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

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1. INTRODUCTION

The WHO Expert Committee on Professional and Technical Education of Medical and Auxiliary Personnel met in Geneva from 27 April to 1 May 1965. The meeting was opened by Dr P. Dorolle, Deputy Director-General who welcomed the participants on behalf of the Director-General. Professor R. Debré was elected Chairman, Professor V. V. Kovanov Vice-Chairman and Professor T. A. Lambo Rapporteur.

Special university health services[1] are needed for a number of reasons. " L'explosion scolaire " is a world-wide phenomenon resulting from population growth, the opening up of general education to larger segments of the population (including a higher proportion of women), and migration to more developed areas. A growing proportion of the student age-group, which is itself enlarging, will qualify for higher education year by year. Of greater significance, perhaps, is the recognition that students represent an important resource. From among their numbers will be derived the administrators, technologists and professional men and women upon whose knowledge and judgement much human social progress and material betterment will depend. It is not surprising that there is everywhere a commitment to expand universities and other institutions of higher education at an unprecedented rate.

The growth of higher education is bound to create organizational and sociological problems of great magnitude, not least for the institutions of higher education themselves. These problems give added point to the consideration of special services concerned with student health, social welfare and academic progress. The UHS may set a valuable example of the application of social and preventive medicine to the needs of a community.

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[1] In this document the term " university " will be used to mean " university and other institutions of higher education ", and the phrase " university health service " will be abbreviated to " UHS ".

In the contemporary university setting, illness among late adolescents and young adults, whether physical or psychological, serious or trivial, frequently presents problems of a sociomedical nature that cannot be solved effectively by health agencies available to the general population. Many students are, for example, away from home for the first time and have to learn to manage their own affairs and to adjust to new conditions of living and working, often without a family tradition of higher education to guide them. This lack of guidance is often aggravated by a disproportionate increase of students in relation to academic staff. Some find the transition from a rural to an urban way of life upsetting and, together with students from abroad, may feel uprooted and anxious in their new environment and develop a sense of loneliness and isolation. For others, the comparative freedom of university life, with its opportunities for new emotional and social experiences and responsibilities, presents special difficulties. The stress of study and preparation for examinations, financial difficulties, anxiety about future career and place in the social order, problems relating to the often first co-educational venture and to sexual behaviour, all contribute to the vulnerability of the student. The period at university marks a crucial stage of development during which major events occur and decisions are taken affecting the student's whole personal, domestic and professional future. In these circumstances health may be neglected.

A number of entrants to higher education fail to achieve their goals. Some of these failures may be accepted as inevitable, as a reflection of problems of selection and of the need to maintain academic standards. For those who fail there are major psychological repercussions and setbacks that may interfere with their future, and this group of students should not be abandoned. Failure to complete university studies also represents a partial loss of return on investment, a loss that will presumably be the more serious for those developing countries that can least afford it and whose need for trained personnel is important.

The university environment might in itself be hazardous. Universities are examples of closed communities in which many people of different sociocultural, economic and geographical backgrounds live and work together often in conditions conducive not only to psychological interactions but also to the spread of infectious diseases. In laboratories and workshops, on playing fields, in the housing of students, in refectories and residences, specific environmental health problems are encountered.

In view of the special and well defined health and social problems to which students are susceptible, it was agreed that a medical service with a preventive and promotive outlook, sensitive to the needs of the society it serves, can do much to reduce wastage and improve working efficiency. It adds an important element to the wider community services

for preventing disease and promoting health. Without such a service the medical care of students becomes dispersed. This is administratively inconvenient and organizationally unsatisfactory. Furthermore, without a special department, the opportunity to study the health problems of the adolescent and young adult in the university setting and to develop expertise in their management is lost.

Indeed, the Expert Committee is of the opinion that universities cannot properly discharge their responsibilities to students, parents and the community as a whole without providing such services. The UHS is often in a position to observe the many complex factors — cultural, socio-economic and psychological as well as medical — that influence academic performance and in a position also to mitigate some of their adverse consequences. Ideally, such services should be comprehensive and autonomous, and their establishment should be considered in the planning of new universities so that the aims and objectives of the service and those of the university can develop together.

The UHS has broad educational functions. It can contribute to the training of a healthy, vigorous and enlightened leadership, especially in the developing countries. The UHS can also be used in the teaching of preventive and social medicine to medical students.

Although the Committee was unanimous about the importance of the provision by universities of health services for students, it debated the desirability of extending such services to members of the staff. Existing services for students are often far from adequate. The UHS should, in the first instance, concern itself with the problems of health and sickness among students. If it became possible to extend the UHS to other persons, the wives and children of students should be the first to receive consideration and thereafter members of the university academic staff and employees.

Any UHS that extends cover to the staff of universities would have to take into consideration such factors as expense and the provision of more elaborate facilities than are usually regarded as necessary for students. Wherever possible, however, those members of the university staff closely connected with students, such as food handlers, technicians and teachers, should have their health supervised by the UHS, particularly in order to prevent the spread of communicable diseases.

The Expert Committee considers that it is unwise to make categorical recommendations concerning the organization of the UHS and its relationship to university administration, because there are many differences between universities in any given country and between universities in one country and those in another. Furthemore, the UHS exercises a dual function: it has direct responsibilities for the persons with whose health it is concerned and it has important responsibilities of a consultative and advisory nature towards the university authorities.

2. SCOPE OF UNIVERSITY HEALTH SERVICES

There are considerable differences in the scope and nature of health work in universities even within the same country. In some, a full range of facilities for prevention and treatment is provided, including domiciliary and in-patient care. These are referred to as *comprehensive* services. In others, treatment, in the generally accepted sense of the term, is kept to a minimum and the emphasis is largely on prevention. Because of their similarity to health services in industry these are referred to as *occupational* or industrial services. Between these two extremes, a wide variety of arrangements is to be found, depending on such factors as the general policy of the university, budgetary considerations, size of the university, presence or absence of a medical school, and availability of other local health resources.

If in a given university a comprehensive health-service programme is not immediately possible, thought should be given to a priority rating for the various elements of a full health-service programme. A modest initial service, catering to the most immediate needs, often produces a rapid realization of unsatisfied demand among staff and students. The latter are known, in some cases, to have taken the initiative in the organization of a student health service.

The elements of a UHS might be described broadly as preventive measures, health care of the individual student, health care of others than students, and health education.

These and related topics are examined in the present section. Teaching and research in the UHS are considered in section 3.

2.1 Entrance medical examination and periodic re-examination

A major preventive measure is the medical examination of all students on entering the university. The nature and scope of this health assessment might well vary widely according to information already available from family physicians, from school health records, and from a comprehensive health questionnaire, preferably completed with the help of the parents. Factors that influence the scope of this entrance medical examination include, of course, financial considerations, the availability of personnel and facilities, and the location of the university.

It is advantageous if the examination is carried out as early as possible in the student's university career, even before the start of classes where this is feasible. Such an examination would permit early screening for physical-education classes, early guidance for the correction of defects,

and early arrangement for the continuity of medical care of chronic conditions. Collaboration with the teaching staff would also provide opportunities for early guidance about courses of study, methods of work and even the future careers of individual students.

Although circumstances dictate the nature and scope of the initial health screening, a careful history, a summary clinical examination, a determination of the tuberculin reactivity, a chest X-ray, and urinalysis might be an acceptable minimum.

A selective medical screening has been found useful in some university health services. The students are interviewed by a physician, the information obtained from the questionnaire is expanded, and medical examinations and other investigations are carried out only in those cases in which they are indicated.[1]

In other services, a very complete physical examination on entrance, including various laboratory tests, is routine.

Whatever system is used, the records obtained provide a useful baseline for subsequent periodic examinations. The examination or interview can be used as a medium for health education of an informal character and for reviewing previous habits with regard to exercise, diet, rest, self-medication, and the use of alcohol and tobacco. Where a full medical, social, family and educational history is recorded, such procedures also provide material for research.

There is considerable value in arrangements that bring the new student into touch with the UHS early in his career in order that he may establish a relationship, however briefly, with those who are responsible for his health and well-being. Whether or not periodic re-examinations are carried out depends on local policy, which may be conditioned by the special needs of individuals or groups of students. The object of the preliminary medical screening of entrants is essentially to determine those who need immediate advice or treatment, and to identify for the purpose of periodic reassessment those who seem at special risk.[2]

In the process of recording medical and other findings, much confidential information is obtained. It is taken for granted that the confidential nature of the doctor-patient relationship is strictly observed. However, the UHS may tender advice to the authorities and to parents on the basis of this information without needing to disclose any privileged communications.

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[1] Attention is drawn to the desirability of employing nursing staff and laboratory technicians who can effectively carry out many screening procedures (e.g., height, weight, urinalysis, stool test, haemoglobin, and visual acuity), especially where there is shortage of physicians.

[2] For example, athletes, students with a history of chronic or recurrent ill-health, and those with signs or symptoms suggestive of psychological instability.

2.2 Environmental health and safety in the university

It is appropriate that the UHS should take an active interest in and responsibility for ensuring that the university environment is a sanitary and safe place in which to work, study, play and live. Although other health agencies are likely to have authority and duties in this field, their efforts may need to be supplemented to meet situations peculiar to a university environment. Some students, staff and other employees are exposed to specific health hazards (including, for example, those of ionizing radiation) in laboratories and workshops. Accidents and other environmental health problems are not confined to such premises, however. To prevent accidents, much depends on the maintenance of accurate records and the use of various types of safety equipment.

Attention should be paid to the following aspects of the environment:

(*a*) water, food, waste disposal, noise and air pollution;

(*b*) athletic facilities, including swimming pools;

(*c*) housing, both on and outside the campus;

(*d*) heating, lighting and ventilation of classrooms, laboratories, and other buildings; and

(*e*) general accident prevention such as in sport, on stairways and walkways, in transportation and in laboratories (including risks from laboratory animals and radiation)

The extent to which the UHS assumes responsibility for the complete environmental health and safety programme depends largely on the size of the institution and on the co-operation of local health agencies. In very large university institutions, a special department of environmental health and safety may exist as a subdepartment of the UHS and may even include on its staff a public health engineer, a bacteriologist, public health inspectors, health physicists, a safety engineer, etc. In smaller institutions, the UHS will find it advantageous to co-operate with local health agencies, bringing in experts in different fields according to need. Co-operation with a university department of industrial health may also be valuable.

It is often found useful to establish a health and safety committee comprising staff members of departments in which there are special hazards, the radiation protection officer, and a representative of the employees of the university.

The UHS will want to ensure that first-aid equipment is adequately distributed throughout the university and that there are trained first-aid workers in the various departments. It may need to provide first-aid courses to train the necessary personnel.

A programme of environmental health and safety provides many opportunities for the health education of students and staff alike.

2.3 Morbidity and medical care

It is sometimes suggested that no special arrangements need be made for students because they are a relatively healthy group. However, students are not exempt from the disorders and disabilities common to their age, and there is evidence that some disorders occur with disproportionate frequency among members of the student group. It is always important, moreover, to relate illness to the individual student's needs, academic progress and performance. When this is done, minor ailments often assume major significance.

There is general agreement that the predominating diseases among students are diseases of the respiratory system, injuries (especially sports injuries), infectious diseases of greater or lesser severity (e.g., infectious mononucleosis, gastro-enteritis, virus hepatitis, rheumatic infections), skin diseases, and problems of a psychological nature. With the increasing proportion of women students, gynaecological disorders and problems relating to marriage and childbearing are becoming more frequent. Venereal diseases are also increasing in the student age-group.[1]

Relatively serious long-term physical disabilities such as blindness, asthma, bronchiectasis, diabetes mellitus, chronic orthopaedic conditions, congenital and acquired heart disease, cerebral palsy, and epilepsy have not necessarily proved a bar to the successful pursuance of a university career. In fact a wide range of acute and chronic medical and surgical disorders is seen.

Out-patient care for the usual run of medical and minor surgical conditions is an important and perhaps the most essential feature of the UHS. The goal is to provide ambulatory medical service for all student needs. Obviously the nature of these needs will vary widely from country to country.

In the occupational type of UHS, out-patient care is provided by a physician with a general training. His work is largely of a consultative, diagnostic and advisory nature and includes the early treatment of injuries and the treatment of the less severe medical problems. This type of UHS relies to a great extent on referral to physicians serving the general public and on the university teaching hospital (or other local hospital) whose facilities it will use for diagnostic and laboratory procedures and for specialist consultations.

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[1] See WHO Expert Committee on Venereal Infections and Treponematoses (1960) *Wld Hlth Org. techn. Rep. Ser.*, **190**.

At the other extreme, the comprehensive UHS is nearly or completely self-sufficient in the matter of out-patient care. It provides a full range of facilities for investigation and treatment and has its own clinical laboratory, X-ray equipment, emergency room, physiotherapy department, pharmacy, etc.

Available, too, in the comprehensive UHS, are consultants in the various specialties. These may be on a part-time or full-time basis.

Some arrangement must exist for hospitalization. In the occupational-type health service this will usually be arranged by a private physician, to whom the patient is referred by the UHS doctor. In the comprehensive health service, beds will be available for all hospitalization needs, including isolation.

It is more common for the UHS to have simple infirmary-type beds for the less severe illnesses such as upper-respiratory infections and some communicable diseases. Arrangements are then made for treatment of more serious cases in a university or other hospital, where the highly specialized facilities required are available.

Although it is desirable wherever possible to put in the infirmary or hospital any student ill enough to require bed care, some domiciliary care also is usually provided.

It would seem advisable for the management, medical and educational, of students suffering from chronic disorders requiring long hospitalization, to provide facilities for continued university education while in hospital, through resident tutors, visiting professors, correspondence courses and the assistance of fellow students.

2.4 Dental health

Dental services for students were recommended strongly as a feature of both the occupational and comprehensive types of UHS. Ideally the dental service should be an integral part of the UHS, but in some countries, where there may be little or no dental education and few trained dentists, only limited provision for dental care can be made. In many developing countries, although urbanization is changing the situation, periodontal disease is more of a problem than caries. In these circumstances, emphasis could usefully be laid on education in oral hygiene, even at the university level. In other countries, however, the problems of caries are predominant, and more complete facilities for dental care are needed.

2.5 Nutrition and diet

Arrangements for feeding students and the nutritional content of their diet are matters in which the UHS should be interested. In

universities where a high proportion of students live in well-equipped and supervised residential accommodation, there is, perhaps, less reason for concern than in those institutions where many students live in unsupervised rented accommodation outside university precincts. The majority of students are ill-prepared for assuming entire responsibility for their own diet, particularly when the competing claims of different interests have to be reconciled with the need to take time to buy and cook their own food. There is also, for some who live on a fixed financial grant and who have been released from parental supervision for the first time, the temptation to overspend on non-essentials at the expense of food. On the other hand, problems related to overfeeding and obesity should not be overlooked.

Expatriate students present special problems with regard to nutrition and diet. These problems may include limitation of funds available and the desire to retain their national diets and dietary habits irrespective of whether these meet the nutritional requirements of life in their new environment.

The UHS can influence those responsible for student housing and feeding so that nutritionally sound dietaries can be provided at reasonable prices. It may need to advise on the preparation of special diets required for medical reasons. University restaurants, established on a large scale, have the advantage of being readily advised and inspected.

The dietary habits of students can be influenced through health education. A UHS nurse with public health orientation would be valuable in this respect.

There is a need to conduct research in the field of nutrition and dietary requirements of university students, although gross undernutrition is probably rare.

2.6 Control of communicable diseases

A most important part of a preventive programme is the provision for immunization against those diseases for which effective vaccines are available and for which the risks of infection warrant the procedure. This is an area in which collaboration between the UHS, the university departments of social and preventive medicine and of microbiology, and the services provided by the public health authorities is particularly indicated.

Although different priorities for routine vaccinations and immunization programmes are advocated for different countries,[1] the UHS must give special consideration to students whose work renders them liable

[1] Generally the vaccines of most use are smallpox, poliomyelitis, diphtheria, tetanus, typhoid and BCG.

to special risks of infection (e.g., students of medicine, dentistry, bacteriology, agriculture, veterinary medicine, and social science).[1]

The immunity status of the newly arrived student might well be reviewed (health records are often inadequate in this respect) and immunizations completed and kept up to date during the student's attendance at the university. This is important not only to prevent communicable diseases but also for health education.

Similarly students and university personnel travelling abroad need to be immunized, and facilities should be provided for screening them on their return. Further, public health ordinance may dictate parts of the programme.

As a corollary to the immunization programme, attention is directed to the great importance of chemoprophylaxis in the control of threatened outbreaks of such diseases as epidemic meningitis, streptococcal pharyngitis and scarlet fever. The continuous protection by chemoprophylaxis of those with a history of rheumatic fever and the suitable supression of such diseases as malaria are also highly desirable.

The extreme importance of the early detection and prompt treatment of communicable diseases is emphasized. This is especially true for tuberculosis.

2.7 Athletic injuries and sports medicine

Students are rightly encouraged to be physically active. Injuries sustained during games and athletic activities may account for a substantial proportion of initial consultations at a UHS clinic.

The UHS should seek not only to prevent injuries of this kind and to provide adequate facilities in physical medicine for their diagnosis and treatment (and to forestall their long-term sequelae), but also to study the processes by which physical fitness is achieved and maintained.

UHS physicians who undertake work of this kind must be prepared to co-operate with athletes and games players and their coaches, to be present at playing fields and gymnasia, and to advise departments of physical education and recreation about the health aspects of sport and training. This demands the development of special interest in the field of "sports medicine".

2.8 Health problems of the expatriate student

Reference has already been made to some of the problems of expatriate students, among whom there is evidence to suggest a higher morbidity than among local students.

[1] For example, medical and nursing students should be given BCG vaccine, veterinary students should be immunized against rabies, and athletes should be immunized against tetanus.

Doubtless problems of acclimatization, difficulty with diet, homesickness, financial anxiety and difficulties of language, custom and culture are contributory factors. Some expatriate students are also older, since many go abroad for postgraduate education only. The report of the WHO Expert Committee on Professional and Technical Education of Medical and Auxiliary Personnel that met in 1958[1] drew attention to some of the problems experienced by expatriate students and suggested a number of measures to relieve them. These included suggestions not only on the organization and content of the courses, but also on the orientation and early integration of the foreign student and on the value of personal student counselling.

The UHS can contribute to the orientation courses for foreign students by providing information about health and social services and by helping to overcome, in an atmosphere of informal discussion, many of the minor problems that confront these students. It can assist in the early identification of those who are beginning to experience serious difficulties of adjustment.

It is worthwhile for all new foreign students to be invited to the UHS for a personal interview with an understanding nurse, social worker or physician soon after arrival. In this way, the student can be introduced to the service and arrangements made for any medical screening tests that may be considered appropriate. These will, of course, differ from one country to another and according to the student's country of origin. When dealing with students from warmer climates, the possibility of concealed tropical disease and of respiratory and non-respiratory tuberculosis should be borne in mind. An exchange of medical information on migrant students between the university health services in different countries would be valuable. This is a matter worthy of consideration, also, by the agencies sponsoring studies abroad through scholarships.

When wives accompany expatriate students it is advantageous to extend the facilities of the UHS to them and their children at an early stage. The UHS should also co-operate with all university and other agencies in helping the integration into the community of foreign students and their dependants. In some instances the practice of appointing a warden or special adviser to expatriate students has facilitated the exchange of information essential to the management of their problems.

2.9 Mental health

Problems of mental health are regarded as among the most important and time-consuming with which the UHS has to deal. At times,

[1] WHO Expert Committee on Professional and Technical Education of Medical and Auxiliary Personnel (1959) *Wld Hlth Org. techn. Rep. Ser.*, **159**.

indeed, academic performance and progress appear to depend not so much on innate ability as on the degree of success with which the developing adolescent manages the normal, if sometimes perplexing, processes and crises incident to his emergence as a mature adult with an individuality of his own. Success in this respect depends on many factors, some of them as yet little understood.

For the majority, no doubt, given a favourable environment, adjustments are made and problems solved without particular difficulty, but there is growing evidence that for some students the transition from adolescence to adult maturity is anything but easy. The prevalence of morbidity of this kind in the university environment is difficult to determine, but it is substantial and seems to be increasing.

No doubt the majority of cases arise from difficulties of adjustment to university life, the stresses of studying and of sitting for examinations, domestic problems or other acute social and emotional difficulties, many of which are often regarded as components of late adolescent development. Among the more serious cases will be chronic neurotic disorders, psychotic reactions, depression occasionally leading to suicide, problems of personality development, character disorders, and sexual problems. The use of tobacco, alcohol and drugs—often related to periods of stress —also requires attention. Hypochondria is another problem needing management.

Problems of mental health are important not so much because of the proportion of students seeking help but because trivial difficulties can sometimes cause serious impairment of intellectual efficiency, even in the most able students. On the other hand, a serious mental breakdown is not necessarily followed by a mediocre career. Skilled management and treatment ranging from simple support during a temporary crisis to more sophisticated forms of psychiatric care can frequently aid in the resolution of these difficulties.

A full range of care should therefore be provided through the UHS. The trained and experienced UHS physician will be able to deal with a large proportion of the cases, usually in collaboration with hospital psychiatric departments and especially with the academic department of psychological medicine. In large university health departments, specialist psychiatric care and the services of a psychiatric social worker and a psychologist will be available.

Initially it is often particularly helpful for the psychologically distressed student to have access to other than the official medical facilities, such as a special student counselling team, personal tutors, chaplains and wardens of residential halls. It is essential, however, for all these persons and professional sources of medical care to work together harmoniously and reciprocally.

From a preventive point of view, it is a function of the UHS to be

alert to those academic, administrative and disciplinary elements in the university unfavourable to the sound development of the personality and likely to provoke unnecessary psychological stress. University authorities need to be advised about such matters.

2.10 Health education

The UHS has a unique opportunity, and in fact the duty, to engage in health education. As part of an educational institution, one of the most vital functions of a UHS is education.

Health education is pursued by the health service in some universities on both the formal and the informal levels. Formal classes are given by the personnel of the UHS to all students of the university, to selected groups of students (e.g., those in the college of education) and to special groups of staff (e.g., food handlers). The less fully developed university health services leave formal health education to other departments of the university, such as the department of social and preventive medicine or the school of public health. But every UHS whether large or small has ample opportunity to carry out informal health education. Every contact with a student or staff member is a teaching and learning experience. How much this accomplishes will depend on the attitude, the interest and the patience of the physician or nurse or other member of the UHS who is consulted. In every physical examination, every immunization, every visit for care or advice, the patient learns. In this connexion, the UHS should strive for excellence in everything it does, so that the patient learns what constitutes a good medical examination, good care of illness, etc. The UHS should therefore maintain a high standard rather than attempt to provide a wide range of services, until finances, personnel, etc. allow it to expand properly.

Many opportunities are available for less direct and personal health education. These include posters, pamphlets and other audiovisual aids, which may be used for conveying information on communicable diseases (such as venereal disease), accident prevention and the like. The effectiveness of these will vary in different countries, and no common programme can be laid down. In principle, it is necessary to develop the health-education programme in all aspects of personal health, community health, mental health and sex hygiene, in keeping with the sociocultural background involved. The effectiveness of the programme is increased if students participate in the selection of topics and the organization of programmes of informal group education.

Health education given by UHS staff may not only be of value in the student's personal life but may also benefit his children and society as a whole. One element of health education is the familiarization of the student with the health facilities available in his community and its social needs.

2.11 Influence of the UHS on university life

From many of the comments in the foregoing sections, it will be evident that the influence of the UHS extends far beyond the confines of clinic and infirmary. As a major part of its preventive and public health activities, it has a responsibility to advise, influence and co-operate with student organizations, academic staff and the university administration.

University authorities may, for example, look to the UHS for guidance about such matters as student housing development (in which, in the future, much attention will need to be paid to accommodation for married students, and even to the provision of crèches). Contacts with academic staff may be helpful in consideration of overloaded curricula, and forms and frequency of examination. Both the student organizations and the administration may seek the help of the UHS in the future planning of facilities for a wide range of leisure and recreational activities. Representation of the UHS on university committees, such as the sports, housing, accident and radiation-hazards committees, is also useful.

The UHS should co-ordinate its activities with those of many other departments and individuals concerned with student welfare and education. These include the dean, the professors and lecturers, the athletics department, the medical school, and the school of public health. A free interchange of ideas with these agencies and individuals will be most helpful.

Perhaps most important of all, the UHS can contribute to the development of the personality of the individual student and promote his integration within the university community without alienating him from his culture and society. It can also encourage students of different nationalities and cultural backgrounds to work and live together in a spirit of comradeship.

3. TEACHING AND RESEARCH IN THE UNIVERSITY HEALTH SERVICE

3.1 Undergraduate teaching of social and preventive medicine

The UHS has valuable, if limited, contributions to make to the teaching of preventive medicine to medical undergraduates. Much of its influence will be indirect and will depend largely on the standards it sets and the quality of service it provides.

The presence in the university of a health service in which due emphasis is placed on the preventive measures outlined in this report, and the fact that the medical student is himself subject to them, serves to demon-

strate, at a personal level, the practical significance of classroom teaching. It can convey to the medical student who consults the UHS an understanding of the psychological, socio-economic and occupational implications of illness. The UHS will be seen to combine the preventive, clinical, and therapeutic approaches to health problems. It will permit the demonstration of some of the preventive principles of industrial and occupational medicine. A comprehensive UHS can be used as a teaching model for group and health-centre practice.

Epidemiological studies and evaluations carried out by the UHS, in which the medical student participates as subject or control, provide opportunities to illustrate epidemiological and statistical methods.

Members of the staff of the UHS may undertake formal teaching duties in departments of preventive and social medicine, but much of the value of the UHS in teaching depends on the alertness of the medical staff to the educational opportunities of its day-to-day work.

3.2 Postgraduate teaching

Many of the foregoing observations apply equally to the teaching of medical postgraduates, who may, indeed, seek especially the type of educational experience the UHS affords. The 1963 WHO Expert Committee on Professional and Technical Education of Medical and Auxiliary Personnel made the following comment in its report (p. 17):

> 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.[1]

This comment and the list of preventive techniques that follow it are relevant to UHS practice.

The contribution of the UHS to postgraduate medical education in the preventive field need not, therefore, be confined to postgraduates who are studying courses in public health. As the report suggests (p. 19):

> 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.

The range and variety of experience to be obtained in the comprehensive health services that are developing in a number of university centres will be found to fulfil these objectives.

Apart from experience in general public health and preventive medicine, a well organized UHS may provide training for health workers who wish to specialize in university health work. The expansion of universities indicates an increasing need for trained teams of workers in this field.

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[1] WHO Expert Committee on Professional and Technical Education of Medical and Auxiliary Personnel (1964) *Wld Hlth Org. techn. Rep. Ser.*, **269**.

3.3 Research

In a general way, the UHS should be concerned with continuing research into the evaluation of its own organization and procedures, and, if it is to exercise its proper functions, it will inevitably be drawn into the prosecution of operational research in a broader sense within the university as a whole.

The UHS is rich in other opportunities for research. Apart from the armed forces, there is probably nowhere a "captive" population of the same magnitude and age-range as the student body of a university. This offers the opportunity of investigating the normal developmental phenomena—physical and psychological, anthropometric and endocrinological—of late adolescence, the sleep and leisure requirements of this age-group and the optimal amount of work that students can do. Reference has already been made to the need for studies of nutritional status and dietary habits. Sociological research also represents a field of interest.

With regard to general morbidity, the prevalence of common infectious diseases yields material for epidemiological and microbiological studies. It should not be forgotten that much valuable original work on the evaluation of serial tuberculin testing and the efficacy of BCG vaccination was carried out on students. The epidemiological method can also appropriately be used to study other causes of morbidity among students.

In the field of mental health, there have been many important studies into the relationship between environmental, social and psychological factors and academic performance. Much useful work remains to be done—for example, in the study of causative factors and the description of psychiatric syndromes encountered among students.

Manifestly, the scope and nature of the research is such that it will often be impracticable for many university health services to undertake it on their own, but there are always opportunities for collaboration with other university departments.

4. ORGANIZATIONAL ASPECTS OF UNIVERSITY HEALTH SERVICES

It is difficult in the light of differing needs and conditions in various countries to express a standard structure for a university health service. However, the organization must be sufficiently complete to ensure that students are well cared for either in the clinic of the health service itself or at another health centre to which they may be referred.

To begin with, a small unit might be created as a branch of the medical faculty or associated with a department such as social medicine. The inauguration of a service, however small, will help to stimulate the interest of students and staff in the problems of health.

A comprehensive UHS would be a separate department, organized with considerable administrative and financial autonomy. In such a service, in addition to sufficient numbers of physicians (including specialists), nurses, dentists, social workers, physiotherapists, psychologists, public health engineers, safety engineers, health physicists, dieticians, pharmacists and other paramedical and auxiliary personnel, there may well be a need for accountants, administrative officers, and clerical personnel. In institutions where there is a high proportion of women, it would seem advisable to include women doctors on the staff.

The director of the UHS should ideally be a physician, preferably of wide general training and experience. He should have administrative ability and a special knowledge of public health. He should have an understanding of young people and be capable of forming a personal liaison with staff members who are interested in the welfare of students and of co-ordinating the work of the UHS with other relevant university departments. These personality traits are a most important element in the selection of the director and other staff of the UHS. The director and other full-time members of his medical staff should be accorded appropriate academic status.

Nurses are the most important of the paramedical personnel who work in the UHS, and the Expert Committee recognizes that in smaller units a specially qualified nurse may have major responsibilities, under the supervision of a physician. Nurses may also take part in health education and in carrying out screening tests and immunization procedures. In view of the emphasis on preventive medicine in all types of university health service, it would be advantageous if at least one member of the nursing staff is a qualified public health nurse. The interest of the nurses should be practical as well as theoretical. In developing countries, much of the treatment of minor ailments will of necessity be carried out by nurses with little supervision, and in such situations a high ratio of nurses to doctors will be the rule.

In some countries the UHS is not actually a part of the university but rather a responsibility of student organizations. Even so, the director should maintain close liaison with members of the university; this is in the best interests of the students.

In the development of policy for the UHS, it is useful to establish a health committee that is broadly representative of all faculties, the university administration, and the student body.

Arrangements for financing the UHS vary considerably from one country to another. It is, however, usual for a university to have to con-

tribute to the establishment of the UHS largely from its own resources, and to continue to support the service to some extent. Where the UHS is run on industrial-health-service lines, the university may be prepared to bear the entire operational costs, but, where a comprehensive UHS is provided, revenue is obtainable from a variety of sources. For example, in some countries, universities charge a health fee as part of the normal fees paid by students; in others, services are operated with government support, and in many instances the costs of medical treatment and hospital care are covered by insurance schemes, some private and some operated by officially recognized student organizations. In countries where there is a national health service, it may be possible for the UHS to recover from it part of the operational costs.

Whatever method may be used to finance the UHS, students (and possibly their dependents) should not be deterred or prevented on economic grounds from obtaining essential medical services.

UHS buildings should ideally be located centrally in the university area so that they are accessible to all members of the university. Where the university is widely dispersed, it may be necessary to have a central health-service building and one or more satellite buildings. These latter would not be as completely equipped as the central facility, to which more serious cases would be transferred.

The structural and organizational details of a university health service and the arrangements within its premises cannot be stipulated, since so much depends on local conditions.

5. CONCLUSIONS

A very important section of the present and future leadership of a country is in its universities and other institutions of higher education. Young men and women at university are exposed to risks—more, in some respects, than are the population at large.

There is much that a UHS can do to protect and promote the health of the university population. There are problems of communicable diseases to be met, of nutrition, of dental health, and other somatic diseases. Special attention must be paid to psychiatric and psychosomatic diseases, which are particularly prevalent at a time when the stress of learning coincides with the crucial transitional period of adolescence, and when the student may be in an unfamiliar environment. Environmental health must be maintained, and special attention must be given to the handicapped.

The UHS can help to promote health consciousness through health education and medical examinations. It can help demonstrate the value

of well organized health services in the protection of life and the promotion of efficiency.

The UHS can contribute to research on problems affecting the university population, including professional orientation, the educational programme, and the individual performance of students.

Finally, the Expert Committee hope that assistance may be provided to develop UHS training programmes for teams of physicians and paramedical personnel.

It is obvious that no single pattern for a university health service can be recommended. Both content and organization would vary according to local problems, the university's pattern of administration and its location, and the facilities available for preventive and medical care at large. It is important, however, that the single physician or the large team of physicians, nurses and other paramedical personnel and their auxiliaries should have a good technical knowledge of medical and public health problems and that individual members of the staff should have the kind of personality that would enable them to advise students on the various problems they may bring. The senior members at least, should have academic status conducive to effective relationships within the university and society as a whole. A university health committee broadly representative of the university community, as well as representative of the public health service, has proved in some instances an effective means of co-ordination and integration of effort.

However constituted and administered, the UHS has an important contribution to make to the objectives of higher education.

The Expert Committee expresses the hope that this report will be brought to the attention of as many universities and higher-education authorities as possible, since it is believed that the information it contains is of direct interest to them.

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