



Promoting higher quality

**The Quality Assurance Agency
for Higher Education**

Subject Review Report

October 1998 Q4/99

The Queen's University of Belfast

Dentistry



Reviewing the Quality of Education

The Quality Assurance Agency for Higher Education (QAA) was established in 1997. It has responsibility for assessing the quality of higher education (HE) in England and Northern Ireland from 1 October 1997 under the terms of a contract with the Higher Education Funding Council for England (HEFCE).

The purposes of subject review are: to ensure that the public funding provided is supporting education of an acceptable quality, to provide public information on that education through the publication of reports such as this one, and to provide information and insights to encourage improvements in education.

The main features of the subject review method are:

Review against Aims and Objectives

The HE sector in England and Northern Ireland is diverse. The HEFCE funds education in over 140 institutions of HE and 75 further education (FE) colleges. These institutions vary greatly in size, subject provision, history and statement of purpose. Each has autonomy to determine its institutional mission, and its specific aims and objectives at subject level.

Subject review is carried out in relation to the subject aims and objectives set by each provider. It measures the extent to which each subject provider is successful in achieving its aims and objectives.

Readers should be cautious in making comparisons of subject providers solely on the basis of subject review outcomes. Comparisons between providers with substantively different aims and objectives would have little validity.

Review of the Student Learning Experience and Student Achievement

Subject review examines the wide range of influences that shape the learning experiences and achievements of students. It covers the full breadth of teaching and learning activities, including: direct observation of classroom/seminar/workshop/ laboratory situations, the methods of reviewing students' work, students' work and achievements, the curriculum, staff and staff development, the application of resources (library, information technology, equipment), and student support and guidance. This range of activities is captured within a core set of six aspects of provision, each of which is graded on a four-point scale (1 to 4), in ascending order of merit.

The aspects of provision are:

- Curriculum Design, Content and Organisation
- Teaching, Learning and Assessment
- Student Progression and Achievement
- Student Support and Guidance
- Learning Resources
- Quality Management and Enhancement.

Peer Review

Reviewers are academic and professional peers in the subject. Most are members of the academic staff of UK HE institutions. Others are drawn from industry, commerce, private practice and the professions.

Combination of Internal and External Processes

The review method has two main processes:

- Preparation by the subject provider of a self-assessment in the subject, based on the provider's own aims and objectives, and set out in the structure provided by the core set of aspects of provision.
- A three-day review visit carried out by a team of reviewers. The review team grades each of the aspects of provision to make a graded profile of the provision, and derives from that profile an overall judgement. Provided that each aspect is graded 2 or better, the quality of the education is approved.

Published Reports

In addition to individual review reports, the QAA will publish subject overview reports at the conclusion of reviews in a subject. The subject overview reports are distributed widely to schools and FE colleges, public libraries and careers services. Both the review reports and the subject overview reports are available in hard copy and are also on the world-wide web (see back cover for details).

Introduction

1. This Report presents the findings of a review in October 1998 of the quality of education in dentistry provided by The Queen's University of Belfast.
2. The Queen's University of Belfast was established by Queen Victoria in 1845 as Queen's College, Belfast, one of three colleges in Ireland. It achieved full university status in 1908 with its own charter and statutes. The University is situated about one mile south of the city centre and enrolls some 11,000 full-time students. The School of Clinical Dentistry is part of the Faculty of Medicine and Health Sciences.
3. About 175 full-time students are following courses covered by this review. The School has 20 full-time academic members of staff supported by four instructors and 16 part-time clinical teaching assistants.
4. The following provision forms the basis of the review:
 - Bachelor of Dental Surgery (BDS)
 - Intercalated BSc.
5. The statistical data in this Introduction are provided by the institution itself. The aims and the objectives are presented overleaf. These also are provided by the institution.

The Aims and Objectives for Dentistry

The overall aim of the undergraduate course in dentistry is in harmony with the mission statements of the University and the School and is consistent with the directions of the General Dental Council as stated in the GDC publication 'The First Five Years' i.e. "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, and who is able to utilise advances in relevant knowledge."

Aims

- a. To improve the quality of the student educational experience by promoting active deep learning and an enquiring problem-solving approach.
- b. To prepare students for high quality independent dental practice.
- c. To engender an ethical and professional approach to dealing with patients.
- d. To equip students for a career of independent life-long learning in the art and science of Dentistry.
- e. To conform to the requirements of the General Dental Council in relation to the education and training of dentists.
- f. To promote social, generic and transferable skills for the benefit of patients and students.

Objectives

On successful completion of the BDS course students will have the following abilities:

Knowledge and understanding. Be able to demonstrate an understanding of:

- the mechanisms of knowledge acquisition, scientific method and evaluation of evidence;
- the scientific and medical bases required to practise dentistry to a high standard;
- disease processes such as infection, inflammation, immune disorders, degeneration, neoplasia, metabolic disturbances and genetic disorders;
- the principles and importance of health promotion and preventive measures in reducing the incidence of dental disease;
- how health care is organised and the economic and practical constraints within which it is delivered;

- the ways in which physical and mental illness occurs in patients and the psychological responses to normal physical and social processes;
- the law as it affects dentistry and the management of medico-legal and ethical issues which arise in dental practice;
- the importance of continuing education and training.

Skills

Be able to:

- obtain relevant information, assess its validity, reason through problems, set priorities and plan effective solutions;
- communicate effectively with patients, their families and associates and with other health professionals involved in their care;
- treat dental diseases to a high standard according to best practice;
- work as an effective member of a team in caring for patients;
- recognise and refer patients with conditions which are beyond their ability to treat.

Attitudes

Be able to demonstrate:

- an ethical and professional approach in making patients their first concern;
- an attitude of intellectual curiosity and an appreciation of how active, life long learning can benefit their patients and themselves;
- a respect for patients' rights particularly with regard to consent and confidentiality;
- an appreciation of the duties and responsibilities in providing care for patients and dealing with colleagues.

Summary of the Review

6. The graded profile in paragraph 7 indicates the extent to which the student learning experience and achievement demonstrate that the aims and objectives set by the subject provider are being met. The tests and the criteria applied by the reviewers are these:

Aspects of provision

1. Curriculum Design, Content and Organisation
2. Teaching, Learning and Assessment
3. Student Progression and Achievement
4. Student Support and Guidance
5. Learning Resources
6. Quality Management and Enhancement

Tests to be applied

To what extent do the student learning experience and student achievement, within this aspect of provision, contribute to meeting the objectives set by the subject provider?

Do the objectives set, and the level of attainment of those objectives, allow the aims set by the subject provider to be met?

Scale points

1

The aims and/or objectives set by the subject provider are not met; there are major shortcomings that must be rectified.

2

This aspect makes an acceptable contribution to the attainment of the stated objectives, but significant improvement could be made.

The aims set by the subject provider are broadly met.

3

This aspect makes a substantial contribution to the attainment of the stated objectives; however, there is scope for improvement.

The aims set by the subject provider are substantially met.

4

This aspect makes a full contribution to the attainment of the stated objectives.

The aims set by the subject provider are met.

7. The grades awarded as a result of the review are:

Aspects of provision	Grade
Curriculum Design, Content and Organisation	4
Teaching, Learning and Assessment	4
Student Progression and Achievement	4
Student Support and Guidance	4
Learning Resources	4
Quality Management and Enhancement	4

8. The quality of education in dentistry at The Queen's University of Belfast is approved.

The Quality of Education

Curriculum Design, Content and Organisation

9. All dental courses have to be approved by the General Dental Council (GDC). The BDS course has undergone major revision twice in the last eight years following the GDC's recommendations. In 1990, the course was extended from four years and one term to five years. This includes one year and two terms of pre-clinical academic study and three years and one term of clinical study. Behavioural science was also incorporated throughout the course. In 1997, in their policy statement 'The First Five Years', the GDC made much more definitive recommendations; these owed much to the General Medical Council's recommendations in 'Tomorrow's Doctor' which defined the content of medical courses. As a result, the pre-clinical element of the course was modified. The GDC defines the aim of a dental course as 'to produce a caring, knowledgeable, competent and skilful dentist who is able to accept professional responsibility for the care of patients, who appreciates the need for continuing professional development, and who is able to utilise advances in relevant knowledge'. The objectives are defined as knowledge objectives, skill objectives (ability to obtain and evaluate information, reason through problems and plan solutions, communicate effectively with patients and health professionals, and work clinically to the highest possible standards) and attitudinal objectives, including intellectual rigour and self-audit, and an understanding of ethical and moral issues. These are fully reflected in the BDS curriculum.

10. The courses are carefully vertically integrated, again in line with the GDC's recommendations. The course is common with medicine for the first two pre-clinical years. Clinical dentistry and dental anatomy are introduced in the second year and the courses in pathology, pharmacology, medicine and surgery take place in the third. The pre-clinical elements of the course were designed with full dental participation, and the School's claim that the advantages of a broader scientific foundation outweigh any disadvantages is supported by the reviewers. The constraints on the pre-clinical course have resulted in reduced oral physiology and oral biochemistry content and in this respect the course diverges somewhat from the GDC's guidelines.

11. A particular strength of the provision is the relatively large proportion of students who break their studies after the second year in order to follow a one-year BSc course

in Anatomy, Physiology, Pathology or Biochemistry and attain the corresponding 'intercalated' degree.

12. The curriculum is designed to accommodate the teaching and learning strategy, which is increasingly student driven, and is continually updated in the light of advances in dental practice and professional development. The behavioural science modules throughout the course and the clinical skills training in Phase 1 are particularly commendable. The staff contributing throughout the course display a high level of specialist knowledge and experience appropriate to the provision.

13. The development of transferable skills pervades the course. Oral and written communication skills are developed through student presentations, reports and dissertations. Computer literacy extends to information and data retrieval, as well as the use of e-mail and the Internet. Experience is also gained in the use of specialist software. Students have a free choice of an elective module, which can be undertaken overseas, and this is seen to be beneficial. Interpersonal skills are developed to a high level by the need to communicate effectively with patients.

14. This aspect makes a full contribution to the attainment of the stated objectives. The aims set by the subject provider are met.

Curriculum Design, Content and Organisation:
Grade 4.

Teaching, Learning and Assessment

15. In line with the recommendations of the GDC, the School has changed the emphasis of its teaching and learning strategy from didactic teaching to directed self-learning. Overall, the learning experiences are wholly compatible with aims and objectives. At the pre-clinical stage, the learning is student led and specifically vertically integrated and system based, stressing a holistic approach. This is achieved through integrated groups of dental and medical students. Care is taken to ensure that the dental students do not form too small a minority in a mixed group, which could lead to their learning process being inhibited. Lecture courses and laboratory programmes have corresponding problem-solving sessions and tutorials.

16. Pre-clinical students are introduced to clinical skills through a course which includes: patient history taking; blood sampling and analysis; blood pressure taking; venepuncture; clinical observational skills; the clinical examination of patients; an awareness of the elderly and infirm and cardiopulmonary resuscitation. These skills are

assessed using an objective structured clinical examination (OSCE). The Family Attachment Scheme introduces pairs of students to a family being treated by a participating general medical practitioner. The students form a rapport with the family over two years and compile their social and medical history.

17. As students progress to the later, clinical phases of the course, the clinical content steadily increases. Mannequins and phantom heads are used to develop surgical skills, and students experience laboratory work in restorative dentistry and undertake minor oral surgery. Chairside teaching is provided. The final year prepares students for independent practice; in each session of Total Patient Care, a student-led tutorial is followed by patient treatment, which is supervised by a general dental practitioner supported by a member of academic staff. Study sessions are provided in all years to foster deep, reflective learning and an improved understanding of the subject. They also aim to prepare students for lifelong learning.

18. The reviewers observed 35 teaching and learning sessions, sampled across the years and across the exceptionally wide variety of learning experiences offered. The teaching was generally of exceptionally high quality. With few exceptions, classes had clear learning objectives, were well prepared and delivered and were of an appropriate level. Students were engaged and participated well. The academic and general dental practitioner staffing levels in practical clinical sessions were high, although dental nursing resources could be enhanced. There was abundant evidence that students receive a rich learning experience, and all those the reviewers met strongly praised the education they had received.

19. Students are assessed regularly on the knowledge and skills they have gained and the way in which their attitudes have developed. The nature, content and timing of the overall assessment regime are also approved by the GDC. Pre-clinical modules are examined by essays, sometimes based on case studies, practical tests, computer assignments and more conventional written papers. Clinical assessment at this stage is by means of an OSCE. Clinical competence in later years is assessed on a daily basis and a logbook of work is kept. The logbooks are reviewed regularly with the student to monitor progress. Assessment of clinical competence is formative throughout the course and summative in the fourth and fifth-year clinical assessments. Use is made of OSCEs, short-answer questions, multiple-choice questions and spotter tests, and students receive feedback within one week.

20. The emphasis in final BDS assessment is on the students' performance across the disciplines as a whole, rather than the sum of the individual disciplines. Third and final year BDS written professional examination papers are moderated both internally and by external examiners. Specimen answers are constructed and anonymous manuscripts are double-marked internally and moderated by external examiners. Oral examinations are conducted with two examiners, one of whom sees all the candidates for overall moderation.

21. Attitudes are assessed by a formal continuous subjective system. This is reviewed biennially and students underperforming are encouraged to seek advice from their tutor. Those with poor grades are interviewed by the appropriate Head of Division.

22. This aspect makes a full contribution to the attainment of the stated objectives. The aims set by the subject provider are met.

Teaching, Learning and Assessment:
Grade 4.

Student Progression and Achievement

23. The ratio of applications to places is around 4:1, having fallen from around 8:1 in the period 1994 to 1996. The entry qualifications are high, with the mean GCE A-Level points scores being higher than the required grades. The required score for the 1998-99 entry was 28 points with an A grade in chemistry, and the mean score of the entrants was 29.1. As a result, entry requirements are to be raised to three A grades in relevant subjects. The entrants are mainly from Northern Ireland and more than half are women.

24. The admission quota is 25 HEFCE/DENI-funded undergraduates and five from overseas, but the numbers entering the course have risen from 34 in 1996-97 to 41 in 1998-99. This is partly owing to the equal opportunities policy of the University, which requires admissions to be made on the basis of the completed application form. This largely precludes any screening by interview. Over-recruitment can have resource implications.

25. Progression rates are high, with typically only one or two students in each cohort required to repeat the year. On average, less than one student each year transfers in or out of the course and very few students are required to withdraw. The proportion of students progressing normally through the years of the course is usually in excess of 95 per cent. Only one or two students out of each cohort achieve honours degrees, but this is typical of Schools of Clinical Dentistry, where this distinction is reserved for the very best students.

26. Some students undertake the intercalated BSc degree. They are invariably successful and 14 intercalated BSc degrees and one PhD have been awarded over the past four years.

27. The sample of students' work seen by the reviewers demonstrates high levels of student commitment, achievement and understanding. The reports of external examiners confirm this view. The general dental practitioners who provide the graduates with their year of vocational training expressed a very high opinion of student achievement, particularly in the areas of problem-solving, clinical competence, patient management and continuing academic curiosity. Graduates also spoke highly of the preparation they had received for their professional careers.

28. Following graduation, the students typically progress to vocational training posts in general dental practice, the community dental service or hospital dentistry. About 85 per cent of the graduates follow careers in general dental practice and the remainder work in the hospital service or community dental service, or hold academic posts.

29. This aspect makes a full contribution to the attainment of the stated objectives. The aims set by the subject provider are met.

Student Progression and Achievement:
Grade 4.

Student Support and Guidance

30. The overall strategy for support and guidance consists of academic and pastoral support within the School combined with central university-based pastoral and welfare support services.

31. A centrally organised induction week includes a specific induction for dental students, during which they are shown around the Dental School, allocated academic tutors and meet current students. The Queen's Guide for New Students is a clear, attractive and user-friendly booklet, which supports the induction programme. There is an additional induction programme for overseas students, who are met at the airport and set up in their accommodation. English language courses are provided to develop their reading, writing, listening and speaking skills.

32. Academic tutors are clearly identified in the year booklets and, after the first year, they remain with the students throughout their course. The tutors are proactive and seek regular meetings with their tutees to discuss and react to the process of assessment. Tutors for first-year students are more conveniently based outside

the Dental School where students spend most of their time at this stage in their programme. The very satisfactory progression and completion rates and the high level of student achievement are consistent with high levels of academic guidance. The continual informal contact and the support available lead to the excellent relations between staff and students, universally praised by the students. The organisation of periods spent abroad by students on electives is meticulous, with close liaison between the School and the host department.

33. The pastoral and welfare services of the Dental School and University are clearly identified, with contact information in the Notes for Undergraduate Dental Students and in the year booklets. The central support services include a careers service, accommodation office, student and finance officers and a student health service, and there are effective links between subject staff and support services. Current and former students confirmed their satisfaction with the support and guidance provided.

34. Careers guidance is provided by both the University's careers service and the School. The careers service provides relevant courses, such as curriculum vitae composition and interview techniques, and the School organises a one-day 'Life after Finals' course. Graduates also benefit from the informal professional network developed by the teaching staff.

35. This aspect makes a full contribution to the attainment of the stated objectives. The aims set by the subject provider are met.

Student Support and Guidance:
Grade 4.

Learning Resources

36. The teaching and learning facilities are situated in the Medical Biology Centre, the Royal Victoria Hospital and the School of Dentistry, all within the hospital complex. Sessions are held in the Central Teaching Facility, which is some distance away, but students did not indicate that this presented any difficulty. Lecture theatres with up to 200 seats are available in the Medical Biology Centre, but on some occasions there is overcrowding. Apart from this, there is adequate provision of lecture theatre and small-group teaching rooms with good audiovisual equipment.

37. A wide variety of specialist learning resources is available, including science laboratories and clinical facilities. There are dissecting rooms for anatomy and a museum for pathological specimens, as well as microscopy laboratories with good projection facilities. The facilities for human observation and experiment in

physiology and clinical skills laboratories are very good. The 'phantom-head' room for practising clinical skills and the facilities for carrying out supervised treatment of patients are excellent. The Department of Radiology and laboratories for students to construct tooth restorations and replacements are also of high quality. The National Health Service Trust and the Medical School also provide very good facilities, including general medicine and general anaesthesia in operating theatres and community clinics.

38. The overall library provision is generous. Although the Medical Library itself may be congested with only 70 reader places, students have no difficulty in finding study accommodation either there or in the other local library facilities, such as the Biomedical Library and the Seamus Heaney Library. The University's Science Library is on the main campus near to the Central Teaching Facility. The supply of reference texts, specialist journals and short-loan items meets the requirements of students, who reported no difficulty in access to these sources. Library staff are subject specialists.

39. The BDS course is generously provided with study guides and course handbooks. There is also an expanding stock of video and computer-aided learning materials. All of these effectively support the directed self-learning process.

40. The University has extensive computer facilities, with open-access clusters providing over 500 computers for student use. These are available until 2200 hours and at weekends. The most recently installed cluster in the Central Teaching Facility has excellent multimedia facilities. The cluster in the Mulhouse Building next to the Dental School has 25 machines but closes at 1700 hours. Software available for student use includes Microsoft Office, BIDS and Medline facilities. The School itself has four Apple Macs and three PCs for student use. Video and CD-ROM teaching packages are available in many areas and there is widespread access to the Internet. An induction course for new students provides training in computer usage. Students reported that there are no problems with computer access.

41. Technical staff are available to service the special areas of the anatomy microscope and pathology laboratories. Instructors and technicians provide excellent support to students in the laboratory aspects of dentistry and they also manufacture some of the dentures, orthodontic appliances and tooth restorations designed and recommended by the students in their treatment of patients. There is total co-operation amongst staff, instructors and dental technicians in their support of students, who spoke highly of this feature of their educational experience.

42. This aspect makes a full contribution to the attainment of the stated objectives. The aims set by the subject provider are met.

Learning Resources:
Grade 4.

Quality Management and Enhancement

43. Overall responsibility for quality within the University lies with the Academic Council and is delegated through the Faculty of Medicine and Health Sciences to the Teaching Committee of the School. This operates through a system of sub-committees, each with a specific remit. The system is evolving and the School recognises that the quality process is not static and will be required to respond to change. The Teaching Committee carries out a comprehensive annual review of the curriculum in response to the input from the various sub-committees. Responsibility for compliance lies ultimately with the Academic Council.

44. Internal monitoring procedures are well established, particularly in respect of student progress and learning. Regular and frequent student evaluation questionnaires are considered by the Quality Assurance Sub-committee, before being referred to the Teaching Committee for any action. There is democratic student representation on appropriate quality committees and there is also a Joint Consultative Committee to consider students' views formally. In the early years of the course, the relevant Quality Assurance Committee is serviced by a student, who is responsible for recording the minutes and producing the agenda. The timings of meetings are chosen for the convenience of the students, with the pre-clinical meetings in the early evening and clinical meetings at lunchtimes. Students and graduates confirmed that their opinions were rapidly acted upon and they cited examples of student-driven changes in the teaching of information technology, behavioural sciences and special study modules. They also stressed the value of their informal contacts with staff in this respect.

45. External examiners are fully involved in the setting of papers and the whole degree examination process. Reports are submitted to the Academic Council and distributed widely to appropriate bodies. A sub-committee considers the reports and makes recommendations to the Teaching Committee. The great majority of the reports seen were extremely complimentary, but on the isolated occasion when criticism was made, this was addressed rapidly with either an explanation or acceptance of the need for change.

46. The views of both professional bodies and employers are fully considered, with a representative of the latter sitting on the Teaching Committee. This has

resulted in the modification of the undergraduate course in accordance with the guidelines produced by the GDC. Employers indicated the value of both their formal and informal contacts with the School and commented on their ease of access.

47. There is a formal staff appraisal system within which appraisers receive training, and this informs the staff development process. The University's Staff Training and Development Unit is responsible for monitoring compliance with recommendations. Staff development needs are met by the combined resources of the Staff Training and Development Unit, the Centre for Academic Practice, the Enterprise Unit and the Medical Education Unit, which are well co-ordinated. Many courses have been organised and attended by staff at all grades. Induction and teaching skills courses are provided for new members of staff. The system of peer observation of teaching, however, is currently in its infancy and operates only on an informal basis and only for lectures and small-group teaching. It is suggested that this system should be developed formally to cover all types of teaching and to inform the staff appraisal process.

48. This aspect makes a full contribution to the attainment of the stated objectives. The aims set by the subject provider are met.

Quality Management and Enhancement:
Grade 4.

Conclusions

49. The quality of education in dentistry at The Queen's University of Belfast is approved. All aspects make an acceptable contribution to the attainment of the stated objectives and the aims are met. The reviewers come to this conclusion, based upon the review visit together with an analysis of the self-assessment and additional data provided.

50. The positive features of the education in dentistry in relation to the aspects of provision include the following:

- a. The well-designed, integrated, coherent and progressive curriculum, which fully meets the professional and academic aims and objectives (paragraphs 9 to 13).
- b. The way in which the curriculum reflects current ideas of student-driven learning and has been revised to match the changes and developments in dental practice (paragraph 12).
- c. The wide variety of highly relevant and structured learning experiences (paragraphs 15 to 17).
- d. The students' high level of satisfaction with their learning experience (paragraph 18).
- e. The exceptionally high quality of the large majority of observed teaching sessions of all types (paragraph 18).
- f. The ability of the School to attract entrants of high calibre (paragraph 23).
- g. The overall very satisfactory progression and completion rates (paragraph 25).
- h. The high level of students' academic and professional achievement (paragraphs 25; 27).
- i. The quality of student support and guidance provided by the School (paragraphs 31; 32).
- j. The range of central student services (paragraphs 31; 33; 34).
- k. The excellent relations between staff and students (paragraph 32).
- l. The overall levels of resources (paragraphs 36 to 41).
- m. The outstanding clinical teaching facilities (paragraph 37).
- n. The overall quality management and enhancement system, particularly the mechanism for considering students' and external examiners' opinions and, where appropriate, implementing their recommendations (paragraphs 43 to 47).
- o. The staff appraisal and development system, and particularly the co-operative activities of the University's Staff Training and Development Unit, the Centre for Academic Practice, the Enterprise Unit and the Medical Education Unit (paragraph 47).