



A Curriculum for UK Dental Foundation Programme Training



SCOTTISH EXECUTIVE



Department of
**Health, Social Services
and Public Safety**

An Roinn
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agus Sábháilteachta Poiblí**

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Welsh Assembly Government

Foreword

This work was commissioned by the Department of Health (England) and the contract was awarded to a group from NHS Education for Scotland. Members of the group are as follows:-

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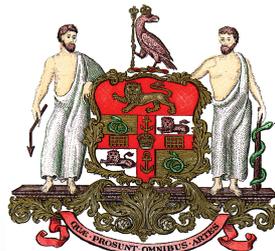
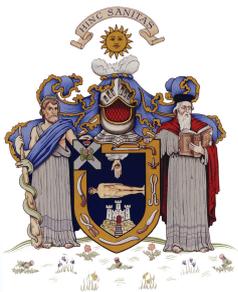
The curriculum is endorsed by

The Faculty of Dental Surgery, The Royal College of Surgeons of Edinburgh

The Faculty of Dental Surgery, The Royal College of Physicians and Surgeons of Glasgow

The Faculty of Dental Surgery, The Royal College of Surgeons of England

The Faculty of General Dental Practice (UK)



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Part 1

Introduction

Modernising Medical and Dental Careers

In February 2003 the UK Health Departments published a policy statement on 'Modernising Medical Careers'¹ which outlined agreed principles for the reform of postgraduate medical training. This policy arose out of further work on an earlier report on the same issue, 'Unfinished Business'². In April 2004 'Modernising Medical Careers – The Next Steps'³ was published which contained further detail on the policy direction for the management of the early postgraduate years in medicine.

The concept of a two year foundation programme is broadly comparable to the structured two year General Professional Training (GPT) Programme currently available for a proportion of dental graduates in the UK.

The Benefits of Modernising Dental Careers

'Modernising Dental Careers' envisages improved care for patients where clinical governance and patient safety are central to modern practice. In the future it is envisaged that a greater proportion of care will be delivered by fully trained dentists rather than training grade staff. The introduction of 'Modernising Dental Careers' will bring significant improvements to career pathways. The principal benefits of a dental foundation programme are as follows:-

- Improved care for patients with a particular emphasis on safety and standards
- Improved training opportunities for the future workforce in the UK
- Flexible training pathways tailored to meet the needs of the service and personal development needs of young dental graduates
- Streamlined training to enable a greater proportion of care to be delivered by trained staff
- Improved recruitment and retention of the workforce in the UK

¹ Modernising Medical Careers. The response of the four UK Health Ministers to the consultation on *Unfinished Business: Proposals for reform of the Senior House Officer grade*. February 2003.

² Unfinished Business. Proposals for reform of the Senior House Officer grade. August 2002.

³ Modernising Medical Careers. The next steps. The future shape of Foundation, Specialist and General practice Training Programmes. April 2004.

Experience of two year structured training programmes has highlighted the fact that this type of training provides trainees⁴ with a wider range of opportunities to develop their communication, team-working and clinical skills when compared to stand alone posts in each service. Trainees' expectations are exceeded by their experiences in several areas including opportunities to develop communication skills (with patients and colleagues), improved skills in patient management, time-management, research and audit methodology as well as problem-solving and decision-making. Overall a two year structured training programme confers the following benefits⁵:-

- dynamic training environments
- dentists with more advanced clinical skills and good generic skills
- an improved understanding of referral systems
- better appreciation of the work of the salaried dental service
- better communication between the different branches of the dental service and the breakdown of artificial barriers between primary and secondary care
- dentists with informed career options and greater adaptability
- an enhanced commitment to lifelong learning and continuing professional development
- improved recruitment and retention

Accordingly this system has significant advantages for the future dental workforce within the UK.

The principles of Modernising Dental Careers will have an impact on all training grades and in due course training will be delivered through structured programmes with few, if any, stand-alone posts.

Career Pathways

Foundation Year 1 (FY1)

For the majority of trainees this will equate to one year vocational training based in General Dental Practice.

Foundation Year 2 (FY2)

This will build upon the existing two year GPT schemes. However as most dental graduates have a final career in primary care, with a minority having a career in secondary care, additional models will be developed with an increased emphasis on training within primary care, as this will provide the most appropriate environment for the graduates' future needs.

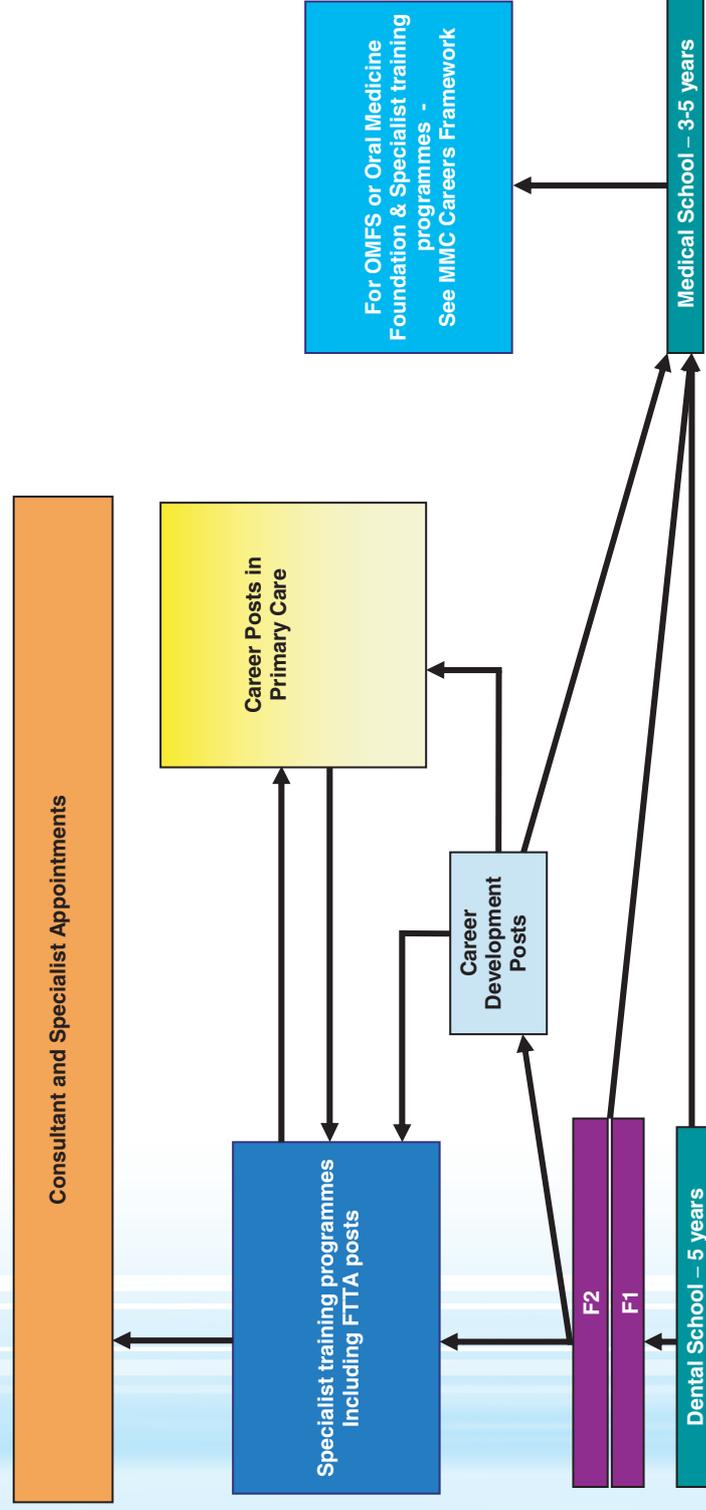
Figure 1a gives an outline of dental education and training in the UK. Figure 1b shows the UK Modernising Medical Careers Framework.

⁴ Throughout this document, the term 'trainee' refers to a postgraduate trainee.

⁵ A Bridge to the Future: An evaluation of General Professional Training for Dentistry in Scotland. Scottish Council for Research in Education. February 1999.

Figure 1: Dental Education and Training in the UK

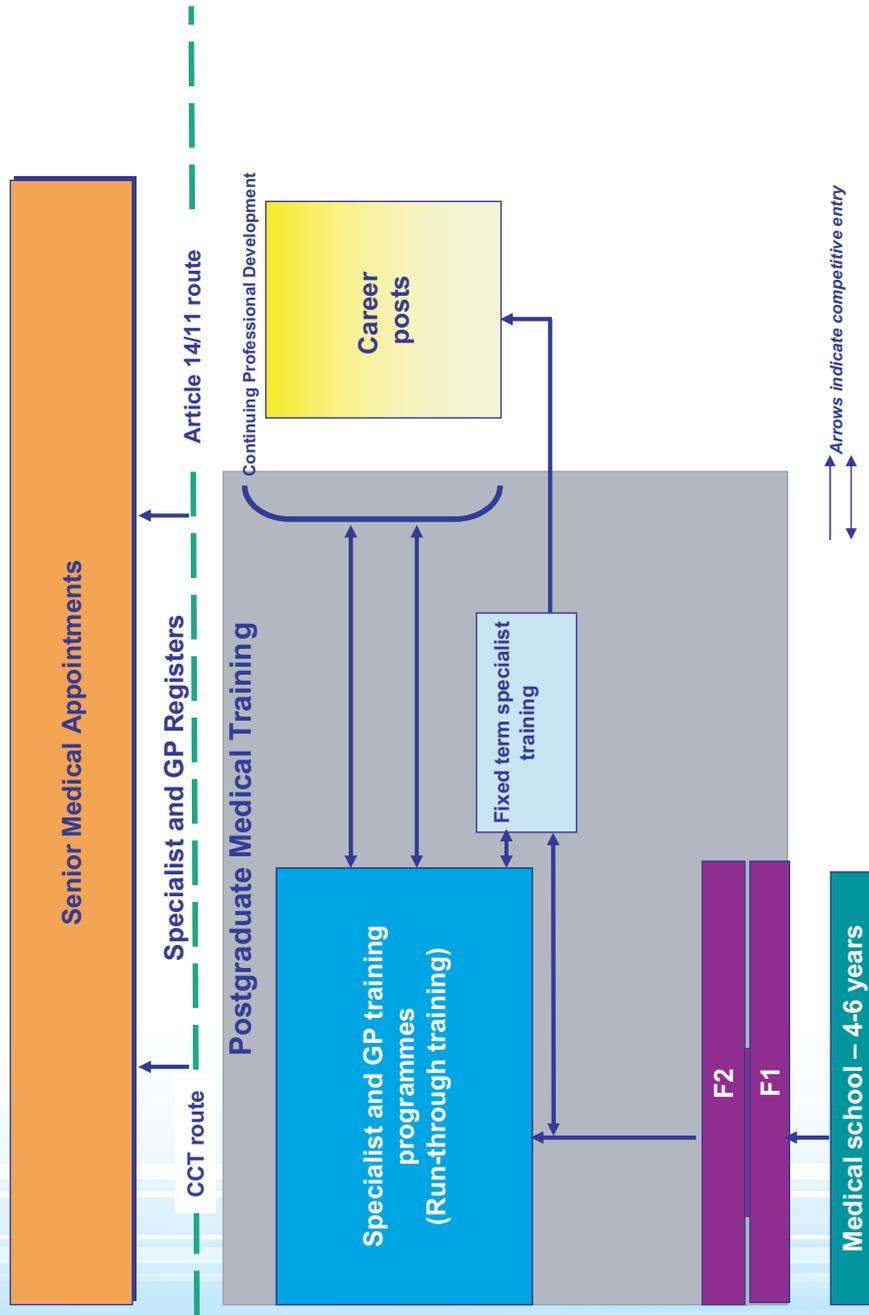
Modernising Dental Careers Framework



- Career Development Posts: These posts will be a mixture of training posts and service posts and will provide appropriate experience to enable graduates to consolidate their experience in a range of dental specialties.
- Dental graduates wishing to pursue a career in Oral and Maxillofacial Surgery will undertake a variable period of postgraduate training within dentistry before applying for entry to medical school.

Figure 1b: UK Modernising Medical Careers Framework

UK MMC Career Framework



Model of Learning

Postgraduate education and training in the health professions represents a dynamic and complex system in which a range of styles of learning, teaching and assessment are employed in order to try to achieve maximum benefits to trainees, patients and the NHS. Based primarily on the apprenticeship model, postgraduate dental training (as with postgraduate medical training⁶) involves an emphasis on experiential learning within the workplace, involving elements of coaching through appropriate supervision and mentorship, supplemented by formal educational events and self-directed learning. In addition, modern day training programmes have an increasing focus on learning within clinical teams, which bring into play socio-cultural learning theories⁷.

Dental foundation programmes enhance trainees' learning by providing context for clinical practice across different environments, experience in 'real time' and exposure to aspects of care that cannot be recreated in the classroom e.g. time constraints and heavy demands on workload, continuity of care and a supportive working environment. One to one teaching sessions and the provision of constructive feedback have been identified by postgraduate trainees as particularly valuable⁸.

Other educational models described recently, classify education as a product, process or as research⁹. Using these models, the education and training within dental foundation programmes is predominantly seen as a 'process', where teaching is centred around the complex relationship between educational supervisor(s) and the trainee and the learner actively seeks knowledge. Vital to this model is the positive educational impact of assessment, which should be formative as well as summative, providing valuable feedback on performance and progress. Whilst the 'process' educational model matches dental foundation programmes well, elements of the 'product' and 'research' models also feature within foundation programmes, suggesting again that this complex and dynamic training environment does not easily fit into any single category. Such features include the frequent use of a detailed list of competencies to describe the programme content or syllabus in postgraduate medical and dental training (product model). Although the limitations of this approach (being reductionist, and less able to reflect the true nature of cognitive expertise that is desirable at this stage in the professional training) are well documented, the use of competencies is well established within the health professions, perhaps reflecting the recent shift towards increased accountability and the need to demonstrate fitness for purpose. In addition, formal teaching activities (albeit in limited quantities) supplement experiential learning in postgraduate dental education - another feature of the 'product' model. Elements of the 'education as research' model may also apply, such as the move towards more learning within clinical teams i.e. alongside others.

To achieve maximum educational benefits to the learner, it is recommended that dental foundation programmes;

- provide a wide range of experience within the workplace (providing the necessary range of clinical cases and generic tasks)
- support trainees' learning through appropriate and regular contact with experts and relevant team members (regular meetings with an educational focus)

⁶ Grant, J *et al* [2004]. Standards for curriculum development: background paper. *PMETB*.

⁷ Bleakley, A. [2006]. Broadening conceptions of learning in medical education: the message from teamworking. *Medical Education*.

⁸ Barnard, K *et al*. [2001]. Life as a house officer. *Academic Medicine* 76 [10], S8-S10.

⁹ Fish D. and Coles C. [2005]. *Medical Education: Developing a curriculum for practice*. Open University Press.

- provide regular feedback on performance
- enhance knowledge through formal educational events
- allow time for self-directed learning through independent study and reflection.

Curriculum Development Project – Background & Scope

Following widespread support throughout the dental community for the changes to postgraduate medical training currently being implemented through Modernising Medical Careers, the General Professional Training (GPT) Liaison Group UK was asked by the Department of Health (England) to take forward the development of a curriculum for Foundation Programmes in Dentistry in the UK.

Following a tendering exercise in October 2005 to appoint a specialist educationalist (on a fixed resource basis for approximately forty days only), this project formally began on 14th December 2005. The remit of this work was identified as follows:

- to compile and review the literature on GPT and FP as it would apply to dentistry
- to complete the draft of the curriculum for FP in dentistry based on the existing Scottish model
- to propose a system of assessment including relevant tools
- to modify the document after consultation to produce the final curriculum

Given the present level of uncertainty regarding the move towards dental foundation programmes across the UK, and the current lack of nationally agreed structure(s) for the training, this curriculum document is presented as a selection of recommendations based on existing evidence. It is acknowledged therefore that further detail may need to be added to these proposals once the exact nature of the dental foundation programme has been established. The definitions of 'curriculum' and 'syllabus' are provided in appendix 1 for reference.

It is anticipated that dental foundation programme structures will inevitably vary in the type and duration of training and experience offered, and may also differ according to the location of individual posts. Hence, this document describes a generic curriculum relevant across all potential foundation programme structures, containing competencies that are relevant to, and achievable by, all foundation programme trainees regardless of the structure of programme they have completed.

It is important to note that the competencies within this document represent those considered essential across different foundation programme structures and training environments, and we anticipate that in some training environments (e.g. a dental foundation trainee within an Oral and Maxillofacial Surgery unit) additional competencies may be required. However, the purpose of this document is to provide recommendations for a generic curriculum for the UK dental foundation programme, and any additional requirements within specific rotations should be identified locally.

Rationale and Curriculum Development

It is envisaged that dental foundation programmes will provide a positive and well-rounded educational experience for postgraduate trainees. Specific advantages of this training will include:

- Working within different clinical environments, in both primary and secondary care
- Experience of a wide range of clinical cases, and continuity of care
- Experience of a wide range of patient types and case complexities
- Introduction to specialised skills
- Experience of a range of clinical teams

Purpose of the Curriculum

The GPT Liaison Group has described the aim of education and training within a dental foundation programme as the production of:

“A competent, caring, reflective practitioner, able to develop their career in any branch of dentistry to the benefit of patients.”

Educational Philosophy

As dental foundation programmes represent a mixture of education and training, both cognitive and behavioural objectives have an important role in the curriculum. In this training, it is envisaged that cognitive and behavioural development go hand in hand, and the demonstration of competence will require the coordinated use of both knowledge and skills in the appropriate performance of the ‘whole task’. With this and assessment in mind, the competencies within this curriculum are all written from a behavioural perspective. However, although this approach is useful within syllabuses in describing the content of curricula in detail, it can unfortunately give the impression of a reductionist approach. Although the competencies can be considered a blueprint for assessment in terms of addressing content validity, it is important to remember that when developing assessment for this training, competence is much more than the sum of its parts. It would be inappropriate (and totally impractical) to think of assessing each competency within the syllabus one by one, seeing each domain as a separate checklist to be ticked off once the behaviour has been observed. Rather, assessment will focus on trainees’ whole task performance (across a variety of contexts), which will inevitably involve assessing a range of individual competencies from across different domains, during the management of any particular case. This is described in more detail in the sections below.

Use of the Curriculum within Different Foundation Programme Structures

At present, the specific structures within dental foundation programmes have yet to be identified. Whilst many within the profession agree that a period within the general dental services at the start of the foundation programme is desirable, the limited number of posts and places available in other training environments at any one time in some regions may make this difficult to implement for all trainees¹⁰. As a result, the overall organisation of the syllabus is necessarily heterogeneous, with limited identification of 'horizontal' and 'vertical' structure or 'sequencing' of content. In addition, there will inevitably be a range of foundation programme structures implemented across the UK, and this flexibility will allow a standardised syllabus across different training environments.

The competencies within this document are therefore considered relevant to, and achievable by, all foundation programme trainees regardless of the specific programme they have completed. Similarly, this syllabus describes the competencies considered essential across different foundation programme structures and training environments, and will therefore not be ranked in any way. We recognise that in some training environments additional competencies may be required, and any requirements of specific rotations not covered within this generic syllabus should be identified and implemented locally.

Curriculum Development and Validating Competencies

In maintaining the highest standards of patient care and quality training, training programmes should be designed through consideration of a valid curriculum, rather than the other way round. In other words, the curriculum aims and content identified as necessary to achieve those aims should drive the process of programme development. If a particular skill or task is considered essential to being a competent practitioner, but rarely experienced in practice (e.g. life support) then it should remain in the curriculum and additional efforts put in place to give trainees training in this area. The priority in this curriculum development process has therefore been to identify the competencies and attributes required of a practitioner having successfully completed a dental foundation programme¹¹. Once agreed by the profession, these may then be used as a guide for the development of training programmes.

The GPT Liaison Group specified that having been well researched and extensively validated the Scottish Competencies for VT / GPT should be used as a starting point for the foundation programme curriculum¹². However, other work published in this area was also considered as part of the research/development process and a comprehensive mapping exercise using existing documents from both dentistry and medicine (for generic competencies) was carried out to produce the first draft. The documents considered were:

FGDP Key Skills document

Values-based curriculum

ADEE Competencies for the European Dentist

Standards for Dental Professionals (GDC)

USAF Advanced Education in General Dentistry Competencies

¹⁰ However, it is acknowledged that dental foundation programmes will most likely involve 1 year in general practice at some stage – equivalent to the VT year.

¹¹ As indicated in the outcomes statement agreed by the GPT Liaison Group.

¹² Prescott L E, Hurst Y and Rennie J S. [2003]. Comprehensive validation of competencies for dental vocational training and general professional training. *European Journal of Dental Education* 7: 154-159.

CANMeds 2005 Framework – Medical Experts

Curriculum for the Foundation Years in Postgraduate Education & Training (MMC)

Skills required for House Officers and SHOs (COPDEND)

GDC First Five Years

Standards for Better Health

Following internal consultation by our steering group (Appendix 2) and the GPT Liaison Group, the draft competencies were distributed widely across the UK for consideration by stakeholders. Approximately 250 individuals were directly invited to take part in this consultation, representing stakeholder groups as outlined in Appendix 3. Comments received from stakeholders were considered by the steering group and GPT Liaison Group, and amendments made where necessary.

Terminology

Standard terminology used throughout the syllabus is explained below.

“Demonstrate....to an appropriate standard”

“Describe...in appropriate detail”

These phrases precede the competency statements and provide vital context for the purpose of assessment, whereby a particular standard of performance for these competencies will be required. The standard required for performance should be made clear as part of the assessment process.

One good example of the importance / relevance of such phrases within the competency statements is where overlap in content (necessarily) exists with competencies identified for undergraduate training. Clearly, such competencies are also relevant and would be performed within foundation programmes. However, a different standard of performance would be required from a foundation programme trainee than from an undergraduate. For example during the management of caries, although technical competence would (of course) be expected as a graduate, a practitioner completing a foundation programme would perhaps be expected to tackle more complex clinical cases, in a more efficient manner, perhaps with the co-integration of other competencies such as communication with the patient and dental team and / or practice management issues.

Domains, Major Competencies and Supporting Competencies

A Domain represents a “group” of related competencies – hierarchically the highest order. A Domain (e.g. ‘Communication’) may be further divided into “Major Competencies”such as “Communication with the patient”, “Communication with the Dental team” etc. Individual competency statements within these groups are known as ‘supporting competencies’.

Links to Previous and Subsequent Stages in Training

Many competencies within this foundation programme curriculum are equally relevant to undergraduate dental training¹³. This is because professional training represents a continuum, and such tasks will be required throughout practice, albeit in different contexts, and in many cases to a different standard of performance as described above. Similarly, although all UK undergraduate dental programmes follow the GDC standards 'The first five years', it would be incorrect to presume that all courses are merely clones and no differences existed between dental school curricula. Universities are individual in terms of all aspects of curricula, offering different syllabi, clinical experiences and assessment systems. Clearly graduates from dental schools will enter foundation programmes with a range of different experiences, strengths and weaknesses. It would be invalid (not to mention impractical) to attempt to identify merely those aspects of performance that were 'new' to this level of training.

It is envisaged that trainees having successfully completed dental foundation programmes will be fully prepared to develop their career further in any branch of dentistry, with the ability to move seamlessly into specialist training if required.

Sequencing

Although it is likely that certain tasks within dental foundation programmes will be performed by trainees before others that are more complex, formal sequencing of this curriculum is not possible – or desirable – due to the heterogeneity of the programme structure. For example, some of the more challenging cases encountered within the hospital dental services may be experienced by many trainees in dental foundation year (DFY) 2, whereas others may begin their DFY1 in this environment.

¹³ This perhaps highlights one of the limitations of describing training outcomes in terms of individual competency statements - the concept of 'competence' is very much more than the sum of its parts.

Content (Syllabus) – Dental Foundation Programme Competencies

Overview

The domains and major competencies within this curriculum are outlined in the figures below;

Figure 2 – Domains within the dental foundation programme syllabus

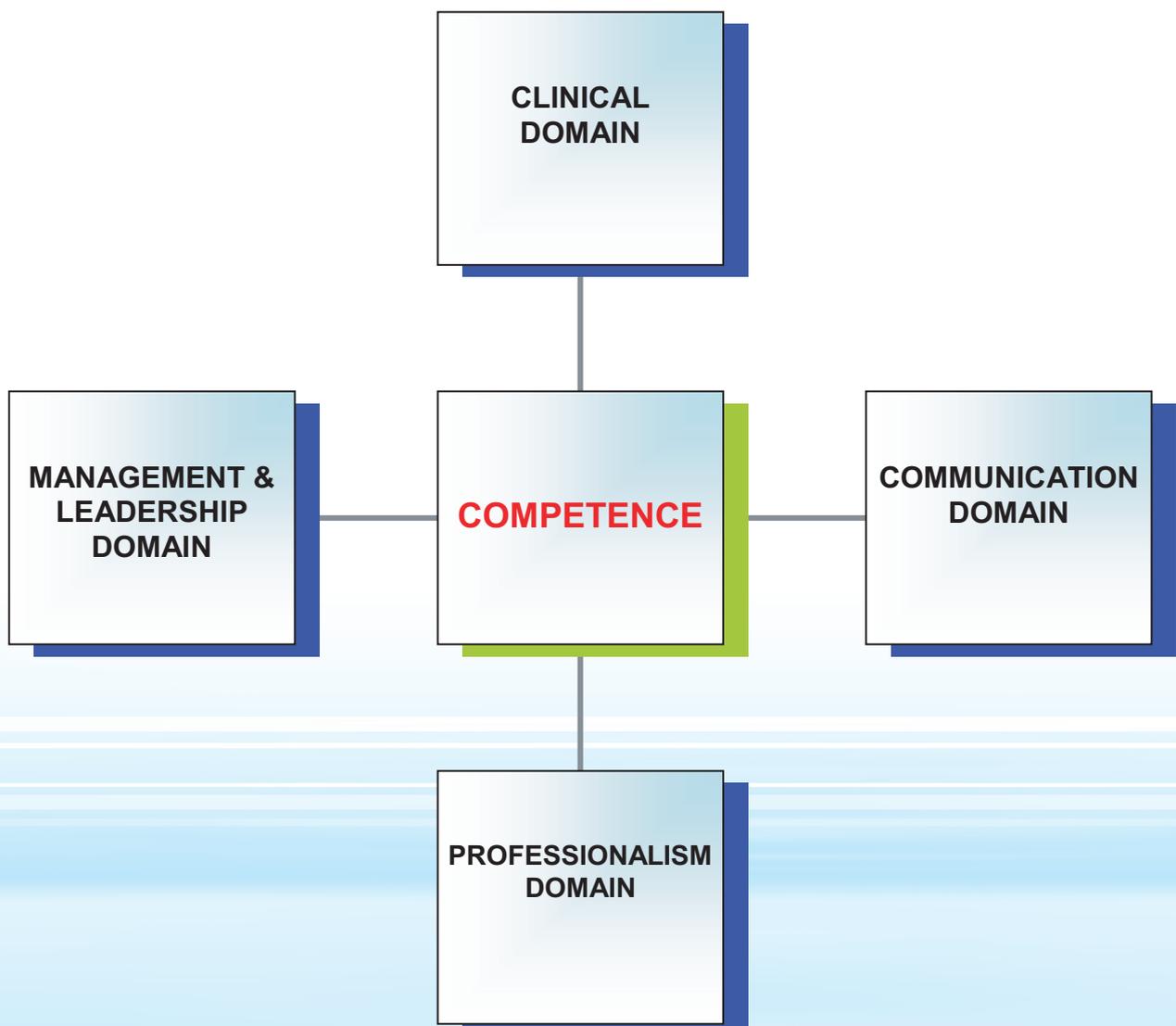
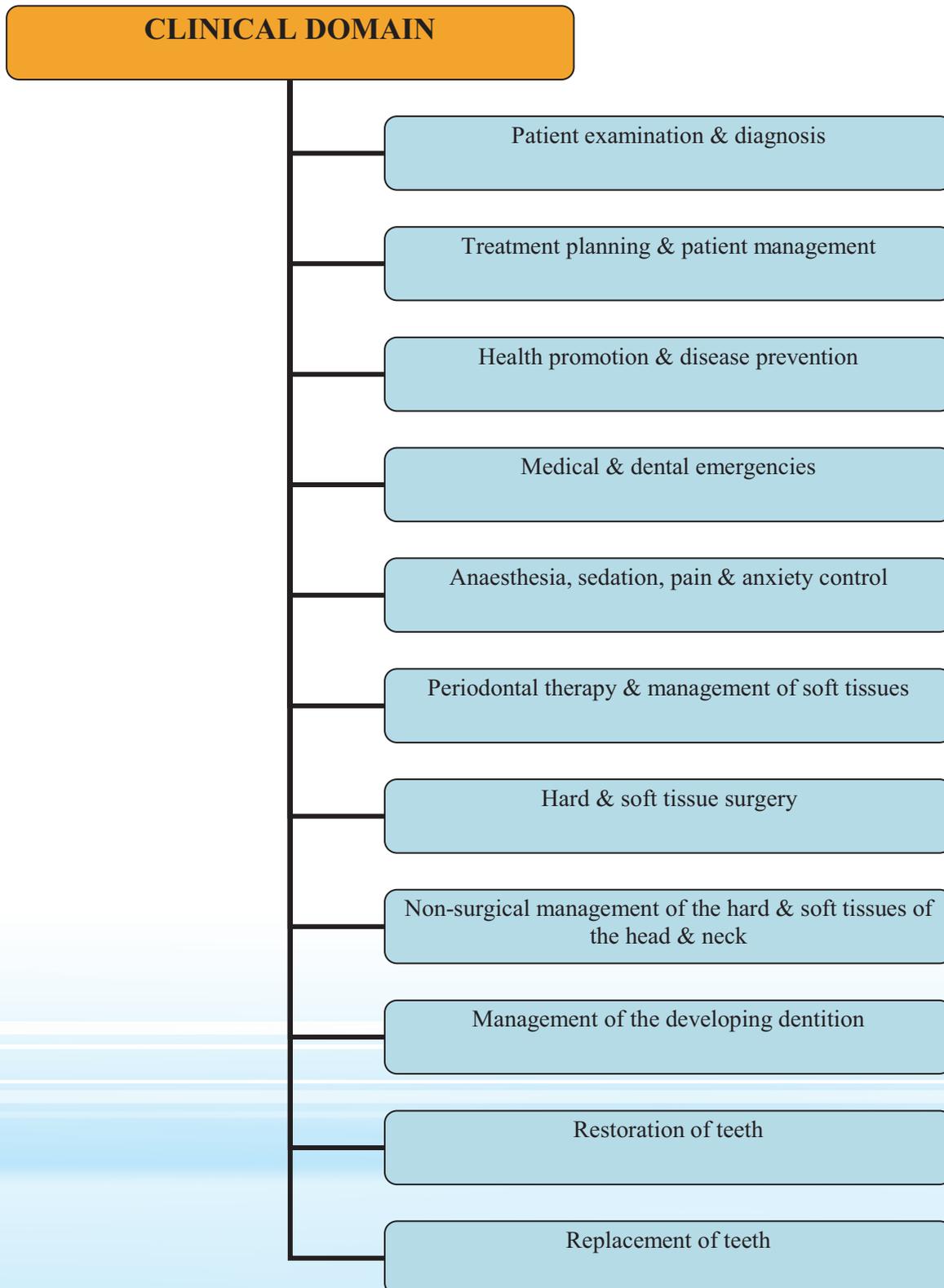


Figure 3: Major competencies within each domain



COMMUNICATION DOMAIN

Communication with...
the **patient & family**

Communication with...
the **clinical team & peers**

Communication with...
other professionals

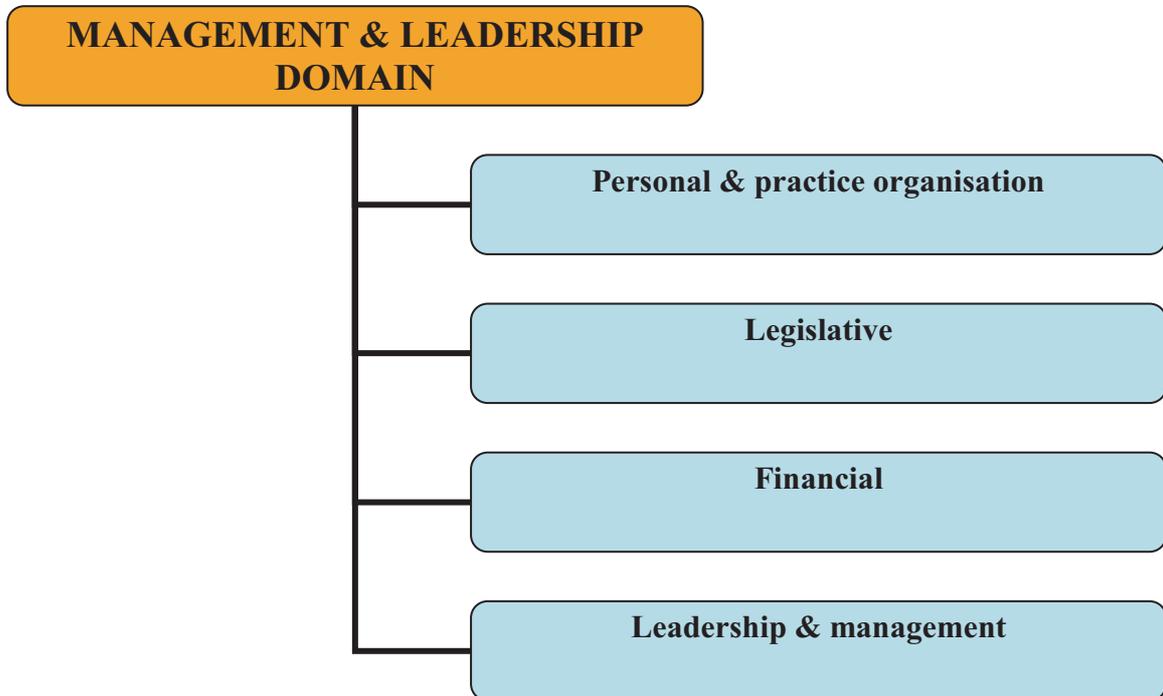
PROFESSIONALISM DOMAIN

Ethics

Professionalism with regard to...
Patients

Professionalism with regard to...
Self

Professionalism with regard to...
Clinical team & peers



Domain - Clinical

<p>Major Competency</p>	<p style="text-align: center;">Supporting Competencies</p> <p>The trainee can demonstrate to an appropriate standard the ability to:</p> <ol style="list-style-type: none"> 1. Obtain, interpret and record an accurate history that incorporates appropriate dental, medical (including drug history), social, cultural, nutritional, psychological and genetic factors. 2. Identify from the patient upon examination, the symptoms and principal complaint, and any relevant history. 3. Perform a comprehensive extra-oral and intra-oral examination that is suitable for the clothed patient and record the findings accurately through communication, either with or without a supporting healthcare professional. 4. Assess dental, skeletal and occlusal relationships in the primary, mixed and permanent dentition accurately, and identify conditions which may require treatment or referral onwards. 5. Assess hard and soft tissue developmental abnormalities and identify conditions which may require investigation, treatment or onward referral. 6. Assess accurately the patients standard of oral hygiene and, where necessary, their ability motivation and commitment to improve it.
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Domain - Clinical

Major Competency	Supporting Competencies
<p style="text-align: center;">(1) Patient Examination and Diagnosis (Cont)</p>	<p>The trainee can demonstrate to an appropriate standard the ability to:</p> <p>7. Distinguish between mucosal, gingival and periodontal health and disease, and identify conditions which may require investigation, treatment or onward referral.</p>
	<p>8. Identify the location, extent and activity of caries, and plan for appropriate management at all levels of complexity appropriate to the trainees seniority and resources, (including relevant restorative skills).</p>
	<p>9. Distinguish between pulpal health and disease, and identify conditions which may require treatment or onward referral.</p>
	<p>10. Prescribe an appropriate and risk assessed imaging examination that meets the diagnostic needs of the patient.</p>
	<p>11. Perform an accurate radiographic examination and expose, process, assess, report and store the radiograph correctly.</p>
	<p>The trainee can demonstrate appropriate:</p> <p>12. Knowledge of the indications for other diagnostic imaging techniques.</p>
	<p>13. Recognise the need for and request the relevant clinical laboratory and diagnostic tests when appropriate, and liaise with appropriate personnel to acquire an accurate interpretation and record of the results.</p>

Domain - Clinical

Major Competency	Supporting Competencies
<p>(1) Patient Examination and Diagnosis (Cont)</p>	<p>14. Record impressions for the production of accurate diagnostic casts, record the occlusal relationship and use a facebow to relate the maxillary cast to the condylar axis.</p>
	<p>The trainee can demonstrate to an appropriate standard the ability to:</p> <p>15. Generate a differential diagnosis and treatment / management plan based on evidence through the correct interpretation of clinical findings.</p>
	<p>16. Assess the influence of systemic diseases and other disabilities (and associated treatment) on oral health and the delivery of dental treatment.</p>
	<p>17. Interpret diagnostic casts and mount on chosen appropriate articulator using necessary occlusal and other records.</p>
	<p>18. Determine patients' dentofacial aesthetic requirements, identify the degree to which they can be met, discuss the different options, and manage patient expectations.</p>
	<p>19. Keep clinical records (conventional or electronic) in line with recognised standards</p>
<p>20. Perform an accurate assessment of the patient to enable the early diagnosis of orofacial neoplastic change, and be knowledgeable of referral protocols taking into account appropriate urgency.</p>	

Domain - Clinical

Major Competency	Supporting Competencies
<p align="center">(1) Patient Examination and Diagnosis (Cont)</p>	<p>The trainee can describe in appropriate detail:</p> <p>21. The signs of abuse or neglect in vulnerable groups, and the local procedures that should be followed when reporting such circumstances.</p>
	<p>22. The signs and symptoms of periodontal diseases, and identify conditions which may require treatment or onward referral.</p>
	<p>23. The clinical features associated with oral mucosal diseases, and identify conditions which may require treatment or onward referral.</p>
	<p>24. The spectrum of patient behaviour which may contribute to orofacial problems and identify conditions which require prevention or management.</p>
	<p>25. The investigations and assessment processes required prior to general anaesthesia.</p>
	<p>The trainee can demonstrate appropriate:</p> <p>26. Knowledge and understanding of the principles of performing a basic clinical examination, including blood pressure, pulse, respiration and temperature.</p>
	<p>27. Knowledge of (and where appropriate, perform) diagnostic procedures, including biopsy.</p>

Domain - Clinical

<p>Major Competency</p>	<p style="text-align: center;">Supporting Competencies</p> <p>The trainee can demonstrate to an appropriate standard the ability to:</p> <ol style="list-style-type: none"> 1. Present to the patient (and check their understanding thereof) the findings resulting from the history and examination, including clinical and radiographic results, differential diagnoses, treatment options, prognoses, sequenced treatment plan and individualised recall intervals in a manner that they can understand. 2. Develop and discuss with the patient (or carer) in a manner they can understand, a comprehensive and accurate care or treatment plan where options are based on the individual needs of the patient. 3. Formulate individualised care or treatment plans for patients according to their individual circumstances, needs and selected treatment options. 4. Discuss with the patient (in a manner they can understand) their responsibilities associated with the treatment plan, including preventive education, time requirements for treatment, fees* and payment methods. * in general practice (UK) and SDS (Eng/Wales) <p>The trainee:</p> <ol style="list-style-type: none"> 5. Can obtain valid informed consent for the proposed treatment from the patient / parent / guardian as appropriate. 6. Understands which items of treatment fall within NHS regulations* and those which do not, and can discuss the consequences of this with the patient in a manner he or she can understand. * Relevant to the location / country of training 7. Is able to manage effectively and professionally any situations where the patient's wishes and the recommendations of the dentist differ, and properly document the conversation and outcome.
<p>(2) Treatment Planning & Patient Management</p>	

Domain - Clinical

Major Competency	Supporting Competencies
(2) Treatment Planning & Patient Management (cont.)	<p>The trainee:</p> <p>8. Is willing to communicate with other professionals when appropriate in order to obtain additional information and/or treatment for the patient. The trainee can demonstrate the ability to refer patients for specialised treatment or advice in a manner that causes the least anxiety possible.</p>
	<p>9. Demonstrates appropriate management of the patient following discharge from specialised care.</p>
	<p>10. Monitors therapeutic outcomes and ensures that appropriate follow-up care is arranged. Recognises changes in the clinical picture and reviews diagnoses and management plans regularly. The trainee can demonstrate the ability to act appropriately and quickly when problems arise.</p>

Domain - Clinical

Major Competency	Supporting Competencies
<p style="text-align: center;">(3) Health Promotion & Disease Prevention</p>	<p>The trainee can demonstrate to an appropriate standard the ability to:</p> <ol style="list-style-type: none"> 1. Recognise opportunities for and provide patients / parents / carers with comprehensive and accurate preventive education and instruction in self-care methods tailored to the individual needs of the patient.
	<ol style="list-style-type: none"> 2. Perform preventive and restorative treatment procedures that will conserve the tooth structure, prevent hard and soft tissue disease and promote hard and soft tissue health.
	<ol style="list-style-type: none"> 3. Identify detrimental oral habits and provide patients with an effective strategy for their control.
	<p>The trainee can demonstrate:</p> <ol style="list-style-type: none"> 4. Knowledge and understanding of the relationship between dental diseases in populations and risk factors.
	<ol style="list-style-type: none"> 5. Knowledge and understanding of prevention of dental disease in populations including preventive programmes and water fluoridation.
	<p>The trainee can:</p> <ol style="list-style-type: none"> 6. Provide preventive education for patients in a manner that they can understand and which encourages self-care and motivation, and check their understanding.
	<ol style="list-style-type: none"> 7. Describe in appropriate detail the health risks of substances such as tobacco and alcohol on oral health, and provide the patient with appropriate advice.
	<ol style="list-style-type: none"> 8. Provide health promotion advice within the contexts of diverse social norms, and value the diversity and ethnicity of the patient.
	<ol style="list-style-type: none"> 9. Demonstrate an understanding of safe, effective and legal prescribing and monitoring, including appropriate use of the British National Formulary.

Domain - Clinical

Major Competency	Supporting Competencies
<p>(4) Medical & Dental Emergencies</p>	<p>The trainee can demonstrate to an appropriate standard the ability to:</p> <ol style="list-style-type: none"> 1. Recognise the need and provide care for dentofacial trauma patients requiring immediate attention quickly and effectively. 2. Recognise, manage, (and where required, provide) basic and immediate life support for medical emergencies, in line with guidelines from the UK Resuscitation Council. 3. Identify, prescribe and administer (where appropriate) pharmacological agents correctly for the management of medical emergencies. 4. Diagnose and effectively manage common medical and dental emergencies, including those resulting from treatment complications or failures, infection, allergic response or trauma. 5. Identify and refer with an appropriate degree of urgency, medical and dental emergencies which are beyond his or her scope of management.
	<p>The trainee can demonstrate:</p> <ol style="list-style-type: none"> 6. A thorough understanding of potential drug interactions and side effects, and manage situations appropriately when they occur. 7. An understanding of the requirements and procedures involved in selection and maintenance of an emergency drug supply. 8. An understanding of the importance of the team management of medical emergencies, and can facilitate such an approach. <p>The trainee can:</p> <ol style="list-style-type: none"> 9. Formulate protocols to minimise risk, and deal with medical emergencies.

Domain - Clinical

<p>Major Competency</p>	<p style="text-align: center;">Supporting Competencies</p> <p>The trainee can demonstrate to an appropriate standard the ability to:</p> <ol style="list-style-type: none"> 1. Use local anaesthesia techniques for clinical dentistry as appropriate to ensure pain controlled treatment of patients. 2. Select and prescribe appropriate drugs for the relief of pain and anxiety in a safe and effective manner with an understanding of the risks involved. 3. Use suitable behavioural, psychological and interpersonal techniques for the relief of fear and anxiety. <p>The trainee is able to describe in appropriate detail:</p> <ol style="list-style-type: none"> 4. The benefits, limitations and risks of using general anaesthesia and sedation. 5. The indications, contraindications and technical requirements for commonly used conscious sedation techniques, including the steps in achieving safe effective sedation and post-sedation care and minimising the risks of unwanted effects from this treatment.
<p>(5) Anaesthesia Sedation, Pain & Anxiety Control</p>	

Domain - Clinical

Major Competency	Supporting Competencies
<p align="center">(6) Periodontal Therapy & Management of Soft Tissues</p>	<p>The trainee can demonstrate to an appropriate standard the ability to:</p> <ol style="list-style-type: none"> 1. Evaluate the periodontal tissues and diagnose a patient's periodontal condition. 2. Measure and record periodontal indices accurately, according to current guidelines. 3. Integrate periodontal findings into the patient's comprehensive treatment plan and understand how the periodontal status of the patient will impact on his/her treatment plan. 4. Establish a prognosis for individual periodontally involved teeth and inform the patient of this. 5. Prescribe, deliver and monitor the use of antimicrobial agents, where appropriate, to aid the treatment of periodontal diseases. 6. Assess the requirement for and perform oral hygiene instruction, scaling and mechanical root debridement. 7. Evaluate the results of periodontal treatment and establish and monitor a suitable recall maintenance programme for patients. 8. Assess the requirement for specialised advice and / or periodontal treatment and refer the patient appropriately. <p>The trainee:</p> <ol style="list-style-type: none"> 9. Is able to identify correctly and demonstrate understanding of the aetiology of a patient's periodontal problems, and the ability to educate the patient in these matters and the prevention of disease. 10. Understands the role of dental care professionals in periodontal therapy and is able to prescribe treatment. 11. The role of periodontal surgery in the management of gingival overgrowth and advanced periodontal disease. 12. The conservative management of gingival recession.

Domain - Clinical

Major Competency	Supporting Competencies
<p>(7) Hard & Soft Tissue Surgery</p>	<p>The trainee can demonstrate to an appropriate standard the:</p> <ol style="list-style-type: none"> 1. Extraction of erupted teeth, and the appropriate diagnosis and management of any common complications. 2. Effective management including extraction where appropriate of buried roots (whether fractured during extraction or retained root fragments), unerupted, impacted, ectopic and supernumerary teeth. 3. Effective management of patients with bleeding disorders including those on oral anti-coagulant therapy. 4. Effective management of benign soft tissue lesions including simple surgical procedures where appropriate. 5. Ability to carry out an accurate pre and post operative assessment of the patient. 6. Ability to recognise and manage effectively (including referral where appropriate) any complications that may arise during or after a surgical procedure, including the effective management and treatment of oro-antral defects. <p>The trainee can describe in appropriate detail:</p> <ol style="list-style-type: none"> 7. The principles and techniques involved in the surgical placement of dental implants. <p>The trainee:</p> <ol style="list-style-type: none"> 8. Understands which instruments to use in different surgical procedures.

Domain - Clinical

Major Competency	Supporting Competencies
	<p>The trainee can demonstrate to an appropriate standard the ability to:</p> <ol style="list-style-type: none"> 1. Take an accurate drug history including current / self-medication, and enquire, recognise the significance of and manage any history regarding allergic reactions. 2. Diagnose and treat localised odontogenic infections and post-operative surgical complications with the appropriate therapeutic agents, and diagnose and refer major odontogenic infections with the appropriate degree of urgency. 3. Understand and assist in the investigation, diagnosis and effective management of oral mucosal disease. 4. Understand the pathology of neoplastic and non-neoplastic disease of the head & neck. 5. Recognise disorders in patients with craniofacial pain that require specialised management, and to refer such conditions appropriately. 6. Recognise and anticipate the potential drug interactions that may occur between medications prescribed by the patient's doctor and those used in dental practice. 7. Assess the need for, prescribe and where appropriate administer pharmacotherapeutic agents in the safe treatment of all dental patients.

(8) Non-surgical Management of the Hard & Soft Tissues of the Head & Neck

Domain - Clinical

Major Competency	Supporting Competencies
<p style="text-align: center;">(9) Management of the Developing Dentition</p>	<p>The trainee can demonstrate to an appropriate standard the ability to:</p> <ol style="list-style-type: none"> 1. Diagnose, assess and differentiate between malocclusions that can be treated in general practice and those that require specialised advice and / or management.
	<ol style="list-style-type: none"> 2. Assess occlusion and diagnose malocclusion for the purpose of carrying out interceptive treatment or onward referral at the appropriate developmental stage.
	<ol style="list-style-type: none"> 3. Recognise detrimental oral habits and occlusal trauma and where appropriate intercept correctly.
	<ol style="list-style-type: none"> 4. Recognise problems related to orthodontic treatment, relieve trauma and discomfort due to appliances and arrange emergency repairs to orthodontic appliances when required.
	<p>The trainee can demonstrate appropriate knowledge and understanding of:</p> <ol style="list-style-type: none"> 5. How to formulate and implement a plan to provide space maintenance when required.
	<ol style="list-style-type: none"> 6. How to design, insert, adjust and monitor simple removable appliances.
	<ol style="list-style-type: none"> 7. Facial growth and dental development (and the ability to monitor these) and recognise abnormalities as they appear.
	<ol style="list-style-type: none"> 8. The use of orthodontic indices.

Domain - Clinical

Major Competency	Supporting Competencies
<p style="text-align: center;">(10) Restoration of Teeth</p>	<p>The trainee can demonstrate to an appropriate standard the ability to:</p> <ol style="list-style-type: none"> 1. Evaluate a patient's risk factors for dental caries and to formulate and implement a suitable prevention strategy. 2. Evaluate the prognosis for the restorative process of individual teeth and relate this to the overall treatment plan and patient's aims and expectations. 3. Expose, process and interpret appropriate radiographs for the diagnosis of caries. 4. Remove carious tooth structure in preparation for restoration, using techniques which minimise unnecessary tooth damage and pulpal injury. 5. Prescribe and monitor the use of chemotherapeutic agents in order to assist in the prevention of dental caries. 6. Restore carious teeth to form, function and appearance using a wide range of restorative materials. 7. Perform non-surgical root canal treatment and retreatment on single and multirooted teeth, and understand when referral is appropriate. 8. Recognise the indications for periradicular surgery and where appropriate perform or refer the patient for specialised advice and / or treatment .

Domain - Clinical

Major Competency	Supporting Competencies
<p>(10) Restoration of Teeth (Cont.)</p>	<p>9. Recognise and manage traumatic injuries to the teeth in the emergency situation and then arrange follow up and subsequent management in the medium and long term.</p>
	<p>10. Restore teeth to form, function and appearance using appropriate indirect restorations.</p>
	<p>11. Restore primary teeth, including any necessary pulpal therapy, using appropriate restorative materials and full coverage techniques relevant to the deciduous dentition.</p>
	<p>The trainee:</p> <p>12. Can isolate the tooth from saliva and bacterial contamination effectively and be competent in the use of rubber dam.</p>
	<p>13. Can demonstrate modern restorative concepts around Minimally Invasive Techniques.</p>

Domain - Clinical

Major Competency	Supporting Competencies
<p style="text-align: center;">(11) Replacement of Teeth</p>	<p>The trainee can demonstrate to an appropriate standard the ability to:</p> <ol style="list-style-type: none"> Obtain and interpret diagnostic casts, take radiographs and gather other relevant data in formulating a diagnosis, prognosis and treatment plan for patients requiring prosthodontic treatment.
	<ol style="list-style-type: none"> Evaluate, select and prepare teeth, and evaluate residual ridges, to support and retain fixed and removable prostheses.
	<ol style="list-style-type: none"> Provide biomechanically sound fixed or removable prostheses.
	<ol style="list-style-type: none"> Diagnose, plan, deliver and maintain removable partial and complete dentures.
	<p>The trainee is able to:</p> <ol style="list-style-type: none"> Prescribe to, and communicate with, the dental laboratory accurately, and assess the quality of the work completed by laboratory technicians.
	<ol style="list-style-type: none"> Describe in appropriate detail the principles and techniques involved in the restoration and maintenance of the dentition using osseointegrated implants, and the maintenance (including the recognition and management of) peri-implant disease.

Domain - Communication

Major Competency	Supporting Competencies
<p>Patient & Family</p>	<p>The trainee can demonstrate to an appropriate standard the ability to:</p> <ol style="list-style-type: none"> 1. Increase patients' awareness and understanding by careful explanation of treatment options and procedures, and the use of effective communication skills.
	<ol style="list-style-type: none"> 2. Inspire confidence in patients (from all age groups and situations) through the use of effective interpersonal and communication skills.
	<ol style="list-style-type: none"> 3. Present questions to the patient (or carer) in a clear, concise and understandable manner.
	<ol style="list-style-type: none"> 4. Communicate bad news and / or refer patients from different age groups or situations for specialised treatment in a sensitive manner that causes the least anxiety possible.
	<ol style="list-style-type: none"> 5. Communicate effectively with relatives in a manner which respects the patient's dignity, confidentiality and self image.
	<ol style="list-style-type: none"> 6. Select and compose a suitable style of written communication that is appropriate for the patient and / or guardian in different clinical scenarios.
	<ol style="list-style-type: none"> 7. Address challenging communication situations including the effective management of anger, confusion or misunderstanding of patients.
	<p>The trainee:</p> <ol style="list-style-type: none"> 8. Provides appropriate, relevant and up to date preventive education to individual patients in a manner that inspires motivation for change.

Domain - Communication

Major Competency	Supporting Competencies
	<p>The trainee:</p> <p>9. Can identify patients (or carers) with special communication needs and is able to make arrangements to meet these requirements effectively.</p>
	<p>10. Can demonstrate to an appropriate standard the effective management of all patients through the use of suitable interpersonal & behavioural skills, including those with anxiety or other special needs.</p>
	<p>11. Listens effectively and is responsive to non-verbal cues.</p>
<p>Patient & Family (Cont.)</p>	

Domain - Communication

Major Competency	Supporting Competencies
<p>Clinical Team & Peers</p>	<p>The trainee can demonstrate to an appropriate standard the ability to:</p> <ol style="list-style-type: none"> 1. Work effectively as part of a team.
	<ol style="list-style-type: none"> 2. Interact effectively with members of the clinical team & peers, and describe how each can contribute to patient care.
	<ol style="list-style-type: none"> 3. Prescribe (verbally / in writing) to the dental healthcare team. The trainee can demonstrate the ability to deal with problems arising with the quality of technical work and manage problems arising from work delegated / prescribed to and performed by other members of the team.
	<p>The trainee:</p> <ol style="list-style-type: none"> 4. Provides treatment for patients from all age groups and situations in an organised and efficient manner through the appropriate interaction with other members of the clinical team.
	<ol style="list-style-type: none"> 5. Communicates with all members of the clinical team & peers in an appropriate manner, which inspires confidence, motivation and teamwork.
	<ol style="list-style-type: none"> 6. Is able to interact with all members of the clinical team and peers to an appropriate standard, in practice policies, rules and regulations, health & safety procedures and appropriate clinical techniques.
	<ol style="list-style-type: none"> 7. Understands the need for and can organise and facilitate team training events.

Domain - Communication

Major Competency	Supporting Competencies
	<p>The trainee can demonstrate to an appropriate standard the ability to:</p> <ol style="list-style-type: none"> 1. Communicate effectively with other professionals verbally and in writing. 2. Present professional knowledge effectively to a wide range of lay and professional individuals. 3. Communicate effectively (verbally and in writing) with referral bodies, and a willingness to seek advice when necessary. 4. Discuss professional matters in an appropriate manner. 5. Communicate effectively (verbally and in writing) with relevant healthcare / dental institutions.
<p>Other Professionals</p>	<p>The trainee:</p> <ol style="list-style-type: none"> 6. Is able to explain the advantages of association with professional bodies and peer groups.

Domain - Professionalism

Major Competency	Supporting Competencies
<p style="text-align: center;">Ethics</p>	<p>The trainee can demonstrate to an appropriate standard:</p> <ol style="list-style-type: none"> 1. Understanding and the application of the principles of GDC publications on standards for dental professionals, that provide guidance to dentists on professional and personal conduct.
	<ol style="list-style-type: none"> 2. Understanding and the application of the principles of ethical behaviour relevant to dentistry, including honesty, confidentiality, personal and professional integrity and appropriate moral values.
	<ol style="list-style-type: none"> 3. A professional approach to patient complaint and accepts responsibility for his/her actions where appropriate.
	<p>The trainee:</p> <ol style="list-style-type: none"> 4. Respects and values diversity and interacts with patients, staff, peers and the general public without discrimination.
	<ol style="list-style-type: none"> 5. Is able to explain in appropriate detail the actions available to be taken with regard to those colleagues who are underperforming or behaving unethically.
	<ol style="list-style-type: none"> 6. Can demonstrate appropriate interpersonal skills in dealing with difficult patients or colleagues whose behaviour is unprofessional.
	<ol style="list-style-type: none"> 7. Adheres to appropriate guidelines where necessary.

Domain - Professionalism

Major Competency	Supporting Competencies
	<p>The trainee:</p> <ol style="list-style-type: none"> 1. Provides compassionate care for all patients. 2. Demonstrates effective and ethical decision making. 3. Provides treatment for all patients with courtesy and respect, provides treatment options that are sensitive to the needs of the patient, and recognises the patients' right to choose. 4. Maintains honesty and confidentiality with all patients. 5. Interacts with patients without discrimination. 6. Maintains the confidentiality and security of patient records, with respect to contemporary legislation. 7. Regularly reviews the outcomes of treatment given in an effort to provide the highest standards of patient care, and understands the importance of clinical audit and its regular implementation. 8. Provides relevant and appropriate preventive education for each patient in a manner that he / she can understand. 9. Provides accurate costings for treatment and can explain a cost / benefit analysis.
	<p>Patients</p>

Domain - Professionalism

Major Competency	Supporting Competencies
<p>Self</p>	<p>The trainee can demonstrate to an appropriate standard:</p> <ol style="list-style-type: none"> 1. A thorough understanding of the professional responsibility of a dentist and his/her role within and outside the NHS. 2. A commitment to Continuing Professional Development (CPD) through regular efforts to update and improve knowledge and skills, and the incorporation of these skills into everyday practice. 3. An understanding of the importance of Continuing Professional Development within dentistry and its recording. 4. The ability (and commitment) to self assess and reflect upon his/her own capabilities and limitations in order to provide the highest standards of patient care. 5. The ability to critically evaluate new techniques and technologies. 6. The ability to critically evaluate published research and integrate this information to improve the quality of care for the patient. 7. The ability to recognise, integrate and reflect on learning opportunities within the workplace. <p>The trainee can demonstrate to an appropriate standard:</p> <ol style="list-style-type: none"> 8. Knowledge and understanding of the principles involved in clinical audit and peer review, and is willing to participate in such activities. 9. Knowledge and understanding of the value of performing and receiving appraisal.
	<p>The trainee:</p> <ol style="list-style-type: none"> 10. Understands the significance of practising while impaired by alcohol, other drugs, illness or injury and can describe the dangers associated with these situations.

Domain - Professionalism

Major Competency	Supporting Competencies
Clinical Team & Peers	<p>The trainee:</p> <p>1. Is able to explain in appropriate detail the actions available to be taken with regard to incompetence, impairment or unethical behaviour from colleagues.</p>
	<p>2. Interacts with patients, colleagues, team members and peers without discrimination.</p>
	<p>3. Is respectful and co-operative with colleagues, staff and peers, and can demonstrate a commitment to the maintenance of high levels of professionalism, training and safety for staff.</p>
	<p>4. Understands the dynamics of multi-professional working and how these can contribute to the delivery of quality patient care.</p>

Domain - Management & Leadership

Major Competency	Supporting Competencies
<p>Personal & Practice Organisation</p>	<p>The trainee can demonstrate to an appropriate standard:</p> <ol style="list-style-type: none"> <li data-bbox="384 949 416 1756">1. The efficient management of time and resources on a daily basis.
	<ol style="list-style-type: none"> <li data-bbox="507 215 576 1756">2. An understanding of the day to day running of a general practice, and any other areas of clinical practice relevant to their training, and where to find managerial assistance when necessary.
	<ol style="list-style-type: none"> <li data-bbox="667 770 699 1756">3. An understanding of different professional working and contractual agreements.
	<ol style="list-style-type: none"> <li data-bbox="786 976 818 1756">4. The full, accurate and secure maintenance of patients' records.
	<ol style="list-style-type: none"> <li data-bbox="906 215 938 1756">5. An understanding of the considerations to be made during the selection, care and maintenance of equipment for dental practice.
	<ol style="list-style-type: none"> <li data-bbox="1026 920 1058 1756">6. An understanding of the context of different remuneration systems.
	<ol style="list-style-type: none"> <li data-bbox="1145 215 1214 1756">7. An understanding of the principles of staff recruitment and employment legislation, including interview techniques, job descriptions, contracts, equal opportunities and disciplinary matters.

Domain - Management & Leadership

Major Competency	Supporting Competencies
<p>Personal & Practice Organisation (Cont.)</p>	<p>The trainee can demonstrate to an appropriate standard:</p> <p>8. An understanding of the requirements for and processes involved in risk assessment within the workplace and resultant action.</p>
	<p>9. The prioritisation of professional duties effectively and appropriately when faced with multiple tasks and responsibilities.</p>
	<p>10. The effective use and understanding of relevant IT systems.</p>
	<p>11. The analysis of patient safety incidents and the development of strategies (e.g. Significant Event Analysis) to reduce the risk of reoccurrence.</p>
	<p>12. The use of research data and evidence-based knowledge in his or her approach to clinical practice.</p>
	<p>The trainee can describe in appropriate detail:</p> <p>13. The procedures for local critical incident reporting systems.</p>

Domain - Management & Leadership

<p>Major Competency</p>	<p>Supporting Competencies</p>
<p>The trainee:</p> <ol style="list-style-type: none"> 1. Takes an appropriate responsibility for health and safety issues in dentistry, including those relating to patients, oneself and practice staff. The trainee has up-to-date knowledge and understanding of infection control procedures and is competent in the implementation of these in daily practice. 2. Can describe in appropriate detail the safety issues in relation to dental radiography with regard to current guidelines and regulations. 3. Has up-to-date knowledge and understanding of discrimination legislation. 4. Can describe in appropriate detail the principles of consent. 	
<p>Legislative</p>	<p>5. Can demonstrate appropriate knowledge and understanding of legislation that impacts on dentistry.</p> <p>The trainee can demonstrate to an appropriate standard understanding of:</p> <ol style="list-style-type: none"> 6. The legal issues relating to health & safety and infection control (including COSHH – Control of Substances Hazardous to Health), and where to get additional information if necessary. 7. The definitions of the legal & ethical obligations of a dental practitioner and the definition of fitness to practice according to the GDC. <p>The trainee can demonstrate to an appropriate standard understanding of:</p> <ol style="list-style-type: none"> 8. The structure, rules and regulations associated with the NHS and other employing healthcare bodies.

Domain - Management & Leadership

Major Competency	Supporting Competencies
Legislative (Cont.)	<p>The trainee can demonstrate to an appropriate standard understanding of:</p> <ul style="list-style-type: none"> 9. Grievance procedures and complaints, and how / when to seek the advice of a professional indemnity organisation. 10. The importance of membership of a professional indemnity organisation.
Financial	<p>The trainee can demonstrate to an appropriate standard understanding of:</p> <ul style="list-style-type: none"> 1. The financial matters relating to treatment provided for patients in general practice and other relevant clinical environments, including NHS dentistry, private fee per item schemes and private capitation schemes. 2. The financial management of a general dental practice and other relevant clinical environments. 3. Business management and development, including the ability to develop a business plan, the production of a cash flow analysis and a written proposal to a bank.

Domain - Management & Leadership

Major Competency	Supporting Competencies
<p>Leadership and Training</p>	<p>The trainee:</p> <ol style="list-style-type: none"> 1. Demonstrates effective leadership within the healthcare team, where appropriate.
	<ol style="list-style-type: none"> 2. Identifies opportunities for quality and safety improvement, and develops, implements and evaluates strategies to improve quality where possible.
	<ol style="list-style-type: none"> 3. Understands the principles of adult learning, and facilitates the learning of patients, families, carers, dental trainees, team members, other health professionals and the public as appropriate.
	<ol style="list-style-type: none"> 4. Understands the role of being a mentor and role model for other members of the healthcare team.
	<ol style="list-style-type: none"> 5. Understands how to act in the interests of patients who have been subject to clinical harm or errors.
	<p>The trainee can demonstrate to an appropriate standard the ability to:</p> <ol style="list-style-type: none"> 6. Select, implement and evaluate the effectiveness of teaching strategies to facilitate others' learning.
	<ol style="list-style-type: none"> 7. Accept and provide effective feedback in a manner that motivates and encourages learning.
	<ol style="list-style-type: none"> 8. Give an effective presentation that uses relevant teaching materials and is targeted to the level of understanding and expectations of the audience.
	<ol style="list-style-type: none"> 9. Demonstrate skills and competencies to others in an effective manner.

Part 2

Assessment

This section describes the principles for an assessment system for dental foundation programmes, and recommendations for a suitable approach. Clearly, a more detailed description of assessment will be required once the structure of foundation programmes has been identified, and a programme for implementation agreed.

Recommendations for an approach to assessment

The excellent principles described by PMETB¹⁴ for postgraduate medical training will apply equally to dental foundation programmes. In the context of postgraduate dental training these are described below.

1. The assessment system must be fit for a range of purposes

The purpose of the assessment system should reflect closely that of the curriculum and the aims of the training. In dental foundation programmes the purpose would therefore include the ability to:

- identify an individual's strengths and weaknesses, and progress towards the standard of performance expected upon completion of this training.
- demonstrate achievement, and readiness to progress to the next stage of training.
- inform the public and / or the appropriate authorities that the individual is ready for independent practice, requires additional time in training, or should not pursue a career in dentistry. For this reason it is essential that assessment is criterion referenced.
- provide feedback to enhance individuals' reflection upon, and motivation towards achieving, personal learning and career goals.

2. The content of the assessment is based on relevant curricula

The dental foundation programme curriculum agreed by the profession will provide the framework around which an assessment system can be developed. The syllabus within this document defines the content of the programme from which assessment should sample, and as the competencies identified are relevant across potential different training environments (and hence different foundation programme structures) the domains and major competencies should all be assessed to a degree if the assessment system is to be valid. The emphasis on individual competencies will inevitably depend on the training environment and other factors e.g. location of training post¹⁵. This is partly the reason why we do not consider it appropriate at this stage to identify competencies as 'essential' or 'desirable'. However, more importantly such a classification would inevitably drive the learning in a way that would limit validity within this heterogeneous training.

¹⁴ L Southgate and J Grant. Principles for an assessment system for postgraduate medical training. *PMETB* 2004.

¹⁵ Trainees in a rural practice, for example, may experience a different range of cases than those in urban areas.

Similarly, it is neither possible nor desirable to formally identify a sequence to the assessment, as skills and competencies will be learned by trainees at different stages depending on the structure of the programme and nature of the posts undertaken. Informally however, it is inevitable that some aspects of performance will precede other more complex areas. A guidance document, indicating such trends, would be a useful resource for dental foundation programme trainers and trainees alike, and should be provided as part of the training and implementation of the programme.

Sampling

The validity of an assessment system is (partly) dependent upon appropriate sampling of the content of a curriculum. However, sampling also depends on feasibility, and it is clearly impossible to assess every clinical area, across all different contexts, patient types and case complexities etc. In addition, a prescriptive approach to sampling should also be avoided, particularly when dealing with a heterogeneous training programme such as this. For dental foundation programmes it may be more appropriate to ensure that sampling of curricula content is appropriate by focussing at the level of competency domains and major competencies, i.e. that each of these is covered adequately by assessment, with the specific aspects of performance being assessed being those that are encountered by the trainee in their individual programme. This approach would allow flexibility within the assessment system, whilst ensuring validity.

3. The methods used within the programme will be selected in the light of the purpose and content of that component of the assessment framework.

As indicated by PMETB, the individual methods used within the system of assessment should be chosen using evidence of “validity, reliability, feasibility, cost effectiveness, opportunities for feedback and impact on learning”. As such concepts are highly specific to the context in which the assessment is taking place, such evidence will only be available through pilot studies within postgraduate dental training itself. However, that is not to say that valuable information cannot be gained from studies carried out within similar contexts such as those currently underway for medical foundation programmes. Such information would allow us to make an informed choice regarding the tools most likely to work, and those that should be tried in early pilot studies within dental training. A brief summary of such tools is given later within this document.

It is also important to consider the evidence available regarding robust assessment methods currently being used within postgraduate dental training. Robust data from studies published on the evaluation of existing assessment systems – including those from the Royal Colleges – should be triangulated with information from medicine and other health professions. Where existing, robust methods are identified, these should be used in preference to developing new methods and being at risk of ‘re-inventing the wheel’¹⁶.

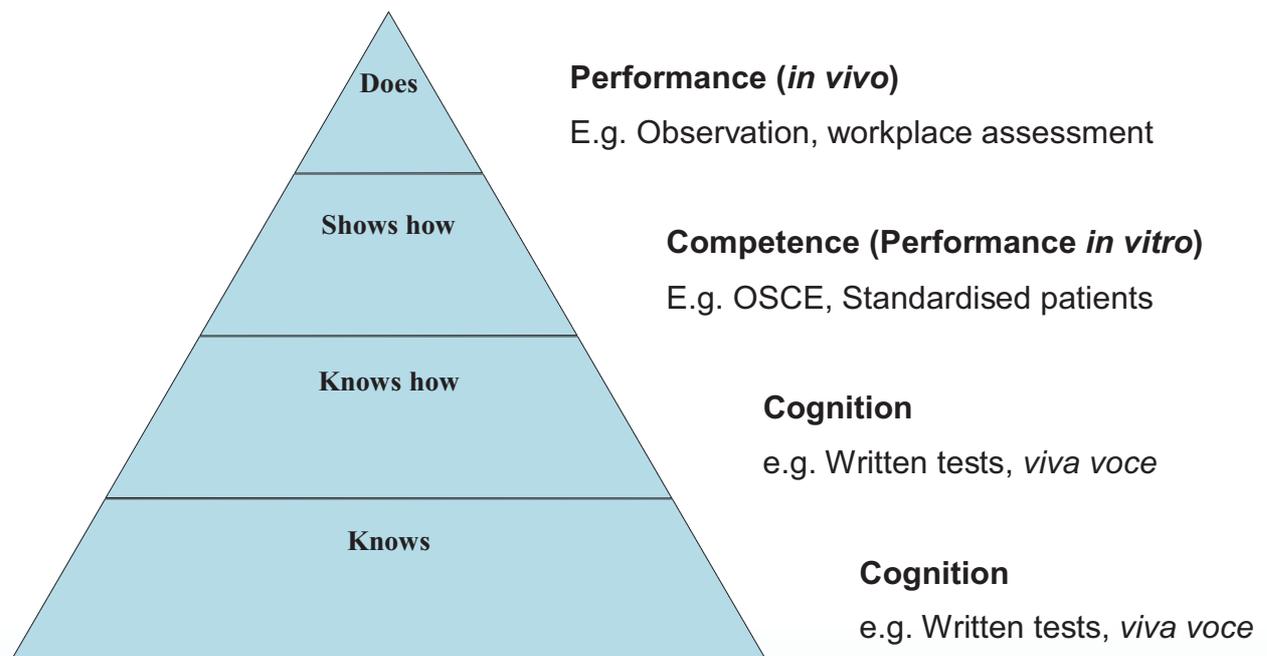
¹⁶ Similarly, some existing methods may be considered as ‘equivalent’ to those within the system of assessment for dental foundation programmes where evidence exists that this is appropriate (e.g. Royal College exams)

Level of Assessment

The type of assessment used should reflect the stage in training, and it is recommended that within postgraduate dental training, assessment should be at the highest level of Miller's pyramid¹⁷ wherever possible i.e. what the practitioner 'does'. At this level, we are looking at the assessment of 'performance' rather than 'competence', which is an appropriate approach for training within the workplace where the integration of individual competencies into the 'whole task', and a consistent approach to practice is required for the delivery of high quality patient care.

Miller's pyramid, highlighting the focus of assessment at each of the levels and examples of methods relevant to each, is shown in Figure 4. The professional authenticity of assessment increases as the pyramid is climbed.

Figure 4: Interpretation of Miller's Pyramid¹⁸



4. The methods used to set standards for classification of trainee's performance / competence must be transparent and in the public domain

The methods used should be based on evidence, and the standards themselves published and readily available to all stakeholders. Of particular importance are the criteria for pass / fail decisions, and the processes in place for borderline candidates.

¹⁷ Miller GE. The assessment of clinical skills / competence / performance. Acad Med 1990; 65: S63-S67.

¹⁸ Reproduced with kind permission from C van der Vleuten and E Dreissen.

5. Assessment must provide relevant feedback

Having identified the purpose of the assessment system for dental foundation programmes as a positive educational impact, the provision of good quality, relevant and timely feedback to trainees on their performance is of paramount importance. In a system that is criterion referenced, feedback should provide a degree of orientation for trainees regarding their performance in relation to the standards expected upon completion of the training. Such information would also be extremely useful to trainers and supervisors, enabling them to identify individuals' strengths and weaknesses and the formulation of an individualised training plan. In order to do this, feedback must be regular, following continuous assessment.

Where possible, it should be possible to triangulate the feedback from different assessments, in addition to the triangulation of the results themselves.

The use of feedback, i.e. whether purely formative, or to contribute towards a summative judgement on performance, should be explicit from the onset of training.

6. Assessors will be recruited against criteria for performing the tasks they undertake.

Individuals responsible for judging the performance of dental foundation programme trainees should be appropriately qualified, have relevant expertise and be adequately prepared for their role through training.

7. There will be lay input in the development of assessment

Lay representation at the GDC, Faculty and Deanery level exists at the present time.

8. Documentation will be standardised and accessible nationally.

Whilst a degree of flexibility is required of any system of assessment that will require implementation at a national level across a range of foundation programme structures and training environments, it is clear that a standardised approach, with relevant documentation and guidelines for implementation, is essential to ensure that all trainees have reached the minimum standards expected.

9. There will be resources sufficient to support assessment.

Appropriate resources (financial, time, staff etc) are vital to the success of a system of assessment for dental foundation programmes. These issues are described in more detail in the section on implementation.

In addition to these principles, the following recommendations are given for a system of assessment for dental foundation programmes;

- The results from assessment should be triangulated wherever possible, to enhance validity and reliability.
- Continuous assessment should be supported by regular meetings with educational supervisors to discuss progress.

- A targeted training policy and plan for managing poor performance should be implemented for those trainees struggling in certain areas.
- A longitudinal approach to evaluation of the assessment system should be taken, in terms of both process and outcome, and the data obtained used annually to inform the process of quality management.
- The system of assessment should be underpinned by a training programme for all those directly involved in the foundation programme, i.e. trainees, trainers, supervisors, directors etc. This training should be recognised by appropriate authorities, and contribute to the continuing professional development of staff.
- An appeals process should be identified for the system, to ensure a fair approach for all.

Methods

A number of methods have already been developed, and are currently being used or piloted in postgraduate medical and dental training. A brief description, along with references highlighting evaluation data, are provided for some examples below. This list is not intended to be exhaustive.

Workplace-based assessment using observation of performance

Assessment methods using direct observation of performance in the workplace frequently have high validity. There are two main approaches to scoring performance – checklists and the use of global ratings. In brief, methods using checklists are usually specific to the task being assessed. The task is divided procedurally into stages or skills and the evaluator identifies whether or not each stage has been performed correctly. The advantages of this approach are that very detailed and structured feedback can be provided on individual tasks, which may be particularly useful at earlier stages of professional development such as undergraduate training, the mastery of more complex tasks at postgraduate training, or for targeted training when addressing poor performance. The use of global ratings to measure observed performance has been shown to have many advantages at the postgraduate level, including more flexibility, and enhanced validity. Ratings are usually provided along a scale (e.g., 6, 8 or 9 points) with performance descriptors, across several broad areas of performance that may be clinically-orientated (e.g. ‘history taking’, ‘clinical judgement’) or generic (e.g. ‘professionalism’, ‘communication skills’). The majority of methods currently being piloted in medical foundation programmes or postgraduate dental education use global ratings.

LEP (Longitudinal Evaluation of Performance)^{19 20}

The LEP uses global ratings on a 9-point scale (1-3 = ‘Need Improvement’, 4-6 = ‘Satisfactory’, 7-9 = ‘Superior’ performance) to score trainees’ performance in several clinical and generic areas. This approach was adapted from the mini-CEX (below), specifically for use within postgraduate dental training (VT and GPT). Evaluation of the LEP to date has indicated high validity and a positive educational impact. Specific features of the tool include:

- high flexibility (can be used across the whole curriculum)
- continuous assessment
- judgements are made against a reference point that is the standard expected upon completion of the training, allowing the demonstration of progress and the identification of strengths and weaknesses at an early stage.
- high quality feedback for trainees and trainers.
- a ‘no penalty’ approach²¹ to assessments where scores are awarded in the ‘need improvement’ range, reducing the likelihood of leniency / halo effect and the potential for demotivation of trainees.

¹⁹ Prescott LE, Norcini JJ, McKinlay P, Rennie JS [2002]. *Medical Education* 36: 92-97.

²⁰ Prescott-Clements LE, Hurst Y, Rennie JS [2003]. *BDJ Suppl* 17-21.

²¹ If scores are given in the ‘need improvement’ range, there are no lasting consequences for a summative judgement on satisfactory completion of the training. Trainees must simply have repeated the area in question to a satisfactory standard, indicating progress, before being considered competent. All quantitative feedback is based on frequency of ratings as opposed to mean scores.

Mini-CEX (Clinical Evaluation Exercise)^{22 23}

Developed in the U.S.A. by Dr John Norcini, this tool has had wide international success, and was one of the first methods of this kind, from which many others (including the LEP) have been developed. Evolving from the more detailed and time consuming 'CEX', the mini-CEX was designed to take a 'snapshot' of performance and enhance feasibility and flexibility within the workplace.

Recent changes to the tool, for its use within medical foundation programme pilots, include the move from a 9-point to a 6-point scale, with descriptors highlighting that evaluators judgements are made against the standard expected upon completion of F1 or F2. Previously, judgements were made in relation to the trainee's current stage in training.

DOPS (Direct Observation of Procedural Skills)²⁴

Originally developed and evaluated by the Royal College of Physicians, DOPS is a method similar to the mini-CEX that has been designed specifically for the assessment of practical skills. This tool uses the same rating scale and descriptors as the mini-CEX used in medical foundation programme pilots, but against areas that resemble more of a structured checklist for practical procedures.

²² Norcini JJ, Blank LL, Arnold GK, Kimball HR. [1995]. *Annals of internal medicine* 123 (10): 795-9.

²³ Durning Sj, Cation LJ, Markert LJ, Pangaro LN [2002]. *Academic Medicine* 77 (9): 900-4.

²⁴ For more information www.hcat.nhs.uk – Evaluation data will be published on this site once completed.

Other assessment methods

CbD (Case-based discussion)²⁵

Also being used within medical foundation pilots, CbD allows case presentation and subsequent discussions with evaluators / trainers to be recorded. CbD assesses clinical judgement and the application of knowledge with regard to patient care. It is also used in the USA for poorly performing doctors, as it allows the decisions and thought processes of practitioners to be probed by the evaluator.

PAQ (Patient Assessment Questionnaire)²⁶

Designed specifically for the assessment of dentists in postgraduate training, the PAQ has good validity and reliability in primary care (vocational training) and is now being piloted in the SDS and HDS. The PAQ asks patients to anonymously provide ratings on a 5-point scale (poor, fair, good, very good and excellent) for areas of communication skills and professionalism. This data can be triangulated with that from other assessments such as the LEP, to compare the trainers and patients views of these areas of performance.

Mini-PAT / Min e-PAT (Peer Assessment Tool)²⁷

A method of multi-source feedback for trainees, the mini-PAT is also being piloted at present in medical foundation programmes. Multi source feedback can assess multiple components of performance.

Dental VT / GPT 'Test of Knowledge'

Used alongside the LEP and PAQ in Scotland, within the system of assessment for satisfactory completion of VT and GPT, this test is computer-based and focuses on aspects of knowledge that are developed within this training such as health and safety in practice, practice organisation, NHS rules and regulations etc. It does not include clinically related questions that may have previously been assessed at an undergraduate level.

Development, Pilots & Evaluation

Assessment methods chosen for initial pilot studies should be done so based on robust evidence as described above. In addition, consideration should be given to appropriate sampling of the curriculum, feasibility, and how they will fit together within a 'system' of assessment in terms of triangulation.

Whilst pilots of individual assessment methods will provide useful information, the validity, reliability, feasibility and educational impact of assessment of dental foundation programmes will ultimately need to be determined for the system as a whole. Therefore a systems approach should be taken to pilot studies, that includes an analysis of the interaction of the different methods used within the system. For example, the validity and reliability of the whole system of assessment may be more (or less!) than that observed upon the evaluation of methods individually. Similarly, the feasibility of the entire system of assessment cannot be inferred from data collected for individual methods, or indeed the summation of such studies.

²⁵ For more information www.hcat.nhs.uk – Evaluation data will be published on this site once completed.

²⁶ Hurst YK, Prescott-Clements LE, Rennie JS [2004]. *BDJ* 197 (8): 497-500.

²⁷ For more information www.hcat.nhs.uk – Evaluation data will be published on this site once completed. See also related tool SPRAT: Archer, J.C., J. Norcini, and H.A. Davies *BMJ*, 2005. 330(7502): p. 1251-3

Implementation

Training for Trainers, Evaluators and Trainees

Perhaps one of the biggest challenges to implementing a system will be the provision of adequate training for those involved. Training should be comprehensive and interactive where possible, allowing the exploration of sensitive issues, misconceptions or individuals' concerns. Issues to be covered during the training for trainers / educational supervisors would include;

- Interpretation of the curriculum
- Learning styles
- Optimising learning opportunities
- The assessment system²⁸
- Giving quality, structured feedback
- Managing the poorly performing trainee
- Motivating trainees

Similarly, all trainees should be given a detailed induction to the training. It should be compulsory for those responsible for assessing trainees' performance to complete this training prior to starting in this role. Accreditation / recognition of training courses in some way would give added value and incentive to trainers, educational supervisors and evaluators, and perhaps a degree of compensation for time commitment.

Learning Opportunities

An experienced trainer / educational supervisor will recognise learning opportunities as they present themselves during everyday practice. However, taking advantage of such opportunities requires regular contact with the trainee for supervision and assessment, in addition to protected time for educational events such as tutorials, case discussion, seminars or appraisals etc. Clearly, in the NHS today where waiting time targets are crucial and the demand for primary care NHS dentistry has never been higher, a practitioners 'time' is extremely valuable. However, the importance of regular contact with the trainee can not be overstated if dental foundation programmes are to be successful in being a positive educational experience that develops graduates into "A competent, caring, reflective practitioner, able to develop their career in any branch of dentistry to the benefit of patients".

In addition to covering this important topic in training and induction programmes, guidelines for recognising effective learning opportunities, mapped to the syllabus, should be provided for all trainers and educational supervisors involved in foundation programmes.

²⁸ Including individual methods within the system, interpretation of data and issues around using judgement such as leniency, halo effect, central tendency etc during observation based assessment.

Maintaining Quality

Quality management is an area which demands long term commitment and dedicated time and resources. Postgraduate medical and dental education and training is developing continuously, and NHS care itself (including dental practice) has never experienced a time when change is so high on the agenda. The curriculum for dental foundation programmes must evolve with these changes, and keep up to date with current best practice in education. This can be achieved through longitudinal evaluation studies that are based on both the process and outcomes of this training. Such data would provide long term trends in performance, and allow regular revisions to be made to the system on the basis of evidence.

Administration

It would not be appropriate to write a proposal for the implementation of a curriculum without considering the resources required and administration costs. A full business case will be required to identify the detail of the resources required and cost implications (and indeed, the costs if nothing were to be implemented). It is not the purpose of this document to include such an analysis, however, issues to be considered should include;

- Trainer / educational supervisor time
- Administrator costs for those managing the assessment data
- Training costs for implementation of the system, including induction programmes for trainees.
- Lay individuals costs (in assessment , appeals etc)
- Non-recurrent costs e.g. research and development, database production for data capture, technology etc
- Printing, consumables etc
- Quality management costs

Appendix 1

Definition of 'curriculum' and 'syllabus'

There are many definitions of curriculum, however for the purposes of this document we have found the following definition described by Coles²⁹ to be particularly useful.

"A curriculum is more than a list of topics to be covered by an educational programme, for which the more commonly accepted word is a 'syllabus'. A curriculum is first of all a policy statement about a piece of education, and secondly an indication as to the ways in which that policy is to be realised through a programme of action. In practice though a curriculum is more than even this; it is useful to think of it as being much wider. As a working definition of a curriculum I would say that it is the sum of all the activities, experiences and learning opportunities for which an institution or a teacher takes responsibility – either deliberately or by default. This includes in such a broad concept of curriculum the formal and informal, the overt and the covert, the recognised and the overlooked, the intentional and the unintentional... It is useful to think of there being three faces to a curriculum: the curriculum on paper; the curriculum in action; and the curriculum that participants actually learn."

A more concise definition is described by Wojtczak³⁰.

"An educational plan that spells out which goals and objectives should be achieved, which topics should be covered and which methods are to be used for learning, teaching and evaluation."

²⁹ Coles, C. (2003) 'The development of a curriculum for spinal surgeons', Observations following the Second Spine Course of the Spinal Society of Europe. Barcelona, Sept 2003. http://www.eurospine.org/Teachers%20Course/C_Coles_report_03.html

³⁰ Wojtczak, A. (2002). Glossary of medical education terms, <http://www.iime.org/glossary.htm> decc 2000, revised Feb 2002.

Appendix 2

Steering Group Members

David Smith (Chair)	Postgraduate Dental Dean, Newcastle-Upon-Tyne Chair, GPT Liaison Group, Chair, COPDEND
Linda Prescott-Clements	Educational Projects Manager, NHS Education for Scotland
Chris Franklin	Postgraduate Dental Dean, South Yorkshire / East Midlands
David H. Felix	Associate Postgraduate Dental Dean, NHS Education for Scotland
Mike Mulcahy	Dean, FGDP (UK)
David Hussey	Postgraduate Dental Dean, NIMDTA
Gareth Holsgrove	Medical Education Advisor, Royal College of Psychiatrists
Richard Oliver	Director, Dental Education Unit, Cardiff University
Jonathan Cowpe	Professor of Oral Surgery, University of Bristol
Ruth Gasser	Department of Health, England
Paul Cook	Postgraduate Dental Dean, Yorkshire Deanery
Neale Armstrong	VT Adviser, NIMDTA
Mike Attenborough	VT Adviser, Severn & Wessex Deanery
David Mitchell	OMFS Consultant
Alison Bullock	Co-Director of Research, CRMDE, University of Birmingham
Graham Orr	VT Adviser, Northern Deanery
John Gamon	GPT Practitioner
Matthew Thomas	SHO
Yvonne Hurst	NHS Education for Scotland
Karen Jack	NHS Education for Scotland

Appendix 3

Consultation Group - Stakeholders

1. Postgraduate Dental VT / GPT

- All PG Dental Deans were contacted and asked to distribute the draft competencies for consultation within their region. Recommendations were given that this should include (a) Regional VT / GPT Advisers (b) GPT Scheme Adviser(s) (c) a selection of trainers (d) HDS Tutors (e) SDS Advisors
- UK Conference of Advisers
- CVT Wales
- SDVTECC
- CVT (N. Ire.)

2. Undergraduate Dental Education

- Deans of all UK Dental Schools

3. Professional Bodies

- GDC
- BDA

4. UK Dental Faculties

- RCS England
- RCS Edinburgh
- RCPS Glasgow
- FGDP (UK)

5. Salaried Dental Service

6. Education

- ADEE
- University Maastricht
- Zoe-Jayne Playdon
- Mark Brennan
- Peter Mossey
- Liz Davenport

7. Others

- Department(s) of Health
- MMC (Professor Dame Lesley Southgate)
- Patient groups
- Dental Health Service Research Unit (J Clarkson)
- British Dental Health Foundation (involving patients / public)
- Directors of Dental Public Health
- Senior Dental Leadership Team – Helen Falcon

