General Dental Council

JMDF
JOINT MEETING OF DENTAL FACULTIES

Orthodontics
Specialty Training Curriculum

Approved by GDC Registrar: 15 December 2023

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 General Dental Council's (GDC) Specialist List for Orthodontics.

It also demonstrates how Orthodontics meets the GDC's 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 Orthodontics 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

The Orthodontic curriculum was written by the SAC in Orthodontics Curriculum Working Group: Professor Martyn Cobourne, Professor Sue Cunningham, Dr Jayne Harrison, Professor Tony Ireland and Professor Grant McIntyre, with input from the Orthodontic SAC and wider Orthodontic communities both in the UK and internationally. Their continual input to the curriculum development process and also in determining the value of a Master's degree in Orthodontic specialty training is greatly appreciated.

Section A: Purpose statement for Orthodontics

1. Introduction to the Orthodontics Specialty

In November 1995 the Curriculum Working Party of the SAC in Orthodontics produced a curriculum, together with aims, objectives, content, learning outcomes and assessments preparing trainees for the Fellowship in Orthodontics examinations of the Royal Colleges (FOrth). The curriculum was set out, in accordance with modern educational practice, in a modular format to assist teaching and assessment.

In response to a request from the Specialist Dental Education Board of the GDC in 2008, a new version was published in 2010 to reflect the need for an outcome-based curriculum which was indicative of the competencies required at the varying levels of training within the specialty together with the knowledge, skills and attitudes achieved by the trainee in acquiring those competencies. The extensive revision of the curriculum was based on current thinking and the requirements for greater protection of the public by providing clear information as to the level of training achieved, improved access to specialist training by general practitioners, greater flexibility to training through the availability of both full and part-time training pathways, giving appropriate recognition for accredited prior learning, producing a competent workforce with the appropriate skills and knowledge necessary to meet the varying levels of treatment complexity, as well as considering the relative need and demand of potential patients.

This is an update of the 2010 curriculum and will map to the syllabus that the SAC will develop in conjunction with the British Orthodontic Society (BOS). It will be housed on the BOS website for open access, whilst the Fellowship in Orthodontics assessment documents are available from the quad-collegiate exam board of the surgical Royal Colleges. It is important that this curriculum is not read in isolation, but in conjunction with these documents as well.

In updating the 2010 curriculum, cognisance was taken of two important research outputs (Oliver et al, 2020 and Jopson et al, 2021) which both surveyed specialist orthodontists regarding their perceptions of different aspects of specialty training in the UK. Oliver et al (2020) found that the current training system had prepared 68% of respondents “extremely well” or “very well” for working as a specialist and 66.3% of respondents in Jopson et al (2021) found that the higher degree helped prepare them to meet the learning objectives in the Orthodontics curriculum. The existing 2010 and revised curriculum therefore prepare trainees well for their future career.

In helping to train Specialists in Orthodontics / orthodontists, this curriculum meets GDC principles and criteria for specialty listing in the following ways:

- a Specialist in Orthodontics / orthodontist is a dentist who has undergone recognised formal scientific, practical and evidence-based clinical and academic training in orthodontics

- the GDC specialty of Orthodontics is concerned with the diagnosis, prevention, interception and treatment of irregularities affecting the teeth, bite (malocclusion) and growth of the face in both children and adults.

During a pre-CCST three-year full-time (or part-time equivalent) training programme, the specialist will become competent in:

- diagnosis and management of common conditions, along with some awareness of, and experience in, the management of rarer conditions
- the use of contemporary removable and fixed orthodontic appliances
- discussing treatment options with patients and their families and obtaining appropriate informed consent
- the provision of safe, effective and evidence-based orthodontic care
- contributing to the development of scientific knowledge and education in Orthodontics.

Through the correction of malocclusion, a Specialist in Orthodontics / orthodontist improves the health, function and aesthetics of the teeth, bite and facial growth anomalies and in doing so, many patients derive an improvement in psychological and social wellbeing.

The skills, knowledge and expertise required to be a Specialist in Orthodontics / orthodontist are assessed in the workplace throughout the period of training, by successful completion of a higher university degree with a research component (or equivalent) and passing the Fellowship in Orthodontics awarded by the surgical Royal Colleges. The research component of training (via a university higher degree or equivalent) produces laboratory, translational and clinical research evidence which continually drives the specialty forwards, which benefits patients and the public. The FOrth is one of the key tests of knowledge and competencies at specialist level.

Primary care orthodontics

The majority of UK Specialists in Orthodontics / orthodontists deliver treatment on an out-patient basis in primary care, for example, high street practice, where mild, moderate and some complex malocclusions are managed (either within the NHS or through private funding) or in an NHS community-based environment where specialists treat patients with additional needs. The primary route of referral would be from a general dental practitioner (GDP) to the primary care Specialist in Orthodontics / orthodontist, with the patient remaining registered with their GDP for maintenance of ongoing dental and oral healthcare. Where patients self-refer, such patients are encouraged to register or remain registered with a GDP for their general dental requirements.

Hospital orthodontics

Specialists in Orthodontics / orthodontists can undertake a further two-year recognised clinical, hospital management and academic training programme (post-CCST training) to become an NHS consultant orthodontist. The information relating to this part of training is contained within

the syllabus for Orthodontics, held by BOS. They work in secondary care (hospital) and provide advice to primary care practitioners and other hospital-based specialties and undertake sub-specialty management of patients requiring complex multidisciplinary care, including those with multiple buried and/or missing teeth, significant facial skeletal discrepancies requiring orthodontic preparation for jaw surgery and craniofacial anomalies including cleft lip and/or palate. They are usually involved in teaching and training future specialists and in undertaking research. Patients do not self-refer to hospital Specialists in Orthodontics / orthodontists and most referrals come via a GDP who remains responsible for the maintenance of dental and oral healthcare throughout the period of orthodontic care or by a primary care Specialist on Orthodontics / orthodontist. A minority of patients are referred by other healthcare workers and on accepting such referrals, it is the responsibility of the hospital orthodontist to ensure the patient is registered with a GDP.

Academic orthodontics

Specialists in Orthodontics / orthodontists may also work in a university and will be involved in teaching various student and trainee groups as well as undertaking clinical and scientific research. It would be expected that the majority of Specialists in Orthodontics / orthodontists working in an academic environment would undertake a PhD to further their academic career and would undergo honorary academic ST4-5 training to enable them to be eligible for honorary consultant status.

Specialists in Orthodontics / orthodontists also work with local NHS commissioners and as part of Managed Clinical Networks (England) to develop oral health needs assessments for relevant populations in order to ensure appropriate allocation and use of NHS treatment resources. Irrespective of the setting in which a Specialist in Orthodontics / and orthodontist works, patients' general dental needs are the responsibility of the GDP.

Referral pathways

Helpful guidance for the primary care dentist referring patients to the different types of orthodontic provider is detailed by BOS in Making an Orthodontic Referral. BOS has also produced the Quick Reference Guide to Orthodontic Assessment and Treatment, Moving and Transferring During Treatment, Limited Treatment Orthodontics (LTO) and Orthodontics Careers for Nurses, Technicians and Therapists.

2. Principles and criteria for Orthodontics Specialty Listing

Orthodontics is a distinct branch of dentistry and the terms "Specialist in Orthodontics" and "orthodontist" are synonymous and are well-known to the UK public as relating to dentists who have specific knowledge and skills in the treatment of disorders of the teeth, bite and growth of the face in children and adults. Patients are increasingly aware of the benefits of orthodontic treatment in order to improve self-confidence and self-esteem, as well as improving dental health and function.

A Specialist in Orthodontics / orthodontist will be involved in the diagnosis, treatment planning and delivery of orthodontic treatment for patients with the following problems:

- impacted (buried) teeth
- teeth that are crowded / spaced / rotated
- supernumerary / supplemental (additional) and submerging deciduous molar teeth
- overjet (protruding upper front teeth) or reverse bite (where the lower front teeth bite in front of the upper front teeth)
- crossbites, deep bites / open bites
- missing teeth where adjunctive paediatric / restorative dentistry treatment is also required.

A Specialist in Orthodontics / orthodontist will also have an understanding of the diagnosis, treatment planning and delivery of orthodontic treatment for patients:

- with clefts of the lip/palate and other craniofacial disorders from birth through to adulthood
- those requiring multidisciplinary orthodontic treatment and orthognathic (jaw) surgery for dentofacial disharmony
- where there are multiple missing or impacted (buried) teeth requiring interdisciplinary care.

A Specialist in Orthodontics / orthodontist is a dentist who has undergone specialist training and has been entered onto the UK GDC Specialist List. In reaching this level within the profession, a Specialist in Orthodontics / orthodontist will have made a contribution to advancing scientific knowledge through participation in research. This is most commonly evidenced through undertaking a university higher degree during specialty training. As a result, the orthodontic specialty in the UK engenders continuous development of scientific knowledge and education which continues into life-long practice in the specialty. Research undertaken as part of specialty training, has contributed significantly to the evidence base on which clinical practice is based. The competencies delivered by the university higher degree are detailed in section D.

3. Entry to the training programme

Entry to both pre-CCST and post-CCST specialty training programmes is through competitive entry and the recruitment process ensures that applicants are assessed against the essential and desirable criteria contained within the person specification. The person specification is written and developed by a range of stakeholders.

The person specification for recruitment to a specialty trainee post is published by the Committee of Postgraduate Dental Deans and Directors (COPDEND). The current versions are available at NHS England's Workforce, training and education Orthodontic National Recruitment - ST1 webpage and will be updated as necessary.

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.

Orthodontics, like many of the dental specialties is highly competitive and dentists pursuing a career as a Specialist in Orthodontics / orthodontist are advised to plan well in advance of submitting their application. A wide range of experience within different dental specialties prior to entering specialist orthodontic training generally produces a more holistic and knowledgeable specialist who understands patient pathways to and from the related branches of dentistry at the end of their training.

4. Outline of the training programme

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

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

The importance of a varied educational experience with multiple trainers cannot be underestimated for a well-rounded experience.

These factors ensure trainees have a mix of educational settings, trainers and caseloads whilst ensuring trainees mix with other people in training at the base unit for shared learning with other colleagues to ensure greater understanding of team-working and shared patient care.

Progress through training is assessed via the Annual Review of Competence Progression (ARCP) process and training is completed when all the curriculum requirements are satisfied and relevant competencies have been acquired and evidenced. Three years' (full-time) training (or less than full time equivalent) would normally be required for the satisfactory completion of the Orthodontic curriculum to the required depth and breadth. However, the ARCP process allows for adjustments to be made to increase training time where appropriate. Where post-CCST

training is undertaken for the Specialist in Orthodontics / orthodontist to become a hospital consultant, the ARCP process is also used to monitor progress. Where a PhD is being pursued as part of an academic career, the specific university monitoring and assessment processes are followed.

5. Training specific to Orthodontics

The delivery of pre-CCST training for the majority of trainees ideally works through the close synergistic liaison between universities and hospitals in order to deliver a broad high quality educational experience such that trainees are successful in the Fellowship in Orthodontics examination and a master's degree incorporating a research project. Where trainees do not undertake a university higher degree, the alternative routes to satisfy this competency will be assessed as part of the ARCP to enable trainees to progress through to completion of specialty training. This relationship between the NHS and universities is also important for post-CCST training, particularly in relation to developing competencies in management and strengthening academic and clinical acumen.

Duration of training

The training programmes in the UK are recognised worldwide for their high quality and over the last thirty years have evolved into the three-year programme to Specialist level and the additional two years of post-CCST training to consultant level. Training to the level of a specialist after three years is in line with European Erasmus training programmes and fulfils the requirements of the directives of the Commission of the European Communities on Dental Education regarding the education of a Specialist in Orthodontics / orthodontist, the Advisory Committee on the training of dental practitioners and the World Federation of Orthodontists guidelines for postgraduate orthodontic education. The additional two years of training to consultant level fulfils the need for additional sub-specialist training and whilst this differs to other European countries, it is in line with the 31 medical subspecialties that map to the 65 General Medical Council (GMC) specialties.

Contribution from BOS to delivery of the curriculum

BOS is a charitable organisation which aims to provide patient support and information and also contributes to the highest possible patient care through lifelong education in orthodontics. The lifelong learning is provided through many routes by the BOS Education Directorate. The virtual learning environment, devised and authored by NHS consultants and university academics, maps directly to the current curriculum and also houses the accompanying syllabus with the relevant supporting documentation. Specialty trainees and their trainers have free access to this as well as a number of other training opportunities.

Furthermore, members of the Training Grades Group (TGG) have developed a number of online groups to provide specialty trainees with examination preparation sessions.

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.

The Higher Learning Outcomes (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:

- clinical examination exercise
- 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 or stage of training and these should be agreed with the training provider(s) as part of the ARCP 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 ARCP process and training is completed when all the curriculum requirements are satisfied and HLOs have been evidenced.

Specialty trainees undertake the following summative examinations as part of the training programme:

- pre-CCST training: specialty trainees sit the quad-collegiate Fellowship in Orthodontics. Entry to this examination requires approval from the training programme director and postgraduate dental dean that adequate training time has been undertaken and that adequate clinical experience has been gained prior to submitting an application
- university examinations (where this route is selected) are undertaken during the university higher degree. The regulations relating to these are specific to individual universities and are not within the remit of the SAC to determine.

7. Research

Orthodontic specialty trainees not only undertake research as part of their specialist training programme but this research activity contributes to the high-quality evidence base within the specialty, resulting in continual development of the scientific and clinical knowledge base underpinning clinical and academic orthodontics. A major strength of the orthodontic specialty is that those in training contribute to improving patient outcomes and care, through research, from the beginning of their careers.

The research component of the programme also serves to further trainees' research experience to a level that is far more meaningful than critical appraisal skills alone (Oliver et al, 2020). Additional skills include, but are not limited to, research integrity, research ethics, understanding the complexities in designing studies, data collection, data interpretation, discussing new findings in the context of existing literature, understanding study limitations and determining steps for further work. The projects undertaken as part of a higher degree add to the orthodontic research base and increase the UK's reputation internationally. Additionally, managing the balance of research and clinical work during a training programme, serves to build time management skills at a specialist level, something which is required for all clinicians, regardless of the environment in which they ultimately work.

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.

The Advancing Dental Care Report [for England] also highlights the importance of research in dentistry and within the report reference to “research” is made on 20 occasions. Attention is drawn to page 35: “Across the postgraduate dental training structure, we will work with Higher Education Institutions (HEIs) and Trusts to embed research training and opportunities at every stage of training (Dental Foundation, Core and Specialty) outside of academic training posts.”

This curriculum has therefore been written with participation in research as a core activity which allows specialty trainees to embed the principle of continuous improvement of patient care from the beginning of their career in orthodontics.

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 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 • demonstrating competency in obtaining informed consent. Effectively and respectfully communicate with colleagues by:

Outcome	Examples
	• promoting and effectively participating in multidisciplinary, interprofessional team working • communicating 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 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	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

Outcome	Examples
jurisdiction of practice	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 • recognising and working towards achieving carbon neutrality within the context of 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

Outcome	Examples
	• 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

Outcome	Examples
	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 specialist services	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 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 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,	They should do this by: • using a range of quality improvement methodologies to improve dental services and improve patient care

Outcome	Examples
patient safety, care or experience	• 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 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.
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 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.

Outcome	Examples
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 Orthodontics

Domain 5: Key Clinical Skills

Pre-CCST Specialty Training Outcomes / ST1-3.

The following outcomes are delivered by a three-year period of full-time (or part-time equivalent) UK Specialty Training in Orthodontics at Level 7 of the UK Regulated Qualifications Framework (RQF) for England, Wales and Northern Ireland and Level 11 of the Scottish Credit and Qualifications Framework (SCQF).

They are developed from the 2010 curriculum and mapped to the syllabus with the participation in research aspect being informed by the Advancing Dental Care report for England.

Outcome	Examples
5.1 Have a comprehensive understanding of development and growth of the facial complex, dentition, occlusion and psychosocial development	The Specialist in Orthodontics / orthodontist has an understanding of the genetic and embryonic basis of development, including comprehensive knowledge of craniofacial development, postnatal growth of the facial complex, development of the dentition and occlusion and psychological development from birth to adulthood. They will recognise the influence of genetics and environment on development of the occlusion and the epidemiological and aetiological basis of malocclusion.
5.2 Possess authoritative knowledge about orthodontic diagnosis and treatment planning	The Specialist in Orthodontics / orthodontist can undertake a comprehensive orthodontic examination of the oro-facial region, including static and functional occlusion, facial aesthetics and the upper airway. In addition, they are able to: • diagnose malocclusions, and plan and prescribe safe, effective, evidence-based orthodontic treatment for children and adults • identify those patients with more complex general medical and management needs and refer them when appropriate • interpret all relevant diagnostic information from two-dimensional and three-dimensional imaging of the dentofacial complex, including conventional dental radiography, cephalometric radiography

Outcome	Examples
	and cone-beam computerised tomography along with subsequent analyses or reported data, as part of the process of orthodontic diagnosis and incorporate the findings into an appropriate treatment plan.
5.3 Be able to delivery expert level orthodontic care	The Specialist in Orthodontics / orthodontist will have had experience of treating a specified number of patients (100-140 cases with a significant number of this caseload being from start to completion of treatment) during specialty training (the breakdown of the recommended case mix is detailed in the syllabus for orthodontics), and: • is competent in the interceptive management of a developing malocclusion • has a comprehensive understanding of the biological and biomechanical basis of orthodontic tooth movement and dentofacial orthopaedics • is able to work as part of the orthodontic team (including orthodontic nurses, technicians and therapists) and prescribe and use contemporary removable appliances, functional appliances and headgear (for growth modification) and fixed appliance systems to correct malocclusions for patients of all ages • has an understanding of the role of aligners, lingual appliances and other appliance developments for appropriate malocclusions • is competent in the principles of anchorage management and the use of devices for its control • has an understanding of the science relating to biomaterials used in orthodontic treatment • understands the long-term effects of orthodontic treatment including potential iatrogenic damage that can occur as a consequence of treatment • is able to prescribe and provide appropriate retention regimes • is able to manage orthodontic emergencies that may arise in relation to the use of all appliance systems • is able to determine the specific clinical tasks that can be delegated to an orthodontic therapist and to monitor treatment objectives and intercept where appropriate.

Outcome	Examples
5.4 Possess a thorough understanding and be able to deliver multidisciplinary care as part of a wider team	The Specialist in Orthodontics / orthodontist can diagnose, and co-ordinate treatment of local problems associated with the developing dentition, recognising different options for adjunctive treatment and liaising with appropriate colleagues as part of the care pathway. They are able to manage patients who require minor oral surgery and orthodontics, including those with unerupted and impacted teeth and those requiring some restorative care, including those with mild tooth agenesis, periodontal problems and/or trauma. They are able to recognise and refer patients who require treatment within more complex care pathways, including those with facial deformity, requiring maxillo-facial surgical input, multiple tooth impactions and significant tooth agenesis.
5.5 Through participation in research and/or evidence-based practice, be authoritative about the biological and longitudinal nature of orthodontic care	A Specialist in Orthodontics / orthodontist must demonstrate that they can: • keep up to date with current research and best practice in orthodontics, through appropriate continuing professional development activities and their own independent study and reflection • practise in line with the latest evidence • conduct literature searches and reviews to inform professional practice • critically appraise the academic literature • understand the role of evidence in clinical practice and demonstrate shared decision-making with patients • locate and use clinical guidelines appropriately • demonstrate appropriate knowledge of research methods, including qualitative and quantitative approaches in scientific enquiry

Outcome	Examples

	• demonstrate appropriate knowledge of research principles and concepts and the translation of research into practice, including:
	  ○ recruitment into trials and research programmes
	  ○ ethical implications of research governance
	• understand and promote innovation in healthcare
	• understand and apply:
	  ○ informatics
	  ○ genomics
	  ○ stratified risk and personalised medicine
	• draw from public health epidemiology and other data sources and large-scale reviews
	• communicate and interpret research evidence in a meaningful way for patients to support them making informed decisions about treatment and management.
	
	Research undertaken by orthodontic specialty trainees is far more meaningful than critical appraisal skills alone (Oliver et al, 2020).
	
	Additional skills include, but are not limited to, research integrity, research ethics, understanding the complexities in designing studies, data collection, data interpretation, discussing new findings in the context of existing literature, understanding study limitations, and determining steps for further work.

5.6 Able to describe management and organisation of orthodontic services in primary care	The Specialist in Orthodontics / orthodontist has a comprehensive knowledge of the organisation of primary care orthodontic services (and the potential for primary care orthodontic experience with approved clinical trainers) including the rules, regulations and guidance provided by: • the Care Quality Commission (CQC), Healthcare Improvement Scotland, Healthcare Inspectorate Wales and the Regulation and Quality Improvement Authority (Northern Ireland) • the NHS Business Services Authority (BSA) • local NHS Commissioning bodies • Managed Clinical Networks (MCN) and their equivalent bodies in the devolved nations

Outcome	Examples
	• interaction with other dental groups

Orthodontics assessments blueprint

HLO	MSF	CEX	DOPs	CDB	BOS VLE tests	Logbook	College examination	University higher degree or equivalent	ES / research supervisor report	Published papers	Patient / service user feedback
5.1 Development and growth				*			*				
5.2 Orthodontic diagnosis and treatment planning	*	*	*	*		*	*				*
5.3 Delivery of orthodontic care	*	*	*	*		*	*				*
5.4 Multidisciplinary care	*	*	*	*		*	*				
5.5 Research and evidence-based practice in relation to the biological and longitudinal nature of orthodontic care								*	*	*	
5.6 Management in primary care				*	*		*				

Participation in research and/or evidence-based practice for orthodontics will be achieved by successful completion of one of the following routes:

- Route 1: Taught Clinical Masters, Master of Research (MRes), doctorate or equivalent university higher degree in orthodontics that involves an original research project undertaken during the specialty training programme
- Route 2: an authored contribution normally, but not exclusively, within the speciality of orthodontics incorporating several of the above components and undertaken during the specialty training programme, based on original research, systematic review or a quality-improvement project and accepted for publication in a PubMed-listed journal; or delivered as an oral presentation by the trainee to a national or international conference
- Route 3: successful completion and approval of an NHS research ethics application undertaken during the specialty training programme with the trainee demonstrating direct involvement in the subsequent research project.

Progress will be assessed through the regional RCP process. The method by which the selected Route would be satisfied will be agreed at the trainee's initial six-month RCP. Training progression would be dependent on successful demonstration of the above competences. Quality management would be by individual Statutory Education Bodies (SEB) and quality assurance by the GDC.

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
GDP	General dental practitioner
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
SEB	Statutory Education Body
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
- Three years Postgraduate Programme in Orthodontics: The Final Report of the Erasmus Project. FPGM van der Linden. European Journal of Orthodontics 1992. 14: 85-94
- Advisory Committee on the training of dental practitioner's report on the field of activity and training programmes for the dental specialists. 1986 European Commission Directive number III/D/1374/5/84-EN
- Draft Proficiencies of the Advisory Committee on the training of Dental Practitioners. 2004 European Commission Directive 78/687/EEC
- The World Federation of Orthodontists (WFO) guidelines for postgraduate orthodontic education. World Journal of Orthodontics 2009. 10: 153-166
- Interim Memorandum of understanding between the General Dental Council (GDC) and the members of the Joint Committee for Specialist Training in Dentistry (JCSTD), 2008
- Curriculum and Specialist Training Programme in Orthodontics. The Joint Committee for Postgraduate Training in Dentistry / The Specialty Advisory Committee in Orthodontics, 2010 (Higher Specialist Training Documents and Curricula — Royal College of Surgeons (rcseng.ac.uk)

- Oliver GR et al. What I wish I'd learned as an orthodontic trainee: an online survey of British Orthodontic Society members concerning postgraduate training experiences. J Orthod 2020;47:116-28
- Jopson JL. The perceptions of undertaking a higher degree alongside orthodontic speciality training: a cross-sectional survey of British Orthodontic Society members. Br Dent J. 2021 Nov 23:1–8.