers of social and preventive medicine should have considerable experience in community medicine, more especially in areas in which they are presently teaching. This will ensure their being well versed in health problems of importance to the communities in which the medical schools are situated as well as in those for which the students are being trained to practice medicine.

Annex 1 and Annex 2 to the present report show how the teaching of community-oriented medicine has been organized in a university of one of the developing countries (Colombia).

4.4 Administrative and technical arrangements for use of health institutions for training of medical students

In making use of institutions outside the hospital for teaching purposes, the medical school must be satisfied of their competence to teach medical students. Little difficulty occurs where the teaching staff of the medical school and hospital carries the responsibility for whatever teaching is needed in relation to the institutions visited; in such cases students, properly supervised, may attend, with advantage, a variety of institutions without the necessity of any formal agreement for staffing and other considerations. When this is not the case, the medical school must be satisfied that the staff and service of the institution itself is of sufficiently high calibre. This it may do either by itself, by establishing the necessary institution with full control over all its activities, or by affiliation of a suitable health institution to the university under a definite agreement that covers the appointment and use of staff for teaching and, where necessary, for providing the service given. In the latter situation, staff of sufficient high standard can be appointed to function either full-time or part-time on the staff of the medical school.

For health centres, the method of choice is the establishment of university health centres as integral parts of the medical school. This is particularly true in developing countries, where it is generally the only way in which a university can achieve and maintain the necessary standards. Even in more developed countries, there is an advantage in model health centres being conducted as integral parts of the medical schools. Where size and scope make this difficult and impose upon the university too heavy a responsibility for providing medical care to a large population, it is

generally effective for one or more whole-time university staff-members to be appointed to an affiliated health centre to take charge of teaching activities, leaving responsibility for administration and non-teaching staff to rest with the institution. Such affiliation, generally speaking, is a practicable method for field training areas or the regionalized health services discussed in section 3.6. In both of these situations, the public health physician or other person in charge of the health services of the area served should be appointed to the staff of the medical school.

Whether staff are appointed directly to an institution belonging to the university or under an agreement for affiliation with the university, it is evident that the institution itself will, *ipso facto*, be of a special character, different from that which would normally exist; thus, in a health centre or in a field training area, the physicians, other health personnel and even the facilities will, in most cases, be of a higher order than usual. This otherwise positive factor carries the disadvantage that the students do not see the every-day conditions and are not taught in services as they usually exist. However, this price must be paid for the good teaching without which the extension of teaching outside the teaching hospital would be impossible to justify. To some extent, it can be remedied by special efforts at the teaching health centre or one of its subcentres and by visits of inspection to more remote areas to show students how they can adapt simple facilities and equipment to good professional work. For such varied experience in the community, adequate transportation is essential, and the provision and maintenance of suitable vehicles is a primary need.

In all institutions used for teaching outside the hospital, other than those for visits of observation or those controlled by teaching staff from the teaching hospital, it is essential that the staffing should provide for service, research and teaching just as adequately as in the case of the teaching hospital itself. In all institutions affiliated with the university, students will attend as undergraduates and interns at different levels of teaching and experience; the health centre should also offer residency posts for the recently qualified in further preparation for practice in the community. Such institutions must be equipped adequately for the special needs of teaching and to accommodate students. For greatest effectiveness, students must be taught in small groups. Health centres, particularly, should be equipped to undertake research in social and preventive medicine. For this purpose, even in those health centres that are not operated directly by a university, the professor of social and preventive medicine and members of his department should be on the staff of the health centre and should have responsibility for the epidemiology of the area served and other aspects of the service with relevance to teaching. It is equally necessary that other departments of the medical school, and often other faculties as well, be involved in the work of the centre.

Where the university establishes its own health centre, the responsibility for administration may rest either with a single department or with the dean, perhaps through an assistant dean for community health services or with a committee of departmental heads analogous to that existing in the teaching hospital. In some circumstances, an interfaculty control might be considered appropriate. In the first instance, administration by a single department might be most appropriate but, as development occurs, as in expansion of the services and staffing of health centres or field training areas, the tendency will probably be towards adoption of the teaching hospital pattern.

5. SUMMARY AND RECOMMENDATIONS

In the first section of the present report, the objectives of undergraduate medical education are discussed in relation to the functions of the physician in the care, in sickness or in health, of the individual, of the family and of the community as a whole. The education of every physician not only must be extended to include development of preventive and rehabilitative skills in individual care but should be oriented so as to provide understanding of the factors determining family and community health, how they can be studied scientifically, and what action can be taken to deal with them.

In the second section, the limitations of the teaching hospital in providing the undergraduate student with the full range of experience needed in a community-oriented programme of training are reviewed. Confining experience of the student's medical practice to the teaching hospital has serious limitations for two main reasons :

(a) *The high level of specialization.* The highly specialized nature of work usually carried out in a teaching hospital and the emphasis on a type of research that is rarely concerned with the epidemiological or social aspects of disease does little to impress the student with the role of the physician in community medicine.

(b) *Emphasis on the individual.* Exclusive concern with the diagnosis and treatment of the individual patient leads to underemphasis of many areas of medical and public health care which, not being the function of the teaching hospital, are omitted or neglected in the teaching of the medical student. This results in students developing an unbalanced and incomplete image of medical work.

In the third section, which is concerned with the provision of training in other institutions, a variety of different approaches to supplement hospital teaching with community teaching is presented, including centres for ambulatory care, domiciliary care, field training areas and other public health and social services.

The teaching health centre is stressed more than other institutions because it is probably the most effective device yet developed. It provides for a wide range of student experience in comprehensive community care, a balanced appreciation of the functions of various members of the health team, and an epidemiological orientation to the community as a whole and to its constituent groups.

The possibility of medical schools becoming closely related to regionalized programmes that involve all the health services, including the teaching hospital, other hospitals and teaching health centres, is considered as a relatively new and experimental approach that might be very effective in integrating community-oriented experience into the medical curriculum.

In the fourth section, the meaning and content of community-oriented medical education for individual, family and community diagnosis and health care is presented. The required areas of knowledge and supportive field activities are considered and then related to the responsibility of the medical faculty as a whole and, more specifically, to the teaching functions and staffing of departments of social and preventive medicine.

Fields of study included in the usual curriculum needing special attention include growth and development, aging, psychology and genetics.

The more community-oriented areas of study for which specialized staff is needed are :

Epidemiology, including survey methods in study of community health ;

Biostatistics and demography ;

Social sciences related to medicine (behavioural sciences and economics);

Population genetics ;

Health administration and practice, including (a) community organization, (b) health education, (c) environmental health, and (d) medical care organization.

To provide the range of experience required in community medicine clerkships, teaching health centres or other community health services chosen for teaching must have special units concerned with aspects of clinical and public health practice such as the following : family medicine, maternal and child health, care of the aged, control of communicable diseases, occupational health, the clinical and public health aspects of nutrition, community mental health, and the care and rehabilitation of the disabled and chronically sick.

The emphasis given to these different practice areas will obviously vary according to local need. The units may be staffed by joint appointments with other departments of the medical school and teaching hospital or by special arrangement with other health agencies.

Finally, consideration is given to the administrative and technical arrangements for use of various health facilities for training medical students.

The chief consideration must be that of securing teaching at the required

level. This could be achieved by the establishment by the university of its own teaching health centre or other community health service, and this approach is recommended wherever possible. Where this cannot be done, as is often the case, affiliation is the proper step, with formal agreement to cover staff and, when necessary, service responsibility, so that these institutions adequately meet the requirements of teaching and research in addition to those of service.

Annex 1

**UNDERGRADUATE TEACHING PROGRAMMES OF
PREVENTIVE MEDICINE AND PUBLIC HEALTH AT THE
MEDICAL SCHOOL, UNIVERSITY OF VALLE, CALI,
COLOMBIA, 1965-66¹**

Year of study	Phase of teaching	Subject	Place in the programme	Teaching hours
First	Basic sciences (pre-medical)	Medical orientation (lectures and visits)	Second semester	Two hours weekly (35 hours)
Second		Social sciences (socio-anthropology, principles of economics and political sciences)	First and second semesters	Four hours weekly (140 hours)
		Biostatistics	Second semester	Five hours weekly (90 hours)
Third	Pre-clinical	Human ecology and demography	First semester	Four hours weekly (72 hours)
Fourth		Preventive medicine (in family groups)	Second semester	Two hours weekly (36 hours)
		Microbiology Parasitology Preventive medicine (in family groups and introduction to public health)	First term Second term First, second and third terms	160 hours 98 hours Three hours weekly (108 hours)
Fifth	Clinical	Epidemiology	Six weeks of clerkship (in groups of 8)	264 hours
Sixth		Public health practice	Two months of clerkship (1 month rural practice; 1 month urban practice)	396 hours
Seventh		Internship	Public health internship	Four weeks of elective study

¹ This teaching programme is offered through co-operation with several other departments.

Annex 2

**PHASES OF TEACHING AT THE MEDICAL SCHOOL,
UNIVERSITY OF VALLE, CALI, COLOMBIA, 1965-66**

Year of study	Phase of teaching	Usual courses	Community-oriented courses
First	Premedical	Mathematics, Chemistry, Biology, Humanities, English, Sports	Medical orientation
Second		Mathematics, Organic Chemistry, Physics, Physical Chemistry, Biology, Humanities, English, Sports	Biostatistics, Social Sciences (Social Anthropology, Principles of Economics, Principles of Political Sciences)
Third	Preclinical	Morphology, Physiology, Biochemistry, Psychobiology, correlation of basic and clinical sciences	Human Ecology and Demography, Family Preventive Medicine
Fourth		Pharmacology, Pathology, Psychopathology, Semiology	Microbiology, Immunology, Virology, Parasitology, Family Preventive Medicine, Introduction to Public Health
Fifth	Clinical	Internal Medicine, Surgery, Obstetrics and Gynaecology, Paediatrics Nutrition, Anatomy	Preventive Medicine and Public Health (Epidemiology - 6 weeks)
Sixth		Internal Medicine, Surgery, Obstetrics and Gynaecology, Paediatrics, Psychiatry	Preventive Medicine and Public Health (1 month urban practice ; 1 month rural practice)
Internship	Internship	Internal Medicine, Surgery, Obstetrics and Gynaecology, Paediatrics, Psychiatry	Elective (internship in rural hospital for 1 month)
Residency	Residency	2-4 years : various programmes (clinical and basic) at choice	Rural Medicine (1 year)