General Dental Council

JMDF
JOINT MEETING OF DENTAL FACULTIES

Dental and Maxillofacial Radiology Specialty Training Curriculum

Approved by GDC Registrar: 15 December 2022

Foreword

This specialty curriculum sets out the specialist knowledge, skills, and capabilities for the attainment of the award of the Certificate of Completion of Specialty Training (CCST) and admission onto the Specialist List for Dental and Maxillofacial Radiology (DMFR).

It also demonstrates how DMFR meets the General Dental Council's (GDC) Principles and Criteria for Specialist Listing. This standards-driven, transparent approach protects patients, the public, employers, and others through preparation of dentists to deliver high quality, safe, patient and public-centred care as specialists within the UK healthcare system.

The curriculum has been written by the DMFR Specialty Advisory Committee (SAC), a constituent committee of the Advisory Board for Specialty Training in Dentistry (ABSTD). The SAC is responsible for and owns the specialty-specific content and learning outcomes of the relevant specialty curriculum. They are also responsible for the choice of assessment of both the generic and the specialty content of the curriculum.

The delivery of the curriculum via training and assessment providers is quality assured by the GDC using the Standards for Specialty Education. Successful completion of the relevant specialty training and assessment will lead to the award of a CCST and successful candidates will be eligible to apply for inclusion on the relevant GDC specialist list and be eligible to use the title of "Specialist".

This curriculum will take effect for new trainees from September 2024.

Acknowledgements

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Section A: Purpose statement for Dental and Maxillofacial Radiology

1. Introduction to the Dental and Maxillofacial Radiology Specialty

In helping to train specialists in DMFR, this curriculum meets the GDC's principles and criteria for specialty listing in the following ways:

- The purpose of the GDC specialty of DMFR is to provide imaging and interpretation of images of the facial skeleton, the teeth and the soft tissues of the mouth, face and neck, in both adults and children.

- Dental and maxillofacial radiologists, in addition to postgraduate dental training, normally undertake four years of specialist training in imaging techniques and image interpretation. This includes interpretation of complex diseases and conditions of the head and neck, demonstrated on conventional intraoral and extraoral imaging, employed in dental practice and in specialist investigations employed in the assessment, diagnosis and management of disease and conditions in the head and neck. These diagnostic skills and imaging techniques are beyond the scope of practice of a general dental practitioner with the latter including cone beam and conventional computed tomography (CT), magnetic resonance imaging (MRI), ultrasound and sialography (salivary gland imaging).

<u>Teaching and research</u>

Dental and maxillofacial radiologists promote and advance dental and maxillofacial radiology for the benefit of patient care through education and research. They undertake continuing professional development and use evidence based research and practice to adapt to changing technologies and/or population health. Specialists are involved in the education and training of undergraduate and postgraduate dentists, dental

care professionals and other health professionals, in the safe use of ionising radiation, imaging techniques and image interpretation and are active researchers in these areas.

2. Dental and Maxillofacial Radiology improving the health of patients and the population

Dental and maxillofacial radiologists use their dental knowledge combined with their specialised radiology training to inform assessment, diagnosis and management for patients with complex dental conditions, developmental abnormalities, cancer, cysts, infections or facial trauma. For example, dental and maxillofacial radiologists work with clinical oncologists and oral and maxillofacial surgeons in the assessment, diagnosis and management of oral cancers and subsequently provide restorative dentists with imaging support for the oral rehabilitation of cancer patients including implant planning. Beyond the hospital setting, the specialty can, for example, provide Cone Beam CT imaging of impacted teeth for patients undergoing orthodontic treatment. Multi- and interdisciplinary working is fundamental to the specialty to ensure integrated and comprehensive care.

Dental and maxillofacial radiologists lead and deliver imaging services in a range of settings including dental hospitals and medical radiology departments. Within these settings, the specialty provides imaging services for all the dental specialties and for specialties involved in the treatment of diseases and conditions of the head and neck including, but not exclusive to, oral and maxillofacial surgery and ear, nose and throat (ENT). Dental and maxillofacial radiologists also accept referrals from general dental practitioners and specialist dental practitioners to provide imaging not widely available in general and specialist practice, such as Cone Beam CT imaging, and provide specialist interpretation of images outside the scope of knowledge of a general dental practitioner or specialist dental practitioner.

Dental and maxillofacial radiologists are trained in image-guided interventions to aid assessment and diagnosis and target treatment, for example, the diagnosis and treatment of obstructive salivary gland disease and ultrasound guided sampling of lumps in the head and neck. Dental and maxillofacial radiologists work alongside medically trained head and neck radiology colleagues but in addition they use their dental knowledge to diagnose and inform management of conditions related specifically to the teeth, jaws and their supporting structures.

3. Entry to the training programme

Entry to a specialty training programme is through competitive entry and the recruitment process will ensure that applicants are assessed against the essential and desirable criteria contained within the person specification.

A specialty trainee must be registered with the GDC. It is desirable that during previous early years training the individual has experienced work in as many sectors of dental provision as possible. Evidence of excellence in terms of attributes such as motivation and career commitment will be expected, as will an ability to demonstrate the competencies and capabilities required for entry to specialist training, either by successfully

completing a period of agreed dental foundation/vocational and core training or by demonstrating that those competencies have been gained in another way.

4. Outline of the training programme

Training programmes include suitable placements/rotational arrangements to cover all the necessary areas of the curriculum and may include an appropriate balance between dental teaching hospitals/schools, district general hospitals and specialist clinical environments, such that each trainee gains the breadth of training required for satisfactory completion of the curriculum.

The training programmes are usually based around a training centre, normally comprising a dental teaching hospital/school together with other associated, recognised, and validated training environments.

It is anticipated that four years would normally be required to satisfactorily complete the DMFR curriculum to the required depth and breadth. However, the focus of specialty training is on achieving the Higher Learning Outcomes (HLOs) rather than a prescribed duration therefore the Review of Competency Progression (RCP) process allows for individual adjustments to be made to this where appropriate.

5. Training specific to Dental and Maxillofacial Radiology

Trainees undertake training in both radiology departments in dental hospitals and in general radiology departments with training encompassing both dental and head and neck radiology. A CCST in DMFR is awarded by the GDC on the recommendation of the local postgraduate dental dean following satisfactory completion of the curriculum, the attainment of the Diploma in Dental and Maxillofacial Radiology, and an Outcome 6 in the final RCP as per the Dental Gold Guide.

The distinctive entity of Dental and Maxillofacial Radiology provides an academic and clinical focus for undergraduate and postgraduate education and research. This supports advances in patient care through providing a framework for quality improvement and discovery. The specialty along with the cognate specialist society, the British Society of Dental and Maxillofacial Radiology, acts as a focus and stimulus for further development in the UK, including through support and development of specialty trainees.

All training programmes will include opportunities for experience of research and development projects and critical assessment of published work so as to contribute to the development of the service and to the underpinning evidence and knowledge base in the specialty. Opportunities may range from contributions to case series and other scientific papers to involvement in translational science projects and clinical trials, varying from centre to centre. Outputs may include peer reviewed publications or presentations, book chapters and contributions to national guidelines. For those DMFR trainees that wish to undertake academic training, either within the National Institute for Health and Care Research

(NIHR) academic clinical fellowships posts or by other routes, the proportion of time in training used to undertake research will be reviewed at the RCP.

There will be opportunities for teaching in all training programmes. These will include the training of undergraduate and postgraduate dental students, dental care professionals and other health professionals, in the safe use of ionising radiation, imaging techniques and image interpretation. The extent of this will vary between training programmes. Satisfactory delivery of teaching will be assessed as a component of the RCP.

6. Evidence and assessment

The purpose of assessment is to reassure the trainee, their employer and the public that they have achieved the required outcomes associated with their chosen specialty.

HLOs should not be demonstrated through singular assessments. A programmatic assessment approach should be used in the workplace in which there are multiple assessment points over time, undertaken by multiple assessors with a range of methodologies and sufficient evidence to ensure reliability.

The overall approach to assessment and provision of evidence of attainment in the curriculum is one of flexibility, as far as that is possible. Trainees should focus on ‘quality over quantity’, utilising assessments which are valid and appropriate to evidence the HLOs.

The principle of Workplace Based Assessments (WPBA) is that trainees are assessed on work that they undertake on a day-to-day basis and that the assessment is integrated into their daily work. The curriculum does not stipulate minimum numbers of assessments for WPBAs.

When there is a requirement by specialty, this can be found in the specialty assessment strategy at the Royal College of Surgeons’ Higher Specialist Training Documents and Curricula.

A full list of WPBAs can be found in the glossary of assessment terms. WPBA tools will include but are not limited to:

- case based discussions
- direct observation of procedural skills
- procedure based assessments
- multisource feedback
- patient/user feedback.

Training courses may be an effective way of gaining the underpinning knowledge and skills for some of the HLOs. However, attendance at a course will not normally be sufficient evidence of competence; assessors will be looking for evidence of competence and how the learning is applied in practice.

Continuous assessment throughout training will be undertaken by the educational supervisor, clinical supervisors and other educators involved in training, using a range of WPBAs. All assessments completed in the workplace have a formative function, with trainees given contemporaneous feedback on their performance, and these all contribute to the decision about a trainee's progress. The assessment process should be initiated by the trainee, who should identify opportunities for assessment throughout their training.

In sections C and D, a list of sources of evidence are provided against each of the HLOs. These are provided as a list of possible sources, and there is no expectation that the full list of sources would be used as evidence of attainment of a particular HLO. Some of the assessments in section D will be mandatory (for example Royal College examinations), but other forms of assessment should be tailored to the training programme/local circumstances/stage of training, and these should be agreed with the training provider(s) as part of the RCP process and the education supervisor(s) as part of a learning agreement. All mandatory assessments are clearly indicated in section D.

In section C, no individual assessment is mandated for all specialties. Further guidance will be provided in the specialty assessment strategy which highlight how the HLOs are best achieved within each programme. This will normally be through application in practice rather than summative assessment, although this may vary by specialty dependent on the range of workplace assessments.

An assessment blueprint is provided within sections C and D which illustrates the WPBAs that can be used to assess the HLOs.

Progress through training is assessed through the RCP process, and training is completed when all the curriculum requirements are satisfied and HLOs have been evidenced.

7. Research

Trainees may combine specialty training and academic development with an intention of becoming a clinical academic. The same curriculum outcomes for clinical training are required to be achieved as for any other trainee. Consideration of the required training time will need to be assessed depending on the proposed timetable.

Section B: Delivering the curriculum against the GDC Standards for Specialty Education

The GDC sets Standards for Specialty Dental Education and assures that training commissioners and examination providers (collectively referred to as “providers”) meet these standards.

The standards relate to:

- patient protection (training commissioners only)
- quality evaluation and review
- specialty trainee assessment.

As part of the quality assurance process, the GDC will ensure that training and assessment is designed, delivered and reviewed within a quality framework, that patient safety is at the heart of programme delivery and that assessments are reliable, valid and clearly mapped to the specialty curriculum learning outcomes. Reports from GDC quality assurance activity are available on the dental specialty training webpage.

Section C – Generic professional content of the specialty curriculum

Domain 1: Professional knowledge and management

Outcome	Examples
1.1 Demonstrate they can communicate effectively and respectfully with patients and others and with colleagues	Effectively and respectfully communicate with patients, relatives, carers, guardians by: • consulting with patients and carers in a sensitive and compassionate way • giving clear and accurate verbal/oral information with information the recipient wants and needs and avoiding unnecessary jargon • giving clear, accurate and legible written information in a form the recipient can understand, with information the recipient wants and needs and avoiding unnecessary jargon • making accurate and contemporaneous records of observations or findings in English • making information accessible and inclusive by adapting written and verbal communication and tone and adopting appropriate techniques and communication aids/resources to suit others as appropriate • assessing their communication support needs and implementing appropriate methods to reduce communication barriers. For example, by using email, video conferencing tools, or any other communication tools suitable for individuals with disabilities or

Outcome	Examples
	impairments and specifically with patients, relatives, carers, guardians, and others • demonstrating ability to communicate effectively and sensitively when delivering bad news • recognising own limitations and works within limits of capabilities • competency in obtaining informed consent. Effectively and respectfully communicate with colleagues by: • promoting and effectively participating in multidisciplinary, interprofessional team working • communicate effectively with referrers regarding patient consultation and treatment • ensuring continuity and coordination of patient care and/or management of any ongoing care through the appropriate transfer of information demonstrating safe and effective handover, both verbally and in writing.
1.2 Demonstrate that they can make decisions, while maintaining professional behaviour and judgement	They should do this by: • maintaining appropriate situational awareness and sensitivity to the impact of their comments and behaviours on others (emotional intelligence) • influencing, negotiating, continuously re-assessing priorities and effectively managing complex, dynamic situations and exploring and resolving diagnostic and management challenges.
1.3 Demonstrate they can deal with complexity and uncertainty	They should do this by: • showing appropriate professional behaviour and judgement in clinical and non-clinical contexts • demonstrating resilience • managing the uncertainty of success or failure • adapting management proposals and strategies to take account of patients' informed

Outcome	Examples
	preferences, co-morbidities and long-term conditions • supporting and empowering patient self-care and respecting patient autonomy • recognises and manages dental emergencies.
1.4 Recognise their legal responsibilities and be able to apply in practice any legislative requirements relevant to their jurisdiction of practice	They should do this by: • understanding, and adhering to, the principles of continuing professional development • understanding relevant guidance and law including that relating to equality and diversity, employment, health and safety, data protection etc., with an appreciation that legislation may differ between England, Scotland, Wales and Northern Ireland • understanding information governance, data protection and storage and the legal parameters relating to digital and written records in the context of their workplace • recognising the need to ensure that publicly funded health services are delivered equitably.
1.5 Recognise and work within the context of a health service and healthcare systems	They should do this by: • understanding the structure and organisation of the wider health and social care systems, including how services are commissioned, funded and audited • understanding that systems may differ between England, Scotland, Wales and Northern Ireland • demonstrating an appreciation of how services are deemed to be clinically effective, cost effective or restricted such as on a ‘named patient’ basis • understanding how resources are managed, being aware of competing demands and the importance of avoiding waste • having an awareness of how services are held publicly accountable through political and governance systems, public scrutiny and judicial review • recognise and work towards achieving carbon neutrality within the context of

Outcome	Examples
	understanding the importance of sustainability in design and delivery of services and demonstrating application of these principles in practice.
1.6 Recognise and demonstrate their role in health promotion, disease prevention and dental population health	They should do this by: • understanding the factors affecting health inequalities as they relate to the practise of dentistry • being willing and able to work to reduce health inequalities relevant to the practise of dentistry • understanding national and local population oral health needs • understanding the relationship of the physical, economic and cultural environment to health and its impact on patients and patient outcomes • understanding the role of national and local public health organisations and systems and how the role of a dental specialist supports these organisations in improving the public's dental health.

1.7 Recognise the importance of, and demonstrate the ability to practise, person- centred care (PCC), including shared decision making (SDM)	They should do this by:
	• understanding that patients are partners with their health care providers
	  ○ providing balanced information about treatment options
	  ○ eliciting the patient's concerns, values and preferences
	  ○ offering support to the patient to help them to reach a decision and making that final decision together
	• being able to articulate personal values and principles yet show understanding of how these may be different to those of others – patients and colleagues
	• valuing, respecting and promoting equality and diversity.

Domain 2: Leadership and teamworking

Outcome	Examples
2.1 Demonstrate understanding of the importance of personal qualities within leadership (focus on self)	They should do this by: • understanding a range of leadership principles and styles and being able to apply and adapt them in practice in a way that is relevant to the work context • understanding team dynamics, behaviours and personalities with insight and awareness of own behaviours and their effect on others. Please also see the NHS Leadership Academy's Healthcare Leadership Model.
2.2 Demonstrate understanding of the importance of working with others both within their specialty and the wider healthcare system (working with others)	They should do this by: • being able to seek out the views of others in maintaining and improving specialist services • being able to effectively lead/chair multidisciplinary and interprofessional meetings • undertaking safe and effective patient handover, both verbally and in writing • demonstrating an understanding of leadership responsibilities as a clinician and why effective clinical leadership is central to safe and effective care • showing awareness of clinical leadership responsibilities and why effective clinical leadership is central to safe and effective care • being confident about challenging and influencing colleagues and the orthodoxy where appropriate • being able to lead the process of exploring and resolving complex diagnostic and management challenges • leading the formal appraisal process for their teams.
2.3 Demonstrate the importance of planning and an understanding of managing dental	They should do this by: • understanding and being able to work effectively within the relevant NHS funding, structures and pathways in their local healthcare system in relation to specialist

Outcome	Examples
specialist services	dental services and the healthcare services with which they interface • understanding how to identify, mitigate and manage risk, including understanding local and national risk reporting structures.

Domain 3: Patient safety, quality improvement and governance

Outcome	Examples
3.1 Recognise a professional and statutory duty of candour and act accordingly within established governance, legal and regulatory systems, including equality and diversity	They should do this by: • understanding how to raise safety concerns appropriately through local and national clinical governance systems • understanding how to raise concerns where there is an issue with patient safety, dignity or quality of care • demonstrating a commitment to learn from patient safety investigations and complaints • understanding the process of root cause analysis for investigating and learning from patient safety incidents • demonstrating honesty and candour regarding errors in patient care • demonstrating familiarity with relevant patient safety directives • understanding the importance of sharing and implementing good practice.
3.2 Recognise the impact of human factors on the individual, teams, organisations and systems	They should do this by: • understanding the effects of teamwork, tasks, equipment, workspace, culture and organisation on human behaviour and abilities and the application of that knowledge in clinical settings • protecting patients and colleagues from risks posed by problems with personal

Outcome	Examples
	health, conduct or performance • demonstrating an understanding of the learning by reporting and sharing these experiences locally and widely.
3.3 Design and employ quality improvement measures that improve clinical effectiveness, patient safety, care or experience	They should do this by: • using a range of quality improvement methodologies to improve dental services and improve patient care • demonstrating an understanding of the importance of patient and public involvement in decision-making when changes to services are proposed • engaging with all relevant stakeholders in the planning and implementation of change • working with others to effectively measure and evaluate the impact of quality improvement interventions and their impacts on the wider systems • demonstrating knowledge of additional challenges related to oral health inequalities in minority ethnic populations and other groups with protected characteristics in the UK • assessing and recognising the impact of cultural and language and other barriers and strategies for oral health promotion.
3.4 Act to safeguard patients, particularly children, other young people and vulnerable adults in accordance with the requirements of appropriate equality and diversity legislation	They should do this by: • recognising the individual oral health needs of patients with physical, sensory, intellectual, mental, medical, emotional or social impairments or disabilities, or with a combination of these factors • understanding the responsibilities and needs of carers as they play an increasing role in healthcare provision • recognising and taking responsibility for safeguarding vulnerable patients • understanding when it is appropriate and safe to share information on a patient.

Outcome	Examples
3.5 Immediate life support	they should do this by: • demonstrating competency and undertake annual training in immediate life support.

Domain 4: Personal education, training, research and scholarship

Outcome	Examples
4.1 Demonstrate that they can plan and deliver effective education and training activities	They should do this by: • providing safe clinical supervision of learners • providing effective educational supervision of learners, including giving supportive, developmental feedback to learners • seeking and respecting patients' wishes about whether they wish to participate in the education and training of learners • evaluating and reflecting on the effectiveness of their educational activities and changes to improve practice • promoting and participating in interprofessional learning (including with members of the wider healthcare team in dentistry and in other healthcare professions) • demonstrating an ability to use a range of teaching methods for individual and group teaching, including face to face and online teaching, and the use of simulation and other technology enhanced learning methods.
4.2 Demonstrate that they can critically appraise and interpret scientific/academic literature and keep up to date with current and best practice	They should do this by: • demonstrating an ability to critically appraise evidence • interpreting and communicating research evidence and data to support patients and colleagues in making informed decisions about treatment • appreciating the role of both qualitative and quantitative methodological approaches

Outcome	Examples
	in scientific enquiry • demonstrating an understanding of the strengths and limitations of different approaches to gathering research evidence • conducting literature searches and reviews to inform their professional practice • locating and using clinical guidelines appropriately • demonstrating an understanding of stratified risk and personalised care.
4.3 Understand what is required to participate in research	They should do this by: • demonstrating understanding of clinical research design, ethics processes and research governance (GCP).

Generic learning outcomes assessments blueprint

Domain 1: Professional knowledge and management

HLO	Patient feedback / MSF	WPBAs	Reflective reports	Training course or qualification (inc. PG degrees)	Critical incidents or complaint reviews	Research or QI / audit projects	Logbook	Specialty specific summative assessment	Other (see list 1-9 below)	CS / ES reports
1.1 Demonstrate they can communicate effectively and respectfully with patients and others and with colleagues	*	*	*	*			*	*	*1	*
1.2 Demonstrate that they can make decisions, while maintaining professional behaviour and judgement	*	*	*	*	*			*		*
1.3 Demonstrate they can deal with complexity and uncertainty	*	*	*	*	*			*		
1.4 Recognise their legal responsibilities and be able to apply in practice any legislative requirements relevant to their jurisdiction of practice				*		*		*	*9	

HLO	Patient feedback / MSF	WPBAs	Reflective reports	Training course or qualification (inc. PG degrees)	Critical incidents or complaint reviews	Research or QI / audit projects	Logbook	Specialty specific summative assessment	Other (see list 1-9 below)	CS / ES reports
1.5 Recognise and work within the context of a health service and healthcare systems, understanding that systems may differ between England, Scotland, Wales and Northern Ireland		*	*	*		*		*		
1.6 Recognise and demonstrate their role in health promotion, disease prevention and population health	*	*				*		*		
1.7 Recognise the importance of, and demonstrate the ability to practise, person-centred care (PCC), including shared decision making (SDM)	*	*	*			*		*		*

Domain 2: Leadership and teamworking

HLO	Patient feedback / MSF	WPBAs	Reflective reports	Training course or qualification (inc. PG degrees)	Critical incidents or complaint reviews	Research or QI / audit projects	Logbook	Specialty specific summative assessment	Other (see list 1-9 below)	CS / ES reports
2.1 Demonstrate understanding of the importance of personal qualities within leadership (focus on self)		*	*	*		*		*		*
2.2 Demonstrate understanding of the importance of working with others both within their specialty and the wider healthcare system (working with others)	*	*	*	*	*	*		*		
2.3 Demonstrate the importance of planning and an understanding of managing dental specialist services		*	*	*	*	*		*	*9	*

Domain 3: Patient safety, quality improvement and governance

HLO	Patient feedback / MSF	WPBAs	Reflective reports	Training course or qualification (inc. PG degrees)	Critical incidents or complaint reviews	Research or QI / audit projects	Logbook	Specialty specific summative assessment	Other (see list 1-9 below)	CS / ES reports
3.1 Recognise a professional and statutory duty of candour and act accordingly within established governance, legal and regulatory systems, including equality and diversity	*	*		*		*		*	*2	*
3.2 Recognise the impact of human factors on the individual, teams, organisations and systems		*	*	*					*2	
3.3 Design and employ quality improvement measures that improve clinical effectiveness, patient safety, care or experience	*	*		*	*	*		*	*2	

HLO	Patient feedback / MSF	WPBAs	Reflective reports	Training course or qualification (inc. PG degrees)	Critical incidents or complaint reviews	Research or QI / audit projects	Logbook	Specialty specific summative assessment	Other (see list 1-9 below)	CS / ES reports
3.4 Act to safeguard patients, particularly children, other young people and vulnerable adults in accordance with the requirements of appropriate equality and diversity legislation		*	*	*			*	*	*2	
3.5 Immediate life support				*						

Domain 4: Personal education, training, research and scholarship

HLO	Patient feedback / MSF	WPBAs	Reflective reports	Training course or qualification (inc. PG degrees)	Critical incidents or complaint reviews	Research or QI / audit projects	Logbook	Specialty specific summative assessment	Other (see list 1-9 below)	CS / ES reports
4.1 Demonstrate that they can plan and deliver effective education and training activities		*	*	*				*	*2,3,4,5	

HLO	Patient feedback / MSF	WPBAs	Reflective reports	Training course or qualification (inc. PG degrees)	Critical incidents or complaint reviews	Research or QI / audit projects	Logbook	Specialty specific summative assessment	Other (see list 1-9 below)	CS / ES reports
4.2 Demonstrate that they can critically appraise and interpret scientific / academic literature and keep up to date with current and best practice		*		*		*		*	*6,7,8	
4.3 Understand what is required to participate in research		*		*		*		*	*2,6,7	

Other methods of assessment are:

1. Case presentation
2. CPD
3. Education feedback
4. Conference presentation
5. Observation of teaching
6. Journal clubs
7. Publications
8. Developing protocols
9. Objective structured assessments.

Section D - Specialty-specific content for Dental and Maxillofacial Radiology

Domain 5: Key Clinical Skills

Applies key clinical skills in history taking, diagnosis and healthcare management.

Outcome	Examples
5.1 Applies key clinical skills in history taking, diagnosis and patient management	• Takes a relevant patient history including patient symptoms, concerns, priorities and preferences. • Performs accurate clinical examinations. • Shows appropriate clinical reasoning by analysing physical and psychological findings. • Formulates an appropriate differential diagnosis. • Formulates an appropriate diagnostic and management plan, taking into account previous diagnostic investigations and patient preferences, and the urgency required. • Explains clinical reasoning behind diagnostic and clinical management decisions to patients, carers, guardians and/or other colleagues. • Appropriately selects, manages and interprets investigations (e.g. reviewing results). • Understands the challenges of safe prescribing for people at extremes of age, which includes neonates, children and frail or elderly people. • Assesses a clinical situation to recognise a drug reaction, managing adverse incidents and therapeutic interactions appropriately. • Accesses the current product literature to ensure medicines or products are prescribed and monitored according to most up to date criteria. • Makes an appropriate risk benefit assessment with regard to the patient's preferences and circumstances. • Recognises if they are prescribing an unlicensed medicine.
5.2 Understands and demonstrates infection prevention and management	• Prevents, manages and treats infection, including controlling the risk of cross-infection. • Works appropriately within the wider community to manage the risk posed by communicable diseases.

Domain 6: Physics and Radiation Protection

Applies knowledge of physics and radiation protection to deliver a safe and effective imaging service.

Outcome	Examples
6.1 Understands the nature, structure and properties of matter, radioactivity, magnetism, ionising radiation and ultrasound and their application in imaging modalities, and understands the principles of radiation protection in the clinical setting	• Understanding and applying knowledge of imaging modalities relevant to dental and maxillofacial imaging: radiography, fluoroscopy, conventional CT, Cone Beam CT, MRI, ultrasound and radionuclide imaging. • Justifying and optimising radiation dose in radiographic imaging. • Selecting optimal operating factors. • Understanding and applying knowledge of selection/referral criteria. • Understanding and applying knowledge of the hazards and risks to patients, staff and public from medical imaging. • Applying the principles of dose limitation for staff, and the general public. • Understanding and applies knowledge of UK legislation and guidance.
6.2 Recognises the appropriate use and operation of medical and dental imaging equipment, and contrast agents	• Advising patients/colleagues on the different imaging modalities. • Understanding and applying knowledge of the construction, function and operation of medical and dental imaging equipment. • Explaining the operating factors of imaging equipment, effects on indices of image quality and their inter-relationships. • Understanding contrast agents and their appropriate use. • Understanding the signs, symptoms and management of adverse reactions to contrast agents.
6.3 Understands the principles of quality assurance in imaging and recognises artefacts	• Understanding the elements of a quality assurance programme for dental radiography for a hospital setting and a general or specialist dental practice. • Understanding the cause of, and corrective measures for, image artefacts in medical and dental imaging including conventional radiographs, ultrasound and cross-sectional imaging.

Domain 7: Dental Radiology

Manages and interprets dento-alveolar radiographic examinations.

Outcome	Examples
7.1 Understands the principles of intra-oral and extra-oral radiographic techniques which demonstrate the dento-alveolar region	• Understanding the technical aspects of dento-alveolar imaging techniques including adaptation of technique for patients that have a disability or are under general anaesthetic. • Understanding and applying knowledge of the role of intra-oral and extra-oral imaging modalities. (including radiographs and Cone Beam CT) in dento-alveolar imaging, and implements local/regional/national guidelines in dento-alveolar investigations.
7.2 Understands normal and variant anatomy relevant to dento-alveolar imaging	• Understanding and applying knowledge of anatomy of the face, jaws, the teeth and supporting structures, and the relevance to the radiological diagnosis of dento-alveolar disease and treatment options on conventional radiographs and Cone Beam CT imaging. • Understanding and uses terminology relevant to dento-alveolar imaging.
7.3 Provides expert dento-alveolar image interpretation on both conventional radiographs and Cone Beam CT	• Understanding and applying the principles of differential diagnosis of dento-alveolar and jaw lesions. • Appyling knowledge of the typical and atypical presentations of common and uncommon conditions of the teeth and jaws on conventional radiographs and Cone Beam CT. • Providing clear and succinct reports that relate the clinical and imaging findings. • Recognising acute clinical presentations and prioritises cases appropriately.
7.4 Recognises how diagnosis affects the management pathway	• Initiating additional examinations as appropriate. • Escalating findings to colleagues when appropriate.

Domain 8: Head and neck radiology

Performs, manages and interprets imaging of the maxillofacial skeleton and soft tissues of the oro-facial region and neck.

Outcome	Examples
8.1 Understands normal and variant anatomy relevant to the head and neck region	• Applying knowledge of the anatomy of the head and neck. • Identifying and applies knowledge of normal and variant anatomy relevant to the head and neck in conventional radiographs and cross-sectional images. • Understanding and uses terminology relevant to head and neck imaging.
8.2 Understands the principles of extra-oral imaging of the maxillofacial skeleton	• Understanding the indications for imaging of the maxillofacial skeleton including conventional radiographs and Cone Beam CT. • Understanding and using terminology relevant to maxillofacial imaging.
8.3 Provides expert interpretation of cross-sectional images of the head and neck	• Understanding and applying the indications for Cone Beam CT, conventional CT, MRI and ultrasound imaging in the head and neck. • Demonstrating ability to work with different software and storage media. • Applying knowledge of the typical and atypical presentations of conditions of the head and neck including bony lesions, malignancy and soft tissue lesions on Cone Beam CT, conventional CT and MRI. • Explaining the principles of differential diagnoses of bony lesions and soft tissue lesions of the head and neck. • Being able to stage tumours on imaging according to tumour staging classifications.
8.4 Performs and interprets ultrasound of the head and neck including biopsy techniques	• Performing transcutaneous ultrasound scans and intraoral ultrasound scans. • Explaining the principles of differential diagnoses of soft tissue lesions of the head and neck on ultrasound. • Performing fine needle aspiration biopsies and core biopsies in the head and neck.

Outcome	Examples
8.5 Demonstrates the ability to perform diagnostic imaging and have knowledge of the interventional imaging techniques to manage salivary gland disease	• Performing sialography. • Understanding the contraindications to sialography. • Interpreting images of the salivary glands. • Identifying cases suitable for interventional procedures. • Understanding the principles of salivary gland interventions and demonstrating experience in imaging guided retrieval of salivary gland calculi and balloon dilation of salivary gland strictures
8.6 Demonstrates the ability to provide clear and succinct written or verbal reports of images of the head and neck	• Applying knowledge of the typical and atypical presentations of conditions in the head and neck on multiple imaging modalities including Cone Beam CT, conventional CT, MRI, US and fluoroscopy. • Correlating imaging observations with clinical presentation to provide a differential diagnosis. • Informing treatment planning. • Effectively communicating findings to patients and colleagues. • Demonstrating ability to present findings at a multidisciplinary meeting.

Dental and Maxillofacial Radiology assessments blueprint

*Assessments in red are mandated.
*Assessments in black are flexible, and the trainee can choose whether they wish to use them to evidence their learning.
*Assessments in blue must be used a minimum number of times but there is flexibility in which HLO they are used to demonstrate. These should be spread throughout and undertaken across the breadth of the curriculum to provide a balanced portfolio of evidence. Confirmation of a minimum dataset of evidence will be provided by the SAC for the Additional Dental Specialities.

Note: College examinations are the Fellowship of the Royal College of Radiologists (FRCR) Part 1 (Physics) examination and the Diploma in Dental and Maxillofacial Radiology hosted by RCR. The FRCR Part 1 (Physics) examination is a pre-requisite for entry to the DDMFR examination.

HLO	Patient feedback	MSF	DOPs	Mini-IPX	CBD	Logbook	College examination	Reflective records	CS reports
5.1 Applies key clinical skills in history taking, diagnosis and patient management	*	*	*	*				*	*
5.2 Demonstrates the ability to use medical devices safely		*	*					*	*
5.3 Understands and demonstrates infection prevention and management		*	*						*
6.1 Understands the nature, structure and properties of matter, radioactivity, magnetism, ionising radiation and ultrasound and their application in imaging modalities, and understands the principles of radiation protection in the clinical setting			*				*		

HLO	Patient feedback	MSF	DOPs	Mini-IPX	CBD	Logbook	College examination	Reflective records	CS reports
6.2 Recognises the appropriate use and operation of medical and dental imaging equipment and contrast agents		*	*				*	*	*
6.3 Understands the principles of quality assurance in imaging and recognises artefacts			*	*			*	*	
7.1 Understands the principles of intra-oral and extra-oral radiographic techniques which demonstrate the dento-alveolar region			*				*		
7.2 Understands normal and variant anatomy relevant to dento-alveolar imaging				*		*	*		
7.3 Provides expert dento-alveolar image interpretation on both plain radiographs and Cone Beam CT				*	*	*	*	*	*
7.4 Recognises how diagnosis affects the management pathway		*		*	*			*	*
8.1 Understands normal and variant anatomy relevant to the head and neck region				*	*	*	*		
8.2 Understands the principles of extra-oral imaging of the maxillofacial skeleton				*			*		
8.3 Provides expert interpretation of cross-sectional images of the head and neck				*	*	*	*	*	*

Section E: Glossary of terms and references

ABFTD	Advisory Board for Foundation Training in Dentistry
ABSTD	Advisory Board for Specialty Training in Dentistry
ACAT	Acute Care Assessment Tool
ACF	Academic Clinical Fellow
AoA	Assessment of Audit
ARCP	Annual Review of Competency Progression
CAT	Critically Appraised Topic
CBD	Case-based discussion
CCST	Certificate of Completion of Specialty Training
CEX/mini CEX	Clinical evaluation exercise
CPA	Competence in practice assessment
COPDEND	Committee of Postgraduate Dental Deans and Directors
CPD	Continuing Professional Development
DDMFR	Diploma in Dental and Maxillofacial Radiology
DDPH	Diploma in Dental Public Health
DOP/DOPS	Direct observation of procedure/procedural skills
DSFE	Dental Specialty Fellowship Examinations
EPA	Entrustable professional activities
ES	Educational Supervisor
ESR	Educational Supervisor’s Report
F(DPH) College	Fellowship in Dental Public Health
F(Endo) College	Fellowship in Endodontics
F(Orth) College	Fellowship in Orthodontics
F(OS) College	Fellowship in Oral Surgery

F(OM) College	Fellowship in Oral Medicine
F(Paed Dent) College	Fellowship in Paediatric Dentistry
F(Perio) College	Fellowship in Periodontics
F(Pros) College	Fellowship in Prosthodontics
F(RD) College	Fellowship in Restorative Dentistry
F(SCD) College	Fellowship in Special Care Dentistry
FRCPath	Fellowship of the Royal College of Pathologists
FRCR	Fellowship of The Royal College of Radiologists
GDC	General Dental Council
HcAT	Healthcare Assessment and Training
HEIW	Health Education and Improvement Wales
HEE	Health Education England
ISCP	Intercollegiate Surgical Curriculum Project
ISFE	Intercollegiate Specialty Fellowship Examination
JCPTD	Joint Committee for Postgraduate Training in Dentistry
MSF	Multi-source feedback
NES	NHS Education for Scotland
NHSE	National Health Service England
NIHR	National Institute for Health and Care Research
NIMDTA	Northern Ireland Medical and Dental Training Agency
NTN	National Training Number
OoP	Out of Programme
OoPC	Out of Programme: Career Break
OoPE	Out of Programme: non-training Experience
OoPR	Out of Programme: Research

OoPT	Out of Programme: Training
OoT	Observation of teaching
OSCE	Objective Structured Clinical Examination
PBA	Procedure-Based Assessments
PGDD	Postgraduate Dental Deans and Directors
PDP	Personal Development Plan
QA	Quality Assurance
RCP	Review of Competency Progression
RCS Ed	Royal College of Surgeons of Edinburgh
RCS Eng	Royal College of Surgeons of England
RCPSG	Royal College of Physicians and Surgeons of Glasgow
RCR	Royal College of Radiologists
SAC	Specialty Advisory Committee
SCRT	Specialty Curriculum Review Team
STC	Specialty Training Committee
StR	Specialty Training Registrar* note, the interchangeable term Specialty Trainee is used in the Dental Gold Guide
TPD	Training Programme Director
VTN	Visitor Training Number
WPBA	Workplace Based Assessment
WR	Written report
WTE	Whole Time Equivalent

References:

- GDC Principles and Criteria for Specialist Listing incorporating the Standards for Specialty Education 2019 and GDC principles of specialist listing
- Dental Gold Guide 2023 – COPDEND