

Profile and competences for the graduating European dentist – update 2009

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Abstract

This paper presents the profile and competences for the European Dentist as approved by the General Assembly of the Association for Dental Education in Europe at its annual meeting held in Helsinki in August 2009. A new taskforce was convened to update the previous document published in 2005. The updated document was then sent to all European Dental Schools, ministries of health, national dental associations and dental specialty associations or societies in Europe. The feedback received was used to improve the document. European dental schools are expected to adhere to the profile and the 17 major competences but the supporting competences may vary in detail between schools. The document will be reviewed once again in 5 years time. Feedback to the newly published document is welcomed and all dental educators are encouraged to draw upon the content of the paper to assist them in harmonising the curriculum throughout Europe with the aim of improving the quality of the dental curriculum.

Introduction

In 1999, 29 ministers of Education of the European countries signed the Bologna Declaration, starting the process of aiming to converge and harmonise the higher educational systems across the European countries. One of the objectives continues to be 'to tune' curricula in terms of structures, programmes and actual teaching to make them more comparable. Thus, it will be easier for staff and students to move around in an integrated Europe and obtain reliable information about the role of a dental qualification. A single European social and economic area goes hand in hand with a single European Higher Education Area which should be in action by 2010. The two organisations that have continued to play a role in 'tuning' dental education in Europe are the *Association for Dental Education in Europe* (ADEE) and the *DentEd Thematic Network* (TNP).

The ADEE is a standing organisation, which, since 1975, has been in the process of furthering professionalism in dentistry. Some 160 schools (out of approximately 200 schools in Europe) are now members. It is therefore legitimate that ADEE continues to have a role to officially represent the dental schools in Europe.

The TNP (1) were funded from the EU in Brussels to converge and harmonise the various dental curricula and to transfer all expertise and activities, including site-visitation and quality assurance systems, to ADEE. The first outcome of the DentEd III project was the '*Profile and Competences for the European Dentist*' document (PCD). This document was approved by the General Assembly of ADEE and subsequently Published in the *European Journal of Dental Education* (2) in August 2005 following a consultation process involving European dental teaching institutions and other educational stakeholders. The document remains available on the ADEE website.

This document has also been sent to national dental associations, European dental associations in the various disciplines and ministries of health and welfare with the request to provide feedback on the document in terms of approval or amendment. These responses have been taken into consideration as part of the revision of the PCD which commenced at a meeting of the working group in Birmingham in May 2008. In addition to this PCD, additional DentEd publications: '*Curriculum Structure & ECTS*' (3, 4) and '*Quality Assurance & Benchmarking*' (5), are available on the ADEE website.

It is envisaged that the PCD will continue to:

- i. Act as a leading document in supporting and advising on curriculum revisions in European dental schools in harmonising and converging towards a European Dental Curriculum whilst respecting national and regional socioeconomic and cultural differences.
- ii. Assist deans of dental schools in internal and national discussions.
- iii. Be used by teachers, curriculum coordinators and students in dental schools in Europe.
- iv. Help to facilitate staff and student exchange within Europe and be used in global meetings on dental education to promote global convergence.
- v. Help to raise the quality of the dental care provided by dentists educated in the European context.
- vi. Serve as a basic document on activities towards benchmarking and best practice.

Profile

In 1995, the Commission of the European Communities adopted a directive from the European Parliament and its Council on the recognition of professional qualities (1). In that document the following has been stated on the profession of Dentistry:

‘All Member States must recognise the profession of dental practitioner as a specific profession distinct from that of medical practitioner, whether or not specialised in odonto-stomatology. The Member States must ensure that the training given to dental practitioners equips them with the skills needed for prevention, diagnosis and treatment relating to anomalies and illnesses of the teeth, mouth, jaws and associated tissues. The professional activity of the dental practitioner must be carried out by holders of a qualification as dental practitioner set out in this Directive’. It is further stated that ‘dental education shall comprise at least a total of 5 years full-time theoretical and practical study, comprising a study given in a university (or in an institute providing training and recognised as being of an equivalent level or under the supervision of a university)’.

The identification of an agreed ‘profile and competences’ presents a particular challenge to dentistry. The new graduate is required to safely undertake the independent practice of dentistry, but education and training programmes differ greatly both amongst old EU countries and between these countries and accession countries which recently joined the EU. It is hoped that the discussions on this document will contribute to further harmonisation and convergence of dental education in Europe.

To train dental students to become general dental practitioners, European educators have agreed on the profile of the graduating dentist as presented in Table 1.

Competences

Dentists are expected to contribute to the achievement of the general health of patients by implementing and promoting appropriate oral health management. A dentist must have acquired this ability through the achievement of a set of generic and subject specific competences – abilities essential to begin

TABLE 1. Agreed profile for the new European Dentist as approved by the General Assembly of the Association for Dental Education in Europe, Cardiff 2004

On graduation the new European dentist should:

- Have had a broad academic dental education and be able to function in all areas of clinical dentistry
- Be trained in biomedical science
- Be able to work together with other dental and health care professionals in the health care system
- Have good communicative skills
- Be prepared to undertake continuing professional development supporting the concept of life-long learning
- Be able to practice evidence-based dentistry based through a problem solving approach, using basic theoretical and practical skills

independent, unsupervised dental practice. This should be achieved by the time he or she obtains the first professional degree.

The competences, at the graduation, are the basic level of professional behaviour, knowledge and skills necessary for a graduating dentist to respond to the full range of circumstances encountered in general professional practice. This level of performance requires some degree of speed and accuracy consistent with patient wellbeing. It also requires an awareness of what constitutes acceptable performance under changing circumstances and a desire for self-improvement (6).

Competences should support integration and merging of all disciplines, which should benefit dentists in training and also patients who are receiving treatment. Competency statements will provide undergraduate dental teaching institutions with a benchmark with which to:

- (1) review, redefine and restructure the undergraduate curriculum
- (2) review and improve student evaluation processes; and
- (3) establish and apply outcome measures to assess the effectiveness of the undergraduate programme.

Competency statements can also be used as a reference point in the accreditation processes. In the USA and Canada, official documents on competences have been published (7, 8); in the United Kingdom, the General Dental Council produced ‘The First Five Years’ (9); and several dental schools have produced their own competency documents.

The graduating dentist should learn to undertake a holistic approach to the management of their patients. They should have knowledge of and adhere to the concept of dental team working in their approach to patient management; all this should be supported by an ethos of achieving continuing professional development (CPD) and promoting life-long learning to achieve a continuum of education from undergraduate to retirement.

Domains

The present document is structured from the general to the more specific for every section. Seven domains (listed below) have been identified that represent the broad categories of professional activity and concerns that occur in the general practice of dentistry. The domains are interdisciplinary in

orientation and must embrace an element of critical thinking; they may apply in differing ways to patients of all ages, including children, adolescents, adults and the elderly within a given population:

- I Professionalism
- II Interpersonal, Communication and Social Skills
- III Knowledge Base, Information and Information literacy
- IV Clinical Information Gathering
- V Diagnosis and Treatment Planning
- VI Therapy: Establishing and Maintaining Oral Health
- VII Prevention and Health Promotion

Major competences

Within each domain, at least one ‘major competence’ is identified as relating to that domain’s activity. A major competence is the ability of a dentist on graduation to perform or provide a particular, but complex, service or task. Its complexity suggests that multiple and more specific abilities are required to support the performance of any major competence.

Supporting competences

Specific abilities could be considered as subdivisions of a ‘major competence’ and are termed a ‘supporting competence’. Achievement of a major competence requires the acquisition and demonstration of all supporting competences related to that particular service or task. However, some supporting competences may also contribute to the achievement of other major competences. The lists of ‘supporting competences’ are not intended to be prescriptive and are by no means exhaustive. The lists are included for use by individual schools or countries to complete and modify to meet particular national or regional needs. In making this subdivision into major and supporting competences, ADEE envisages that all European schools will adhere to the major competences as described in this document, but that supporting competences may vary in detail between schools.

Some might suggest that the ‘supporting competences’ resemble what might be termed ‘learning outcomes’. However, the information in this document describes the professional qualifications of a European Dentist, not the requirements of a course or programme of training. Having considered the definitions of competences and learning outcomes within the context of the Bologna Declaration, the term competences have been utilised. It is anticipated that the competence statements listed could support educational institutions in defining the learning outcomes, relevant to their curriculum that they would expect of a dentist on graduation. If the learning outcomes and the competency statements are in line with each other, the dentist would on graduation automatically fulfil the competency statements. *‘Learning outcomes support defined competences but are at a greater level of detail and form the basis of both learning and assessment. Properly constructed, competences and learning outcomes are precisely formulated to indicate what the students should know about, what the students should understand, and what the students should be able to do and how well, using language and context that indicates the level at which they will be assessed’* (10).

In this document the following definitions have been applied to the competences:

Be competent at: a dentist should on graduation demonstrate a sound theoretical knowledge and understanding of the subject together with an adequate clinical experience to be able to resolve clinical problems encountered independently or without assistance.

Have knowledge of: a dentist should on graduation demonstrate a sound theoretical knowledge and understanding of the subject, but may have only limited clinical/practical experience.

Be familiar with: a dentist should on graduation demonstrate a basic understanding of the subject but need not have clinical experience or be expected to carry out procedures independently.

Domain I: professionalism

Major competence: professional attitude and behaviour

On graduation, a dentist must be competent in a wide range of skills, including investigative, analytical, problem solving, planning, communication, and presentation skills and should demonstrate a contemporary knowledge and understanding of the broader issues of dental practice. The dentist should understand the relevance of these issues, including research, team building and leadership skills in clinical dental practice.

Supporting Competences

On graduation, a dentist must:

be competent at:

- (1.1) Demonstrate an appropriate caring behaviour towards patients.
- (1.2) Displaying appropriate professional behaviour towards all members of the dental team.
- (1.3) Seeking CPD allied to the process of continuing education on an annual basis, to ensure that high levels of clinical competence and evidence-based knowledge are maintained. This should be readily demonstrated through the use of a CPD logbook/portfolio.
- (1.4) Managing and maintaining a safe working environment, working with other members of the dental team with regard to health and safety and clinical risk management. In particular, with reference to working posture, visual perception, instrument handling, use of equipment, dealing with mental aspects and stress, and all aspects of cross-infection control.
- (1.5) Social and psychological issues relevant to the care of patients.

have knowledge of:

- (1.6) The importance of his/her own health in relation to occupational hazards and its impact on the ability to practice as a dentist.
- (1.7) the management of a dental practice by planning, organising and leading the practice team.

Major competence: ethics and jurisprudence

On graduation a dentist must display knowledge of the content and have a thorough understanding of the moral and ethical responsibilities involved in the provision of care to individual

patients, to populations and communities. The dentist must demonstrate knowledge of contemporary laws applicable to the practice of dentistry.

Supporting Competences

On graduation, a dentist must:

be competent at:

- (1.8) Providing humane and compassionate care to all patients.
- (1.9) Selecting and prioritising treatment options that are sensitive to each patient's individual needs, goals and values, compatible with contemporary methods of treatment and congruent with appropriate oral health care philosophy.
- (1.10) Acknowledging that the patient is the centre of care and that all interactions, including diagnosis, treatment planning and treatment, must focus on the patient's best interests.
- (1.11) Respecting patients and colleagues without prejudice concerning gender, diversity of background and opportunity, language and culture, disabilities and sexual orientation.
- (1.12) Recognising their own limitations.
- (1.13) Taking appropriate action to help the incompetent, impaired or unethical colleague and their patients.
- (1.14) Producing and maintaining an accurate patient record and record of patient treatment.
- (1.15) Audit and clinical governance.
- (1.16) Practising with personal and professional integrity, honesty and trustworthiness.
- (1.17) Recognising patients' rights, particularly with regard to confidentiality, informed consent and patients' obligations.

have knowledge of:

- (1.18) The judicial, legislative and administrative processes and policy that impact all aspects of dentistry.
- (1.19) The ethical principles relevant to dentistry.
- (1.20) The fact that dentists should strive to provide the highest possible quality of patient care in variety of circumstances.
- (1.21) The socio-economic inequities and inequalities in oral health.

Domain II: interpersonal, communication and social skills

Major competence: communication

On graduation a dentist must be competent to communicate effectively, interactively and reflectively with patients, their families, relatives and carers and with other health professionals involved in their care, irrespective of age, social and cultural background.

Supporting Competences

On graduation, a dentist must:

be competent at:

- (2.1) Establishing a patient–dentist relationship that allows the effective delivery of dental treatment including, when appropriate a relationship with a parent or carer.

- (2.2) Identifying patient expectations, desires and attitudes (needs and demands) when considering treatment planning and during treatment.
- (2.3) Identifying the psychological and social factors that initiate and/or perpetuate dental, oral and facial disease and dysfunction and diagnose, treat or refer, as appropriate.
- (2.4) Sharing information and professional knowledge with both the patient and other professionals, verbally and in writing, including being able to negotiate and give and receive constructive criticism.
- (2.5) Applying principles of stress management to oneself, to patients and to the dental team as appropriate.
- (2.6) Working with other members of the dental team.
- (2.7) Communication skills that facilitate the delivery of dental care.

have knowledge of:

- (2.8) Behavioural sciences including behavioural factors (including factors such as ethnicity and gender) that facilitate the delivery of dental care.
- (2.9) The role and the stages of the intellectual, social-emotional and language development of children and adolescence.

Domain III: knowledge base, information and information literacy

Major competence: application of basic biological, medical, technical and clinical sciences

On graduation a dentist must be competent to apply knowledge and understanding of the basic biological, medical, technical and clinical sciences to recognise the difference between normal and pathological conditions/disorders relevant to clinical dental practice and understand the bases of these.

Supporting Competences

On graduation, a dentist must:

be competent at:

- (3.1) Implementing sterilisation, disinfection and antisepsis, and cross-infection control in their practice.
- (3.2) Implementing the ionising radiation regulations including leading the dental team on radiation protection measures

have knowledge of:

- (3.3) The scientific principles of sterilisation, disinfection and antisepsis, and cross-infection control.
- (3.4) The hazards of ionising radiations and their effects on biological tissues, together with the regulations relating to their use, including leading the team on radiation protection measures
- (3.5) The scientific basis of dentistry, including the relevant biomedical sciences, the mechanisms of knowledge acquisition, scientific method and evaluation of evidence.
- (3.6) The biological processes in the body to a sufficient depth to be able to exploit new emerging biological technologies in clinical practice, especially in regenerative medicine.
- (3.7) The cellular and molecular basis of life including both eukaryotic and prokaryotic cells.

- (3.8) The biomedical sciences in the normal healthy individual at a depth relevant to dentistry
- (3.9) Disease processes such as infection, inflammation, disorders of the immune system, degeneration, neoplasia, metabolic disturbances and genetic disorders.
- (3.10) Pathological features and dental relevance of common disorders of the major organ systems, and have knowledge of the oral manifestations of systemic disease.
- (3.11) The aetiology and pathological processes of oral diseases to facilitate their prevention, diagnosis and management
- (3.12) Pharmacology and therapeutics relevant to clinical dental practice and its application thereto, and be familiar with pharmacology in general medicine.
- (3.13) The science of dental biomaterials and their limitations and be aware of environmental issues relevant to their use.
- (3.14) The ability to apply this knowledge and understanding of basic biological, medical and clinical sciences to every day real life and clinical situations.

Major competence: acquiring and using information

On graduation, the dentist must be competent at demonstrating appropriate information literacy to acquire and use information from library and other databases and display the ability to use this information in a critical, scientific and effective manner. A dentist should demonstrate an ability to maintain their professional knowledge and understanding throughout their professional life.

Supporting Competences

On graduation, the dentist must:

be competent at:

- (3.15) Using contemporary information technology for documentation, continuing education, communication, management of information and applications related to health care.
- (3.16) Protecting confidential patient data.
- (3.17) Assessing their personal knowledge base and seek additional information to correct deficiencies.
- (3.18) Recognising their clinical limitations and knowing when to refer appropriately.
- (3.19) Evaluating the validity of claims related to the risks–benefits ratio of products and techniques.
- (3.20) Evaluating published clinical and basic science research and integrate this information to improve the oral health of the patient.
- (3.21) Applying experience, scientific knowledge and methods to the management of problems of oral health care.

Domain IV: clinical information gathering

Major competence: obtaining and recording a complete history of the patient's medical, oral and dental state

On graduation, a dentist must be competent at obtaining and recording a complete history of the patient's medical, oral and

dental state. This will include biological, medical, psychological and social information to evaluate the oral and dental condition in patients. In addition, the dentist will be competent at performing an appropriate physical examination; interpreting the findings and organising further investigations when necessary to arrive at an appropriate diagnosis.

Supporting Competences

On graduation, a dentist must:

be competent at:

- (4.1) Identifying the chief complaint of the patient and obtaining a history of the present illness complaint and include an appropriate record of as part of the patient's medical history including present medication.
- (4.2) Producing a patient record and maintaining an accurate record of patient treatment.
- (4.3) Identifying abnormal and anxiety-related patient behaviour and respond appropriately for patients of all ages.
- (4.4) Initiating an appropriate written medical referral to clarify a question related to the patient's systemic condition.
- (4.5) Performing an extra-oral and intra-oral examination appropriate to the patient, including assessment of vital signs, and the recording of those findings.
- (4.6) Completing and charting a comprehensive oral hard and soft tissue examination.
- (4.7) Identifying the location, extent and degree of activity of dental caries, tooth wear and other structural or traumatic anomalies and the reason for their occurrence.
- (4.8) Examining the dentition for dental caries, wear, including attrition, abrasion and erosion, and other damage to the hard tissues of the teeth.
- (4.9) Performing a dietary analysis, identifying risk factors for oral health.
- (4.10) Taking radiographs of relevance to dental practice, interpreting the images, including managing and avoiding the hazards of ionising radiation.
- (4.11) Producing diagnostic casts, mounted with inter-occlusal records.
- (4.12) Assessing the sensory and motor function of the mouth and jaws.
- (4.13) Recognising the clinical features of oral mucosal diseases or disorders, including oral neoplasia and identifying conditions that require management.
- (4.14) Assessing salivary function.
- (4.15) Assessing oro-facial pain.
- (4.16) Assessing cranio-facial form and relationships, including evidence of deviation from the normal harmonious face and occlusion
- (4.17) Obtaining informed consent prior to recording a history and examination

have knowledge of:

- (4.18) Other methods of medical imaging of relevance to dentistry.
- (4.19) Of appropriate clinical laboratory and other diagnostic procedures and tests, and an understanding of their diagnostic reliability and validity, and the interpretation of the results.

be familiar with:

- (4.20) Recognising signs of patient abuse and neglect and knowing how to report as required to the appropriate legal authorities.
- (4.21) The principles that underlie dental radiographic techniques.

Domain V: diagnosis and treatment planning**Major competence: decision-making, clinical reasoning and judgement**

On graduation, a dentist must be competent in decision-making, clinical reasoning and judgement to develop a differential, provisional or definitive diagnosis by interpreting and correlating findings from the history, clinical and radiographic examination and other diagnostic tests, taking into account the social and cultural background of the patient. A dentist must be competent at formulating and recording a diagnosis and treatment plan which meets the needs and demands of patients. For treatments that are beyond their skills, a dentist should be competent to be able to refer on for an appropriate specialist opinion and/or treatment.

*Supporting Competences***On graduation, a dentist must:***be competent at:*

- (5.1) Obtaining informed consent for all forms of treatment and acknowledging that informed consent serves as a summary of the information provided during an interactive communication process with the patient.
- (5.2) Recognising the presence of systemic disease and knowing how the disease and its treatment, including present medication, affect the delivery of dental care.
- (5.3) Diagnosing, explaining and managing the deterioration and failure of restorations in clinical service.
- (5.4) Conducting, explaining and discussing planning of restorative and prosthetic treatment as part of a comprehensive oral rehabilitation concept including limited treatment targets and non-replacement of teeth.
- (5.5) Describing the common impairments of function consequent on tooth loss.
- (5.6) Describing properties of commonly used dental materials and related tissue responses.
- (5.7) Describing, for patients, risks and benefits of dental materials.
- (5.8) Diagnosing abnormalities in dental or periodontal anatomical form that compromise periodontal health, function or aesthetics and identifying conditions, which require management.
- (5.9) Distinguishing between periodontal health and periodontal disease and identifying conditions that require management.
- (5.10) Evaluating the periodontium, establishing a diagnosis and prognosis and formulating a treatment plan.
- (5.11) Distinguishing the difference between pulpal and periapical health and disease and identifying conditions that require management.

- (5.12) Recognising maxillofacial problems, the clinical characteristics of acute and chronic craniofacial pain of somatic, myofascial, neurogenic and psychogenic origin, and identifying and diagnosing other head and neck pain conditions that require management by the dentist or other healthcare providers.
- (5.13) Recognising patient behaviour contributing to oro-facial problems, and identifying conditions that require diagnosis, prevention and management.
- (5.14) Diagnosing temporomandibular disorders and disorders of masticatory muscle function and other associated conditions including need for occlusal rehabilitation.
- (5.15) Determining a patient's aesthetic requirements and determining the degree to which those requirements/ desires can be met.
- (5.16) Diagnosing orthodontic treatment need and be competent with contemporary treatment techniques.
- (5.17) Diagnosing medical emergencies and knowing how to deal with them.
- (5.18) Knowing when, how and where to refer a patient for sedation and/or general anaesthesia and in making other appropriate referrals based on clinical assessment.
- (5.19) Managing patients from different age groups, bearing in mind the different needs of young children, adolescents, adults and the ageing population/elderly.
- (5.20) Managing patients from different social and ethnic backgrounds.
- (5.21) Identifying special treatment needs of the elderly.

have knowledge of:

- (5.22) The role of and indications for the use of sedation in the management of adult and young uncooperative patients.

be familiar with:

- (5.23) Making a diagnosis for potential implant patients.

Domain VI: therapy: establishing and maintaining oral health

This domain provides a broad range of major and supporting competences on establishing and maintaining oral health. There is no intention to be prescriptive and for more specific competences relating to particular aspects of dentistry and its associated specialties (e.g. paediatric dentistry, endodontology, cariology, prosthodontics, periodontology, dental implantology, oral surgery, orthodontics and dental sedation) teaching institutions/schools are encouraged to review documents already available. Examples are available for Endodontics, Oral Pathology, Oral Surgery, Gerodontology and Paediatric Dentistry (11–16). In areas where specific competencies or learning outcomes are not available it is hoped that this PCD will encourage specialist educators to produce this information.

This domain may relate to patients from different age groups (children, adolescents, adults and the elderly) or specifically to one particular age group and to those patients with special needs and requirements. On graduation the dentist should be aware of their limitations and know when to refer a patient for specialist dental or medical care.

Major competence: establishing and maintaining oral health

On graduation, the dentist must: be competent at:

- (6.1) Educating patients and managing primary oral health care for patients at all stages in their life (including children, adolescents, adults and the ageing population/elderly) appropriately, effectively and safely, emphasising current concepts of prevention, risk assessment and treatment of oral disease which supports the maintenance of systemic and oral health and improves the quality of life for the individual.
 - (6.2) Treating patients whose special needs, desires and requirements (eg children) may influence their dental care and know when to refer.
 - (6.3) Employing appropriate techniques to manage oro-facial pain, including TMJ disorders, discomfort and psychological distress.
 - (6.4) Managing periodontal disease.
 - (6.5) Managing caries and other hard tissue tooth loss.
 - (6.6) Managing pulpal and peri-radicular disease and disorders.
 - (6.7) Restoring defective, non-defective and/or missing teeth to acceptable form, function and aesthetics.
 - (6.8) Planning and performing all common prosthetic procedures, including tooth preparation and impression taking.
 - (6.9) Understanding and applying the biomechanical principles of fixed and removable prostheses commonly used to replace missing teeth.
 - (6.10) Treating and managing conditions requiring minor surgical procedures of the hard and soft tissues, and to apply and/or prescribe appropriate pharmaceutical agents to support treatment.
 - (6.11) Managing common oral mucosal diseases and disorders.
 - (6.12) Managing minor developmental or acquired dentoalveolar, growth-related and functional abnormalities of the primary, mixed and permanent dentition.
 - (6.13) Preventing and managing the majority of medical and dental emergency situations encountered in clinical dental practice.
- Supporting Competences**
- On graduation, a dentist must:
be competent at:**
- (6.14) Applying evidence-based treatment where it is available.
 - (6.15) Evaluating, systematically, all treatment outcomes, including information on a patient's and/or patient's family/carer's satisfaction/dissatisfaction with treatment and providing and/or recommending additional action and planning for the maintenance of oral health.
 - (6.16) Developing strategies to predict, prevent and correct deficiencies in patient's oral hygiene regimens and providing patients with strategies to control adverse oral habits.
 - (6.17) Educating patients concerning the aetiology and prevention of oral disease and encourage them to assume responsibility for their oral health.
 - (6.18) Providing oral hygiene instruction, topical fluoride therapy and fissure sealing.
 - (6.19) Providing dietary counselling and nutritional education relevant to oral health.
 - (6.20) Prescribing and monitoring the effects of appropriate pharmaceutical agents, including the chemical control of dental plaque.
 - (6.21) Performing preventive and restorative procedures, according to age, risk assessment status and tooth type that prevents hard tissue disease that preserve tooth structure, prevent hard tissue disease and promote soft tissue health.
 - (6.22) Identifying the origins and continuation of dental fear and anxiety and manage this fear and anxiety with behavioural techniques.
 - (6.23) Selecting and prescribing drugs for the management of preoperative, operative and postoperative pain and anxiety.
 - (6.24) Administering infiltration and block local anaesthesia in the oral cavity for restorative and surgical procedures or other treatment, as needed/required, for oro-facial pain management, including management of potential complications of local anaesthesia.
 - (6.25) Increasing patients' awareness of the role of oral hygiene concerning the aetiology of periodontal disease, and instructing them in appropriate oral hygiene methods and in so doing, encouraging them to assume responsibility for their oral health.
 - (6.26) Undertaking supragingival and subgingival scaling and root debridement, using both powered and manual instrumentation including stain removal and prophylaxis.
 - (6.27) Diagnosing, explaining and discussing the need for advanced periodontal surgical procedures and knowing the proper method of referral for specialist care.
 - (6.28) Evaluating the results of periodontal treatment and establishing and monitoring a maintenance programme, in co-operation with dental hygienists, including a discussion of risk factors.
 - (6.29) Knowing when and how to prescribe appropriate antimicrobial therapy in the management of plaque related disease.
 - (6.30) Examining the dentition for dental caries, wear, including attrition, abrasion and erosion, and other damage to the hard tissues of the teeth.
 - (6.31) Assessing the risk to patients of dental caries, all forms of toothwear, and other damage to the hard tissues of the teeth.
 - (6.32) Increasing patient awareness of the aetiology and means to prevent dental caries, all forms of wear and other damage to the dental hard tissue.
 - (6.33) Performing procedures designed to preserve the vitality and defence mechanisms of the pulp/dentine complex.
 - (6.34) Performing procedures designed to alter the colour of teeth prior to undertaking any necessary restorative procedures.
 - (6.35) Restoring diseased and damaged teeth, including the management of dental caries, by direct and indirect means using materials and techniques that maintain

- pulp vitality and restore teeth to form, function and appearance acceptable to the patient in ways which prevent further disease and damage and help to promote the health of adjacent soft tissues.
- (6.36) Developing a maintenance programme to maximise the performance of restorations in clinical service.
- (6.37) Diagnosing, explaining and managing the deterioration and failure of restorations in clinical service.
- (6.38) Evaluating the pulp and peri-radicular area, establishing a diagnosis and prognosis and formulating a treatment plan.
- (6.39) Practising vital pulp therapy.
- (6.40) Demonstrating satisfactory non-surgical root canal treatment of single rooted and multirooted teeth, (recognising and managing endodontic failure).
- (6.41) Understanding the iatrogenic errors that may occur during non-surgical root canal treatment and how to avoid them.
- (6.42) Performing endodontic treatment on uncomplicated single and uncomplicated multi-rooted teeth.
- (6.43) Recognising indications for surgical and complicated non-surgical root canal therapy and take appropriate action.
- (6.44) Identifying and managing dental emergencies including those of pulpal, periodontal or traumatic origin.
- (6.45) Designing effective indirect restorations, anterior and posterior crowns, post crowns, bridges, complete and partial dentures, including a combination of fixed and removable dentures, and occlusal splints and undertaking some of these procedures as is relevant to the country of practice.
- (6.46) Describing, for patients, the principles and techniques of aesthetic treatments including differences between patient expectations and achievable results.
- (6.47) Prescribing materials and technological details of prosthetic appliances within an interprofessional relationship with the dental laboratory.
- (6.48) Conducting quality control of restorative and prosthetic appliances.
- (6.49) Describing, for patients, the risks, benefits and long-term consequences of using osseointegrated implants within an overall treatment concept.
- (6.50) Describing, for patients, the principles and techniques involved in the use of osseointegrated implants for restorations.
- (6.51) Describing the indications and contraindications, principles and techniques of surgical placement of osseointegrated implant fixtures.
- (6.52) Managing acute oral infections, including patient referral and prescription of appropriate drugs.
- (6.53) Performing uncomplicated extraction of erupted teeth.
- (6.54) Performing surgery for the uncomplicated removal of fractured or retained roots and the removal of uncomplicated partially erupted teeth.
- (6.55) Managing and treating common intra-operative and post-operative surgical complications.
- (6.56) Counselling patients regarding the nature and severity of non-life-threatening oral mucosal diseases and disorders, providing the patient with realistic options and expectations of management.
- (6.57) Performing limited soft tissue diagnostic procedures.
- (6.58) Applying the principles of oral health maintenance to patients with restorative and prosthetic appliances.
- (6.59) Participating in the diagnosis and proper referral of the patient with life-threatening oral mucosal diseases including oral cancer.
- (6.60) Diagnosing oro-facial pain, treating it as appropriate or referring the patient to relevant specialists.
- (6.61) Evaluating normal and abnormal tooth development, eruption and occlusion of the developing primary, transitional and young permanent dentition and treat simple orthodontic problems
- (6.62) Designing, inserting and adjusting space maintainers and designing, inserting and adjusting active removable appliances to move a single tooth or correct a crossbite.
- (6.63) Appropriately managing all forms of orthodontic emergency, including referral when necessary.
- (6.64) Identifying inappropriate oral habits that may exacerbate malocclusion, and prevent their consequences through patient education and training and appliance therapy, as needed.
- (6.65) Developing and implementing an effective strategy for the prevention of dental and medical emergencies in the dental surgery and establish policies for the management of such emergencies, should they occur.
- (6.66) Identifying and promptly referring dental or medical emergencies, which are beyond the scope of management by a general dentist.
- (6.67) Providing urgent dental treatment of traumatic uncomplicated dental injuries in deciduous and permanent dentitions or refer appropriately the more severe cases to specialist or Child Care Services.
- (6.68) The management of trauma in deciduous and permanent dentitions.
- (6.69) Carrying out Basic Life Support & Defibrillation for cardiac arrest and immediate appropriate management of other emergencies, including: cardiovascular accidents, respiratory distress, upper airway obstruction, metabolic disorders (e.g. hypoglycaemia and hyperglycaemia), drug-related reactions, vasovagal attack, epileptic fit, haemorrhage, altered consciousness and other medical emergencies that may occur in the course of dental practice.
- have knowledge of:**
- (6.70) Inhalation, intravenous and other conscious sedation techniques for dental procedures in adults, children, disabled patients and those with systemic diseases.
- (6.71) The effects of tobacco on the oral mucosa and ways in which to help patients who wish to stop using tobacco.
- (6.72) Secondary periodontal aetiological factors.
- (6.73) Experience of the design and laboratory procedure used in the production of crowns, bridges, partial and complete dentures and be able to make appropriate chair-side adjustment to these restorations.
- (6.74) The performance of simple soft and hard tissue surgical and pre-prosthetic procedures.
- (6.75) Normal craniofacial growth and development from birth to adolescence.

- (6.76) The principles of treatment of dento-facial anomalies including the common orthodontic/maxillofacial procedures involved.
- (6.77) Evaluating normal and abnormal tooth development, tooth eruption and occlusal development of the primary, transitional and young permanent dentition.
- (6.78) The handling of dental materials for use in restoring the dentition

be familiar with:

- (6.79) The treatment of common oral medical disorders, both medical and surgical.
- (6.80) The potential and limitations (risks and benefits) of dental technological procedures.
- (6.81) The surgical and non-surgical aspects of the management of maxillofacial trauma.
- (6.82) The signs of non-accidental injury and how to refer to appropriate child care services.

Domain VII: prevention and health promotion

Major competence: improving oral health of individuals, families and groups in the community

On graduation a dentist must be competent at promoting and improving the oral health of individuals, families and groups in the community.

Supporting Competences

On graduation, a dentist must:

be competent at:

- (7.1) Applying the principles of health promotion and disease prevention via comprehensive preventive measures to individuals and the community according to their risk assessment status.
- (7.2) Understanding the complex interactions between oral health, nutrition, general health, drugs and diseases that can have an impact on oral health care and oral diseases.
- (7.3) Providing appropriate dietary advice.

have knowledge of:

- (7.4) The organisation and provision of health care in the community and in the specialist hospital service in the country of training.
- (7.5) The prevalence of the common dental conditions in the country of training/practice.
- (7.6) The social, cultural and environmental factors which contribute to health or illness.
- (7.7) The strategies to overcome barriers to dental care for disabled, elderly, socially deprived and ethnic minority groups.
- (7.8) Training auxiliaries in basic skills of oral health promotion.

Concluding remarks

The domains in the *Profile and Competences of the Graduating European Dentist* document emphasise that on graduation, the dentist must have developed the attitude to put patients'

interests first and must have learned to act in a professional manner. In addition, dental professionals need to act in co-operation with other members of the dental team and other healthcare colleagues in the interests of patients. The teamwork approach should begin during undergraduate dental education and form an integral part of the dental curriculum (17). Profiles of potential members of an oral healthcare team are clearly defined by Sanz et al. (2008) in one of the reports following the DentEd III led Global Congress in Dublin September 2007 (18).

In addition, standards and diversity of competence must be appropriate to the needs of the local population (17). As such ADEE's '*Profile and Competences of the Graduating European Dentist*' does not need to become limited to the European dental institutions' but it has the potential to form the basis for convergence on the 'profile of the international dentist' (10).

This 2nd edition of '*Profile and Competencies of the Graduating European Dentist*' is aimed at providing guidance and reflection to those who deliver dental education when they consider all aspects of change in relation to the undergraduate dental education programme in their country. The undergraduate education delivering a dentist at a particular level of competence should act as a springboard which engenders the concept of CPD and life-long learning.

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