Dental Education in Kuwait

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Key Words

Dental education · Curriculum · Evidence-based approach · Community-based learning · Comprehensive dental care

Abstract

For a long time there has been a need to establish a dental school in Kuwait, due to the fact that the majority of dentists working in Kuwait are expatriates from various countries. An Amiri decree in 1996 made it possible, and the first dental students were admitted to the Kuwait University Faculty of Dentistry in 1998. The mission of the Faculty of Dentistry is 'to promote oral health in Kuwait through education, research and cooperation with other professional health care institutions as well as the community at large'. A 6.5-year dental curriculum was completed after 2 years of committee work and was accepted by the University Council in 2001. This curriculum incorporates current trends in medical and dental education, such as the evidence-based and community-based approaches, problem-solving methodology for outcome-based learning, and competency achieved through comprehensive patient care.

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Introduction

Dental care in Kuwait is delivered by expatriates as well as Kuwaiti dentists who received their training abroad, mainly in Egypt, the United States, the United Kingdom, and the Republic of Ireland. While the Faculty of Medicine was established at Kuwait University in 1973, plans for establishing a Faculty of Dentistry did not start until the early 1980s. The Gulf War delayed these plans until May 26th, 1996, when an Amiri decree was issued for the establishment of the Faculty of Dentistry. The first class of 26 students was admitted to the dental program in September 1998, and they will graduate in January 2005.

Once the Faculty of Dentistry was established, a curriculum committee was set up to plan, evaluate and revise the program. The dental curriculum is presently a 6.5-year, 13-semester program, including 1.5 years or 3 semesters of preprofessional studies in the Faculty of Science, 2.5 years or 5 semesters of preclinical courses in the Faculty of Medicine, and finally 2.5 years or 5 semesters of clinical training in the Faculty of Dentistry. Dental subjects were incorporated into both the preprofessional and preclinical programs in order to expose the students to clinical experiences early in their training, and medical courses which were less relevant to dentistry were replaced by dental courses (fig. 1). For instance, the Introduction to the Dental Profession course was incorporated into the preprofessional program in the 2nd year, and

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Fig. 1. The integration of dental subjects into the preprofessional and preclinical programs of the B Med Sc. a = Introduction to the dental profession; b = oral anatomy; c = oral microbiology; d = oral and systemic pathology; e = oral neuroscience; f = dental biomaterials; g = preclinical oral and maxillofacial radiology; i = preclinical operative dentistry and cariology; j = preclinical removable prosthodontics.

dental courses (those with course numbers ending in ‘D’) were introduced into the preclinical program in the 3rd and 4th years of the curriculum (table 1). Simultaneously with curriculum development, the departmental structure of the faculty was determined (table 2).

The Development of the Dental Curriculum

The mission of the Faculty of Dentistry is ‘to promote oral health in Kuwait through education, research and cooperation with other professional health care institutions as well as the community at large’. A community-based dental curriculum that focuses on the community and empowers local residents is recommended by the World Health Organization (WHO) [1]. In such a program, close cooperation between the community and the educational institution is necessary, creating a new role for dental schools and a new kind of responsibility in teaching [2]. Social sensitivity is therefore considered an important criterion in the recruitment of students, who rotate in different community clinics and extramural programs.

No existing curriculum was accepted as a model for the dental program, so the experienced members of the multinational academic staff of the new Faculty of Dentistry were consulted to establish a modern and realistic dental

Table 1. Major sheet: course titles, numbers and credit hours by years 1–7

a Preprofessional program

Department ¹	Course No.	Course	CH ²
<i>Year 1, semester 1</i>			
	181	English	5
	115	Finite Mathematics	3
	110/111	Chemistry and Chemistry Laboratory	4
		or	
	121/125	Physics and Physics Laboratory Elective Course	3
<i>Year 1, semester 2</i>			
	182	English	5
	110/111	Chemistry and Chemistry Laboratory	4
		or	
	121/125	Physics and Physics Laboratory	
	101	Biology	3
		Introduction to Health Professions/Elective Course	3
<i>Year 2, semester 1</i>			
00	201	Introduction to the Dental Profession ³	2
	183	English	5
	122	Physics	3
	127	Physics Laboratory	1
	114	Chemistry and Chemistry Laboratory	4
	103	Biology	3
Total CH			48

¹ Departments refer to the Faculty of Dentistry only; see separate list below.

² One credit hour (CH) equals 1 h of theoretical studies or at least 2 h of practicals per week for 1 semester.

³ Coordinated by the Vice-Dean for Academic Affairs.

curriculum suitable for the needs of Kuwait. The curriculum was completed in 2 years (1999–2000) and accepted by the University Council in 2001. It incorporates current trends in medical and dental education, which are summarized by Harden [3] as follows: (a) education for capability; (b) community orientation; (c) self-directed learning; (d) integration and multiprofessional education; (e) outcome-based education; (f) adaptive curriculum, and (g) assessment-led innovation. These trends reflect the shift that is taking place in the dental profession, from diagnosis and treatment to disease prevention, health maintenance, and health promotion [4].

Several of these trends appear among the nine basic principles that form the philosophy of education at the Faculty of Dentistry (table 3). The principles apply mostly to the clinical program and to those clinical courses that have been incorporated into the preclinical program (courses with numbers that end in ‘D’).

Both didactic and clinical dental education was *integrated into medicine*, since the Faculty of Medicine makes

Table 1 (continued)**b** Preclinical program

Depart- ment	Course No.	Course	CH
<i>Year 2, semester 2</i>			
	302	Anatomy	6
	302	Behavioral Science	2
	302	Biochemistry	4
	302	Physiology	4
			16
<i>Year 3, semester 1</i>			
	303	Anatomy	6
	303	Behavioral Science	2
	303	Biochemistry	4
	303	Physiology	4
			16
<i>Year 3, semester 2</i>			
	304D	Anatomy	6
	304	Behavioral Science	2
	304	Biochemistry	4
	304	Physiology	4
			16
<i>Year 4, semester 1</i>			
	400	Pathology	4
	400D	Microbiology/Oral Microbiology	4
	400	Pharmacology	3
	400D	Neuroscience/Oral Neuroscience	3
			14
<i>Year 4, semester 2</i>			
	401D	Oral and Systemic Pathology	4
	401	Pharmacology	3
	401D	Neuroscience/Oral Neuroscience	3
10	411	Dental Biomaterials	2
30	431	Preclinical Oral and Maxillofacial Radiology	2
40	441	Dental Anatomy and Function	2
40	442	Preclinical Operative Dentistry and Cariology	4
40	443	Preclinical Removable Prosthodontics	2
			22
Total CH			84

The grand total credit hours for the Bachelor of Medical Sciences (BMedSc) degree in the dental program is 132, comprising 48 CH in the preprofessional program and 84 CH in the preclinical program.

The grand total credit hours for the Bachelor of Dental Medicine (BDM) degree is 236 CH comprising 48 CH in the preprofessional program, 84 CH in the preclinical program and 104 CH in the dental clinical educational program. Departments in the Faculty of Dentistry (Faculty No. 12) as referred to in this Major Sheet: Department of Bioclinical Sciences (BCS) = No. 10, Department of Developmental and Preventive Sciences (DPS) = No. 20, Department of Diagnostic Sciences (DS) = No. 30, Department of Restorative Sciences (RS) = No. 40, Department of Surgical Sciences (SS) = No. 50, Nondepartmental activities coordinated by the Vice-Deans = No. 00.

¹ Coordinated by the Vice-Dean for Academic Affairs.

² Coordinated by the Vice-Dean for Research.

³ Coordinated by the Vice-Dean for Research.

Table 1 (continued)**c** Dental clinical educational program

Depart- ment	Course No.	Course	CH
<i>Year 5, semester 1</i>			
	20	521 Pediatric Dentistry I	2
	20	522 Orthodontics I	2
	30	531 Oral and Maxillofacial Radiology I	2
	30	532 Principles in Medicine I	4
	40	541 Prosthodontics I (Fixed)	2
	40	542 Prosthodontics II (Removable)	2
	40	543 Endodontics I	2
	50	551 Periodontology I	2
	50	552 Oral and Maxillofacial Surgery I	2
	00	501 Comprehensive Dental Care I ¹	3
			23
<i>Year 5, semester 2</i>			
	20	523 Dental Public Health I (Preventive Dentistry)	2
	20	524 Pediatric Dentistry II	2
	20	525 Orthodontics II	2
	30	533 Principles in Medicine II	4
	40	544 Prosthodontics III (Fixed)	2
	40	545 Operative Dentistry	3
	40	546 Endodontics II	2
	50	553 Periodontology II	2
	00	502 Comprehensive Dental Care II ¹	3
			22
<i>Year 6, semester 1</i>			
	20	621 Pediatric Dentistry III	2
	20	622 Dental Public Health II (Preventive Dentistry)	2
	20	623 Dental Public Health III (Oral Epidemiology)	2
	20	624 Orthodontics III	2
	30	631 Principles in Medicine III	2
	30	632 Oral Medicine and Clinical Oral Pathology I	2
	40	641 Prosthodontics IV	2
	50	651 Periodontology III	2
	50	652 Oral and Maxillofacial Surgery II	2
	00	601 Comprehensive Dental Care III ¹	4
	00	602 Community Rotation I ²	2
			24
<i>Year 6, semester 2</i>			
	20	625 Dental Public Health IV	2
	20	626 Pediatric Dentistry IV	2
	30	633 Oral and Maxillofacial Radiology II	2
	30	635 Oral Medicine and Clinical Oral Pathology II	2
	40	642 Prosthodontics V	3
	50	653 Oral and Maxillofacial Surgery III	2
	00	603 Comprehensive Dental Care IV ¹	7
	00	604 Community Rotation II ²	2
			22
<i>Year 7, semester 1</i>			
	00	701 Comprehensive Dental Care V ¹	8
	00	702 Community Rotation III ²	3
	00	703 Elective Project Study ³	2
			13
Total CH			104

Table 2. The departmental structure of the Kuwait University Faculty of Dentistry

1	The Department of Bioclinical Sciences Oral Biology Oral Neurosciences Oral Microbiology Biomaterial Science
2	The Department of Developmental and Preventive Sciences Dental Public Health Orthodontics Pediatric Dentistry
3	The Department of Diagnostic Sciences Oral Pathology/Medicine Oral and Maxillofacial Radiology General Medicine Temporomandibular Disorders
4	The Department of Restorative Sciences Dental Anatomy and Function Fixed/Removable Prosthodontics Operative Dentistry Endodontics Dental Materials
5	The Department of Surgical Sciences Periodontics Oral and Maxillofacial Surgery

Table 3. Basic principles of dental education

1	Didactic and clinical education integrated with medicine
2	Competency-based curriculum
3	Comprehensive patient care clinical education
4	Emphasis on preventive dentistry and oral health promotion
5	Evidence-based approach, outcome-based education
6	Problem-solving methodology for treatment planning or case management
7	Promotion of ethical behavior and professionalism
8	Community-based learning
9	Lifelong learning

many pedagogical decisions for the core courses in the four faculties (Medicine, Dentistry, Pharmacy, and Allied Health Sciences and Nursing) of the Kuwait University Health Sciences Center (HSC). Dental students take the same preprofessional courses as other HSC students, plus the Introduction to the Dental Profession course in the 2nd year and an elaborate course in Principles in Medicine that is spread over the clinical years.

The *community-based approach* is introduced during the Introduction to the Dental Profession course and is emphasized in the Dental Public Health courses (II and III) during the first semester of the 6th year. Also in the 6th year, community rotations are arranged in cooperation with the Ministry of Health. As a future employer of our graduating dentists, the Ministry of Health plays an important role in the execution of the dental curriculum; several senior staff members of the Ministry of Health give lectures and supervise dental students in their community rotations and other extramural courses, while faculty members work 2 days a week in the Ministry of Health clinics. The community-based approach is also an integral part of some elective studies that require data collection from society and therefore rely on cooperation with community institutions.

Comprehensive dental care education involves adult dental care. Contrary to the department-/discipline-based model where a patient consults various specialists, each of whom treat the specific problems that fall into his or her field of expertise, one 'mentor' supervises all the treatment procedures across discipline borders. Students learn to treat the whole patient rather than see the patient as separate disease states. Courses on comprehensive dental care start in the first semester of the 5th year and continue until the end of the program. In addition, treatment planning seminars that comprehensively integrate various aspects of different disciplines are conducted in the clinics during the clinical years.

A *competency-based curriculum* lists the competencies to be achieved by the students by the end of the courses and uses an assessment system based on competency rather than clinical requirements for different treatment procedures. The courses in the clinical program are competency-based, and students must acquire competency in one area before moving on to the next.

Preventive dentistry and oral health promotion are emphasized in many classes throughout the dental program, and treated in detail in two separate courses on Dental Public Health (I and II) during the 5th and 6th years.

The *evidence-based approach* is used in several seminars that are part of traditional lecture courses as well as in comprehensive dental care clinical work. Students, patients, and colleagues can question the evidence presented, contrary to the traditional approach whereby no one questioned the experts. For an elective study project, students concentrate on the evidence-based approach and compile a comprehensive literature review. Students choose their topics, and advisors are nominated from the specific departments that specialize in those topics.

The *problem-solving methodology for treatment planning* is introduced during the students' early exposure to patient clinics before the didactic clinical courses, as well as in the seminars about comprehensive dental treatment planning. Some studies have shown that problem-based learning is superior to traditional education [5, 6], but attempts to implement it in the dental program involved changing the teaching philosophy of the Faculty of Medicine. Therefore, the problem-based method is still not used very much, and lectures cover the bulk of didactic teaching.

The importance of *ethics and professionalism* is promoted in the course on Dental Public Health (IV) and by mentors who act as role models in comprehensive dental care clinics.

Finally, *lifelong learning goals* are adopted along with required computer literacy skills. Gathering information from the Internet is a major feature of all the courses, while elective studies concentrate on obtaining information from original publications rather than textbooks and reviews. The first Medline-based seminar is a part of the Introduction to the Dental Profession course.

The dental curriculum at Kuwait University is unique in that the students are exposed at an early stage to the healthcare system in Kuwait, when they go on their first field visits during the Introduction to the Dental Profession course in the 2nd year. In fact, many practical training sessions take place in the national healthcare system, especially in the Kuwait School Health Programs where students implement preventive programs such as sealant and fluoride applications. Dentists from the Ministry of Health supervise students at the Ministry of Health dental

clinics in the three community rotation courses during the last 2 years of the program, and they also give lectures at the university. In addition, subjects such as Oral Health in Kuwait, Healthcare Policy in Kuwait, School Oral Health Programs in Kuwait, and Legal Issues of Dentistry in Kuwait are covered in the Dental Public Health course (IV). Such integration with the national healthcare system has been strongly recommended by the WHO, but few colleges in the world have been able to accomplish it.

Conclusions

By incorporating the latest trends in the dental and healthcare professions, the new 6.5-year dental curriculum at Kuwait University's recently established Faculty of Dentistry aims to promote oral health in Kuwait through education and research as well as cooperation with healthcare institutions and the community. The program's emphasis on community involvement early in the program and the Faculty's close cooperation with the Ministry of Health make it unique to Kuwait. The curriculum was accepted in 2001 by the University Council, and it will be continuously scrutinized and revised as students proceed through the program in the coming years.

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