

**THE FIRST FIVE YEARS : THE UNDERGRADUATE DENTAL
CURRICULUM – DRAFT SECOND EDITION FOR CONSULTATION**

Prepared by the General Dental Council, forwarded by Dr Peter Burley

For response as appropriate.



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16 November 2001

Dear Colleague,

The First Five Years: The Undergraduate Dental Curriculum Draft Second Edition for Consultation

I am writing to invite your comments on the draft text approved for consultation by the Council earlier this month.

In this updating of *The First Five Years* a Working Group under Professor John Murray's chairmanship has retained the general style and format of the first edition, which was well received in the United Kingdom and around the world.

It was agreed by the Working Group that a major section on Student Health and Conduct needed to be included. Another significant addition is the section on Pain and Anxiety Control drafted by the GDC Working Party on the Teaching of Pain and Anxiety Control. This new text replaces the previous paragraphs on Sedation and General Anaesthesia. A further change is in the organisation of the teaching of General Pathology and General Microbiology, Medicine and Surgery, and Pharmacology and Therapeutics. The Working Group suggests an integrated approach to the teaching of human disease, with changes to the administration of the course.

The Working Group has noted the major reports on dental and medical education published in the last four years. Particular account has been taken of the General Report on the GDC Visitation of Final Examinations, the draft revision of the General Medical Council's *Tomorrow's Doctors* and the draft Quality Assurance Agency Benchmark Statement for Dentistry.

The Council's requirements for the undergraduate dental curriculum have been given greater emphasis with the itemisation of Key Principles and Learning Outcomes (paragraph 115).

It will be appreciated if your comments are made in the following manner:

- a) general points about format and content;
- b) particular points about paragraphs, including suggestions for changing the text.

16 November 2001

The Working Group has been asked to present a final version to the GDC Education Committee in March 2002 and so we should be grateful to receive your response before 31 December 2001 if possible and no later than Monday 7 January 2002. The Working Group meets a few days later.

The consultation document is posted on the GDC website www.gdc-uk.org with a response form provided. Alternatively respondents may send their comments by e-mail to SWaheed@gdc-uk.org. If you have any questions about this consultation, please contact Mr Alvan Seth-Smith, Director of Education, or Miss Saima Waheed.

We shall be most grateful to receive your views.

Yours sincerely,



Professor Nairn Wilson
President



General Dental Council

The First Five Years
*The Undergraduate
Dental Curriculum*

Second Edition
Draft 14 November 2001

THE FIRST FIVE YEARS

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WORKING GROUP ON THE FIRST FIVE YEARS

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FOREWORD

(TO BE ADDED LATER)

KEY PRINCIPLES

- The aim of the curriculum is to produce a caring, knowledgeable, competent and skilful dentist who is able to accept professional responsibility for the effective and safe care of patients on graduation.
- The curriculum should encourage a questioning and self-critical approach to dental practice, and foster the intellectual skills required for further personal and professional development.
- The curriculum must provide students with the opportunity to be able to undertake, to the highest possible standards, those clinical procedures which are within his or her area of competence.
- The curriculum should encourage recognition and acceptance of the obligation to practise in the best interests of the patients at all times, as outlined in the GDC's guidance to dentists on professional and personal conduct in *Maintaining Standards*.
- The curriculum must prepare dental students for the transition to vocational dental practitioners.
- Universities and dental schools have a responsibility to ensure that only those students who comply with student health and conduct requirements are deemed to have completed the course.
- The curriculum must allow dental students and students of the professions complementary to dentistry appropriate opportunities to train and work together.
- The curriculum must ensure that students develop an understanding of audit and clinical governance.
- Appropriate educational and clinical support must be available to underpin the delivery of the curriculum.

PART 1:
THE CONTEXT OF
UNDERGRADUATE
DENTAL EDUCATION

INTRODUCTION

RESPONSIBILITIES

1. The General Dental Council (GDC) is required by the Dentists Act, 1984, to ensure that Dental Schools meet the high standards of dental education at all its stages. As part of that duty, the GDC's *The First Five Years - The Undergraduate Dental Curriculum* is published to direct and guide the dental authorities, who award degrees and licences in dentistry, in the design and implementation of courses of study. The GDC believes its directions and guidance are both achievable and necessary if dental graduates of high quality, well prepared to serve the public, are to be developed.

STATUS OF THE FIRST FIVE YEARS

2. This direction and guidance, together with other guidance which may be issued by the GDC from time to time, indicates the minimum curriculum that the GDC regards as adequate. It will be used by Visitors to the dental authorities inspecting courses and examinations in preparing their reports. All external examiners should make themselves aware of the provisions of *The First Five Years*.

3. This document indicates the features of an undergraduate dental curriculum that the GDC regards as appropriate. It is emphasised that these are only the features of the minimum curriculum. Therefore the GDC expects, as a matter of course, to see them expanded and enlarged upon by the dental authorities.

4. The undergraduate dental curriculum places heavy demands on students, staff and supporting authorities in that a significant part of the course requires dental students to provide clinical care for patients. It also specifically addresses the health service bodies including providers and commissioners who play an important part in the education of dental students. However, this does not reduce in any way the responsibilities of the dental authorities, that is, the universities and other examining bodies in the United Kingdom, whose role is as important as ever. The GDC wishes to see openness and clarity with regard to the funding of dental schools and be made fully aware how each element of funding for the dental schools is being allocated.

CURRICULUM DEVELOPMENT

5. The GDC wishes to encourage the further development of progressive ideas and improved methods of study in what should be a dynamic educational process. The result should be that dental courses continue to be attractive and rewarding for young people who wish to enter the profession. It welcomes for instance the broadening of undergraduate dental education and the associated enhancement of the curriculum which is currently taking place. Curriculum development should allow the dental student to capture the national and international vision for oral and general health promotion.

6. The GDC expects that each dental school will undertake curricular initiatives designed to take account of changing systems of dental care. There is a need for undergraduates to gain experience of working with Professionals Complementary to Dentistry during the undergraduate course. Dental Schools will need mechanisms through which such experience can be gained.

7. Safeguards must be in place if curriculum development is not to have adverse effects. Foremost amongst these is consideration for the dental students and, in the clinical part of the course, for the patients to whom they will be delivering care. The GDC is concerned about the possible congestion of the undergraduate dental curricula. Curriculum development initiatives must neither create nor exacerbate such problems.

8. Against that background the GDC expects to see changes fully resourced, continuously evaluated and neither prematurely terminated nor unduly prolonged if developments appear unsatisfactory. Schools should disseminate the results of such curriculum initiatives in an objective, non-anecdotal way.

DEVELOPMENT OF A PROFESSION

9. The practice of dentistry has always been characterised both by its closeness to the practice of medicine and its distinctiveness from it. Thus, whilst it is universally acknowledged that dentists subscribe fully to the core values of the doctor, certain features of the practice of dentistry have ensured that the identity of a separate profession has been maintained. In the United Kingdom, formal recognition of this situation came about in the late nineteenth and early twentieth centuries as first the Royal Colleges and then the Universities established licences and degrees in dental surgery. Initially, these were approved by the General Medical Council's Dental Executive Committee until in 1956 the GDC was founded and assumed this role as part of its statutory responsibilities.

10. The GDC has always been guided by the principle that upon successful completion of the undergraduate course, the graduate or licentiate of a dental authority is entitled to be registered and can, forthwith, practise without supervision. The course and examinations have therefore to be designed to fit the graduate or licentiate to undertake that responsibility. In this regard, an important difference between medicine and dentistry was established because, since 1953, newly qualified doctors have had to undergo further supervised training in what came to be called the pre-registration year.

11. In October 1993, after a number of years as a voluntary scheme, a one-year period of vocational training within approved general dental practices became a mandatory requirement for the new dental graduate or licentiate who wished to practise eventually as a principal within the National Health Service. The GDC has strongly endorsed this arrangement which allows a gradual and controlled transition from the shelter of undergraduate education to unsupervised practice, and looks forward to the further development of a longer period of general professional training immediately following graduation. There is a need to achieve a qualifying standard of clinical competence, so that the student can adequately be prepared for the transition to independent and unsupervised practice, and at the same time to take account of the need for further development of skills post graduation.

THE DENTIST AND SOCIETY

12. The GDC remains concerned to ensure that dentists continue to play a proper role in society, not only through the care of individual patients, but also by contributing to the health and well-being of the general public. The practice of dentistry demands that practitioners accept a wide variety of responsibilities ranging from health promotion through to illness prevention, diagnosis and treatment. The safety of patients depends on high ethical standards and on the judgement and skills - both clinical and interpersonal - of the practitioner. Dentists should be capable of contributing to the general debate on the provision of health care to individuals, communities and society. All those involved in the design, delivery and evaluation of undergraduate dental curricula must be aware of these fundamental purposes.

THE CONTINUITY OF DENTAL EDUCATION

13. The primary dental degree or diploma represents only the first stage in an educational continuum which should last throughout a dentist's practising life. Graduation is usually followed at an early stage by a period of vocational training which under current proposals may evolve into a two-year period of general professional training. It is envisaged that the dentist may then choose to undertake a period of specialist training. Beyond these formal educational arrangements, the dentist will, in future, be required to undergo a fixed amount of continuing education on an annual basis as a condition of continuing registration with the GDC. The curriculum must prepare students to undertake self-directed learning throughout their professional life.

14. Dental education does not take place in isolation. It is subject to important external influences, which themselves are always changing. Two of these influences are constantly monitored: the pattern of oral and dental disease and the methods used for prevention and treatment. Every effort has been made to take current changes into account in this document. A similar approach has been adopted

with changes in higher education and medical education. The preparation of this edition of *The First Five Years* has been informed by the revised edition of the General Medical Council's *Tomorrows Doctors*, the Quality Assurance Agency's reports on dentistry, and its document on Benchmarking in dentistry and the GMC document on *Student Health and Conduct*.

THE DENTAL TEAM

15. The Council's approach to all the members of the dental team working together in a collaborative basis is founded on the positive response to its 1998 consultation paper on professionals complementary to dentistry (PCDs). The Council decided to register all groups of PCDs under an amended Dentists Act and regulate their work through educational curricula and ethical guidance, rather than through prescribed duties. The dentist has a role of team leader and is responsible for diagnosis, treatment planning and the quality control of the treatment provided. Funding streams must be identified to ensure those dental students and students of the Professions Complementary to Dentistry have significant and appropriate opportunities to train and work together. This may require Dental Schools to devise innovative mechanisms through which such experience can be gained.

THE EUROPEAN PERSPECTIVE

16. The GDC considers that the directions and guidance given in *The First Five Years* are entirely consistent with the relevant statements in the European Directives, and that, insofar as they exceed them in several respects, they should anticipate future requirements of the European Union. If that is not the case, the GDC will issue supplementary guidance to ensure consistency with European law.

HEALTH INFORMATICS

17. Progress in information technology, including the area designated as health informatics, will continue and accelerate. These techniques provide information in a wide variety of formats, supply decision-making systems and allow outcomes of treatment to be assessed. Students should learn to use primary written and electronic sources to acquire information. They should be aware of the clinical applications of health informatics such as teleradiology, electronic patient records and the importance of health informatics in developing communication between all members of the primary health care team. The use and communication of scientific information can guide clinical decision making and so enhance patient care.

CLINICAL GOVERNANCE

18. Students should develop an understanding of Audit and Clinical Governance, and their roles in ensuring a commitment by organisations and individuals in promoting the continuous development of quality in the delivery of patient care, particularly with respect to primary dental care and routine clinical practice. Students should be practically involved in the audit cycle and should understand the importance of evidence-based dentistry and how this relates to clinical practice. They should be able to evaluate the evidence and critically assess its relevance to treatment planning, advice and treatment provision.

THE GOALS OF UNDERGRADUATE DENTAL EDUCATION

19. The aim of a dental curriculum is to produce a caring, knowledgeable, competent and skilful dentist who is able to accept professional responsibility for the effective and safe care of patients, who appreciates the need for Continuing Professional Development, who is able to utilise advances in relevant knowledge and techniques and who understands the role of the patients in decision making.

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The undergraduate dental curriculum must:

- Allow students to acquire the clinical understanding and competence to practise without supervision, on graduation, and at the same time enable them to be aware of their limitations and the need to refer for specialist advice;
- Promote acquisition of the skills and professional attitudes and behaviour that facilitate effective and appropriate interaction with patients and colleagues;
- Encourage recognition and acceptance of the obligation to practise in the best interest of patients at all times, as outlined in the GDC's guidance on professional and personal conduct in *Maintaining Standards*;
- Foster the knowledge and understanding, attitudes and skills that will promote effective lifelong learning and support professional development.

KNOWLEDGE OBJECTIVES

20. The dental graduate should understand:

- The scientific basis of dentistry, including the relevant medical sciences, the mechanisms of knowledge acquisition, scientific method and evaluation of evidence;
- Behavioural sciences and communication;
- The body of clinical experience that informs dental practice;
- Disease processes such as infection, inflammation, immune response, degeneration, neoplasia, metabolic disturbances and genetic disorders;
- The principles of health promotion and disease prevention;
- The organisation and provision of health care in the community and in hospital;
- The broader issues of dental practice, including ethics, medico-legal considerations, and the maintenance of a safe working environment;
- The relevance of business and management skills.

SKILL OBJECTIVES

21. The dental graduate should be able to:

- Undertake a range of clinical procedures which are within a dentist's area of competence, including techniques for preventing and treating oral and dental diseases and disorders;
- Communicate effectively with patients, their families and associates, and with other health professionals involved in their care;
- Obtain and record a comprehensive history, perform an appropriate physical examination, interpret the findings and organise appropriate further investigations;
- Share with patients provisional assessment of their problems and formulate plans for their further investigation and management;
- Evaluate and apply evidence-based treatment;
- Possess a wide range of skills, including investigative, analytical, problem-solving, planning, communication, presentation and team skills.

ATTITUDINAL OBJECTIVES

22. The dental graduate should have:

- Approaches to teaching and learning that are based on curiosity and exploration of knowledge rather than its passive acquisition.
- A desire for intellectual rigour, a capacity for self-audit and an appreciation of the need to participate in peer review.
- An awareness of personal limitations, a willingness to seek help as necessary, an ability to work effectively as a member of a team.
- Respect for patients and colleagues that encompasses without prejudice diversity of background and opportunity, language and culture.

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- An understanding of patients' rights, particularly with regard to confidentiality and informed consent.
- An awareness of moral and ethical responsibilities involved in the provision of care to individual patients and to populations.
- An appreciation of the importance of honesty and trustworthiness.
- An understanding of audit and clinical governance.
- An awareness that dentists should strive to provide the highest possible quality of patient care at all times.
- An awareness of the importance of the trainee's own health, and its impact on his or her ability to practise as a dentist.
- An awareness of the need for continuing professional development allied to the process of their continuing education, in order to ensure that high levels of clinical competence and knowledge are maintained.

INTENDED OUTCOMES

23. The dental graduate should:

- Aspire to maintain high professional personal standards
- Be prepared for, and recognise, the need for continuing professional development
- Understand the importance of the team approach
- Use information technology as a means of communicating, for data collection and analysis
- Develop an understanding of audited and clinical governance
- Understand the scientific and ethical basis of dentistry
- Undertake the appropriate clinical procedures
- Provide the highest quality of patient care

AN OUTLINE DENTAL CURRICULUM

ENTRY REQUIREMENTS

24. While the definition of criteria for the selection of dental students is a matter for the individual university, it is clear that a high level of academic achievement in appropriate aspects of the biological and physical sciences is a desirable pre-requisite for any student embarking upon basic dental education, as is evidence of literacy, numeracy and an ability to communicate. Within these broad guidelines the GDC encourages flexibility in entry requirements. The structure of the course should be further considered to encourage widening access, e.g. access for graduates with a relevant degree such as biomedical sciences, and for Professionals Complementary to Medicine and Dentistry.

25. In conformity with Departments of Health Guidelines, all dental students must be immunised against blood-borne viruses, where appropriate vaccines exist, before commencing care of patients which involves exposure-prone procedures. Entry to the course therefore should be conditional upon proof of non-infectivity and acceptance of immunisation which must be completed before any contact with patients occurs. Although the medical and dental courses are much more demanding than secondary schooling, there are few health problems, which, once stabilised, offer a bar to entry. Certain infectious diseases offer a risk to patients. The conditions most likely to cause academic failure are certain psychiatric problems. Otherwise an individual who has achieved high grades in examinations prior to entry, despite an impairment, is very likely to be well motivated, and to continue that success into their subsequent career.

LENGTH OF COURSE

26. The Dental Directives of the European Union require a programme of not less than five years, including the teaching of basic subjects, leading to a primary qualification in dentistry. The curriculum set out in *The First Five Years* requires a programme occupying five academic years, subsequent to pre-dental studies covering the entry requirements in the basic science subjects. During these five

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years students shall be required to have engaged in full-time study at a dental or medical school, or hospital recognised for the purpose by one of the dental authorities.

COMPONENTS

27. The dental course has three main components, which may be taught sequentially or concurrently in an integrated or modular arrangement. In the latter arrangements, co-ordination of subjects and subject-areas within the curriculum should be ensured. Integration of the scientific, applied scientific and clinical elements throughout the whole five years rather than polarisation of pre-clinical and clinical aspects, is encouraged.

Components of the course should include:

- Subjects common to medicine and dentistry, progressing from anatomy, physiology and biochemistry through the behavioural sciences (principally psychology and sociology), epidemiology, law and ethics, pharmacology, pathology and microbiology to medicine and surgery. It is intended to provide an appreciation of normal human development, structure, function, behaviour, and socialisation leading to an understanding of disease, its prevention, diagnosis and treatment.
- The oral and dental aspects of the biological sciences required for a detailed knowledge of the structure and function of the oral and dental tissues and of the related structures of the head and neck. These should lead to a progressive understanding of the diagnosis, prevention and treatment of oral and dental diseases and disorders, and the effects of systemic disease on oral and dental tissues.
- The clinical and technical aspects of dentistry. It prepares the students for the provision of comprehensive oral and dental health care for patients of all ages. The main emphasis in dentistry must be on the prevention of disease and the preservation of the natural teeth and their supporting structures. Accordingly, students need to be fully aware of the importance of preventive methods, acquire diagnostic skills and understand the necessity of treatment planning before treatment procedures are begun. They should gain an awareness of treating medically and physically compromised patients. Students will need considerable experience in the operative procedures which dentists undertake in general dental practice, so that students, on graduation, are fit for independent practice, whilst at the same time being aware of his/her limitations and the need to refer for specialist advice.

28. In order to obtain instruction and experience in the practice of dentistry the period of clinical studies shall be not less than the equivalent of three and one third years of full-time study, during which students shall attend a dental hospital, general hospital or other suitable establishment recognised by a dental authority for the purpose. Students should be allowed adequate time for private reading and be given opportunities for special study throughout the undergraduate course.

29. The content of medical and related sciences within all the components of the course should be not less than the equivalent of that obtained by two years academic study for a primary science degree, an overall period of five years being maintained by recognising part of the clinical study period as appropriate for the purpose.

THE EDUCATIONAL ENVIRONMENT

THE UNIVERSITY

30. Dental schools generally exist within multi-faculty universities or colleges. They benefit considerably from the administrative and academically related support this brings and the presence of other faculties. All academic funding for dental undergraduate education and dental research is received by the accountable officer of the institution, usually the vice-chancellor or principal. The GDC

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notes that such persons therefore have a responsibility to ensure that the teaching of dental students on patients can proceed in a satisfactory manner, and expects the dental dean or equivalent person to cooperate closely with the accountable officer in that regard. The GDC expects universities to have a transparent system for transmitting funding from the Higher Education Funding Councils through their central administration to the dental schools.

31. The university is responsible for the delivery of much of the first two components of the undergraduate dental curriculum, usually through the agency of departments in its medical faculty. Non-dental departments of the university may deliver aspects of the course. This content must be planned together with the staff of the dental school, one of whom should be designated as course co-ordinator in each case.

32. The university will also provide library facilities, and information technology resources. These should be sufficient to enable all dental students to undertake guided self-learning. Formal instruction should be given in the use of personal learning techniques, such as computer-assisted learning, with emphasis on the developing area of health informatics. The GDC would be concerned if a dental authority devoted considerable curriculum time to guided self-learning but did not make appropriate provision for such activity.

THE DENTAL SCHOOL

33. The dental school consists of a number of academic departments or units whose staff are led by a dental dean or equivalent person. The school will need to have its own staff accommodation, together with facilities for teaching and research. Common-user facilities for those purposes could be shared with other university departments, but dental school dedicated space should be a fair proportion of the whole. Some specialised facilities such as dental technology and operative technique teaching laboratories are required in addition to those necessary for clinical teaching. The GDC would expect that excellence in teaching and scholarship in education should be as well rewarded as research in determining career advancement of dental academics. It should also be recognised that the intensity of the dental course and clinical commitments make further significant time demands on dental academics.

34. The GDC does not wish to be prescriptive in respect of the staffing of a dental school. In general, it considers that most of the staff should have dental qualifications, but has high regard for those from other backgrounds who take a special interest in dental education and research, often throughout their academic lives. Accordingly, it is hoped that staff of either category would represent each of the subjects and topics described in the next section. The GDC particularly expects that dental hospital staff will continue to play an important role in teaching dental undergraduates. The presence of part-time dental school staff, with appropriate qualifications, is also essential.

35. Clinical dental teaching staff have to combine advanced dental care skills with the high standards of teaching and research expected of a university teacher. These are essential attributes if clinical dental students are to be inspired by contact with inquiring minds and fresh approaches to dental problems. It is important that proper facilities for research should be provided in every dental school and that the staff should be given every encouragement to conduct research. It is important that staff are registered and qualified.

36. The demands laid upon clinical dental teaching staff are such that arrangements should be made so they can avail themselves of carefully constructed staff development programmes which must include clinical training. Staff should also recognise that they are regarded by dental undergraduates as role models, and they should act accordingly.

THE DENTAL TEAM

SCOPE

37. The dental student on graduation should understand the techniques and principles which enable the dentist to act as the leader of a dental team consisting of PCDs including dental hygienists, dental nurses, dental technicians, dental therapists, and any other groups which are created in the future. That will involve task analysis, scheduling, delegation, prescription and monitoring of results. The collaboration of the dental student with a dental technician, for the prescription of fixed restorations and removable prostheses and appliances, and with a dental hygienist for prescription of oral hygiene procedures must also be a feature of the dental curriculum. The dental student should be made aware that being a leader of the dental team carries onerous responsibilities in terms of professional conduct. With increasing emphasis being placed on PCDs, there is the need for the undergraduate to have experience of working as an integral part of the greater dental team. Both groups benefit by becoming aware early on of the contribution each can make in the provision of oral health care. This also assists in the development of a team approach. Other elements for inclusion include managing a team, leadership, motivating others and delegation.

38. Dental students must learn the principles and practice of assisted-operating dentistry which is now the normal method used in general dental practice to ensure safety and provision of high quality care of patients. For that purpose the GDC considers that dental hospitals must employ sufficient dental nurses to allow a substantial amount of assisted operating by dental students in the short term, and that the health authorities concerned should begin to make provision in the near future for all dental procedures carried out by students to employ assisted-operating techniques. The GDC considers progress on this front has been slow since the last series of Visitations in 1993-95.

39. Dental students should be aware of their professional and legal responsibilities to all staff including the protection of their staff and themselves and of the requirements of relevant health and safety and employment legislation.

THE CLINICAL ENVIRONMENT

NHS TRUSTS

40. Each dental school works in close association with a dental teaching hospital which exists primarily to provide clinical facilities for dental students. Dental teaching hospitals are either part of large NHS Trusts or, in a few cases, may be NHS Trusts in their own right. In either case the ultimate responsibility for the dental teaching hospital will lie with the chief executive of the Trust who will be expected to cooperate closely with the dental dean or equivalent person to ensure that the clinical teaching of dental students on patients proceeds in a satisfactory manner. This can only be achieved with appropriate capital investment to maintain the facilities of clinical dental education.

41. Because exceptional pressures are placed on modern healthcare organisations the GDC expects mechanisms to be put into place by the Department of Health to ensure that clinical teaching of dental students on patients is not compromised. Mechanisms currently existing in many parts of the United Kingdom include acceptance of shared responsibility for medical and dental education and research by the Department of Health and the Department for Education and Skills, as embodied in the set of guidelines entitled the 'Ten Key Principles'; a National Purchasing Unit for Dental SIFT (Service Increment for Teaching) which purchases services from providers necessary for undergraduate dental education on behalf of dental deans or equivalent persons and the regular review by the Higher Education Funding Councils of the impact of health service reforms on medical and dental education and research.

42. A dental teaching hospital also provides a supportive location for hospital dental services. The presence of these services is conducive to dental education because it allows students to observe the

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delivery of high quality secondary and tertiary dental care, often to patients with special needs. The proper flow of a suitable case mix of patients required for undergraduate education cannot be managed without the support provided by these services through the contracts awarded by health commissioners. The GDC expects those commissioning healthcare to behave appropriately and not to seek to cause resources to be moved away from dental education to meet purely service demands.

43. All consultant and other permanent staff in teaching hospitals should have a commitment to undergraduate teaching included in their contractual obligations. This applies equally to consultant staff in the dental teaching hospital and the hospital dental services, who should make that valuable commitment to dental students.

THE EXTENDED CLINICAL ENVIRONMENT AND OUTREACH TEACHING

44. The GDC expects dental schools to assist students to prepare adequately for the transition to independent and unsupervised practice which is permitted on primary qualification. In pursuit of this students may, under close supervision by university recognised teachers registered with the GDC, operate in the following situations (amongst others):

- General practice units established by the dental school
- Approved community dental service clinics
- Personal dental services
- Other dental teaching hospitals in the United Kingdom and abroad
- All systems for the delivery of primary dental care approved by the schools for these purposes
- Other secondary care dental services such as those in regional hospital units.

45. The GDC concurs with the conclusions in the report of *The Role of Outreach Teaching in the Dental Curriculum of the Future*¹, which stated that no standard model of outreach teaching is appropriate for all. Organisations such as the National Purchasing Unit and the Department of Health need to be aware that funding streams are key to the success of outreach teaching. It is important to look at the way the Community Trusts and Primary Care Trusts responsible for providing outreach teaching receive their share of SIFT.

INSTRUCTION IN HUMAN DISEASE

46. Part of the undergraduate dental curriculum must be devoted to instruction in medicine and surgery (human disease) and to attendance at accident and emergency departments. A Trust, usually the host Trust, is provided with specific funding to supply the facilities and staff for this part of the curriculum and must be used for that purpose in agreement with the dental dean or equivalent person. The study of human disease is of continuing importance in that the development in modern drug therapy and other treatments in medicine and surgery have an increasing influence on the provision of dental care.

SAFETY

47. In dental teaching hospitals the arrangements for cross-infection control, control of substances hazardous to health and safety of equipment, including that involving ionizing radiation, must be exemplary.

¹ Report of a workshop held at the Manchester Dental Education Centre 19 February 2001.

PART 2:
SUBJECTS AND TOPICS

48. In the interests of curriculum evolution, the dental authorities may change the titles of subjects and topics, reorganise the material within them and integrate it in various ways. However they must be able to demonstrate the presence of the essential elements to the level described in this document.

BASIC MEDICAL SCIENCES

SCOPE

49. The basic medical sciences comprise anatomy, both macroscopic and microscopic, physiology and biochemistry at whole body, cellular and molecular level, and include nutrition and genetics. Many authorities find it useful to introduce pharmacology and basic aspects of therapeutics at this stage, together with some features of cellular biology and microbial metabolism. The teaching should introduce the student to the principles of scientific thought and argument, including the evaluation of scientifically established facts, experimental design, statistics and biometry. Increasing constraints of resource have tended to lead to a reduction in practical laboratory teaching for the basic sciences in many schools. Whilst the development of new learning approaches and initiatives is to be encouraged, the practical skills and learning experience which are a result of laboratory experience must not be ignored. The GDC expects continuing emphasis on achieving a strong grounding in the basic medical sciences, but there is the need to ensure that these studies are appropriate to the particular requirements of the dental undergraduate. In the case where joint courses are provided with other health care workers, it is essential that these studies are relevant and that time is not spent on inappropriate material. Behavioural sciences including a knowledge of social and cultural influences and communication skills are a major priority, and these should be integrated with both didactic treatment programmes and clinical teaching throughout the course.

INTEGRATION

50. Most dental authorities have put into practice the principle of coordination and integration of the various subjects and this is to be encouraged. Whilst the GDC recognises that there are several ways of achieving this, it particularly favours some teaching of dental clinical subjects in the early stage of the course and on a reciprocal basis some basic medical science teaching in the later years. These arrangements should be such that the proportions of components explained in paragraphs 28 and 29 are maintained, students and staff are not overloaded and the relevance of these activities is emphasised, possibly by careful design of examinations and other assessment procedures. Collaboration between teachers of basic medical sciences and clinical dental teachers is essential.

ORAL BIOLOGY

SCOPE

51. The oral and dental aspects of the biological sciences should include theoretical and practical instruction in oral anatomy and physiology to provide a detailed knowledge of the form and structure of teeth, their occlusal relations and the associated tissues. A study of the physiological and biochemical concepts relevant to the mouth is also essential for the understanding of oral biological processes, such as salivary and masticatory activity, as well as the changes which occur with the onset of oral and dental disease, and with ageing. Some aspects of the structures and metabolic processes of oral micro-organisms should be introduced at this point. The student should be aware of the importance of dental tissues in forensic investigation.

52. Oral biology courses should be designed to support and be supported by the other basic medical sciences courses. Whilst oral biology staff should not be so overburdened with the delivery of subjects more usually undertaken by other teachers in the basic medical sciences area, the oral biology component must not be so small that undue reliance is placed on the general basic medical science

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subject material to meet the educational objectives for the dental students. The result of that approach would be lack of perceived relevance by dental students of basic medical science subjects.

STAFFING

53. The GDC expects the dental authorities to recognise that they require an adequate number of oral biology staff, pursuing research programmes in oral and dental aspects of basic medical science, and provided with the facilities for this work. Ideally at least one of these individuals should be dentally qualified. The departmental arrangements for these staff could vary, from single members of staff with oral and dental research interests in each of the departments of anatomy, physiology, biochemistry and pharmacology, to a group comprising a multi-disciplinary research unit. All must have a primary commitment to the dental students.

54. Many institutions now find it advantageous to have students undertake projects in the area of oral biology, either as individuals or in student groups. Invariably, other staff in both basic medical sciences and clinical dental departments become involved and the education process is significantly advanced. These arrangements are applauded and commended.

THE INTERCALATED SCIENCE DEGREE

SCOPE

55. It is widely accepted that the dental students who undertake intercalated honours science degrees greatly enrich the scientific base of dentistry. The students also assist themselves because there are now few career pathways in dentistry which do not demand research activity as one of the conditions for advancement. The education and training in a science degree course provide excellent preparation for such activities.

56. Whilst not wishing to indicate that an intercalated science degree is part of the minimum curriculum for a dental student, the GDC suggests that those planning curricula should do so in a manner which facilitates the process rather than inhibits it. That will mean arranging dental course components so that a student's secondment to a science degree course at the end of the second year or possibly later is facilitated, as is the return of students to the dental course in the subsequent year.

BEHAVIOURAL SCIENCES

SCOPE

57. Behavioural sciences should be taught throughout the dental course with careful integration so that the subject matter assumes its proper relevance to the care of the patient. The subjects concerned are principally psychology and sociology. Other related topics are communication skills, epidemiology, and ethics and the law.

58. The GDC is anxious to see that principles of the behavioural sciences are introduced at an early point in the course, alongside the principles of basic medical sciences. It must be remembered that many dental students will have arrived at university having recently experienced study of a small range of science subjects. It is essential that their perception is broadened as soon as possible in the dental course.

59. Instruction should also provide students with an awareness of the social and psychological aspects of patient care, in order to appreciate the patient as an individual whose response to dental care is determined by personality, experience, and social and cultural influences. Such teaching may often benefit from small-group methods, particularly chair-side instruction in patient management and other clinical skills.

COMMUNICATION SKILLS

60. Instruction in communication skills is an important aspect of the education of the dental student. As with teaching in psychology and sociology, it can best be undertaken on a collaborative basis by individuals dedicated to the subject and by clinical dental teachers. Initially, it may be taught in role-playing situations and with simulated patients. Eventually, however, it will be the basis of students' care of their own patients. To give two examples, patients' responses to plaque control instruction can be measured and may, in part, be attributed to the clinician's communication skill. At a different level, those dealing with patients with life-threatening oral conditions have much to teach about communication. This is also an appropriate stage to introduce complaints handling procedures. There should be emphasis on the need to communicate to patients the knowledge and understanding of treatment proposed or advice given to ensure the patient understands. The patient's contribution in treatment planning must be stressed.

HUMAN DISEASE

SCOPE

61. The course in human disease including general pathology and microbiology, medicine and human disease, has long been held in high regard by those designing dental curricula. When properly delivered, the course provides dental students with an insight into the manifestations of human disease and disorders and of the methods employed in treatment. In addition to providing an excellent basis for studies of clinical dental subjects, the course allows the dentist to communicate effectively thereafter with physicians and surgeons about patients in their joint care. Integration of the teaching of medicine, surgery and allied subjects under the general heading of human disease could help decongest the undergraduate curriculum and emphasise the importance of basic sciences in clinical diagnosis and management.

GENERAL PATHOLOGY AND GENERAL MICROBIOLOGY

62. The courses in general pathology and general microbiology, which may be integrated with one another and with the other subjects in the human disease course, such as immunology, should teach the principles of the subjects concerned using examples from all regions of the body. The courses should be the responsibility of the dental school but planned with the staff of the appropriate university department, and co-ordinated with the courses in oral pathology and oral microbiology.

MEDICINE AND SURGERY

63. Sufficient instruction in human disease should be given to enable the student to understand its manifestations so far as they may be relevant to the practice of dentistry. Relevant factors include maintenance of the well-being of patients, the recognition of physical and mental illness, dealing with emergencies and communicating effectively with patients, their relatives and medical practitioners about professional matters. Courses require careful structuring and should involve clinical teaching on patients. This may be carried out in in-patient and out-patient medical and surgical departments or in specialist clinics situated in teaching or district general hospitals or in a relevant teaching environment within a primary care trust. The course should be the responsibility of the dental school who through a co-ordinator should arrange its provision with the NHS trusts and the appropriate university departments.

64. Students should acquire the skills necessary to elicit an appropriate medical history, with particular reference to cardio-respiratory diseases, haemorrhagic disorders, allergies and drug therapy. They must be able to observe and interpret physical signs in the clothed patient and know how to give intramuscular, subcutaneous and intra-venous injections.

PHARMACOLOGY AND THERAPEUTICS

65. The variety and complexity of drugs used in medical and dental treatment, including those used in the control of pain and anxiety, add to the importance of pharmacology and therapeutics in the curriculum. Instruction should be given in prescription writing and the legislation concerning the supply of drugs and medicines. There are considerable advantages in teaching these subjects in courses specifically designed for dental students by teachers who have an interest in clinical, oral and dental problems. This is best done at a point in the undergraduate curriculum when students have experience in the examination and treatment of patients.

66. The control of anxiety and pain is fundamental to the practice of dentistry and should be emphasised at all levels of clinical teaching and also in the teaching of therapeutics.

ACCIDENT AND EMERGENCY SERVICES

67. The GDC expects that all students will undertake an attachment to the accident and emergency department of a teaching or general hospital. During this attachment the students must not be diverted to dental emergencies but should gain experience of the treatment of acutely ill patients by observing the procedures of triage, prioritisation in terms of airway, circulation and bleeding, and resuscitation. It is also intended they will develop their interpersonal skills by observing interactions of doctors and other healthcare professionals with acutely ill patients

MEDICAL EMERGENCIES

68. The GDC considers that at an early stage in the dental course students must be given instruction in first aid including the principles of cardiopulmonary resuscitation and its practice under realistic conditions. It is necessary for this practice to be repeated on an annual basis throughout the course. At some stage in the course students should learn how to recognise and take appropriate action in situations such as: anaphylactic reaction, hypoglycaemia, upper respiratory obstruction, cardiac arrest, fits, vasovagal attack, inhalation or ingestion of foreign bodies.

69. Dental students must be aware of the relevant information concerning medical emergencies in the GDC's document *Maintaining Standards: Guidance to Dentists on Professional and Personal Conduct*. It is essential that all premises where dental treatment takes place have available and in working order: portable suction apparatus to clear the oropharynx, oral airways to maintain the natural airway, equipment with appropriate attachments to provide intermittent positive pressure ventilation of the lungs, and a portable source of oxygen together with emergency drugs.

LAW/ETHICS/PROFESSIONALISM

SCOPE

70. Dental students should receive instruction in the legal and ethical obligations of registered dental practitioners, dental jurisprudence, the permitted activities of Professionals Complementary to Dentistry and the regulatory functions of the GDC. Every student should be aware of the principles and practices involved in dental audit, of the ethical responsibilities of the dental profession in clinical investigation and research and in the development of new therapeutic procedures including the concept of risk management. The ethical aspects of professional relationships should also be drawn to students' attention, and their reconciliation with personal and public morality. Dental students need to have some familiarity with the specific requirements of contemporary general dental practice, including reference to relevant regulations and the valuable role played by the medical defence organisations. The GDC's publication *Maintaining Standards: Guidance to Dentists on Professional and Personal Conduct* should be studied. There should be increased emphasis on the teaching of the law, ethics, and professionalism. Equal opportunities legislation, the Disability Discrimination Act, and the Human Rights Act are examples of how this area is rapidly changing and influencing many facets of

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professional life. Issues of professionalism such as student behaviour with respect to alcohol and the use of recreational drugs should be addressed.

71. The legal basis under which patients are treated should be discussed and the ethical responsibilities which the student assumes under these circumstances examined. No student should proceed to treat patients without a proper understanding of these matters, especially consent, assault, duty of care and confidentiality. The legal requirement to maintain full, accurate clinical records should also be appreciated by the student.

72. Formal instruction in understanding the importance of communication between practitioner and patient helps develop attitudes of empathy and self-insight in the student and provides the opportunity for discussion of contemporary ethical issues. Students should also be encouraged to understand their own responses to work pressures and their management. There may be opportunities for integrated or complementary teaching with other basic sciences on topics such as pain, stress and anxiety, and with clinical specialties on topics such as social class, poverty, and the needs of children and the elderly.

73. There should be guidance on the key ethical and legal dilemmas confronting the contemporary practitioner and on the basics of employment law. Students should also have opportunities to consider the ethical and legal dimensions of day to day practice. For example, students should learn how to:

- Handle patient complaints
- Ensure that patients' rights are protected
- Provide appropriate care for vulnerable patients
- Confront issues such as the withholding or withdrawing of lifesaving treatment, and the practice of medicine and dentistry within the context of finite financial resources
- Maintain confidentiality
- Deal with gender and racial issues
- Deal with problem colleagues.

74. Students should also understand the practical and ethical considerations that should be taken into account when seeking patients' consent, such as:

- Providing sufficient information about conditions and possible treatments;
- Responding to questions
- Knowing who is the most appropriate person to give consent
- Gaining consent in emergencies;
- Establishing a patient's capacity to give consent
- Statutory requirements that may need to be taken into account;
- Gaining appropriate consent.

75. Instruction in ethics should commence before students meet patients. Together with instruction in various aspects of safety, ethics should form an important part of the 'Introduction to Clinical Dentistry' element of the curriculum. The course material at that time must not ignore the moral and ethical dilemmas which confront the dentist in practice. These problems intrigue students, particularly in the early stages of the course, and discussion and guidance at that point will help to establish positive attitudes which will be beneficial throughout professional life.

76. The ethical approach to patient care will subsequently be reinforced in the clinical dental course, being broadened as time passes to encompass the legal obligations of the practitioner. In that regard, special attention must be paid to the regulatory mechanisms of dentistry, particularly as they apply to general dental practice. Aspects of forensic dentistry should also be considered, having been initially introduced to the student as described in paragraph 51. Stress should be placed on good record keeping aiding clinical governance and forensic dental investigations. It is essential that Trusts understand and meet these obligations.

INTRODUCTION TO CLINICAL DENTISTRY

SCOPE

77. The moment of introduction to clinical dentistry involves first contact with patients and is a highly significant event in the life of a dental student. It is important that the introduction is carefully planned. Key safety procedures and ethical considerations should be emphasised at the same time. Preparatory teaching of technical skills prior to procedures being undertaken on patients has long been carried out in dentistry by means of instruction in dental technology, and the use of manikin heads. The GDC welcomes the use of manikins and favours emphasis being given to behavioural and biological factors in clinical dental procedures. Technical skills should be tested before students are allowed to treat patients. Unless these tests show that students can benefit the patient and work safely under supervision the student must not proceed to patients.

HEALTH AND SAFETY AND INFECTION CONTROL

78. With the introduction to clinical dentistry, even though working under close supervision, the student takes responsibility for the safety of patients. Wider aspects of this include the safety of staff and fellow students. Therefore topics which must be discussed at this stage include cross-infection control, substances hazardous to health, fire regulations and safety problems associated with dental equipment, including dental radiographic equipment. A modern approach to Health and Safety in the workplace should be an essential component of this part of the curriculum as described in the QAA Benchmarking Statement on Dentistry. Students should be able to:

- Implement health and safety legislation as it may affect dental practice
- Understand the legal basis of radiographic practice
- Implement and perform satisfactory infection control and prevent physical, chemical or microbiological contamination in the practice of dentistry
- Arrange and use the working practice environment in the most ergonomically effective and efficient manner for all staff.

TRANSMISSIBLE DISEASES

79. Students should be advised that if they are infected with transmissible diseases during the dental course they must obtain medical advice and, if found to be infected, must submit to regular medical supervision including counselling. Students must act upon any medical advice they receive, which might include the necessity to cease carrying out invasive dental procedures and therefore withdraw from the dental course. This rule is in conformity with the advice on Professional Conduct and Fitness to Practise issued to all dentists by the GDC. Any student who knows he or she is the carrier of a transmissible blood-borne virus has the responsibility to declare that fact to the dental dean or equivalent person.

TIMING

80. There is considerable enthusiasm amongst educationists for dental students to meet patients in the early part of their course. There is no doubt that the idea is popular with the students, and is consistent with the notion that basic medical sciences and clinical dentistry should be more closely integrated. Furthermore, if done carefully, it can play an important part in demonstrating the relevance of basic medical science to clinical dentistry.

RESTORATIVE DENTISTRY

SCOPE

81. Restorative dentistry is about the management of the plaque related diseases (dental caries and periodontal diseases), tooth wear and tooth loss. Management includes preventive, non operative care as well as the restoration of teeth using the well established techniques of conservative dentistry, including crowns and endodontics, the replacement of teeth by means of prosthodontics, and the treatment and maintenance of the supporting structures of the teeth by the procedures of periodontology. In restorative dentistry students should have continuous responsibility for the care of a number of adults in order to assess their overall needs, the efficacy of preventative measures, their behaviour, management and long term success or failure of restorative treatment. Students should learn to manage adults requiring emergency care, carry out diagnostic procedures in such circumstances, formulate treatment plans and relate them to comprehensive dental care. All aspects of restorative dentistry may be required for medically compromised patients and those with other special needs. With an increasing elderly population, complete dentures are more demanding and the skill required for their provision is difficult to acquire as an undergraduate. In this area there is a particular need for graduate education to build on the undergraduate foundation. In its advanced forms restorative dentistry can involve extensive occlusal rehabilitation, sometimes requiring the use of dental implants. Students should appreciate that these forms of treatment may be delivered by specialists as secondary or tertiary care. They should be aware of when to refer such cases, understand the principles involved in their management and observe such cases being carried out.

82. All of these techniques can be invasive in nature, and some are irreversible. The GDC considers that dental students on graduation must be competent in the procedures of restorative dentistry including molar endodontics, crowns and bridges, periodontal surgery at the primary care level and be fully aware of which procedures should be directed to specialists for advice and treatment.

SUPPORT

83. To meet the needs of this part of the curriculum, students will need to learn how to prescribe to a dental technician, so that indirect restorations and fixed and removable prostheses can be constructed. Students should be aware of the importance of high standards in that work and have practical experience of the processes involved. While it is important that experience is gained in constructing indirect restorations and fixed removable prostheses, students should have the appliances and restorations required by their patients manufactured by dental technicians. The primary purpose of dental technology teaching should be to ensure that students have sufficient understanding of the processes so that they can appropriately evaluate the work provided to and received from dental technologists. Students should appreciate the relevance of their preparations to the quality of technical works that can be produced. Emphasis should also be on learning how to prescribe to, and collaborate with, the dental technician.

GERODONTOLOGY

84. The student should be aware of the presentation of dental and oral diseases and disorders in the elderly, and the range of psychological and social factors involved in such situations. The student should be able to distinguish between normal and abnormal consequences of ageing, and learn to avoid stereotyping elderly patients. Conditions including xerostomia, excessive tooth wear, root caries, recession of the gingival tissues and the special difficulties of providing removable prostheses, whilst not restricted to the elderly are most prevalent in that group of patients. The student should be able to formulate management strategies for the dental care of the elderly, and participate with members of the dental team in implementing them. Given the profound demographic changes affecting the population and the significant increase in the numbers of adults with teeth, the GDC would expect to see specific emphasis on this in the curriculum.

DENTAL IMPLANTS

85. The provision of dental implants is both complex and demanding requiring the co-ordination of four distinct areas of expertise: surgery; prosthetic dentistry; dental technology; and maintenance of oral tissues. In order to appreciate this, the student should understand the principles of dental implant provision and see implants being maintained within healthy tissues. The GDC does not require dental students to carry out such techniques, and indeed it wishes them to recognise that they are beyond their competence at the time of graduation. Dental graduates should understand the consequence of treatment they undertake in relation to the potential for implant placement at a later date. For example, they should be aware that roots could be retained to maintain ridge form and preserve alveolar bone in order to make the subsequent placement of implants more feasible.

DENTAL MATERIALS SCIENCE

86. Instruction in the properties and correct manipulation of dental materials should equip the student with the knowledge to select and handle those materials in a safe and effective manner. In association with the disciplines of restorative dentistry, the student should learn how such materials are evaluated using appropriate criteria, including the biological response of the oral tissues. The GDC recognises the value of the staff teaching this part of the course being members of the staff of the dental school.

CHILD DENTAL HEALTH

SCOPE

87. The study of child dental health should encompass the inter-relationships between orthodontics and paediatric dentistry together with the general growth and development of the individual. It should be related to social and psychological factors and to the recognition, preventive treatment and operative management of the common disease processes.

PAEDIATRIC DENTISTRY

88. Paediatric dentistry is concerned with the understanding of the normal growth and development and the promotion and maintenance of oral health for children. In paediatric dentistry students should have continuous responsibility for the care of a number of children in order to assess their overall needs, the efficacy of preventive measures, their behaviour, management and restorative treatment. Students should also learn to manage children requiring emergency care, carry out diagnostic procedures in such circumstances, formulate treatment plans and relate them to comprehensive dental care for children. They should be made aware of the special dental needs of children with disabilities and have experience in the recognition and management of developmental dental abnormalities. Paediatric dentistry should be integrated with instruction in orthodontics.

ORTHODONTICS

89. Orthodontics is concerned with the extent of normal variation, the form and function of both the hard and soft tissues of the mouth and face and particularly the ways in which such variation produces differences in occlusion. The study of these factors should emphasise their inter-relationship with general and psychosocial development of the individual. Changing patterns of orthodontic care have been followed by changes in the perception of the usefulness of simple orthodontic treatments by both patients and practitioners. Most orthodontic treatment is now delivered as secondary care even if delivered in the primary care setting. Students should be expected to recognise and describe developing and manifest malocclusions, they should understand the appropriate timing of interventions and what these interventions are likely to be. They should see and assist in the delivery of all forms of orthodontic treatment. They should be able to make safe all forms of orthodontic appliances. They should know when and how to refer for specialist advice. They should recognise and manage those problems of the mixed dentition where interceptive treatment is indicated, including space maintenance. They should be able to carry out orthodontic assessment, identify treatment need and understand the role of orthodontics in overall patient care.

PREVENTIVE DENTISTRY

90. Dental students should be made aware of the successes of preventive dentistry, and the potential for further progress. The ethos of preventive dentistry should prevail in every clinical dental department, so that new preventive dentistry techniques are taught to students as they become available. The curriculum in dental public health should include behavioural and epidemiological science relevant to dentistry, the interpretation of data, the aetiology and natural history of diseases, an understanding of the social, cultural and environmental factors which contribute to health or illness, of the capacity of health care professionals to influence these, of the principal methods and limitations of disease prevention and health promotion, and of the contribution of research methods in dentistry. The student should appreciate the need for the dentist to collaborate in prevention, diagnosis, treatment and management of disease with other health care professionals and with patients themselves. The student should be aware of the economic and practical constraints affecting the provision of health care.

DENTAL PUBLIC HEALTH PROMOTION AND DENTAL HEALTH POLICY

SCOPE

91. In addition to teaching directed towards the treatment of individual patients, students should be imbued with the concept of the profession's wider responsibilities towards the community as a whole. Teaching in dental public health should emphasise the sociological aspects of health care, including the reasons for the widely varying oral and dental needs of different sections and age groups within the population. Knowledge of the social, behavioural, environmental and economic influences on oral and dental health is important, as is an understanding of epidemiological techniques used to determine such effects. Students should be educated in the need for, and be conversant with the practice of, preventive care including oral health education and oral health promotion, as an essential part of the management of the individual patient and in the broader context of the oral and dental health of the community. Students should recognise the increasing evidence based approach to treatment and should be able to make appropriate judgements. They should understand basic statistical and epidemiological concepts. They should understand the growing complexity of dental service delivery. This understanding should include:

- the different methods of payment and employment of dentists
- the role of different professional groups
- equity of service provision and access to care and treatment for people with special needs.

92. Dental students should learn that health promotion involves helping individuals and communities to benefit from increased control over their own health with the intention of improving it. Although many groups and organisations in addition to those composed of healthcare professionals are involved, doctors and dentists can play an important role. Dental students should understand the principles of health promotion and apply them when in contact with patients and at other times, particularly in matters of tooth brushing with fluoridated dentifrices, diet and nutrition, tobacco avoidance and public health measures such as fluoridation.

COMPREHENSIVE ORAL CARE

SCOPE

93. Whilst the arrangement of a dental school into units or departments ensures that all important aspects of the curriculum are given proper attention, it can result in students in a particular unit assuming that patients only require one type of dental care. To overcome this, many schools have arranged for students to practise and receive instruction in units or clinics devoted to comprehensive

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dental care. The work of such a unit or clinic can be organised in several ways, but however organised it is important for students to diagnose patients' needs and prepare comprehensive treatment plans.

94. To be effective, comprehensive care should be taught in co-ordination with other subjects. Restorative dentistry, oral surgery and oral medicine are obvious examples. So too are the disciplines of paediatric dentistry and orthodontics which may find it appropriate to develop joint arrangements to teach the comprehensive dental care of children. Importantly, comprehensive dental care should be taught in association with dental accident and emergency care. Finally, its teaching should make a major contribution to the preparation of a student to cross the interface between undergraduate dental education and vocational training.

95. For the provision of comprehensive oral care dental students should have the opportunity to work with all members of the dental team. They should appreciate the benefit of working with a dental nurse and learn the principle and practice of assisted operating practice. They should also be in a position to refer to and interact with other PCDs.

96. The GDC has always regarded it of importance that some of the staff of each dental school choose to have part-time appointments, spending the remainder of their time in general dental practice. Amongst the many contributions which such individuals can make, an obvious strength is in the teaching of comprehensive dental care.

DENTAL ACCIDENT AND EMERGENCY CARE

97. The student should learn to manage patients seeking emergency dental care, some of whom will be distressed and in pain. These will include children, adults and the elderly. The care of such patients will involve reassurance, the diagnosis of problems and formulation of provisional treatment plans, as well as the stabilisation of dental disease conditions, sometimes by extraction of teeth and other invasive procedures, until further diagnosis and treatment can take place. It is essential that Trusts understand their obligation to provide the patients and facilities for such an educational experience.

ORAL AND MAXILLOFACIAL SURGERY

SCOPE

98. Practical experience in oral surgery should include those procedures commonly undertaken in general dental practice. On graduation, all dental students should be able to undertake the extraction of teeth and the removal of roots where no major complications are anticipated. They should be able to deal with common oral surgical emergencies such as haemorrhage from a recently extracted tooth socket.

99. In addition, the student should have an understanding of the range of surgical procedures to manage diseases and disorders of the mouth and jaws. They should also be aware of modern principles of trauma management and have observed a small number of such cases being treated. They should understand the possible complications of dealing with medically compromised patients. Finally, the student should be aware of which surgical procedures can be undertaken in a primary care setting and which are to be regarded as secondary or tertiary care. Dental students can gain valuable experience in oral surgery, oral medicine and certain aspects of general medicine and surgery by attendance at selected units in both main or regional hospitals and district general hospitals. However, if they undertake dental procedures at such units they must be supervised by a registered dentist or by surgeons or physicians who are registered dentists.

ORAL MEDICINE

SCOPE

100. It is important to ensure that the dental student is taught the clinical presentation, diagnosis and management of the common diseases of the oral mucosa, of other oral soft tissues, of the salivary glands, of the facial bones and joints, as well as the oral manifestations of systemic diseases. The various manifestations of facial pain both of dental and non-dental origin, its diagnosis and management must also be considered.

101. Teaching in oral surgery and oral medicine should include clinical instruction in the prevention, diagnosis and management of oral pre-malignancy and malignancy.

ORAL PATHOLOGY AND ORAL MICROBIOLOGY

SCOPE

102. The course in oral pathology and oral microbiology should build upon the foundation laid in general pathology and general microbiology. Initially, the processes underlying the common oral diseases and methods of their diagnosis, prevention and management should be described. The teaching should continue through the clinical course and the full range of oral and dental diseases should be considered, with particular attention being given to oral pre-malignancy and oral malignancy. The staff in such departments are well placed to co-ordinate the teaching of scientific method and evidence-based dental care throughout the dental course.

DENTAL RADIOLOGY AND IMAGING

SCOPE

103. Students should receive instruction and practical experience in the prescription, taking, processing and interpretation of intra- and extra-oral radiographs, and should be aware of alternative imaging techniques.

PRINCIPLES AND RADIATION PROTECTION

104. Students should understand the principles which underlie dental radiographic techniques, the equipment employed and the methods of processing films. They should be fully instructed in the hazards of ionizing radiation and be aware of the current UK/European regulations pertaining to those hazards so they can undertake proper radiation protection measures for their patients, staff and themselves.

105. The course should provide “adequate training” as specified in the *Ionizing (Medical Exposure) Regulations, 2000*. This includes the nature of ionizing radiation and its interaction with tissue, principles of quality control and quality assurance applied to equipment and technique, justification and optimisation of all radiation exposures, including the importance of utilising previous radiographic information and that available from other diagnostic techniques, and the current safety regulations affecting general dental practice.

RADIOGRAPHIC TECHNIQUE

106. Students should undergo practical instruction in radiographic technique using equipment normally available to dental practitioners, and in taking the various film views used in general dental practice. Opportunities should be readily available for students to take radiographs under close supervision for the patients they are treating. Trusts with dental teaching hospitals should be aware of this

requirement and ensure that sufficient equipment and staff are available for the purpose and that it is not encroached upon by other service needs.

RADIOGRAPHIC INTERPRETATION

107. The student should understand the appearance of normal structures on a radiograph, be able to apply differential diagnosis to abnormal appearances, write informative reports of findings and apply clinical audit procedures to the process. This part of the course should be well integrated with the teaching of other clinical dental disciplines.

STAFFING

108. It is highly desirable that instruction in this part of the course is given by a person with a qualification in dental radiology. We would expect schools to make progress towards achieving this.

PAIN AND ANXIETY CONTROL

SCOPE

109. The control of anxiety and pain is fundamental to the practice of dentistry and requires full awareness of the social and psychological needs of the individual patient. Building on a sound knowledge of the relevant basic sciences, students should be able to assess the suitability of the various methods of anxiety and pain control in the management of patients and recognise those patients requiring referral for specialist care. In addition students should be able to advise patients on the advantages, limitations and advisability of different forms of pain and anxiety control appropriate to treatment to be undertaken.

110. The value of behavioural non-pharmacological methods of anxiety management must be emphasised. In order to appropriately manage an anxious patient, dental students should have learnt a range of methodologies that can be reasonably matched to individual circumstances.

111. By the end of the undergraduate course students should be competent to administer all forms of local and regional analgesia for dental operations and procedures and have been trained in the management of the complications which may arise in the application of such methods of pain control.

112. All dental students must have a range of practical experience in the administration of inhalational and intravenous conscious sedation including the preparation, care under treatment, recovery and discharge of patients receiving conscious sedation. All dental students should also have practical experience of providing different forms of treatment for sedated patients and be familiar with the drugs, techniques and equipment for the safe sedation of adults and children. Dental students should graduate with a full recognition of their limited experience in the use of conscious sedation techniques and of the necessity for postgraduate study and instruction in such forms of pain and anxiety control.

113. The theoretical principles of general anaesthesia should be taught to students and they should have this knowledge reinforced by attachment to an anaesthetist who is administering general anaesthesia to dental patients. Practical experience should be gained in operating on patients under general anaesthesia and in their care, including management of the airway. Practical experience should also be gained in the pre-and post-operative care of patients requiring treatment under general anaesthesia. All dental students should receive instruction in the referral of patients for treatment under general anaesthesia in a hospital setting.

114. In the instruction and training of dental students in pain and anxiety control, emphasis must be placed on limiting the intervention and use of drugs to the minimum necessary to achieve the desired effect.

ELECTIVE STUDIES

115. Students may gain useful educational experience outside the confines of the formal curriculum by participation in research projects under supervision or in elective programmes, whether in the United Kingdom or overseas.

116. It is desirable, though not essential, for dental students to visit other dental schools or dental clinical centres either in the United Kingdom or abroad, during the period of clinical study. The main objective should be to broaden the undergraduates' education by exploring the dental problems and dental management systems in another country. As far as possible, curricula should be designed to facilitate opportunities for elective studies. Elective visits might be arranged around a project consisting of either audit or research, and the results should be presented on return by students in written form or verbally before an audience.

LEARNING OUTCOMES

117. The dental graduate should:

BASIC MEDICAL SCIENCES

- Understand the basic medical sciences relevant to dentistry;
- Have a detailed knowledge of the anatomical, physiological and biochemical concepts relevant to the mouth.

BEHAVIOURAL SCIENCES

- Understand the importance of communication between practitioner and patient;
- Appreciate the obligation to practise in the best interest of the patient at all times;
- Appreciate the need for lifelong learning and professional development.

HUMAN DISEASE

- Understand the pathological features and dental relevance of common disorders of the major organ systems;
- Relate the scientific principles of sterilisation, disinfection and antisepsis;
- Understand the pharmacological properties of those drugs used in general practice including their unwanted effects;
- Appreciate the role of pharmacology in the management of patients requiring dental treatment;
- Gain a broad overview of medicine and surgery;
- Understand the main medical disorders that may impinge on dental treatment;
- Appreciate the work carried out by doctors, dentists and nurses in district general hospitals;
- Gain a wider understanding of the place of dentistry in the provision of health care.

MEDICAL EMERGENCIES

- Be capable of carrying out resuscitation techniques and immediate management of cardiac arrest, anaphylactic reaction, upper respiratory obstruction, fits, vasovagal attack, inhalation or ingestion of foreign bodies, and diabetic coma.

LAW/ETHICS/PROFESSIONALISM

- Be confident of maintaining full, accurate clinical records;
- Understand the responsibilities of consent, duty of care and confidentiality;
- Ensure that patients' rights are protected;
- Understand the legal and ethical obligations of registered dental practitioners;
- Understand the permitted activities of PCDs;
- Appreciate the regulatory functions of the General Dental Council.

INTRODUCTION TO CLINICAL DENTISTRY

- Be able to take a detailed history of the patient's dental state;
- Be able to take a relevant medical history;
- Obtain informed consent;
- Manage patients from different social and ethnic backgrounds;
- Use laboratory and imaging facilities to best effect.

RESTORATIVE DENTISTRY

- Be able to diagnose, and plan appropriate preventive, non-operative care, for the plaque related diseases and tooth wear.
- Complete a periodontal examination and charting, and be competent in supragingival and subgingival scaling and root planning, using both ultrasonic and manual instrumentation and in stain removal and prophylaxis. Be able to prescribe and perform periodontal surgery;
- Complete a range of procedures in restorative dentistry which will include amalgam and tooth coloured restorations, indirect restorations including anterior and posterior crowns, post crowns, bridges and endodontic treatment;
- Be able to discuss the replacement of missing teeth choosing between the alternatives of no replacements, bridges, partial dentures or implants.
- Be familiar with the design and laboratory procedures used in the production of crowns, bridges, partial and complete dentures and be able to make appropriate chair side adjustment to these restorations;
- Be familiar with the principal and procedures used in the design and construction of effective indirect restorations and complete and partial dentures;
- Be aware of the signs and symptoms of temporomandibular joint disorders and show a basic knowledge of the diagnosis and management of TMD.
- Be aware of the dental problems that may manifest themselves in the older patients and of the principles involving the management of such problems;
- Be familiar with the complex interactions between oral health, nutrition, general health, drugs and diseases that can have an impact on dental care and disease.
- State when implants would be an option in replacing missing teeth.
- Understand the principles of dental implant provision.

DENTAL MATERIALS SCIENCE

- Understand the properties, appropriate selection and correct manipulation of dental materials; Evaluate the performances of dental materials, including the biological response of the oral tissues.

CHILD DENTAL HEALTH

- Be able to diagnose active caries and plan appropriate non-operative care;
- Be proficient in fissure scaling, preventative resin restorations, pit and fissure restorations, approximal and incisal tip restorations, pre-formed stainless steel crown and pulp therapy in primary molar teeth;
- Be aware of the role of sedation in the management of young patients;
- Be aware of the management of trauma in both dentitions;
- Be capable of the day to day management of orthodontic cases, under supervision;
- Be able to design and adjust orthodontic appliances;
- Undertake an orthodontic assessment.

DENTAL PUBLIC HEALTH PROMOTION AND POLICY

- Be aware of the prevalence of certain dental conditions in the UK;

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- Appreciate the importance of community based preventative measures;
- Understand the principles of recording oral conditions and evaluating data.

COMPREHENSIVE ORAL CARE

- Have experience of working as part of the dental team.

ORAL AND MAXILLOFACIAL SURGERY

- Undertake the extraction of teeth and the removal of roots where no major complications are anticipated;
- Undertake minor soft tissue surgery including biopsy;
- Understand the principles of treatment of facial fractures;
- Understand the principles of tumour excision and reconstruction;
- Maintain an aseptic technique throughout;

ORAL MEDICINE

- Understand the pathogenesis of common oral medical disorders;
- Be aware of the drugs commonly used in oral medicine and of their side effects and drug interactions;
- Initiate appropriate special investigations and interpret their results, especially haematology, biochemistry and histopathology reports;

DENTAL RADIOLOGY AND IMAGING

- Understand the principles which underlie dental radiographic techniques;
- Understand the hazards of ionising radiation;
- Be proficient in taking the various film views used in general dental practice.

PAIN AND ANXIETY CONTROL

Empathise with patients in stressful situations;

- Be competent in infiltration and block local anaesthesia in the oral cavity;
- Understand the role of conscious sedation and general anaesthesia in dentistry;
- Be competent in performing venepuncture and venous cannulation;
- Be able to safely sedate a patient to an appropriate end-point;
- Understand the management of anxious dental patients.
- State when, how and where to refer a patient for general anaesthesia.

PART 3:

STUDENT PROGRESS, ASSESSMENT AND QUALITY

STUDENT HEALTH AND CONDUCT

118. Dental schools are aware of the very small number of clinical students who may have difficulty in the later parts of the clinical course and who may need to be referred to a "Fitness to Practise" committee. The GDC commends the approach of the General Medical Council as described in its document on *Student Health and Conduct* (1997) and suggests a very similar approach for dental students, summarised in the following paragraphs.

BACKGROUND

119. Once they have graduated dental students have the right to apply for registration with the GDC. For this reason, it is important that students whose health or conduct may lead them to be a risk to patients should not be allowed to graduate with a registerable degree.

LENGTH OF COURSE

120. A small number of students have taken several years longer than usual to graduate because of periods of ill health. The normal maximum time from entry to dental school until graduation should not exceed seven years, excluding the pre-dental year, intercalation and PhD or other research programmes.

DUTY TO PROTECT ALL PATIENTS

121. Students entering dental schools should be told that their course will bring them into contact with vulnerable people and that this carries with it a number of responsibilities. From their first day they should be aware of the standards set by the GDC which will apply to them as future dentists. The GDC expects dental schools to discuss with students its guidance on professional conduct, *Maintaining Standards*.

OPTIONS FOR THOSE NOT SUITED TO DENTISTRY

122. All students who express doubts about a career in dentistry and those about whom the dental school has doubts should receive counselling, including up to date advice about alternative careers. Sometimes a short period of leave of absence may help a student who has doubts. If these students are in the first two years of the course, they may be able to transfer easily to other degree programmes and the procedure for doing so should be explained. If the student has completed three years of the course to a satisfactory academic standard, we would commend the option, which is available in most dental schools of a worthwhile exit with the award of an ordinary degree with no further examination, for example a Bachelor of Dental Science. This offers a positive way forward when a student is faced with a difficult and unexpected change of career plan. Although it is unclassified, it enables students to graduate and may facilitate entry to a number of other professions and occupations.

SPECIFIC ISSUES - ANXIETY AND STRESS

123. Dentistry is a demanding profession and, at times, all dental students will be subject to stress and anxiety. Both of these range in intensity from a normal reaction to an abnormal one. People under great stress are unable to function adequately. High stress levels may cause students to drink and smoke excessively and in some cases to withdraw from the course. Dental schools should have mechanisms in place to identify symptoms of stress that might be early signs of mental illness. They should encourage students to seek advice before more serious symptoms develop.

PSYCHIATRIC ILLNESS

124. Minor emotional problems, or psychiatric disorders, constitute up to one third of primary consultations with general practitioners. Therefore, even though most dental students are physically and psychologically healthy, it is likely that a significant number will develop minor psychiatric disorders, especially depression and anxiety.

CARE FOR THE STUDENT

125. When the dental school becomes aware of psychiatric illness in one of its students, it is important to ensure that he or she is given adequate care as quickly as possible. Failure to treat early may result

in the condition becoming chronic or an increased risk of suicide, as well as impairment of academic standards and, in a few cases, a risk to patients. Dental schools should ensure that there is a rapid route to psychiatric referral, assessment and management. If the psychiatrist considers that the student is suffering from a recurrent or episodic condition but is in remission at the time of the examination, the school should also seek advice about whether the condition may in future be expected to render the student unfit to practise.

DRUG AND ALCOHOL ABUSE

126. Dental schools must ensure that students involved in substance abuse are offered help. It is also important to decide whether they are fit to proceed to qualification and thus registration.

In making this decision the dental school will need to consider the following:

- Is the drug or alcohol abuse a single, aberrant act or recurrent and persistent?
- Is the misuse of drugs or alcohol associated with underlying anxiety or depression? If so, these require treatment?
- Is the abuse recognised as a problem by the student?
- Does the student accept that there is a need for change?
- Will the student accept help?

Similar considerations apply when a student behaves violently because of alcohol or drug misuse or for some other reason. Students who act violently and aggressively outside the dental school may be a risk to patients.

BEHAVIOURAL PROBLEMS

127. Universities UK have given guidance on disciplinary procedures. Disciplinary procedures are not appropriate for dealing with misconduct arising from mental ill-health. Quite different considerations arise in these circumstances, requiring different remedies based on medical advice. Universities may wish to consider introducing such a procedure for students as it already exists for staff. There is obvious concern about confidentiality in relation to tutors, counsellors and codes of discipline. Universities usually say that the students may consult their tutors in confidence, which means that they are formally and officially reinforcing the general practice or understanding. With regard to counsellors, their professional rules make it quite clear they operate on the basis of strict confidentiality. In both cases, however, there may be extreme situations where it will be necessary to override confidentiality but that will inevitably be a matter for the individual to determine. Reports to or discussions with officers of the university are not normally on a confidential basis. These observations apply only internally and have no application in relation to the police or the courts where the relevant law comes into play. Because dental students come into close contact with patients their behaviour must be of a high standard. It is therefore, essential that action is taken if a student's behaviour might cause present or future risk to patients. This applies even if an incident takes place outside the university. Misconduct should always be taken seriously but the following require particularly firm action: abuse of others, violence or the threat of violence, dishonesty, drug related or repeated intoxication.

PHYSICAL ILLNESS

128. All students must attain the goals and objectives set out in *The First Five Years*. After graduation, students are automatically entitled to seek registration with the GDC. Dental schools should not, therefore, permit any student to graduate whose condition prevents them from completing the full course satisfactorily.

ASSESSMENTS AND EXAMINATIONS

PRINCIPLES

129. The form and content of assessments have a strong influence on shaping students' learning styles and approaches to the curriculum. Accordingly, both assessments and examinations should be designed with the aim and specified objectives in mind. The students should be fully aware of the particular role of any assessment. In the interests of avoiding congestion and duplication all assessments should be co-ordinated centrally. All assessments can and should be used formatively as part of the mechanisms of developing self assessment and directed self learning by dental students.

The processes of assessment should be transparent; explicit criteria facilitate effective learning and allow for the provision of effective and meaningful feedback. Methods of assessment adopted in dental schools should also:

- Be relevant to the purposes of undergraduate dental education
- Reflect student progression through the programme
- Encourage integration of knowledge, skills and attitudes
- Enable students to demonstrate their level of attainment and to demonstrate a full range of abilities
- Provide accurate, constructive feedback to students on their performance
- Allow records of student academic and clinical performance to be collated
- Allow the participation of external examiners
- Engage in mechanisms of quality assurance
- Provide information for course and programme organisers on the quality of provision
- Be chosen to reflect the intended learning outcomes of a course. Summative assessments indicate whether a student has reached an appropriate standard. These act as suitable "hurdles" so that students whose progression is unsatisfactory can be given reasonable opportunities for improvement until they have achieved the necessary level to proceed or it is clear that the individual is incapable of doing so
- In the interests of avoiding congestion and duplication all assessments should be co-ordinated centrally.

STUDENT RECORDS

130. Each dental authority is required to keep records of the academic and clinical performance of each dental student. The records should be arranged so that external examiners and other authorised persons can assess the amount and quality of clinical work completed by the student.

IN COURSE ASSESSMENT

131. Schools should make regular formative assessments of their students, feeding back the results and discussing them with each student. In-course assessment systems may be used to establish the progress of students toward achievement of attitudinal objectives as well as testing knowledge and skills objectives.

132. Schools are required to have effective systems of progressive monitoring of student progress in all clinical disciplines so that students have been adequately assessed with regard to their clinical skills and acumen before proceeding to the final examination. In addition students should take practical examinations in the course of those assessments and external examiners should be given an opportunity to attend and participate. The assessment of students in this part of the course should include an evaluation of awareness of limitations, of situations in which to refer patients and the importance of clinical governance, including peer review and audit.

EXAMINATIONS

133. Candidates' knowledge and understanding of the subjects studied must be effectively tested. It is not necessary that there should be a separate paper or other examination in each subject. It is preferable that subjects should be appropriately grouped and that the examination in each group should take place soon after the completion of the relevant courses. At least two examiners should participate in the adjudication of all parts of the examinations when possible and appropriate. In

assessing a candidate's performance both external and internal examiners should be empowered to take into account the records of the work done by the candidate throughout the course of study in the subject of the examination.

EXTERNAL EXAMINERS

134. It is essential, to ensure that standards are maintained, that External Examiners should participate in all assessment processes that may affect the progress of a student towards the award of degree, arbitrate or adjudicate on problem cases and to comment and give advice on course content, balance and structure and on assessment procedures. In all written examinations the questions in each subject should be set in consultation with the external examiner in that subject. If some candidates are not to be examined in a part of an examination the basis for exemption should be made known to the candidates and agreed by the external examiners. No candidate should fail any professional examination without the concurrence of the external examiner. When candidates' practical abilities are assessed in whole or in part by a process of continuous assessment the procedures followed should be discussed with and have the approval of the external examiner or examiners concerned. Every candidate should be examined by an external examiner in at least one part of a clinical examination. External and internal examiners should normally be appointed for at least three consecutive years. It is essential that the external examiner should be a teacher, or have recently so been, at a university or recognised dental school other than the institution at which students to be examined were trained.

FINAL EXAMINATIONS

135. Final qualifying examinations in dental subjects should be designed to include the end point assessment of candidates' clinical ability across a wide variety of procedures and of their skill in interrelating the various disciplines within dentistry. Assessment of diagnostic and treatment planning skills must involve the presence of patients. The examinations may include patients treated previously or during the examination and should preferably include an element of continuous assessment. The final examinations should be a searching examination in the final year which examines clinical competence and the culmination of knowledge and understanding gained throughout the course. There should be anonymous, double-blind marking of written papers. As the integration of subjects is now more evident within the main subject areas, it is appropriate to have a comprehensive examination at the end of the course. There has been an expansion in the use of in-course assessment as part of Final Examinations since the last round of visitations. The Visitors support strongly this development. Each university must be clear in its reasons for using in-course assessment and the structure of the assessment process. Relevant information must be made available to staff, students and external and internal examiners.

QUALITY ASSURANCE AND ASSESSMENT

PROCEDURES

136. To discharge its obligations the GDC has adopted a set of procedures designed to ensure that undergraduate dental education is carried out to the highest standard. To inform the Dental Authorities of the GDC's expectation it publishes *The First Five Years*, which directs the dental authorities in the design and implementation of courses of study.

137. On a six-yearly cycle the GDC appoints Visitors to visit places where instruction is given to undergraduate dental students and to be present at their Final examinations. The reports in these visits are published on the GDC website following consideration by the Education Committee and the Council. The Visitors' recommendations are followed up in a formal monitoring process. The Visitors' General Reports on the visits to dental schools in 1993-95 and to Final BDS/BChD examinations in 1998-2000 have proved influential documents, describing respectively in a UK perspective the provision of teaching and clinical experience and the procedures for assessment. Recommendations are made for good practice and improvement.

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138. If the GDC considers that the course of study or the examinations to qualify for a degree or licence are not such as to ensure that graduates or licentiates possess the requisite knowledge, skills or attitudes necessary for the effective practice of dentistry, it may make representations to the Privy Council, which may order that a degree or licence shall cease to confer the right to be registered in the Dentists' Register.

139. The GDC's main interest is to protect and ensure the well being of the public by ensuring high standards in dental education. The consequences of this are that the GDC is particularly concerned with the outcome of education as well as with the process. Therefore its procedures are not superseded by the new activities and will need to continue in a parallel and co-ordinated fashion.

STAFF DEVELOPMENT AND PARTICIPATION

140. The GDC recognises that staff of dental schools must participate fully in quality assessment and enhancement activities, particularly when these are conducted because of a statutory requirement. For its part, the GDC will seek to minimise that burden by co-operating with other bodies as far as possible in order to avoid unnecessary duplication of effort. The GDC would wish to see the dental schools demonstrate a commitment to the training of staff in the theory and practice, of education

141. To assist members of staff new to the role of examining, the GDC encourages the practice of observers being present at all types of examination.

CURRICULUM ENHANCEMENT

142. The GDC strongly supports measures taken by dental schools to enhance and develop dental curricula. The process must be conducted through the means of a curriculum committee or similar structure which will contain student members and representation of those involved in the vocational training scheme. Students play an essential role in commenting on curriculum development. Student membership on all levels of non-confidential committees should be encouraged in our dental schools.

143. The establishment of vocational training presents particular challenges to the deans and staff of dental schools, as well as to those in vocational training, to co-ordinate new developments in curriculum and vocational training initiatives, to participate in joint planning and to share information. In this last regard, a portfolio of experience and achievements recorded by students and trainees should be considered.

144. General professional training schemes have been piloted and are becoming established in several parts of the UK. They offer a valuable extended training experience in different settings for young dentists, but they in no way substitute for a thorough undergraduate training.