GENERAL MEDICAL COUNCIL

Tomorrow's Doctors

RECOMMENDATIONS ON UNDERGRADUATE MEDICAL EDUCATION

December 1993

RECOMMENDATIONS

ON

UNDERGRADUATE MEDICAL EDUCATION

issued by the Education Committee
of the General Medical Council
in pursuance of section 5 of the Medical Act 1983

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INTRODUCTION

1. The Education Committee of the General Medical Council is charged by statute with responsibility for 'promoting high standards of medical education and co-ordinating all stages of medical education.' The Recommendations embodied in this document relate to that part of training which is encompassed during the undergraduate years in medical school. They concern the education of doctors some of whom may be practising medicine midway through the next century. Given the pace at which the horizons of medical science and technology expand, we can be certain that the doctors of tomorrow will be applying knowledge and deploying skills which are at present unforeseen. We cannot teach science that is as yet undiscovered, nor can we forecast its future implications. But some of the present day art and science of medicine is fundamental to its practice and will certainly endure. We must ensure that the essential elements remain embedded in our curricula and that the newly qualified doctor is well prepared for the responsibilities of the pre-registration house officer year. For the rest, we can at best strive to educate doctors capable of adaptation to change, with minds that can encompass new ideas and developments and with attitudes to learning that inspire the continuation of the educational process throughout professional life.

2. The diversity of the professional opportunities in modern medicine and of the talents of those who practise it is such that a single definition comprehending the aims of medical education is elusive. Although this document is concerned primarily with the period of undergraduate training, it is well to see these highly formative years within the context of the overall educational experience and the continuing professional development of the doctor who is qualified to practise independently in his or her chosen specialty. The attributes of the independent practitioner were encompassed in a section of the Education Committee's Recommendations on the Training of Specialists published in 1987. They are as relevant now as they were then and are reproduced in Annex A.

3. Medical education is changing. Some of the changes relate to external factors, others are inherent in the educational process itself. Consider first some of the external influences for change.

4. Whereas the focus of medical education during the present century has been mainly on the understanding of disease processes as they affect individuals, on their diagnosis and management, there is an evident reawakening of the wider interest of our forebears in the health of populations, the epidemic and environmental hazards that affect them and the means whereby diseases may be controlled or prevented. Public health, temporarily lost from the vocabulary, has been firmly reinstated as a priority in the planning of medical services in this country and abroad, and the undergraduate curriculum must reflect this important change of emphasis.

5. There is a shift in the balance between hospital-based services and those provided in general practice and the community. There is also a redistribution of the tasks undertaken by members of the various caring professions. The overlapping of skills and responsibilities, whilst not diminishing the distinctive role of the doctor, calls for mutual respect and understanding of roles and a capacity for teamwork that should begin to develop during the undergraduate years.

6. We have an ageing population of multi-racial composition. Patterns of disease and disability are changing. Care of the elderly and the chronic sick, understanding of the scope of rehabilitation, pain relief and care of the dying must all receive appropriate priority in a clinical training that formerly was often biased towards the more specialised activities of the teaching hospital. Suffering and disability, which may affect not only the individual but also family, friends and associates at work, are often related to psychological disturbances or those that we categorise as 'non-organic'. Medical education must strive to comprehend all aspects of human disorder. It must also recognise that there is a growing demand for treatments that do not conform to the conventional orthodoxies.

7. The application of new sciences and the advent of new techniques require constant readjustment of our methods of approach to all aspects of medicine, not least those relating to the investigation and treatment of patients. Molecular genetics and magnetic resonance imaging are but two present day examples. One area of particularly rapid expansion has been in the application of computers to medicine. The extent to which future advances may revolutionise not only systems of communication, but also care procedures and possibly education itself, is unpredictable, but a working knowledge of modern medical information technology will be essential for the doctor of the future.

8. The public understanding of disease and disability has grown enormously in recent years. Many diseases, at one time intractable or fatal, are now capable of cure or alleviation and the scope of complex interventions has greatly expanded. Expectations have risen and patients are concerned to understand the nature of their problems and the consequences of their treatment. The relationship between doctor and patient has changed and there is a clear duty on the doctor to be able and willing to communicate effectively, an attribute that must be developed throughout the undergraduate course and beyond.

9. A forward look must also recognise that the doctors of tomorrow and the societies in which they live will be confronted with as yet unforeseen moral and ethical issues arising from the scientific advances that are to be anticipated. Undergraduate education must provide at least an understanding of the principles on the basis of which such issues can be tackled.

10. Thus far we have considered some of the external factors that are reshaping our approach to medical education. But there are inherent characteristics of most contemporary undergraduate courses that argue even more pressingly and urgently for change. They are not new. They have engaged the attention of successive Councils for over a hundred years. As far back as 1863 a tendency to an 'overloading of the curriculum of education...followed by results injurious to the student' was noted with concern, and a wish was expressed to find a means 'to give the student a larger amount of time for self education'. A Council minute of 1869, foreseeing the dangers of an excessively burdensome curriculum stated: 'Whoever will consider the great extent of the sciences which lie at the foundation of Medicine and Surgery...will see that some limit must be assigned to the amount of knowledge which can be fitly exacted'. Thomas Huxley, in an address on university education in 1876, made the point more forcibly. 'The burden we place on the medical student' he said 'is far too heavy, and it takes some doing to keep from breaking his intellectual back. A system of medical education that is actually calculated to obstruct the acquisition of sound knowledge and to heavily favour the crammer and the grinder is a disgrace'. And over a century later, in our own Recommendations on Basic Medical Education of 1980, we find the following: 'We therefore reiterate the views expressed in the Recommendations of 1957 and 1967, that the student's factual load should be reduced as far as possible, to ensure that "the memorising and reproduction of factual data should not be allowed to interfere with the primary need for fostering the critical study of principles and the development of independent thought". The student should also acquire and cultivate the ability to work independently. He must therefore have a certain amount of free time for private study and self education throughout the curriculum.'

11. Notwithstanding these repeated exhortations, there remains gross overcrowding of most undergraduate curricula, acknowledged by teachers and deplored by students. The scarcely tolerable burden of information that is imposed taxes the memory but not the intellect. The emphasis is on the passive acquisition of knowledge, much of it to become outdated or forgotten, rather than on its discovery through curiosity and experiment. The result is a regrettable tendency to under-provide those components of the course that are truly educational, that pertain to the proper function of a university and that are the hallmark of scholarship. Attitudes to learning that are based on enquiry and the exploration of knowledge are dulled by an excessive information load and by a system of examinations that determines the requirements of study as perceived by the students.

12. The reasons for the persistent gap between the good intentions of successive Councils and the implementation of their Recommendations merit some examination. Medical education was developed in the United Kingdom largely on the basis of an apprenticeship system. When the need for a foundation in the basic sciences relevant to medicine was recognised, courses in anatomy, physiology and biochemistry were introduced as a preliminary to clinical studies. Thus was born the pre-clinical/clinical divide, which has been perpetuated to this day in many places, each part of the course proliferating without the moderating influence of the other and without a co-ordinated examination of the overall aims of the course.

13. There is a second historical legacy which contributes to the present predicament and which can be traced to the Medical Acts themselves. Until the introduction of provisional registration in 1953, newly qualified doctors were legally entitled to undertake any form of medical practice without supervision and without any requirement of further training. They were free to engage in single-handed general practice, including obstetrics, and frequently did so. Some undertook posts as resident house officers where they carried out surgical operations and gave anaesthetics without supervision. Although many made it their business to acquire a sound training in the specialty of their choice, postgraduate education was unstructured and, apart from the imprimatur of a higher qualification, there was no certification of its satisfactory completion. Consequently it was regarded as essential in the public interest that the doctor graduating from medical school should have a comprehensive knowledge of medicine sufficient to meet all contingencies. In legal terms the requirement was that 'the standard of proficiency required from candidates at a qualifying examination shall be such as sufficiently to guarantee the possession of the knowledge and skill requisite for the efficient practice of medicine, surgery and midwifery' (Medical Act 1886, Section 3(2)).

14. As a first step towards remedying this unsatisfactory state of affairs, the Goodenough Committee (1944) advocated the introduction of what was to become known as the pre-registration year. Arguing that it was no longer appropriate to let newly qualified doctors enter independent practice without further training, it recommended a period of service providing general experience under supervision prior to the acquisition of full registration. It saw this period as an extension of the undergraduate course, still under the authority of the university, with a significant educational component and with gradually increasing responsibility for the care of patients. The notion of a pre-registration year as part of the continuum of basic medical education and easing some of the pressure on the undergraduate curriculum, was endorsed by the Royal Commission on Medical Education in 1965-68 which affirmed that '...The undergraduate medical course does not provide sufficient training for the immediate practice of medicine...' (Todd, 1968).

15. The Committee of Inquiry into the Regulation of the Medical Profession (Merrison, 1975) likewise agreed with the principles upon which the idea of the pre-registration year had been based but was highly critical of the organisational structure

that had developed and of what it saw as the deficiencies of its legislative framework. It regarded the pre-registration year as a failure, having found that '...all too often the graduate is treated as a much needed extra pair of hands rather than a probationer doctor still requiring supervision and training at a significant point in his career. Some young doctors find themselves burdened with responsibilities they are not yet in a position to assume; others are given duties not necessarily relevant to their training needs.' The words have a familiar ring. The Committee made a number of recommendations aimed at improving both the content and the regulation of the period of training immediately following graduation but they were not adopted.

16. Although the Merrison Report did not improve the lot of house doctors, it made a number of recommendations which influenced the provisions of the Medical Act of 1978 which followed it. Amongst the changes, also embodied in the consolidating Medical Act of 1983, was a relaxation of the prescriptiveness of the requirements of the undergraduate course, as assessed at qualifying examination. No longer was the knowledge and skill necessary for the efficient practice of medicine, surgery and midwifery to be guaranteed. Section 5 of the 1983 Act is reproduced at Annex B but, in summary, it requires the Education Committee to 'determine the extent of the knowledge and skill which is to be required for the granting of primary United Kingdom qualifications...' and to ensure that the necessary teaching is provided. The Committee is also expected to 'determine the standard of proficiency which is to be required from candidates at qualifying examinations...' and to make sure that this standard is maintained by all the examining bodies. This, it was hoped, might lead to a more liberated approach to the style and content of the undergraduate course.

17. In spite of the introduction of the pre-registration year and the relaxation of the statutory requirements imposed upon the curriculum, the perception of what newly qualified doctors should know and be capable of doing has not altered significantly in the eyes either of their teachers and examiners or of those for whom they will work as house officers. There is a persisting drive towards an unrealistic degree of completeness in the curriculum, reinforced no doubt by the understandable reluctance of quasi-autonomous departments to surrender what they see as their entitlement to teaching time and by the laudable if sometimes excessive enthusiasm of teachers for their own subject.

18. In addition to the pre-registration year, all doctors entering the National Health Service are now required to undergo either specialty training under the aegis of the Royal Colleges through their Higher Training Committees or vocational training for general practice supervised by the Joint Committee on Postgraduate Training for General Practice before they may practise independently. A fully comprehensive course may have been desirable in the days before the development of postgraduate training programmes, but there is now good reason to transfer some of the factual learning previously embodied in the undergraduate course to a later stage.

19. We have discussed in some detail a number of factors which seem to have militated against the adoption of policies repeatedly advocated over the years in the hope that strategies may at last be evolved to counteract them. The medical schools have expressed a clear determination to break the mould and the main thrust of the present Recommendations is towards the facilitation of changes widely accepted as desirable. The broad aim must be to promote the development of a curriculum which corrects the existing faults of overload and didacticism. It must provide the graduate about to embark on a professional career with the capacity and the incentive to acquire and apply new knowledge and with the ability to adapt to changing circumstances, many as yet unforeseen. There must also be a more focused, short-term aim: to equip the new graduate with the necessary knowledge, skills and attitudes to enable him or her to enter the pre-registration period of training with confidence and enthusiasm.

20. The Education Committee has a responsibility, in the interests of the public, to ensure that every newly appointed house officer is capable of fulfilling the requirements of the post. Although the pre-registration year is under the aegis of the universities, house officers are employed by the NHS in directly managed or trust hospitals and occasionally in health centres. They engage in clinical practice, albeit under supervision, and both their patients and their employers are entitled to assume that their provisional registration, granted to them by the General Medical Council, attests to the satisfactory completion of an approved undergraduate course and, by the time of qualification, to a level of competence commensurate with their responsibilities as house officers and meriting the confidence of the public. The Education Committee must satisfy the Privy Council that the requirements embodied in its Recommendations meet these criteria and that they are fulfilled by those who qualify. It meets its obligations through its statutory regulatory powers over the bodies that are recognised for the purposes of granting primary United Kingdom qualifications (see paragraph 35).

21. The Recommendations which follow are designed to promote an approach to medical education and a perspective on its aims which differ substantially from those of the traditional curriculum. Some schools have already moved a long way towards achievement of the goals we envisage; we would urge them to develop further their initiatives and others to follow their example. The undergraduate course of the future will produce graduates whose fitness to practise as pre-registration house officers is better assured, but it will also provide opportunities for greater diversity between schools and between the experiences of individual scholars than has hitherto obtained. Our Recommendations are by design less precise in the detail of their requirements than some of their predecessors. They seek essentially to promote a new framework within which medical schools can move towards achievement of the objectives that we define.

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* As mentioned in paragraph 22 below, the current arrangements relating to pre-registration training are described in the Council's 1992 Recommendations on General Clinical Training.

THE COMMITTEE'S RECOMMENDATIONS

A revised curriculum framework

22. Emphasis has been laid on the need to rethink what should be expected of the newly qualified doctor entering the pre-registration year. The level of supervision and the limits of responsibility appropriate to that stage of the doctor's education are set out in the Council's 1992 Recommendations on General Clinical Training. All posts must have formal approval. Although the majority of graduates serve in house posts approved by their own medical schools, this is not invariable. Every graduate must be equipped to serve as a house doctor in any post recognised for pre-registration training.

23. Taking the start of the pre-registration year as the reference point to which the 'professional' component of the undergraduate course is directed, and framing the relevant objectives accordingly, we move towards a curriculum that is no longer all embracing, but containing a core which is more rigorously defined than has been customary. Present day undergraduate courses have their boundaries but they are not explicit. They vary from school to school and they are defined in terms of general objectives and largely uncoded agreements of examiners as to what a student should be expected to know at the time of the final examinations. The Education Committee takes the view that until an attempt is made to circumscribe the requirements of the course in respect of factual quantum, the unconfined overload of the curriculum will prevail and will continue to deny students the educational opportunities to which they are entitled. We therefore recommend the introduction of what we will refer to as a 'core curriculum' (see paragraphs 25-28) which defines the requirements that must be satisfied before a newly qualified doctor can assume the responsibilities of a pre-registration house officer.

24. Whilst it is recommended that the core curriculum should be presented in a way that encourages student-centred learning, the greatest educational opportunities will be afforded by that part of the course which goes beyond the limits of the core, that allows students to study in depth in areas of particular interest to them, that provides them with insights into scientific method and the discipline of research and that engenders an approach to medicine that is constantly questioning and self-critical. This part of the course we refer to in terms of 'special study modules'* (see paragraphs 29-32). They are no less important than the core curriculum but they focus not on the immediate requirements of the pre-registration year but on the long term intellectual and attitudinal demands of a professional life that will constantly be challenged by growth of knowledge and change of

* It is recognised that medical schools may adopt a different terminology for this component of the course.

circumstance. If the concept of a core curriculum promotes an increased degree of standardisation of part of the medical course, the special study modules will create that diversity between medical schools and between individual graduates to which we have already referred. They will give scope for variation in educational style and content and will provide opportunity for experimentation in curriculum design. Notwithstanding the narrowing of the core content, the overall consequence will be a widening of the outlets for the expression of individuality and the competitiveness of medical schools.

The core curriculum

25. To define the knowledge, skills and attitudes appropriate to a particular stage in the educational process presents formidable problems but for the medical schools to do so is a necessary step towards achievement of the objective of reducing the curriculum overload. It has already been suggested that the traditional dissociation between the pre-clinical and clinical parts of the undergraduate course has been a significant factor in perpetuating the overload. If a core is to be defined it requires the joint involvement of both basic scientists and clinicians and mutual agreement on the essential components of the course. Furthermore, their deliberations should be moderated by representatives of disciplines not primarily concerned with the subject under consideration and also by those who will be involved with later training at the postgraduate stage. We would indeed encourage the establishment of formal dialogue between the higher training bodies and the medical schools. This becomes increasingly important as we move towards the system of shorter and more structured specialist training recommended in 'Hospital Doctors: Training for the Future'.* The undergraduate course is the first step in the continuum of medical education, laying down the foundation for future professional life, and its coordination with the later stages of training is essential. If a combined approach to curriculum design is to be adopted, courses based on departmental disciplines are likely to be abandoned in favour of those relating to systems of the body or topics of relevance to the overall scope of the course. We strongly favour true integration of the course, both horizontal and vertical, using the term in the sense of interdisciplinary synthesis and not simply coordination or synchronisation of departmentally based components.

26. For each medical school separately to undertake curriculum revision along these lines would represent an onerous task at a time when resources are under pressure. The Education Committee does not itself have the range of expertise to enable it to define core content across all subjects even if it were thought desirable for it to do so. It is, however, promoting the development of core courses relating to particular topics through various institutions and organisations which

* Report of a Working Group on Specialist Medical Training chaired by Dr K. C. Calman (April 1993).

are concerned to improve undergraduate education in their field. They will make their 'model' core curricula generally available so that individual schools can, if they wish, adopt them with such modifications as may be appropriate to their requirements.

27. An important requirement of the core course must be the acquisition of a range of practical skills which every graduate must possess in preparation for house officer responsibilities (see paragraph 20). A necessary part of the assessment of students will be a requirement for them to demonstrate proficiency in these skills. A number of schools have already worked towards agreement as to what the range of skills should be and such an approach is commended.

28. The concept of a core curriculum does imply a degree of uniformity for this component of the course. We do not think it would be right to recommend the development of a 'national core curriculum' since this might promote undesirable rigidity and resistance to change. However, our recommendations presuppose a much greater degree of consensus on core content and required attainment at graduation than has been customary in the past. We have been impressed by the number and variety of excellent educational initiatives that have been developed in individual medical schools in recent years. It is hoped that the practice of sharing of ideas and of learning materials between schools, which at present exists to a limited extent, will become a tradition, both for the betterment of medical education generally and in order to reduce unnecessary duplication of effort.

Special study modules

29. The concepts underlying the introduction of this component of the undergraduate course have already been discussed and we emphasise again the opportunities for diversity of approach in individual schools. Various forms of project work and of elective experience already afford many students the chance to express choice and explore particular interests. Electives provide valuable opportunities for broadening of outlook by involvement in medical systems where needs and the means of tackling them are unfamiliar (occasionally it may be necessary to use periods of elective study to enable students to fill gaps in their experience as a result of absence or substandard performance). We would wish to see electives continue. We also strongly support the continuation of intercalated degree courses which provide excellent opportunities for students to study subjects in depth and to gain research experience, but we believe that experience of this type should be available for all and that it should be a thread running throughout the course rather than confined to a discrete period. Since the special study modules do not have specific professional goals, their scope is limitless. The modules offered will depend on the interests, resources and individual enthusiasms of medical school staff and to some extent on the wider range of opportunities within their universities. It is anticipated that the majority of modules will be based on subjects directly related to medicine, be they laboratory based or clinical, biological or behavioural, research oriented or descriptive, but they need not be

exclusively so. As medical research advances, it will inevitably become increasingly dependent on the ideas and techniques of other disciplines; on mathematics and physics in the elucidation of complex biomedical phenomena; on the social sciences and philosophy in confronting the wide range of cultural, environmental and ethical issues that will increasingly impinge on the problems of health. It is hoped that the student of tomorrow may be drawn towards some of these other disciplines and that opportunities to study, for example, a language or to undertake a project related to literature, or the history of medicine, may be offered.

30. It must be emphasised that there is no intention that students should be able to opt out of any part of the core. Completion of the core syllabus and demonstration of proficiency in its outcomes will be mandatory for all; the core, as its name suggests, will represent a distillate of essential knowledge and skills from all fields of medicine. But freedom of choice in relation to the special study modules will enable students to explore critically and master comprehensively subjects that excite their curiosity. A number of schools already offer opportunities for project work that meet these needs but our recommendation is that a range of such projects should comprise a substantial component of the curriculum and should provide the vehicle for attainment of the educational objectives that we shall enumerate (see paragraphs 38-40).

31. We would not aim to be prescriptive as to the number, type or duration of the special study modules that students will undertake in the course of their undergraduate years. As a general guide we would expect approximately a third of the total undergraduate programme to be devoted to them. We would hope that at all stages of the course students will be engaged in some work outside the core syllabus but schools may wish to set aside blocks of time for special studies. They may also choose to require students to undertake at least one study from each of a number of subject groupings. Many of the subjects chosen will be presented as problems that will provide the stimulus and the opportunity for students, under appropriate guidance and direction, to acquire knowledge through a process of exploration and through their own intellectual efforts.

32. The workload on academic staff represented by the supervision of these modules and the preparation of the materials on which they will be based is not underestimated. Assessment will be an additional but essential burden on staff time for it will be this part of the course that will give the greatest scope for self-expression and the demonstration of outstanding achievement. Bearing in mind this additional workload, it is again hoped that medical schools will share some of their ideas in the development of special studies and make available to one another the learning materials on which many of them will be based.

Learning systems

33. It is unnecessary to comment in detail in these Recommendations

on methods of delivery of undergraduate courses. Medical schools are well aware of the merits of the learner-centred and problem-oriented approaches and are striving towards their adoption, moves which are strongly encouraged. Most are reducing their reliance on the didactic lecture format and are promoting small group learning wherever possible. They are seeking to improve the personal guidance available to individual students on both academic and non-academic matters, a practice that we strongly commend. Some have appointed as members of staff individuals with backgrounds in education, often with experience in staff development, outside the field of medicine; others have obtained help from their University Departments of Education. Such additional expertise can be of great value both in helping students to acquire learning skills and in enabling teachers to respond to the educational demands of a modern curriculum.

34. The new technology now applied to education has substantially increased the scope for self-directed learning. Many imaginative and highly successful programmes have been developed in a variety of forms. Their preparation is, of course, demanding of resources, particularly of staff time, and a consortium approach to the development and distribution of educational packages is to be encouraged. If a system of peer review of such packages were to be developed, the authorship of an important and widely adopted programme might rank with that of a research publication, thus helping to redress the current imbalance in the recognition given to teaching and research achievement. The new technology, including the development of quite sophisticated models, can also provide experience in practical procedures and a number of medical schools are now investing in dedicated skills laboratories.

Regulation of the undergraduate course

35. Reference is made in paragraph 16 to the responsibility for the quality of undergraduate education and its assessment placed on the Education Committee by the Medical Act 1983. We do not interpret this statutory obligation as requiring us to define precisely the curriculum content or to prescribe a detailed syllabus. Nevertheless, in meeting its legal obligations, the Committee must satisfy itself, the General Medical Council, which is responsible for the register attesting to a doctor's fitness to practise in the broadest sense, and ultimately the Privy Council, that the educational arrangements made by each of the bodies entitled under the Act to grant primary United Kingdom qualifications, including the non-university examining bodies, conform to the requirements of these Recommendations. This the Committee may do through powers granted by the Act, which entitle it to obtain such information as it requires about courses of study and examinations, to inspect qualifying examinations and to visit medical schools to assess '...the sufficiency of the instruction given...'. Further reference is made in paragraph 67 to the ways in which the Committee will exercise these powers in the future.

36. While the approach which we are advocating in relation to the core curriculum will lead to a degree of uniformity in this element of the course, by encouraging diversity in the development of the special study modules

we recognise that we must anticipate future generations of graduates with greater variations in their individual experience and expertise than are to be expected today. They will all be well prepared for the start of their pre-registration house officer year, but they will show a significant degree of differentiation in relation to their fields of interest and specialised knowledge.

37. It must be emphasised that the move towards variety of experience in the undergraduate course is not aimed at influencing the time at which career choices are determined. This would be undesirable, and students would rightly resist pressures upon them to decide on their long term future at the undergraduate stage. Interests developed as students will undeniably influence the specialty choice of some; this happens now. But undergraduate and, indeed, postgraduate training programmes must retain sufficient flexibility to permit career choice to be delayed until well after graduation. It is important for careers advice to be available to undergraduates as well as to doctors in training.

38. Reverting to the requirements of the Act, the Education Committee follows the example of its predecessors and sets out its determinations in the form of a series of objectives, which circumscribe a framework on which medical schools will build their curricula. Whilst it is the acquisition of knowledge and skill that is emphasised in the Act, we would regard the development of appropriate attitudes as of equal importance.

Goals and objectives of undergraduate medical education

39. Goals

(a) The student should acquire a **KNOWLEDGE** and **UNDERSTANDING** of health and its promotion, and of disease, its prevention and management, in the context of the whole individual and his or her place in the family and in society;

(b) The student should acquire and become proficient in basic clinical **SKILLS**, such as the ability to obtain a patient's history, to undertake a comprehensive physical and mental state examination and interpret the findings, and to demonstrate competence in the performance of a limited number of basic technical procedures;

(c) The student should acquire and demonstrate **ATTITUDES** necessary for the achievement of high standards of medical practice, both in relation to the provision of care of individuals and populations and to his or her own personal development.

40. Objectives

40.1. Knowledge objectives

At the end of the undergraduate course the student will have acquired

a knowledge and understanding of

(a) the *sciences basic to medicine*, and

  (i) the discovery of how knowledge is acquired;

  (ii) an understanding of research methods;

  (iii) an ability to evaluate evidence.

(b) the *range of problems* that are presented to doctors and the *range of solutions* that have been developed for their recognition, investigation, prevention and treatment;

(c) *diseases* in terms of *processes*, both mental and physical, such as trauma, inflammation, immune response, degeneration, neoplasia, metabolic disturbance and genetic disorder;

(d) how *disease presents* in patients of all ages, how patients react to illness or to the belief that they are ill, and how illness behaviour varies between social and cultural groups;

(e) the *environmental and social determinants* of disease, the principles of disease surveillance and the means by which diseases may spread, and the analysis of the burden of disease within the community;

(f) the principles of *disease prevention and health promotion*;

(g) the principles of *therapy*, including

  (i) the management of acute illness;

  (ii) the actions of drugs, their prescription and their administration;

  (iii) the care of the chronically ill and the disabled;

  (iv) rehabilitation, institutional and community care;

  (v) the amelioration of suffering and the relief of pain;

  (vi) the care of the dying;

(h) *reproduction*, including

  (i) pregnancy and childbirth;

  (ii) fertility and contraception;

  (iii) psychological aspects;

(i) *human relationships*, individual and community;

(j) the importance of *communication*, both with patients and their relatives and with other professionals, both medical and non-medical, involved in their care;

(k) ethical and legal issues relevant to the practice of medicine;

(l) the *organisation, management and provision of health care* both in the community and in hospital, the economic and practical constraints within which it is delivered, and the audit process to monitor its delivery.

40.2. Skills objectives

At the end of the course of undergraduate education the student will have acquired and will have demonstrated his or her proficiency in communication and the other essential skills of medicine, including

(a) *basic clinical method*, including the ability to

(i) obtain and record a comprehensive history;

(ii) perform a complete physical examination, and assess the mental state;

(iii) interpret the findings obtained from the history and the physical examination;

(iv) reach a provisional assessment of patients' problems and formulate with them plans for investigation and management.

(b) *basic clinical procedures* including

(i) Basic and Advanced Life Support;

(ii) venepuncture;

(iii) insertion of an intravenous line.

[This is a restricted list. Doctors undertaking procedures on patients must at all stages in their careers be fully competent in their performance or be under the close supervision of those so competent. Patients are entitled to expect no less and those employing doctors must have confidence in the adequacy of their training. If practical skills are allowed to lapse they should be reacquired, again under supervision. There is a limit to the number and type of procedures that it is proper for students to undertake on patients, and witnessing or assisting at their performance by others should not be assumed to endow a significant level of competence. The appropriate time for the acquisition of most of the basic practical skills is during the pre-registration year when educational supervisors have responsibility for ensuring the adequacy of training.

The information available to the Education Committee indicates that schools can identify the range of procedures undertaken by their students, but we now recommend that they construct a list of those procedures in each of which they will require all students to have demonstrated competence by the time that they qualify. This list,

which should be compiled in consultation with Postgraduate Deans and higher training bodies, should be known not only to students and their teachers but also to pre-registration house officers, educational supervisors and employers.]

(c) *basic computing skills* as applied to medicine.

40.3. Attitudinal objectives

At the end of the course of undergraduate medical education the student will have acquired and will demonstrate attitudes essential to the practice of medicine, including

(a) respect for patients and colleagues that encompasses, without prejudice, diversity of background and opportunity, language, culture and way of life;

(b) the recognition of patients' rights in all respects, and particularly in regard to confidentiality and informed consent;

(c) approaches to learning that are based on curiosity and the exploration of knowledge rather than on its passive acquisition, and that will be retained throughout professional life;

(d) ability to cope with uncertainty;

(e) awareness of the moral and ethical responsibilities involved in individual patient care and in the provision of care to populations of patients; such awareness must be developed early in the course;

(f) awareness of the need to ensure that the highest possible quality of patient care must always be provided;

(g) development of capacity for self-audit and for participation in the peer-review process;

(h) awareness of personal limitations, a willingness to seek help when necessary, and ability to work effectively as a member of a team;

(i) willingness to use his or her professional capabilities to contribute to community as well as to individual patient welfare by the practice of preventive medicine and the encouragement of health promotion;

(j) ability to adapt to change;

(k) awareness of the need for continuing professional development allied to the process of continuing medical education, in order to ensure that high levels of clinical competence and knowledge are maintained;

(l) acceptance of the responsibility to contribute as far as possible to the advancement of medical knowledge in order to benefit medical practice and further improve the quality of patient care.

Curriculum themes

41. In pursuing the objectives outlined above, most medical schools will adopt their own particular curriculum design with respect both to core and to special study modules, not forgetting the primary aim of reducing information overload. In relation to the core, we have already referred to what we see as the desirability of interdisciplinary collaboration. Traditional departmental boundaries have already been widely relaxed in the interests of research, encouraged in some schools by Faculty reorganisations aimed at the establishment of coherent, functional groupings. So too in teaching, we are convinced of the advantages of interdisciplinary collaboration in the planning of courses and urge the adoption of integrated systems-based teaching or problem-oriented learning as discussed in paragraphs 25 and 33. Such broadening of the approach to teaching could result in the restructuring of medical schools along lines which might not necessarily distinguish individually all traditional departments.

42. In recognition of the fact that many schools have already revised their curricula along these lines or are in the process of doing so, and in the expectation that others will follow suit, we have avoided all reference to traditional subjects and disciplines in these Recommendations. In urging the advantages of interdisciplinarity, we recognise the complexity of the relationships between subjects and the many and varied dimensions of their linkages. There is thus no single paradigm for the core curriculum that is necessarily superior to others, but there are a number of important themes that should in our view be common to all. We see these themes as relevant to each of the integrated system and topic courses that constitute the core and as permeating all those courses. The themes listed below draw together many of the specific objectives enumerated in paragraphs 38-40.

Clinical method, practical skills and patient care

43. This theme will clearly have relevance to all the integrated courses comprising the core. It embraces every aspect of clinical study. We have already argued a case against the perpetuation of the traditional pre-clinical/clinical divide which we believe has militated against a reduction of the content of the course to reasonable proportions. We now see benefit in students being involved with people outside their peer group right from the beginning of the course. Some schools have developed very successful programmes which bring junior students into contact with families in which a baby is expected or there is an elderly or disabled member. Others have introduced first year students to hospital patients and have encouraged early acquisition of the skills of history taking and examination. One school involves its junior students in community projects which are not necessarily medically orientated.

44. Whilst it will be in the later years of the course that students acquire most of their clinical experience, the success of experiments of the type illustrated above encourages belief in the advantages of early clinical contact. We commend this development and at the same time advocate its corollary, the continuation of a substantial basic science

component into the later years of the course.

45. Clinical teaching must adapt to the changing patterns of patient care in the health service, not simply as an expedient but because education should reflect the realities of modern medicine. Students in future will gain more of their clinical experience in out-patient clinics, in general practice and in community health services than they have in the past. The traditional series of attachments of fixed duration to hospital firms may be replaced by a more broadly based supervisory system which ensures that each student obtains the clinical experience laid down in the curriculum and demonstrates proficiency in the requisite clinical skills.

Communication skills

46. Much timely and effective effort has been devoted in recent years to improvement in skills in communication. Deficiencies in this area are responsible for a high proportion of complaints and misunderstandings. Such skills have particular significance for the relationship between doctor and patient but they are important in other interactions, for example with medical and nursing colleagues. Doctors must be good listeners if they are to understand the problems of their patients and they must be able to provide advice and explanations that are comprehensible to patients and their relatives. Skill in communication is also at the heart of counselling and is an essential ingredient in the establishment of effective teamwork. It is one example of several skills that doctors share with nurses and other health care professionals; in this context, we note the moves towards shared courses in selected areas that are being developed in some schools. Finally, it is to be remembered that the written word is no less important than the spoken; students should be able to demonstrate proficiency in maintaining proper records and an ability to present a good quality written report.

Human biology

47. The term subsumes the organisation and function of the body at molecular, cellular, organ and whole body level. This theme comprehends all the basic medical sciences, the study of which must be extended through the entire course rather than confined to the first two years. It is appropriate to emphasise at this juncture that the curriculum changes that we recommend are intended to strengthen the scientific component of the course and certainly not to weaken it. Advances in medicine are likely to depend increasingly on the understanding of basic mechanisms.

Human disease

48. This refers to abnormal structure and function and embraces the natural history of human diseases, the pathological sciences, the body's defence mechanisms and responses to illness. It will include broad knowledge of the genetic and environmental factors which determine disease.

Man in society

49. Several medical schools have developed courses which include human development and aspects of psychology and sociology relevant to medicine.

Such courses should feature in all curricula and ideally should run throughout the full five years. Relevant to this theme are matters concerning child development, ethnicity, gender, age, and occupation; so too are the impact of psychological factors on health and disease and issues relating to palliation and the care of the dying. Ethics and the legal aspects of medicine will be included under this heading.

The public health

50. The theme of public health medicine must figure prominently in the curricula of the future. The study of diseases in the context of their impact on populations as well as on individuals requires additional dimensions of thought and the deployment of measurement techniques with which the student should be familiar. The assessment of population needs in relation to the provision of services, the targeting of special areas of concern, the influence of environmental and social factors on diseases, the prevention of illness and the promotion of health, will be relevant to many parts of the curriculum and should not be seen by the student as comprising the content of a compartmentalised course.

Handicap, disability and rehabilitation

51. The inclusion of this theme emphasises the importance that should be attached to responses to illness and help towards recovery as well as to the management of chronic disease and disability. It should emphasise the prevention of disability and of relapse and the minimising of residual handicap. It should comprehend both the rights and the needs of those with disabilities, recognising their alternative strengths.

Finding out: research and experiment

52. This is a theme which is qualitatively different from those listed above but nevertheless should permeate all aspects of the course. It embraces such things as an awareness of biological variation, an understanding of the scientific method, including the principles of experimental design, and the development of a facility for obtaining access to knowledge.

Assessment

53. The foregoing Recommendations have major implications for the assessment of students. The aim of correcting the curriculum overload by the introduction of the core and special study module concept would be wholly frustrated if the present examination system were to continue. Its demands are such that to a large extent it determines the learning habits of students and sets their priorities. They are reluctant to afford time to explore areas in which they will not be examined. Moreover, papers in the multiple choice format tend to put a premium on the acquisition of facts at the expense of reasoning and the attainment of the educational goals that we have highlighted. It is essential that assessment systems adequately test the achievement of these goals, and that they reflect the integrated nature of the curriculum.

54. The assessment procedures of the two parts of the course will differ. The core, aimed as it is at equipping the newly qualified doctor to begin the first pre-registration house officer post, must be tested rigorously, in the interests of the public and of the integrity of professional standards. We would recommend the development of a system of progressive assessment that monitors the acquisition and utilisation of core knowledge, that explores attitudes, and that requires certification of the achievement of competence in the skills demanded by the course. Success in satisfying the assessor of the core component of the course must provide an assurance that the graduate is now fit to take responsibility for the care of patients, albeit under supervision. Such a process of progressive assessment as a major determinant of qualification represents a departure from the traditional pattern of the final examination. For the purpose of the Medical Act, the assessments will come within the definition of 'qualifying examinations'. Because of their significance in terms of qualifying, careful monitoring of the achievements of individual students will be necessary. A number of schools have already established effective logbook or computer-based systems for recording student experience and performance; some have built into their systems the collection of data relating to the fulfilment of teaching contracts and the quality of teaching.

55. The assessment of the special study module component of the course will require different, but no less important procedures. Demonstration of satisfactory achievement will be as essential to qualification as will a pass in the core subjects; students should be aware that equal weight will be attached to both. It is likely that assessment of special study modules will provide a means of identifying outstanding achievement and so may assist in decisions on the award of honours and distinctions. Methods of assessment will vary according to the type of study undertaken but will often take the form of a short dissertation. Again we would acknowledge the amount of work that will fall to supervisors and examiners if fair and consistent standards of assessment are to be maintained.

56. The changes in the assessment system described above will require considerable modification of existing roles and practices of both internal and external examiners. Just as there is increasing emphasis on the need to provide teachers with assistance towards improving their skills, so too guidance, if not training, will be required for those who examine in the new system.

Pre-medical education

57. Medical schools admit the majority of their students direct from school although many, rightly in our view, encourage deferment for a year. Most provide a limited number of places for mature students. It is right that opportunities should be afforded to those who decide on a career in medicine after gaining experience in other fields and such entrants often prove to be an asset within the student body.

58. The definition of criteria for the selection of medical students is a matter for individual universities but the Education Committee would like

to encourage the trend towards liberalisation of entry requirements so that students may continue to study a broader range of subjects in their later years at school. It is important that school teachers and careers advisers should be well informed about and able to rely on the criteria for entry laid down by medical schools so that they may advise their pupils with confidence.

59. Medical schools recognise that there is considerable variation in the rate at which young people in the age range with which they are principally concerned mature. Moreover, they do not have the resources for sophisticated or extended selection procedures. They are therefore obliged to rely more heavily on evidence of academic achievement at school than they might wish, especially at a time when there is increasing emphasis on the non-academic attributes that are expected in members of the medical profession. Looking to the future, the possibility of developing a selection procedure that explores some of these attributes and attitudes and that is administered on a consortium basis should not be excluded.

Intercalated and other degrees

60. There is no intention that these Recommendations should reduce the opportunities for students to take intercalated BSc or BMed Sci degrees. They supply extremely valuable additional experience for students, and often provide the initial stimulus for a career in academic medicine. The Education Committee likewise commends the development of MB/PhD courses for a limited number of very able students who are thought to have potential talent for research.

61. The Committee has taken cognisance of the opportunities now available to a minority of students to undertake a six year course of which the first three years are directed towards an honours degree in the basic sciences not restricted to those contemplating a career in medicine. Early reconciliation of this pattern of training with the integrated system advocated in these Recommendations would present obvious difficulties and we have no wish to damage what is educationally effective. However, we see no reason why all schools should not achieve the goals and objectives that we have set or should fail to provide from the beginning of their undergraduate training opportunities for those who are to become doctors to acquire the attributes which we believe to be essential.

62. Under existing systems of selection, and probably unavoidable under any circumstances, there will inevitably be a small number of students admitted to medicine who discover that they have made a wrong career choice. Some, for instance, may be attracted as a result of their studies in the early part of the course to a career as a research scientist. A number of schools have now varied their regulations and made adjustments to their courses to enable such students to obtain a medical science degree at the end of three years. This practice is to be commended.

European Community legislation

63. Article 23 of Council Directive 93/16 of the EEC stipulates that the period of basic medical training for the medical profession shall comprise a six year course or 5,500 hours of theoretical and practical instruction given in a University or under the supervision of a University. The term 'basic medical training' defines the period of training leading up to full registration. In the United Kingdom this includes the pre-registration house officer year which is invariably under the supervision of a University and the requirements of the EC legislation are therefore met. In the case of graduates in science admitted to accelerated courses of medical training, part of their previous undergraduate training may also be regarded as constituting a portion of their basic medical training.

64. The purpose of the above-mentioned Directive is to 'facilitate the free movement of doctors' through the mutual recognition of primary and specialist EC medical qualifications held by EC nationals. The Education Committee would also wish to encourage undergraduate students to gain experience of medicine in other EC member states. It is hoped that medical school curricula will have sufficient flexibility to enable students to participate in ERASMUS and other exchange schemes.

Implementation of recommendations and the role of the General Medical Council

65. These Recommendations seek to address the widely perceived deficiencies in present day undergraduate medical education. The remedies proposed are radical and the effort required to apply them is not underestimated. They are expressed in terms of a series of objectives which may be achieved in a variety of ways and there is no intention to destroy the diversity and flexibility which are characteristic of our medical schools. But change there must be, if the long standing ambitions of the Council and of the schools themselves are to be realised. In our introduction we discussed some of the barriers to change, including the quasi-autonomy of individual departments and the continuation of the pre-clinical/clinical divide which, in a number of schools, we see as inhibiting the development of an integrated faculty-based curriculum. We would urge that thought be given to the possibility of faculty reorganisation along the lines that some schools have already adopted and found to be beneficial both for teaching and research.

66. We also recommend that detailed consideration be given to the systems adopted by schools for the planning and implementation of curriculum changes. It is an essential rule that no teaching course or module should be planned without consideration of its role in the curriculum as a whole; such a rule demands that the working groups designing the changes should be small, but broadly based. It is recommended that there should be adequate junior staff and student representation on committees or other bodies that are responsible for the processes of education. The same considerations should apply in the longer term

when new curricula are in place. They must remain continuously under review if they are to be adaptable to innovation and change and the supervisory structure must accordingly have continuing existence.

67. In paragraphs 16 and 35 we refer to the obligations imposed upon the Education Committee by the 1983 Medical Act and to the powers granted to it to enable it to meet these responsibilities. In times of rapid change in many aspects both of health care and education we see increasing need for vigilance in the fulfilment of our role in the interests of the public. If the Committee is to be accountable, as it must be, for ensuring that the requirements of its Recommendations are met, it must maintain a dialogue with the examining bodies on the basis of which it can form first-hand judgments. During the initial period of implementation, which it now sets at a maximum of five years from the publication of these Recommendations, it will require from medical schools an annual report on progress towards implementation together with copies of all relevant curriculum documents. During the transitional period and beyond the Committee will continue the practice of informal visits which it has already instituted, and it will use its powers of formal visitation should the need arise. It has been customary for the Committee to promulgate its Recommendations about every ten or twelve years, but much can change in the course of a decade. The Committee therefore has in mind to update its Recommendations as and when necessary, and may also issue additional guidance notes.

Conclusion

68. These Recommendations embody many of the principles and objectives set out in the past by our predecessors but we have altered the emphases and have stressed the need for enhancement of attitudes to learning and for acceptance by students of greater responsibility for their own education. We have provided less detail as to the incorporation of individual subjects but have stressed those requirements that we believe to be essential for the doctor engaged in the practice of modern medicine. Above all, we have recommended changes in the style of the undergraduate course in the belief that they will bring about the reduction of the curriculum overload which all are seeking but which has proved so elusive over the years.

PRINCIPAL RECOMMENDATIONS

1. The **burden of factual information** imposed on students in undergraduate medical curricula should be substantially reduced.

2. **Learning** through curiosity, the exploration of knowledge, and the critical evaluation of evidence should be promoted and should ensure a capacity for self-education; the undergraduate course should be seen as the first stage in the continuum of medical education that extends throughout professional life.

3. **Attitudes** of mind and of behaviour that befit a doctor should be inculcated, and should imbue the new graduate with attributes appropriate to his/her future responsibilities to patients, colleagues and society in general.

4. The **essential skills** required by the graduate at the beginning of the pre-registration year must be acquired under supervision, and proficiency in these skills must be rigorously assessed.

5. A **'core curriculum'** encompassing the essential knowledge and skills and the appropriate attitudes to be acquired at the time of graduation should be defined.

6. The 'core curriculum' should be augmented by a series of **'special study modules'** which allow students to study in depth areas of particular interest to them, that provide them with insights into scientific method and the discipline of research, and that engender an approach to medicine that is questioning and self-critical.

7. The 'core curriculum' should be **system-based**, its component parts being the combined responsibility of basic scientists and clinicians **integrating** their contributions to a common purpose, thus eliminating the rigid pre-clinical/clinical divide and the exclusive departmentally based course.

8. There should be emphasis throughout the course on **communication skills** and the other essentials of basic clinical method.

9. The theme of **public health medicine** should figure prominently in the curriculum, encompassing health promotion and illness prevention, assessment and targeting of population needs, and awareness of environmental and social factors in disease.

10. Clinical teaching should adapt to **changing patterns in health care** and should provide experience of primary care and of community medical services as well as of hospital based services.

11. **Learning systems** should be informed by modern educational theory and should draw on the wide range of technological resources available; medical schools should be prepared to share these resources to their mutual advantage.

12. **Systems of assessment** should be adapted to the new style curriculum, should encourage appropriate learning skills and should reduce emphasis on the uncritical acquisition of facts.

13. The design, implementation and continuing review of curricula demand the establishment of effective **supervisory structures** with interdisciplinary membership and adequate representation of junior staff and students.

14. The Education Committee of the General Medical Council should ensure the **implementation of its Recommendations** through regular progress reports from medical schools, continuing dialogue on the basis of informal visits and, when necessary, by the exercise of the statutory powers given to it under the Medical Acts.

Attributes of the independent practitioner

1 *The ability to solve clinical and other problems in medical practice,* which involves or requires:

(a) an intellectual and temperamental ability to change, to face the unfamiliar and to adapt to change;

(b) a capacity for individual, self-directed learning; and

(c) reasoning and judgement in the application of knowledge to the analysis and interpretation of data, in defining the nature of a problem, and in planning and implementing a strategy to resolve it.

2 *Possession of adequate knowledge and understanding of the general structure and function of the human body and workings of the mind, in health and disease, of their interaction and of the interaction between man and his physical and social environment.* This requires:

(a) knowledge of the physical, behavioural, epidemiological and clinical sciences upon which medicine depends;

(b) understanding of the aetiology and natural history of diseases;

(c) understanding of the impact of both psychological factors upon illness and of illness upon the patient and the patient's family;

(d) understanding of the effects of childhood growth and of later ageing upon the individual, the family and the community; and

(e) understanding of the social, cultural and environmental factors which contribute to health or illness, and the capacity of medicine to influence them.

3 *Possession of consultation skills,* which include:

(a) skills in sensitive and effective communication with patients and their families, professional colleagues and local agencies, and the keeping of good medical records;

(b) the clinical skills necessary to examine the patient's physical and mental state and to investigate appropriately;

(c) the ability to exercise sound clinical judgement to analyse symptoms and physical signs in pathophysiological terms, to establish diagnoses, and to offer advice to the patient taking account of physical, psychological, social and cultural factors; and

(d) understanding of the special needs of terminal care.

4 *Acquisition of a high standard of knowledge and skills in the doctor's specialty,* which include:

(a) understanding of acute illness and of disabling and chronic diseases within that specialty, including their physical, mental and social implications, rehabilitation, pain relief, and the need for support and encouragement; and

(b) relevant manual, biochemical, pharmacological, psychological, social and other interventions in acute and chronic illness.

5 *Willingness and ability to deal with common medical emergencies and with other illness in an emergency.*

6 *The ability to contribute appropriately to the prevention of illness and the promotion of health,* which involves:

(a) understanding of the principles, methods and limitations of preventive medicine and health promotion;

(b) understanding of the doctor's role in educating patients, families and communities, and in generally promoting good health; and

(c) the ability to identify individuals at risk and to take appropriate action.

7 *The ability to recognise and analyse ethical problems so as to enable patients, their families, society and the doctor to have proper regard to such problems in reaching decisions;* this comprehends:

(a) knowledge of the ethical standards and legal responsibilities of the medical profession;

(b) understanding of the impact of medico-social legislation on medical practice; and

(c) recognition of the influence upon his or her approach to ethical problems of the doctor's own personality and values.

8 *The maintenance of attitudes and conduct appropriate to a high level of professional practice,* which includes:

(a) recognition that a blend of scientific and humanitarian approaches is required, involving a critical approach to learning, open-mindedness, compassion, and concern for the dignity of the patient and, where relevant, of the patient's family;

(b) recognition that good medical practice depends on partnership between doctor and patient, based upon mutual understanding and trust; the doctor may give advice, but the patient must decide whether or not to accept it;

(c) commitment to providing high quality care; awareness of the limitations of the doctor's own knowledge and of existing medical knowledge; recognition of the duty to keep up to date in the doctor's own specialist field and to be aware of developments in others; and

(d) willingness to accept review, including self-audit, of the doctor's performance.

9 *Mastery of the skills required to work within a team and, where appropriate, assume the responsibilities of team leader,* which requires:

(a) recognition of the need for the doctor to collaborate in prevention, diagnosis, treatment and management with other health care professionals and with patients themselves;

(b) understanding and appreciation of the roles, responsibilities and skills of nurses and other health care workers; and

(c) the ability to lead, guide and co-ordinate the work of others.

10 *Acquisition of experience in administration and planning,* including:

(a) efficient management of the doctor's own time and professional activities;

(b) appropriate use of diagnostic and therapeutic resources, and appreciation of the economic and practical constraints affecting the provision of health care; and

(c) willingness to participate, as required, in the work of bodies which advise, plan and assist the development and administration of medical services, such as NHS authorities and trusts*, Royal Colleges and Faculties, and professional associations.

11 *Recognition of the opportunities and acceptance of the duty to contribute, when possible, to the advancement of medical knowledge and skill,* which entails:

(a) understanding of the contribution of research methods, and interpretation and application of others' research in the doctor's own specialty; and

(b) willingness, when appropriate, to contribute to research in the doctor's specialist field, both personally and through encouraging participation by junior colleagues.

12 *Recognition of the obligation to teach others, particularly doctors in training,* which requires:

(a) acceptance of responsibility for training junior colleagues in the specialty, and for teaching other doctors, medical students, and other health care professionals, when required;

(b) recognition that teaching skills are not necessarily innate but can be learned, and willingness to acquire them; and

(c) recognition that the example of the teacher is the most powerful influence upon the standards of conduct and practice of every trainee.

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* 1993 amendment.

ANNEX B

Section 5 of the Medical Act 1983

General functions of the Education Committee in relation to medical education in the United Kingdom

5.—(1) The Education Committee shall have the general function of promoting high standards of medical education and coordinating all stages of medical education.

(2) For the purpose of discharging that function the Education Committee shall—

(*a*) determine the extent of the knowledge and skill which is to be required for the granting of primary United Kingdom qualifications and secure that the instruction given in universities in the United Kingdom to persons studying for such qualifications is sufficient to equip them with knowledge and skill of that extent:

(*b*) determine the standard of proficiency which is to be required from candidates at qualifying examinations and secure the maintenance of that standard; and

(*c*) determine patterns of experience which may be recognised as suitable for giving to those engaging in such employment as is mentioned in section 10(2) below general clinical training for the purposes of the practice of their profession.

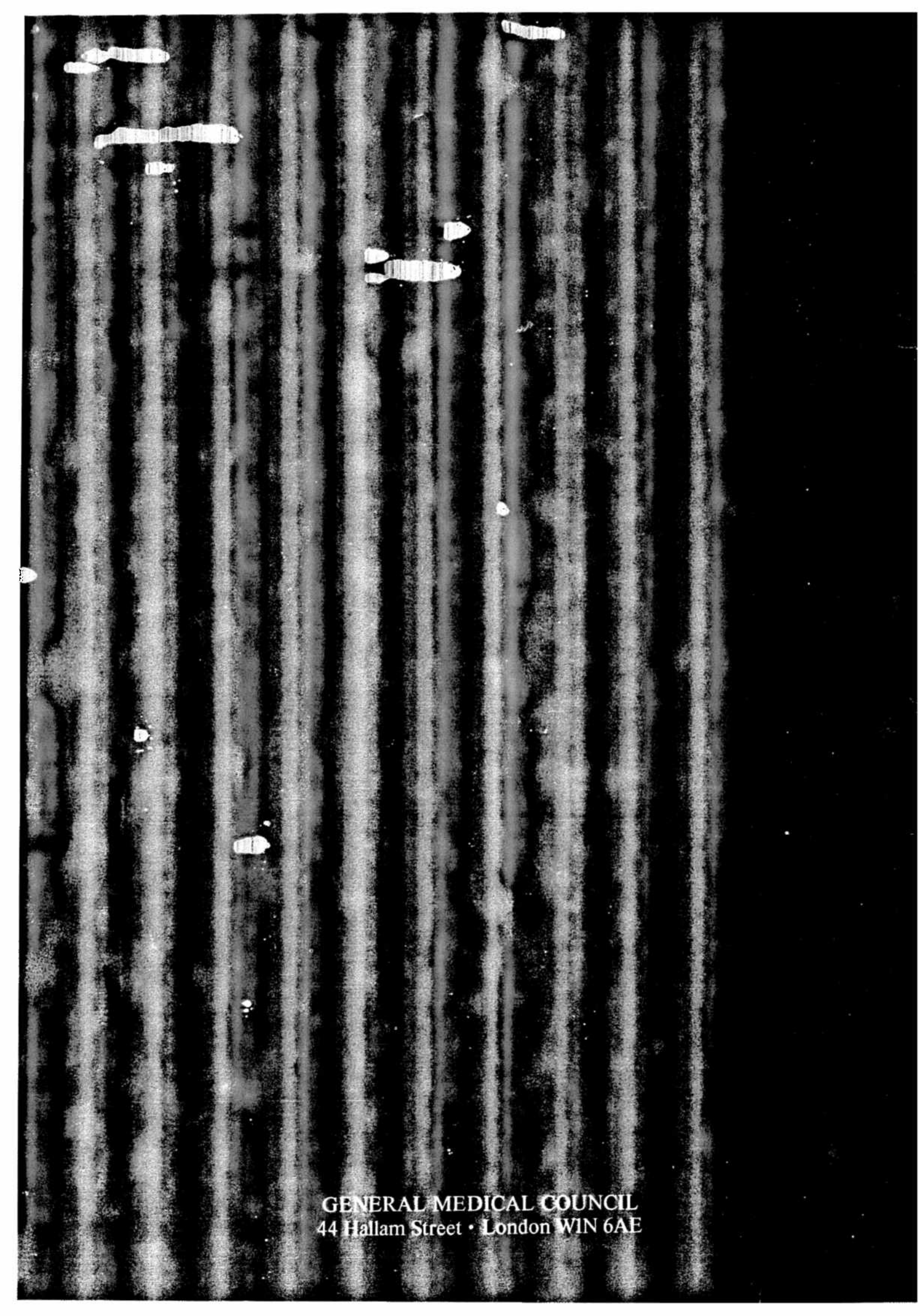
(3) The determinations of the Education Committee under subsection (2) above shall be embodied in recommendations which may be directed to all or any of the universities or other bodies concerned with medical education.

(4) In this Act—

"the prescribed knowledge and skill" means knowledge and skill of the extent for the time being determined under subsection (2)(*a*) above and embodied in recommendations under subsection (3) above;

"the prescribed standard of proficiency" means the standard of proficiency for the time being determined under subsection (2)(b) above and embodied in recommendations under subsection (3) above;

"a prescribed pattern of experience" means any pattern of experience for the time being determined under subsection (2)(*c*) above and embodied in recommendations under-subsection (3) above.



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