



Training Requirements for the Specialty of Oral & Maxillo-Facial Surgery (OMFS)¹ European Standards of Postgraduate Medical Specialist Training October 2021

Preamble about UEMS: a key element of every ETR

The UEMS is a non-governmental organisation representing national associations of medical specialists at the European level. With a current membership of 40 national associations and operating through 43 Specialist Sections and their European Boards, 17 Multidisciplinary Joint Committees and 4 Thematic Federations the UEMS is committed to promote the free movement of medical specialists across Europe while ensuring the highest level of training which will pave the way to the improvement of quality of care for the benefit of all European citizens and beyond. The UEMS areas of expertise notably encompass Continuing Medical Education, Post Graduate Training and Quality Assurance in Medical Specialist Practice.

It is the UEMS' conviction that the quality of medical care and expertise are directly linked to the quality of training provided to the medical professionals. Therefore the UEMS committed itself to contribute to the improvement of medical training at the European level through the development of European Training Requirements (ETR) in the medical disciplines. No matter where doctors are trained, they should have at least the same core competencies.

In 1994, the UEMS adopted its Charter on Post Graduate Training aiming at providing the recommendations at the European level for good medical training. Made up of six chapters, this Charter set the basis for the European approach in the field of Post Graduate Training. With five chapters being common to all specialties, the Charter provided a sixth chapter ("Chapter 6"), that Specialist Sections and their Divisions were to complete according to the specific needs of their discipline.

After the introduction of this Charter, the UEMS Specialist Sections and other UEMS Bodies have continued working on developing these ETRs that reflect modern medical practice and current scientific findings. The UEMS ETRs are a voluntary effort of European medical specialists and do not aim to supersede the national curricula developed by National Competent Authorities that define the content and course of postgraduate training in their own States. UEMS aim is to indicate the knowledge and competencies that should be achieved by trainees in EU/EEA countries and also competencies and organization of the training centers. The training environment and results described in UEMS European Training Requirements may be achieved in many ways, depending on local traditions, organization of healthcare system and of medical specialist training. Adaptation of UEMS ETRs to local conditions assures the highest quality of specialist training and each state may include additional requirements, depending on local needs. UEMS ETRs are developed on the basis of medical specialist training in EU/EEA countries but are applicable and relevant globally, and may be implemented in any country with organized medical specialist training.

At the European level, the legal mechanism ensuring the free movement of doctors through the recognition of their qualifications was established back in the 1970s by the European Union. Sectorial Directives were adopted, and one Directive addressed specifically the issue of medical Training at the European level. In 2005, the European Commission proposed to the European Parliament and Council to have a unique legal framework for the recognition of the Professional Qualifications to facilitate and improve the mobility of all workers throughout Europe. This

¹ Oral and Maxillo-Facial Surgery, OMFS and 'Facial Surgery are used within this document to describe the two Annex V specialties of Dental-Oro-Maxillo-Facial Surgery and Maxillo-Facial Surgery. This is fully explained in the text. Relevant EU law available at UEMS OMFS Section website www.omfsuems.eu

Directive 2005/36/EC established the mechanism of automatic mutual recognition of qualifications for medical doctors among all Member States. The recognition is based on a review of the training content, its duration and on a certificate of completion of education and training. Directive 2011/24/EU of the European Parliament and of the Council of 9 March 2011 on the application of patients' rights in cross-border healthcare introduced a strong incentive for harmonization of training and competencies among EU/EEA Countries through requirements to assure good quality of care to increasingly mobile European citizens.

Given the long-standing experience of UEMS Specialist Sections and other UEMS Bodies on the one hand and the European legal framework enabling medical specialists and trainees to move from one country to another the UEMS is uniquely in position to provide specialty-based recommendations. The UEMS values professional competence as “the habitual and judicious use of communication, knowledge, technical skills, clinical reasoning, emotions, values, and reflection in daily practice for the benefit of the individual and community being served”[1]. While professional activity is regulated by national law in EU Member States, it is the UEMS understanding that it has to comply with international treaties and UN declarations on Human Rights as well as the WMA International Code of Medical Ethics.

The UEMS ETR documents derive from the previous Chapter 6 of the Training Charter and provide definitions of specialist competencies and procedures as well as how to document and assess them. The ETRs aim to provide the basic training requirements for each specialty as well as optional elements and should be regularly updated by UEMS Specialist Sections and European Boards to reflect scientific and medical progress. The three-part structure of these documents reflects the UEMS approach to have a coherent pragmatic document not only for medical specialists but also for decision-makers at the national and European level interested in knowing more about medical specialist training.

Process of Creating this ETR in OMFS

The key element of every UEMS ETR is that its contents should reflect the key elements of specialist training and practice within countries where DOMFS or MFS are recognised (see map below). The authors' approach has been to seek out the most clearly defined and well documented elements describing the core capabilities, competencies, knowledge base and behaviours within all existing OMFS training programmes across the countries of UEMS and combine them into this ETR. To this end all the national delegates to the OMFS Section have shared their nation's OMFS training curriculum. These documents have been placed on the OMFS Section website www.omfsuems.eu where they can be downloaded by anyone who is interested. There are no elements within this ETR which are not written in existing curricula.

Summarising the size of the 20 written OMFS curricula used to generate this ETR they range from 2 to 286 pages with a mean of 63 pages. The areas of competency within this ETR have been mapped across all these curricula. The longer curricula include detailed competencies. Others provide higher level capabilities e.g. “managing an unfiltered acute take of OMFS patients”. Both competencies and capabilities are useful for setting objectives and assessing progress of trainees and so both are included in this ETR.

A detailed syllabus or knowledge base is only present in the longer OMFS curricula. Where the knowledge base is defined, these have been collated along with extracting topics from the previous European Board Examinations (clinical and written exams). Topics and details from both sources were added to the structure defined on the eLearning for Health format of e-Face <https://portal.e-lfh.org.uk/> . Most importantly, the knowledge base in this ETR has been defined by contributions from UEMS Bodies listed in Appendix 5. Some of these contributions were extensive and detailed, and the authors gratefully acknowledge their time and effort.

Where indicative numbers of procedures exist, these have been summarised onto the table at www.omfsuems.eu . The few UEMS nations in which DOMFS or MFS exist as specialty which do not yet have a written curriculum or syllabus may use this ETR when it is approved.

Primary Goal of this ETR in OMFS

In common with all surgical training programmes, the primary goal of an OMFS training is to provide the trainee with a broad knowledge base, the necessary generic surgical skills and experience as well as professional judgement for independent surgical practice. A further goal is to promote critical evaluation and assessment, the ability of self-directed learning aiming to achieve clinical expertise, professionalism, excellence in management, communication skills, as well as the ability to interact with other specialties and to conduct research.

It is recognised that there are a number of national structural and operational differences in the national healthcare systems, appointments and registration procedures, as well as training pathways in these different countries. This document provides the basis for the development of a harmonised, comprehensive, structured and balanced training programme in OMFS.

Every OMFS trainee and specialist should be a good doctor. We have focused the content of this ETR on those areas of being a doctor which we consider specific to OMFS. All doctors should have the patient's care at the forefront of their thoughts. They should be able and willing to work in a multi-disciplinary way with all professions who work in and around healthcare for the benefit of the patient.

OMFS covers the examination, prevention, treatment and rehabilitation of the congenital and acquired pathologic conditions of the head (cranium, face), the neck, the mouth, the teeth and the jaws, including the skin. Acquired conditions may result from disease, tumour, trauma, degeneration and ageing. The focus within these areas may vary within each country.

Patient safety and competent practice are both essential elements of specialty training and specialty practice. This ETR aims to promote safety and competence with safety-critical training programme content, defined levels of performance of the trainee, the definition of critical progression points, as well as the degree of trainer supervision. The aim is that upon satisfactory completion of training programmes and trainees should be able to work safely and competently in the defined area of practice and to be able to manage or mitigate relevant risks effectively. A curriculum should be specific and refers to the entire content taught in the training programme, detailing the objectives, academic content and the methodologies to be adopted during training in order to achieve the aims. The syllabus is more descriptive and explicitly describes what areas of knowledge are required to complete training.

A feature of the curriculum is that it promotes and encourages clinical excellence through a staged progression with adjusted supervision, regular assessments, and feedback, enabling trainees to safely and steadily progress.

Introduction to the Specialty of OMFS

The human face, in most cultures, is the visible manifestation of the individual. Judgments are made based on the appearance of the face and so diseases of the face impact on individuals much more than similar diseases of internal organs or limbs.

The face lies below, above and in front of critical anatomical and functional structures. Above it is the brain, behind the spinal cord and below all the major vessels and organs of the neck. Facial operations require complex skills in hard and soft tissue surgery. In addition to surgical skills, much facial surgery is inter-disciplinary. Surgeons in this field must be able to work with colleagues across medical and dental disciplines. Allied professionals also have a key role in patient care. A facial surgeon must be an empathetic physician, a team leader and a team player within a multi-disciplinary and multi-professional workplace. They must also be a critical reviewer of scientific information, an innovator and a self-driven professional. Patients who have had facial surgery understand and appreciate this.

The two surgical specialties which include "facial surgery" within Annex V are Dental-Oral-Maxillo-Facial surgery (DOMFS) and Maxillo-Facial Surgery (MFS). Within UEMS these specialties are represented by the Section of Oral and Maxillo-Facial Surgery. Specialists in DOMFS hold both

medical and dental qualifications. The majority of countries within the EEA have a specialty which includes two professions – dentists and doctors – which highlights the complex nature of delivering the highest quality of care for patients with facial problems. Because this ETR is aimed at both DOMFS and MFS, we will use the abbreviation ‘Facial Surgery and OMFS to refer to both through-out this document. The specialty names remain as they are in Annex V for each country. Throughout the remainder of this ETR for both ease of reading and clarity, we will refer to both DOMFS and MFS using Oral & Maxillo-Facial Surgery (OMFS) and ‘Facial Surgery. For individual member states this refers to MFS or DOMFS in Annex V. We hope users of this ETR will understand the pragmatic advantage of this approach.

Dental and Oral are words that the public understand to mean teeth and mouths. Maxillo originates from the Latin for jaw. Over the last 30 years the surgery undertaken by specialists trained in these two Annex V specialties has been much wider than just teeth, mouth, jaws and face. This is because reconstructing the complex skeletal structures of the face may require bone grafts taken as living transfers from the leg, hip, shoulder or arm. Removing cancer of the face may require removal of lymph nodes from the neck where metastasis may be present.

Many specialists from DOMFS and MFS undertake these resections/reconstructions within a single specialty team but others work in a multi-specialty team with the elements of the surgery being undertaken by the specialists most current in this sub-specialty competency. We have included ETRs from UEMS Sections representing the surgical and medical teams with whom we collaborate in Appendix 3 as an acknowledgement that collaborative care is essential for OMFS practice.

The key surgical domains are the major headings in our curriculum (training programme), syllabus (knowledge base), and surgical experience register (logbook). These are surgery for facial trauma, facial aesthetic & deformity, face mouth & neck cancer with reconstruction, salivary disease, oral medicine & diagnosis, head and neck cancer, cleft and craniofacial, oral and dental pathology including pre-prosthetic surgery; management of facial pain including temporomandibular joint. To these surgical domains are added the professional domains common to all surgeons including leadership, professionalism, research & ethics, lifetime learning & personal development.

Providing the highest quality care for patients with developmental or acquired diseases of the face, mouth, jaws and neck demands surgeons with wide knowledge, understanding, and skills across many domains. The balance needed at the end of training may be different as the specialist develops sub-specialty interests, focusing their vocation in a key area of care. For future surgeons in our field to be able to respond to technical and scientific innovations, a broad-based training which includes the foundations of personal development is mandatory.

Finally, we would like to highlight the difference between specialty names and the names of units in which we work. Some units try to clarify complexity of our specialty name by lengthening, rephrasing or shortening the name of their offices. Some OMFS units/departments are called ‘Facial Surgery, others Oral and Facial Surgery, Cranio-Maxillo-Facial Surgery or Maxillo-Facial/Head & Neck surgery, Paediatric Craniofacial Cleft Lip and Palate Surgery and Oral - Maxillo-and Aesthetic Facial Surgery. Often these departments are multi-disciplinary rather than single specialty based. Even when single specialty based, they will have multi-disciplinary clinics and operating lists across medical and dental boundaries. Although our training and specialists are in the specialties of OMFS, neither our patients nor their diseases recognise artificial boundaries and so it is therefore important that this ETR stresses the value of collaborative care.

History and Rationale for the Development of the specialty of OMFS

OMFS has a long and proud history in Europe. Doctors and dentists managing the horrific facial injuries during the First World War 1914-8 realised that patient care would be improved if they shared skills and knowledge across the areas of practice. Dentists realised a medical degree combined with surgical training would improve their capabilities. Surgeons working closely with dentists recognised that if they shared some the knowledge and skills of dentists, they could do

more and better. As early as 1924 Christian Bruhn demanded and initiated the double dental and medical qualification for surgeons in this field and in 1926 August Lindemann was appointed as the first dual degree Professor of OMFS.

The original reasons for the specialty of OMFS which the pioneers of the last century recognised, still exist today in both in nations with OMFS and in nations where it does not yet exist and care is provided by other surgeons who do not have dental training, and dentists who do not have medical degrees and surgical training. In the few European nations without a recognised specialty of OMFS, there are colleagues who have acquired dual degrees for the benefit of their patients even though it is not required by national regulations. Similarly in MFS nations like Czech Republic and Hungary younger surgeons are acquiring dental degrees too.

For example a severely injured patient with a fractured mandible who has a difficult wisdom tooth in the line of the fracture close to the nerve that gives feeling to the lip could present to a hospital. A surgeon without dental training and recent experience of oral surgery would not have the skills to remove the tooth safely. A dentist could be skilled enough to remove the tooth but without a medical degree and surgical training would not be able to manage a sick patient. An OMFS surgeon has the skills to manage the whole patient.

In the field of oncology in the last century a typical treatment when a surgeon removed a patient's upper jaw, a dentist would be asked to fill the gap with a large plastic bung called an obturator. The surgeon only knew how to remove the tumour and the dentist only knew how to make an obturator. OMFS surgery combines dental and surgical training and allows to fully understand the benefits of replacing the bone of the upper jaw with bone from the iliac crest, fibula or other donor sites, inserting dental implants in this new bone, and achieving full oral rehabilitation. This was a huge step forward for the care of patients with tumours involving the facial skeleton.

Notable OMFS in European Oncology, Cleft, Trauma & Craniofacial

As integrated national training and services are designed in areas of patient care which sit at the interface of many specialties, OMFS is recognised as a key specialty.

Definitions of Major Trauma Centres (MTCs) across the world including Europe² include OMFS, and training programmes for MTC leads include OMFS trainees.

The first face transplant on a patient whose face was severely damaged by a dog-attack was undertaken by a French OMFS surgeon, Bernard Devauchelle³ and his team.

National oncology services recognise the contribution of OMFS on a par with other specialties most recently in The Netherlands⁴.

One of the largest published papers on Cleft surgery was based in Europe and recognised the role of OMFS⁵.

Known as the father of modern craniofacial surgery, Paul Tessier was a French OMFS surgeon⁶.

² Chesser. T et al Development of trauma systems in Europe—reports from England, Germany, the Netherlands, and Spain, OTA International: March 2019 - Volume 2 - Issue S1 - p e019

³ Dubernard JM, Devauchelle B. Face transplantation. Lancet. 2008 Aug 23;372(9639):603-4. doi: 10.1016/S0140-6736(08)61252-0. PMID: 18722848.

⁴ Standardisation Of Multi-Disciplinary Cancer Care In The Netherlands SONCOS Report 5 2017 https://omfsuems.eu/userfiles/pages/files/omfs_curricula/standardisation_of_multidisciplinary_cancer_care_in_the_netherlands_soncos_standardisation_report_5_2017.pdf

⁵ Shaw WC et al The Eurocleft project 1996-2000: overview. J Craniomaxillofac Surg. 2001 Jun;29(3):131-40; discussion 141-2.

⁶ Paul Tessier – the father of modern craniofacial surgery https://en.wikipedia.org/wiki/Paul_Tessier

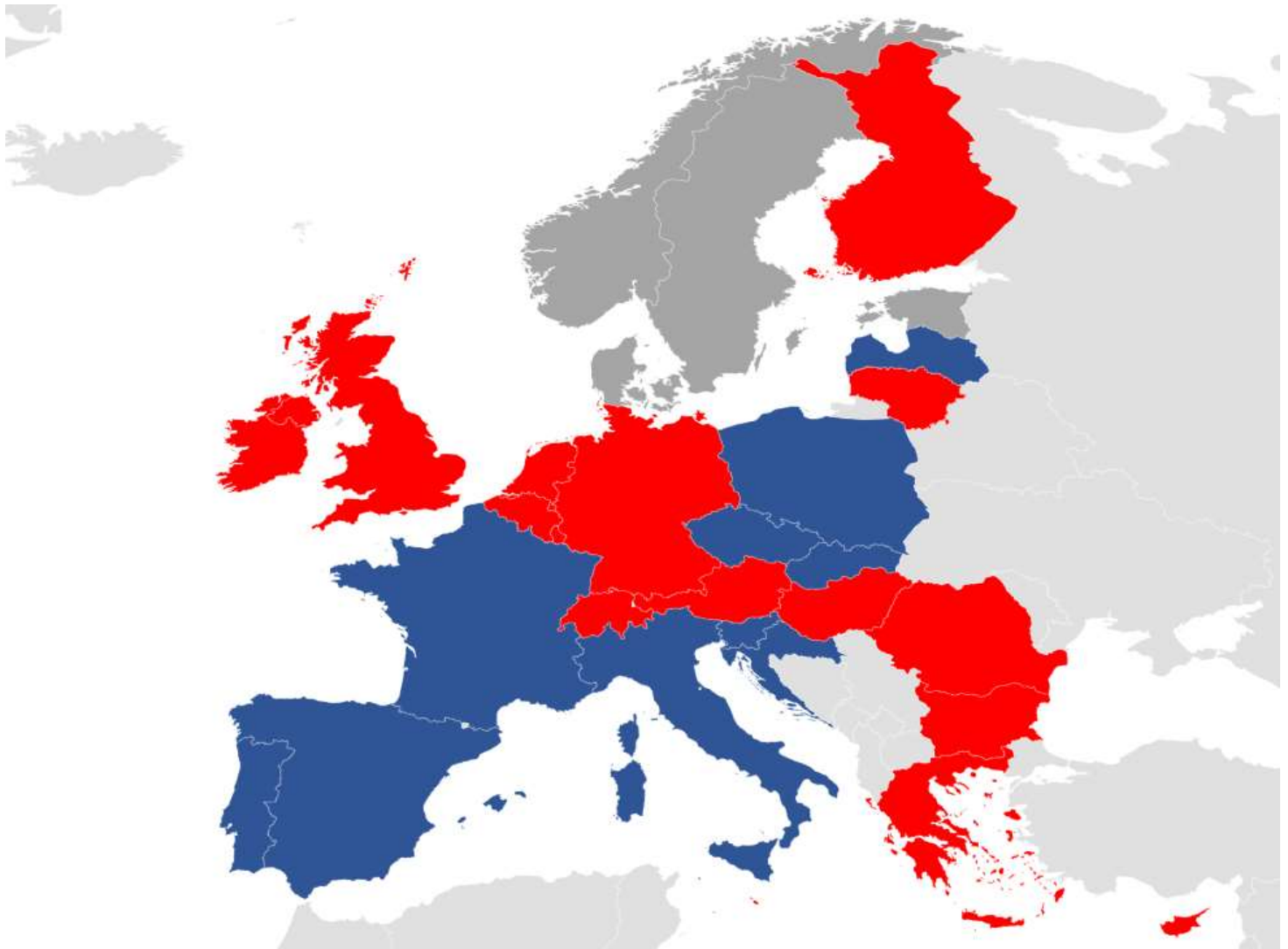
Background to OMFS in Europe

We hope that this European Training Requirements (ETR) will be useful in those countries with Dental-Oral-Maxillo-Facial surgery (DOMFS) and also Maxillo-Facial Surgery (MFS) in Annex V. For full understanding of the current situation please review Annex V PQD 2005/36 and following Documents 2013/55, Delegated Act 2016/790, COM 2016/820, Delegated Act 2017/2113, etc. - for the approval of training programmes in the member states. The denomination DOMFS corresponds to the countries where a double qualification in dentistry and medicine (assumes completion and validation of basic medical studies (Article 24) and, in addition, completion and validation of basic dental studies (Article 34) Annex V PQD 2005/36 ff.) is required to be eligible for training. MFS corresponds to the countries where a single medical qualification is required to be eligible for training and dental education has to be completed during the training.

This ETR is not aimed at colleagues who hold a single dental qualification.

For full information about OMFS in Europe, please go to www.omfsuems.eu

Map of OMFS in Europe



- Dental Oro-Maxillofacial Surgery (basic dental & basic medical training – dual degree OMFS),
- Maxillofacial Surgery (single medical degree with additional dental training OMFS)

Roles, Capabilities, Competencies, Experience and Knowledge

Defining the objectives in surgical training programmes is as important as it is complex. From within the existing OMFS curricula, and using validated medical education criteria, five areas are described within this document.

Roles: We use the CANMED⁷ descriptors for roles of a surgeon these being Medical Expert, Communicator, Collaborator, Leader, Health Advocate, Scholar and Professional. The competencies in these domains are outlined in an agreed format in Appendix 6.

Capabilities: these describe clearly defined activities within surgical practice. An example is being able to manage an unfiltered OMFS emergency take. Demonstrating this capability is a combination of undertaking roles, demonstrating competencies, applying experience and demonstrating knowledge. The value of including capabilities within an ETR is that when a trainee demonstrates a capability without requiring support it is an important step toward independent practice. Assessing capabilities are useful toward the end of specialty training and they can be recorded as a multi-trainer feedback document or as a procedure-based assessment (PBA).

Competencies: are more focused and complex than capabilities which are broader and blended. They are particularly useful in surgery where psychomotor skills are so important but include planning, consent, team-management and all elements of care. Experience and knowledge are not competencies.

Experience: includes observations of clinical care and operative procedures. Many nations OMFS training programmes include mandated time spent working in Oto-Rhino-Laryngology (ORL) as part of early years training. This experience is recorded in a surgical experience register sometimes called a logbook. Experience in other specialties widens understanding of interface areas, improving collaborative working and inter-specialty referrals which are key capabilities for OMFS trainees and specialists. There is an OMFS European Surgical Experience Register which runs in Microsoft Access[®] which can be downloaded from www.omfsuems.eu and is summarised and defined in Appendix 2.

Knowledge and Understanding: are essential for good decision making, operative planning and multi-professional working. The breadth and depth of knowledge is defined in a knowledge base or syllabus (Appendix 1 of this ETR). Knowledge during training using in-training assessments such as the OMFS UEMS ITA and Case Based Discussions, Summative assessments towards the end of training also assess both knowledge and understanding in MCQs and oral examinations.

UEMS Approach to Overlapping Competencies and Knowledge

UEMS ETR Committee has defined a formal approach to overlapping competencies⁸. The authors of this ETR have consulted widely and responded to comments and suggestions. Those from whom these comments were received are acknowledged. Readers are asked to review this document and then contribute any comments or suggestions via the comments link on the OMFS Section Website www.omfsuems.eu

The authors of the OMFS ETR recognise that, as it is the case with almost all elements of modern specialist practice, there are certain areas of knowledge and competencies in the ETR which overlap with other neighbouring specialties. These overlaps include, but are not limited to: ORL, Neurosurgery, Plastic Reconstructive and Aesthetic Surgery (PRAS), Dermatology & Venereology, Endocrine Surgery, Paediatric Surgery and General Surgery.

⁷ Copyright © 2015 The Royal College of Physicians and Surgeons of Canada. <https://www.royalcollege.ca/rcsite/canmeds/canmeds-framework-e>. Reproduced with permission.

⁸ Managing Overlapping Competency and Knowledge within UEMS European Training Requirements (ETRs) – UEMS Consensus Document.

The knowledge base or syllabus (Appendix 1) of the ETR aims to describe the knowledge base that an OMFS surgeon needs. As stated before, this knowledge overlaps in certain areas with the knowledge required in other specialties (including but not limited to ORL, Neurosurgery, Plastic Reconstructive and Aesthetic Surgery, Dermatology & Venereology, Endocrine Surgery, Paediatric Surgery and General Surgery). However, it needs to be emphasized that required knowledge does not mean and does not translate in any way whatsoever into required competence to practice. We would like to thank all of our colleagues for their help in both highlighting and improving these areas of overlap within our syllabus and ensuring that the knowledge described is appropriate and up-to-date.

The logbook attached to this ETR (Appendix 2) aims to be a record of surgical training - operations in which a trainee has been involved. This includes training of OMFS surgeons offered via rotations in neighbouring specialties (including but not limited to ORL, Neurosurgery, Plastic Reconstructive and Aesthetic Surgery, Dermatology & Venereology, Endocrine Surgery, Paediatric Surgery and General Surgery). Experience offered by rotating in neighbouring specialties does not translate in any way to competence in that specialty partly or in total. The universal principle accepted by the UEMS is that only those that only those who are recognised as specialists should be practicing independently in that specialty.

The authors of this ETR believe that is most important that the readers of the ETR also read the ETRs (especially the areas related to knowledge and competencies) of the following specialties - ORL, Neurosurgery, Plastic Reconstructive and Aesthetic Surgery, Dermatology & Venereology, Endocrine Surgery, Paediatric Surgery and General Surgery).

We have listed some of the most closely related ETRs below (with active links).

- [UEMS 2020.31 ETR in ORL.pdf](#)
- [UEMS 2017.29 – ETR in Dermatology & Venerology](#)
- [UEMS 2015.34 - ETR in Neurosurgery.pdf](#)
- [UEMS 2015.29 - ETR Plastic, Reconstructive & Aesthetic Surgery \(PRAS\).pdf](#)

A full list of related ETRs is found in Appendix 3.

Updating this ETR

If you find that areas of our syllabus are deficient, inaccurate or not up-to-date, please contact the OMFS Section. ETRs are living documents. We would be very happy to add or amend any or all parts.

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Training Requirements For Trainees

Prerequisites for OMFS training

To complete OMFS specialty training requires a medical degree recognised in one of the EEA countries. At the end of training a professional education in dentistry is essential which may be the result of focused dental training (MFS) or a dental qualification recognised in the EEA (DOMFS) as listed in Annex V PQD 2005/36. In some cases a dental degree may be required to enter specialty training but in all cases the medical degree must be obtained before starting OMFS specialty training.

Training Outcome Overview

To complete training successfully the trainee should acquire sufficient theoretical knowledge, practical skills and general core competencies to allow safe practice in a public or an independent institution / clinic. This involves development of competence in terms of professional judgement, diagnostic reasoning, managing uncertainty, dealing with co-morbidities, recognising when another specialty opinion or care is required, as well as developing skills in the specific areas listed below. The knowledge base is described in syllabus listed in Appendix 1. Neither the curriculum (training programme) or the syllabus (knowledge base) should be viewed as static. In common with all European Training Requirements (ETRs) they are living documents requiring regular revision and updating.

Theoretical knowledge

OMFS requires the acquisition of a solid theoretical knowledge in basic medical and surgical sciences (incl. anatomy, physiology, histopathology, pharmacology, biomechanics, etc...) as well as core knowledge related to the specialty of OMFS (see Appendix 1). Core and specialty knowledge and understanding are essential for the development of clinical and operative skills required in an elective and acute surgical setting. Knowledge and understanding of the acutely ill surgical/trauma patient and the practical skills to accompany this are core to all surgical practice.

Core surgical knowledge includes knowledge of prevention, diagnostics (including imaging techniques), non-operative, pharmacological and surgical treatments and rehabilitation of degenerative, traumatic, inflammatory, infectious, metabolic and neoplastic pathologies. It also includes contributions to the multi-disciplinary management of congenital and neoplastic disorders and rare diseases.

The trainees in OMFS will be also expected to acquire an understanding of research methodology and carry out supervised research projects. There should be protected periods of time where a trainee can work on a research project.

All trainees must be able to demonstrate the ability to evaluate scientific publications, evidence of which will include publishing in peer reviewed journals.

Educational psychologists describe knowledge acquisition in 4 progressive steps:

- Knows of (general knowledge - undergraduate)
- Knows basic concepts (foundation)
- Knows generally (core)
- Knows specifically and broadly (specialty specific)

These descriptors could be used in trainer reports about trainees, for example in Case Based Discussions, Clinical Evaluation Exercises, or oral examinations.

Qualities Expected at Certification

By the time the trainee acquires certification in OMFS, they would be expected to possess the following qualities:

- For nations who are DOMFS in Annex V they will require full recognition and allowance to practice as a dentist in their country of training

- Knowledge and understanding of the relevant medical sciences, epidemiology, pathophysiology and principles of management and care of patients with any of the core OMFS clinical conditions.
- The ability to request and interpret appropriate diagnostic testing: laboratory tests, diagnostic imaging techniques, test performance characteristics.
- The ability to use computer-assisted technology for planning complex surgery (VSP), including the provision of patient specific implants.
- A solid understanding of the benefits and potential adverse effects of therapeutic modalities and the ability to explain these clearly to the patient or caregiver (in paediatric or geriatric patients), who can then be part of the decision-making process.
- An understanding of the benefits and risks of surgical procedures, their chances of success and failure, their potential complications and the time needed to achieve a stable result.
- The ability to keep up-to-date with scientific advances and research in the field of medicine, dentistry and OMFS, in order to maintain an evidence-based clinical practice.
- An understanding of the healthcare system(s) within their country of training.
- The ability to be an effective member and a leader of a multi-disciplinary team.

Core Competencies and Capabilities in Oral and Maxillofacial Surgery

All the below competencies and capabilities are built on the core skills of managing the acutely ill surgical/trauma patient. Acquiring these skills requires core training in medicine, surgery and dentistry including an on-call rota of appropriate frequency.

As mentioned earlier, these competencies and capabilities reflect OMFS training and practice across UEMS nations and are present in published national curricula, all of which are listed at www.omfsuems.eu. Where very specific definitions are present in a nation for example in Germany the Facharzt/Fachärztin für Mund-Kiefer-Gesichtschirurgie⁹ specifies 'skin surgery on the entire integument' the authors have ensured that this ETR is compatible with these competencies.

Key Capabilities in OMFS Practice

Working in a multi-disciplinary team – is able to safely and appropriately treat all patients with conditions requiring inter-disciplinary management and work with colleagues from across all the allied professions of medicine and dentistry.

Patients presenting with emergencies – is able to safely and appropriately manage patients.

Outpatient care – is able to safely and appropriately manage an outpatient clinic including all the clinical and administrative tasks.

Inpatient care – is able to safely and appropriately manage inpatients including all the clinical and administrative tasks including oral and parenteral nutrition, tissue and wound care, ward round leadership, and working with the multi-professional team.

Operating list - is able to safely and appropriately organise and run an operating list including all the clinical and administrative tasks.

Surgical care of the paediatric patient - Recognise limitations of own knowledge and experience and seek early advice from dedicated paediatric teams, recognising an unwell child including assessment of respiratory and cardiovascular status.

Consent - is able to safely and appropriately obtain consent across all operations within the curriculum.

⁹ Bundesärztekammer (Arbeitsgemeinschaft der deutschen Ärztekammern page 220
https://www.bundesaerztekammer.de/fileadmin/user_upload/downloads/pdf-Ordner/Weiterbildung/20210630_MWBO_2018.pdf

Management of the dying patient – is able to manage the transition from life to death including palliation of symptoms, certification of death and discussion of resuscitation status/organ donation.

Acquisition and processing of investigations - basic laboratory procedures and investigations across all OMFS pathologies including OMFS laboratory (impressions, 3D planning), blood and tissue samples with appropriate taking/handling of samples and interpretation of results, tumour markers, immunology investigations, model surgery and consent.

Working within the relevant legislation – not just medical negligence but also consent, social welfare, equality diversity and inclusion, prescription, radiation protection, use of lasers and photodynamic therapy etc.

Accurate examination and medical records: photography, 3D surface scanning, clinical and computer measurement, nasendoscopy, sialendoscopy, examination adjuncts.

Key Competences in Oral and Maxillofacial Surgery

Holistic management of the OMFS Patient including medical co-morbidities

Building on core surgical, core medical and core dental skills detailed in the core curriculum.

Adjunctive Para-surgical Competencies

Local, locoregional anaesthesia; intravenous conscious sedation (pharmacology, techniques, complications). Management of pain and anxiety including non-medical management of chronic pain, analgesics, co-analgesic medicines and sedation.

Competencies in the management of Head Face and Neck (OMFS) emergencies

Emergency airway - including front of neck access under LA and GA. Cricothyroidotomy, tracheostomy (open, percutaneous) in adult and child, sub-mental intubation.

Bleeding: surgical and medical management of bleeding from facial/neck trauma including epistaxis associated with mid-face fractures (with reduction and immobilisation of fractures before nasal packing), post-surgical bleeding (including post-extraction), non-traumatic epistaxis (nasal packing, cauterisation), medical conditions associated with bleeding, carotid blow-out, catastrophic bleeding from ballistic/blast injuries, within a multidisciplinary team.

Trauma - Resuscitation and early management of the patient who has sustained thoracic, head, spinal, abdominal and/or limb injury according to European Trauma Course or ATLS® or APLS guidelines including emergency cricothyroidotomy, tracheostomy and insertion of chest drain. Penetrating and ballistic injuries of the face and neck. Acute bleeding including neck access, midface stabilisation, packing. Dental trauma/avulsion of teeth. Neurovascular tissue repair. Repair of nasolacrimal system.

Eye-sight threatening injuries: Retrobulbar haemorrhage/orbital compartment syndrome (lateral canthotomy, medical management), acute surgery for white-eye blowout, lateral canthopexy, orbital nerve decompression within a multidisciplinary team.

Sepsis – able to apply a systematic, prioritised method of managing the septic patient following national/international guidelines including resuscitation and early management of the septic patient, surgical draining of pus and removal of the causative tooth. Cranio-maxillo-facial infections involving bone and soft tissues in the facial head and neck area including management of acute odontogenic infections and deep infections of the face and neck including life-threatening swelling requiring extra oral drainage and extensive resection (necrotising fasciitis) including surgical removal of the associated tooth.

Critically ill surgical patient - in discussion with the critical care team, to the management plan of a patient receiving critical care and management of perioperative emergencies e.g. thrombo-embolic disease, diabetic crises, fluid balance, decompensation. Carotid blow-out, free flap compromise and other acute post-operative conditions.

Investigative Competencies

Requesting, interpretation (including CT, MRI, PET, and radio isotope imaging) and, where appropriate elements of interventional imaging/procedures specific to oral and maxillofacial surgeon. This includes advanced clinical examination with task specific instruments e.g. endoscopy, ultrasonography, sialography, sialendoscopy, doppler ultrasonography (including implantable probes), dental radiography (intra-oral, extra-oral), Cone Beam CT (CBCT), C-arm CT, CT including imaging in theatre.

An important part of the clinical use of modern 3D imaging is integration with treatment planning, custom implants, surgical guides, and stereotactic guided procedures. These competencies are especially relevant in deformity and cancer surgery.

Where additional training is required to prescribe, perform or interpret investigative procedures e.g. radiation protection regulations, cone-beam CT, ultrasound guided biopsy or sentinel node biopsy, these should be part of the OMFS training programme.

Leadership and Management Competencies

OMFS trainees should be trained to be leaders within their department, and also in roles which extend beyond this narrow interpretation of clinical practice. For example OMFS surgeons play a key role in the bridge between dental and medical imaging of the face and surrounding tissues that they often undertake important leadership roles in this area of practice. Within multi-disciplinary clinics, OMFS trainees should acquire competencies in the management of their patient and the team. Teaching and research roles, from tutor to professor, include competencies in the breadth and depth of leadership and management. Competencies within the administration of education and health care locally, regionally, nationally and internationally are essential elements of training.

Oral Surgery, Oral Medicine, Oral Pathology and Oral Diagnosis Competencies

Oral manifestations of systemic disease and their managements including multidisciplinary care.

Surgical removal of teeth including wisdom teeth and other extractions including palatal teeth/supernumeraries.

Exposure of unerupted teeth including bonding of brackets/gold-chain.

Cyst biopsy, fenestration, enucleation and treatment with cryotherapy or chemical agents (Carnoy's). Periapical surgery/surgical endodontics.

Surgical orthodontics and transplantation of teeth.

Management of oro-antral and oro-nasal communication/fistulae: including joint management with ORL (closure of communication/fistula combined with Functional Endoscopic Sinus Surgery – FESS).

Diagnosis and management of facial palsy including multidisciplinary care.

Competencies in salivary gland surgery

Management of inflammatory and neoplastic (benign and malignant) diseases of the major and minor salivary glands including:

Minimally invasive salivary surgery including management of sialoliths with scopes (rigid and flexibe), lithotripsy, lasers and transoral retrieval, biopsy of gland,

Management of ranulas including minimally invasive procedures, resection of plunging ranulas with removal of the involved sub-lingual gland.

Submandibular gland surgery including removal using open and endoscopically assisted techniques, trans-oral removal of sialoliths.

Parotid Surgery including extra-capsular resection of tumours, Partial parotidectomy, total parotidectomy, radical parotidectomy.

Head, Face and Neck Trauma Competencies

Management of cranio-maxillo-facial trauma (bone, teeth and soft tissues), both acute injuries and management of post-traumatic/secondary deformity of bone, teeth and soft tissues.

Comprehensive management fractures and dental injuries: of single bones complex pan-facial fractures (including removal of teeth in the line of fractures at time of surgery) using indirect fixation (intermaxillary wires/elastics), external fixation, and plating.

Computer assisted planning of cases, custom implants, endoscopically assisted surgery, minimally invasive techniques.

Surgical access to repair fractures facial fractures: mandible (including condyle), maxilla, zygoma, orbit, naso-orbito-ethmoid, frontal bones, orbital floor/medial wall including coronal flaps, face-lift approaches, minimally invasive and endoscopically assisted techniques.

Management of facial soft tissue wounds including lacerations, human bites, animal bites, avulsive injuries, knife/glass wounds, blast and ballistic trauma. Repair and replacement including reconstruction and implant borne/adhesive prosthetic replacement e.g. dento-alveolar tissue, nose, maxilla, orbit/eye, ear.

Combined Trauma Surgery: trauma does not respect specialty or anatomical boundaries. Best patient care will often involve working with other specialties in complex poly-trauma. Working within this team is a key competency and capability for an OMFS specialist and the presence of OMFS specialists is a requirement in Level 1 and Level 2 Major Trauma Centres.

Management of post-traumatic deformity: whilst this may be relatively simple such as scar revision surgery (Z-Plasty, W-Plasty and Geometric Broken Line Closure) .it may include all hard and soft tissue techniques listed under facial deformity/aesthetic surgery and facial reconstruction surgery.

Competencies in skin surgery/surgical dermatology

Surgery is an element in the diagnosis and management of skin conditions. The role of colleagues in dermatology/venereology and the whole multidisciplinary team (especially in cancer) can be key. Understanding of the role of UV-light, skin types and classifications, diagnosis of pigmented lesions and understanding of precancerous lesions is essential. In some nations, for example Germany, OMFS is the only specialty recognised to operate on the skin of the 'whole body integument'. In this context, the ETR must reflect this scope of practice.

Skin surgery including biopsy or excision of benign and malignant lesions (malignancy is usually in managed in a multi-disciplinary team). Primary closure, skin graft – full thickness and split thickness, alloplastic dermis, and local/regional flap closure and free tissue transfer. Sentinel node technique in melanoma and aggressive cancer. Parotid surgery for lymph node metastasis. Skin surgery would include curettage/electrocautery & photodynamic therapy, topical 5FU and other ablative techniques.

Competencies in Facial Aesthetic and Functional Surgery

The anatomical focus of OMFS is the face, and so key competencies include the repair, restoration and improvement the shape, function and aesthetics of the head and neck region through surgical and non-surgical interventions. This includes rehabilitation of the aging face including dental rehabilitation (see pre-prosthetic surgery/implants).

Facial soft tissue surgery - Aesthetic/cosmetic/head neck and facial surgery. Rehabilitation of the ageing face-and/or neck-lift, SMAS dissection, foreheadplasty, brow lifting, otoplasty, blepharoplasty, genioplasty, ablative, augmentative and paralysing treatment of facial wrinkles and scars, Filler/fat transfer, facial implants (chin/malar/other), paralysing treatment of facial wrinkles, muscular hypertrophy and facial nerve paresis. Rhinophyma management and

operative techniques, facial resurfacing (chemical peel, laser resurfacing, dermabrasion), cryotherapy and other adjuncts, liposuction and facial prosthetics.

Facial orthopaedic surgery including gender reassignment and surgery for sleep apnoea

– Clinical and computer-based planning of the management of facial bone abnormalities including 3D computer planning, printed wafers, surgical guides and pre-formed plates for mandibular, maxillary osteotomies including segmental and genioplasty. Surgical and non-surgical management of obstructive sleep apnoea within a multi-disciplinary team. Surgery of the nose and nasal complex for trauma, post-trauma and malformation. Ear surgery: including harvesting of cartilaginous grafts, reconstructive surgery due to trauma, agenesis or malformation. Zygomatic and orbital osteotomies. Use of distraction in alveolus, mandible, maxilla (off the shelf and custom made; internal and external). Use of lasers for incision, treatment of vascular lesions/skin pigmentation and re-surfacing.

Combined soft and hard tissues surgery: any and all combinations of the above including nasal surgery (open, closed, augmentation/grafting and managing cleft deformity). Gender reassignment surgery techniques are not unique to this area of practice but would usually be part of multidisciplinary care. Similarly the range of medical and surgical interventions (including bi-maxillary advancement) for sleep disorders is usually multidisciplinary with sleep physicians and others. Facial reanimation surgery across the whole reanimation ladder from gold weight, static sling, through muscle sling, neural transfer, functional (neuro-muscular) local flap and free flap.

Surgery for mouth, jaw, face and neck tumours

Surgery is only an element of the care for head face and neck tumours (benign and malignant) of skin, bone/connective tissue and mucosa. The specialist must have an understanding of aetiology, carcinogenesis, molecular biology, genetic and epigenetics, immunobiology, epidemiology, biostatistics, chemotherapy, radiotherapy, virology (esp HPV) and the different staging systems (according to the underlying disease) of cancer. As understanding progresses, surgery for malignant disease may become rarer but it remains a key element of the treatment of oral and facial primary and secondary cancer.

Management of benign lesions causing functional or aesthetic problems including ectopic teeth and dental tissue, benign tumours, cysts, vascular malformations (haemangioma, lymphangioma, AV malformation) and other congenital/developmental abnormalities including thyroglossal and branchial cysts) and benign neck tumours (including paraganglioma, haemangioma, schwannoma).

Oro-facial resection malignant disease of hard and soft tissue of oropharynx, maxilla, mandible, tongue, face, salivary glands and neck. Composite resections (rim/segment of mandible, partial complete maxillectomy), orbitotomy and exenteration of orbit, pull-through procedure, combined surgery, trans-oral laser, robotic surgery, mandibulotomy, mandibular/maxillary swing, midfacial degloving and other adjunctive techniques.

Management of regional lymph nodes with elective neck dissection, selective neck dissection, radical neck dissection, and sentinel node biopsy. Use of robotic surgery and other surgical adjuncts including 3D planning, resection guides, frozen section, real-time genetic analysis.

Management of the unknown primary within a multidisciplinary team

Palliative Care: in co-operation with the multi-disciplinary team including photodynamic therapy, electro-surgery, cryotherapy and interferential therapy for lesions which are beyond curative intent. Wholistic management of the patient and their family.

Pain management: Therapeutic procedures for neuropathic pain where indicated including cryotherapy other ablative techniques.

Facial Reconstruction and Rehabilitation

Regional reconstructive surgery including harvesting of hard and soft tissue grafts, loco-regional flaps, microsurgery, tissue expansion. Craniofacial prosthetics including implant borne prosthesis,

harvesting and use of non-vascularised bone or cartilage, Local skin/muscle flap, free tissue transfer (raising, inseting and anastomosing flap), raising and in-setting pedicled flaps.

Cleft and Craniofacial Surgery

Management of patients with cleft lip/palate and craniofacial abnormalities is multidisciplinary including geneticists, ORL, plastic surgery, neurosurgery as well as professions allied to medicine. Surgical competencies in treating congenital/developmental abnormalities of the head, face and mouth including cleft lip and palate surgery, pharynx surgery and alveolar bone graft are only an element of the competencies required to practice in these areas.

Cleft lip and palate: lip and palate surgery, pharynx surgery and alveolar bone graft, management of complications of primary surgery including nasal surgery, orthognathic surgery, use of distraction, rib grafts bone grafts, tongue flaps, free flaps and the whole ranges of facial aesthetic surgery within the multidisciplinary team.

Paediatric Craniofacial surgery. Surgical corrections of syndromes of the head, face and neck including fronto-orbital advancement Le Fort II / III / Monobloc Posterior distraction and cranioplasty. Management of macroglossia.

Adult Craniofacial Surgery: for trauma and tumour. Trans-facial/trans-oral access for surgery of anterior skull base including (inc. osteoplastic flap, duraplasty and endoscopic) multi-disciplinary management.

Temporomandibular Joint and Facial Pain

Surgical and non-surgical management of temporomandibular joint diseases and disorders including arthrocentesis, arthroscopy and open TMJ procedures.

Alloplastic and prosthetic replacement of the TMJ including rib-graft, stock TMJ prosthesis and custom made including 3-D planning and use of surgical guides.

Facial Pain - The accurate diagnosis and management of facial pain of all causes including multidisciplinary care of atypical facial pain and other similar complex pain/psychosomatic disorders.

Competencies in Implants / Pre-prosthetic Surgery

Pre-prosthetic surgery including hard and soft tissue grafting and implantology with immediate and delayed osseo-integrated implant placement (intra and extra-oral). 2nd stage or revision surgery for implants.

Learning Agreements (Knowledge, Core Competencies and Index Procedures).

The Appendix 1 lists the key elements of knowledge and Appendix 2 the logbook of procedures that trainees should know/understand/have experience at completion of training. The knowledge base extends into interface areas stressing awareness of other specialties and when referral or joint working is in the best interests of patients. The specific procedures which the trainees will be able to perform independently will vary across training programmes and nations. To help trainees pace their training, an outline of these 'index procedures should be available at the start of the training programme. Trainees should have been directly involved in the pre- and post- operative management of their patients and should have a detailed understanding of the preoperative diagnostic investigations. An example of an index procedures which is common across all nations is a tracheotomy as this may be needed as an emergent procedure in airway threatening facial trauma or acute cervicofacial space infections.

If the minimum number of index procedures is not met, other evidence for example procedure-based assessments or a comparable key procedure in the same area of practice may be sufficient to demonstrate competence.

Competences

The levels of skill required to attain competence (as determined by the training supervising body as well as the national regulations) have been refined by adding the Entrustable Professional Activity or EPA. EPA is a fifth level added to the existing classical four levels of competence: the key concept is Entrustment. The trainee has not only reached the required level of competence, they are trusted to perform a procedure by their tutor/trainer/supervisor. The use of EPAs reflects the establishment of a competency-based training, in which a flexible length of training is possible and where the educational outcomes prevail.

Excellence and Mastery

Training programmes focus on competence but it is important that training programmes recognise the potential for excellent and mastery. Often this requires additional focus on areas of sub-specialty practice. This should be encouraged but not at the expense of core skills/knowledge.

Levels of skill:

Clinical Skills

1. Has observed – the trainee acts as an ‘Assistant’. From complete novice through to being a competent assistant. At end of level 1 the trainee:
 - a Has adequate knowledge of the steps through direct observation.
 - b. Demonstrates that they can handle the apparatus relevant to the procedure appropriately and safely.
 - c. Can perform some parts of the procedure with reasonable fluency
2. Can do with assistance - a trainee is able to carry out the procedure ‘Directly Supervised’. From being able to carry out parts of the procedure under direct supervision, through to being able to complete the whole procedure under lesser degrees of direct supervision (e.g. trainer immediately available). At the end of level 2 the trainee
 - a. Knows all the steps - and the reasons that lie behind the methodology.
 - b. Can carry out a straightforward procedure fluently from start to finish.
 - c. Knows and demonstrates when to call for assistance/advice from the supervisor (knows personal limitations).
3. Can do the whole procedure but may need assistance – a trainee is able to do the procedure ‘indirectly supervised’. From being able to carry out the whole procedure under direct supervision (trainer immediately available) through to being able to carry out the whole procedure without direct supervision i.e. trainer available but not in direct contact with the trainee. At the end of level 3 the trainee:
 - a. Can adapt to well-known variations in the procedure encountered, without direct input from the trainer.
 - b. Recognises and makes a correct assessment of common problems that are encountered.
 - c. Is able to deal with most of the common problems.
 - d. Knows and demonstrates when they needs help.
 - e. Requires advice rather than help that requires the trainer to scrub.
4. Competent to do without assistance, including complications. The trainee can deal with the majority of procedures, problems and complications, but may need occasional help or advice.
5. Can be trusted to carry out the procedure, independently, without assistance or need for advice. This concept would constitute one Entrustable Professional Activity (EPA). An EPA is ‘a critical part of professional work that can be identified as a unit to be entrusted to a trainee once sufficient competence has been reached’. This would indicate whether one could trust the individual to perform the job and not whether he is just competent to do it. At the end of level 5 the trainee:

- a. Can deal with straightforward and difficult cases to a satisfactory level and without the requirement for external input to the level at which one would expect a consultant surgeon to function.
- b. Is capable of instructing and supervising trainees.

Technical Skills

1. Has observed.
2. Can do with assistance.
3. Can do whole but may need assistance.
4. Competent to do without assistance, including complications, but may need advice or help.
5. Can be trusted to carry out the procedure, independently, without assistance or need for advice (EPA).

Though the above detailed classification of Competence Levels is very useful during the process of (formative) training, when it comes to deciding when an applicant is eligible to sit an eventual Specialist Exit examination, it is the evaluation of the EPAs which is essential. In this sense, the Eligibility Assessment Process is really the first part of the Examination and that explains the suggestion that the '5th level of Technical Skills competence' should be included in a standardised Logbook Template for all trainees.

Non-Technical Skills

Definition: NTS involve the cognitive and social skills that are necessary for safe and effective health care. This must be a formal part of the Syllabus/Curriculum.

Examples:

1. Decision making
2. Situation awareness
3. Leadership
4. Teamwork
5. Communication

Professionalism. Ethics and Medico-legal

Includes:

Respect and compassion towards the sick
Respect towards colleagues and junior staff
Abide by the values of honesty, confidentiality and altruism
Maintain competence throughout our careers
Improve care by evaluating its processes and outcomes
Participate in educational programmes
Provide care irrespective of age, gender, race, disability, religion, social or financial status
Deliver best quality care in a compassionate and caring way
Caring for colleagues in difficulty
Patient confidentiality
Autonomy, informed consent & competence
Identification of presentations which may be the result of abuse and/or violence
End-of-life/palliative care
Forensic Issues
Global health

Organisation of training

Schedule of training

The minimum length of OMFS training in Annex V is 4 years for dual degree DOMFS and 5 years for single medical degree Maxillo-Facial Surgery. These are minimum training times. In most nations OMFS specialty trainees spend longer in training than these lower limits for a range of reasons.

To extend/deepen knowledge, skills and competencies in sub-specialty areas additional focused training periods (sometimes called Fellowships) may be used. These may be within the normal training period, or a defined extension to training. Often these fellowships will involve working closely with other medical and surgical disciplines. The duration of sub-specialty training may be competency or time based.

In some nations dual degree DOMFS training incorporates the acquisition of the second degree. 'Run-through' training programmes which incorporate core surgical/dental training and/or the second degree into a single scheme continuous with specialty training are very popular with trainees.

OMFS training must include adequate exposure to surgery in general, internal medicine and dentistry including oral surgery. Optional rotations may include General Surgery, Neurosurgery, ORL, Plastic & Reconstructive Surgery, extra-ocular ophthalmic surgery, Intensive Care/Anaesthetics, Paediatric Surgery and other medical/surgical disciplines, depending on local and national requirements. Exchanging of trainees between recognised training centres within the member states of the EU and other countries is encouraged.

Specialty training should be carried out within a specialised training programme in OMFS Training institutions or, if present, responsible administrative bodies, should select and/or appoint trainees suitable for the specialty in accordance to an established and recognised selection procedure. This selection procedure should be transparent and fair, and open to all candidates fulfilling the above criteria.

Trainees must be exposed to the full spectrum of OMFS procedures, as described in the definition of the specialty, during their training. This may require(s) a tutorship by different trainers, and it is advisable that the scope of the training is broadened by working in different training centres. The establishment of "rotation periods" covering all main areas of the specialty is advisable. The trainees should be given progressively increasing responsibilities as in the management of their patients and in surgical practice.

There should be a well-documented Education Programme throughout the training, which should include regular conferences, meetings, etc. There must be protected time allocated for study and teaching.

This Education Programme should consist of

- A programme of basic/ advanced lectures including visiting speakers
- Clinical presentations from related disciplines in joint meetings
- Pathology and radiology conferences
- Journal club
- Audit meetings
- Research meetings
- Teaching in ethics, administration, management and economics

Sub-specialty training leading to certification in an OMFS subspecialty (e.g. head and neck oncology, facial plastic aesthetic (cosmetic) surgery, cleft and craniofacial surgery) could require one or more years after completion of specialty training or demonstration of key competencies in these areas.

Curriculum of training

Within surgery the curriculum defines the whole trainee experience. In many ways a European Training Requirement (ETR) is a curriculum. The knowledge based required within a training programme is called a syllabus. A curriculum does not define how this knowledge should be acquired but it often describes how this knowledge should be assessed. The topic areas are defined within the ETR and further detail to the level of possible topics for multiple choice questions – are listed in Appendix 1. Some variations in terms of emphasis may exist, depending on the Training Centre and the country where the training takes place. However, this curriculum of training should include all the skills for generic competences and OMFS specific competences. The knowledge base defined in Appendix 1 is used within the European Board Examination in OMFS.

A European OMFS Surgeon should:

- Be a versatile specialist, as illustrated by the medical training and dental training / education.
- Be competent in history taking, clinical examination, management of patients with OMFS medical, dental and surgical conditions including unselected adult and paediatric OMFS emergencies
- Be a good communicator (with patients, their families and colleagues).
- Adhere to evidence-based medicine/surgery principles.
- Describe the healthcare provision related financial implications.
- Be fully aware of potential complications related to surgical decisions.
- Keep up-to-date with the developments of the Specialty.
- Actively participate and, when necessary, lead multi-disciplinary team (MDT) work.
- Have an understanding of OMFS Public Health issues.
- Teach and support trainees effectively.
- Maintain an ethical behaviour, adhering strictly to profession-led regulations and high standards of clinical practice.

Mentoring and Support

All medical training, but especially training in craft specialties such as surgery, benefits from a professional approach to the mentoring and support of trainees. High quality induction at the start of training, the allocation of a specific and dedicated assigned educational supervisor (who may not be directly involved in clinical supervision to give some separation/perspective), and access to support from outside the training programme can all contribute to an excellent training environment.

A guide to supporting trainees is available from the UK National Association of Clinical Tutors (NACT) website Supporting Trainees 2018 <http://www.nact.org.uk/getfile/8153>

General Principles

1) Early identification of problems and intervention is essential.
It is the responsibility of the Clinical Supervisor and their team to highlight any concerns, to the trainee's Educational Supervisor.

Useful 'Early Warning Signs', adapted from the book 'Understanding doctors' performance', may include:
The "disappearing act": not answering bleeps, disappearing, lateness, frequent sick leave.
Work rate: slowness in doing procedures, clerking patients, dictating letters, making decisions; arriving early, leaving late.
Ward rage: bursts of temper, shouting matches, real or imagined slights.
Rigidity: poor tolerance of ambiguity, inability to compromise, difficulty prioritising, inappropriate 'whistle blowing'.
Bypass syndrome: junior colleagues or nurses find ways to avoid seeking the doctor's opinion or help.
Career concerns: difficulty with exams, uncertainty about career choice, disillusionment with medicine.
Insight failure: rejection of constructive criticism, defensiveness, counter-challenge.
Lack of engagement in educational processes: fails to arrange appraisals, late with learning events/work-based assessments, reluctant to complete portfolio, little reflection.
Lack of initiative/appropriate professional engagement: the trainee may come from a culture where there is a rigid hierarchical structure to medical training and trainees are not encouraged to question patient management decisions by senior colleagues, or demonstrate any other healthy assertive behaviours.
Inappropriate attitudes: The cultural background may be very strongly male oriented and the trainees may not be used to working with females on an equal status basis.

2) Establish and clarify the circumstances and facts as quickly as possible. Access many different sources of information.

Most concerns can be addressed by early, effective discussions between the Supervisor and the trainee culminating in a realistic plan, which is regularly reviewed to monitor success. An open and supportive culture should be encouraged within the whole clinical team, providing a sense of "belonging", fostering the development of the trainee's skills and providing constructive feedback on performance improvements or ongoing difficulties.

Only form a judgement once all information is collated.
Issues of patient and person safety take precedence over all other considerations.

3) Remember concern about performance is a 'symptom and not a diagnosis' and it is essential to explore the underlying cause or causes. Key areas to explore are:

- i) Clinical performance of the individual: (knowledge, skills, communication)
- ii) Personal, personality and behavioural issues: (professionalism, motivation, cultural & religious issues)
- iii) Sickness / ill health: (personal/family stress, career frustrations, financial)
- iv) Environmental issues: (organisational, workload, "difficult" patients, bullying and harassment, staffing gaps, home stressors)

4) A robust and detailed 'diagnosis' can lead to effective intervention: different problems require different solutions.

A doctor with an evolving medical problem, e.g. new diabetes or mental health issue, requires a different approach than an individual with poor interpersonal skills or lack of insight. The former needs engagement with occupational health and a GP, the latter perhaps supportive coaching & mentoring, close clinical supervision and feedback to change the beliefs behind the undesired behaviour.

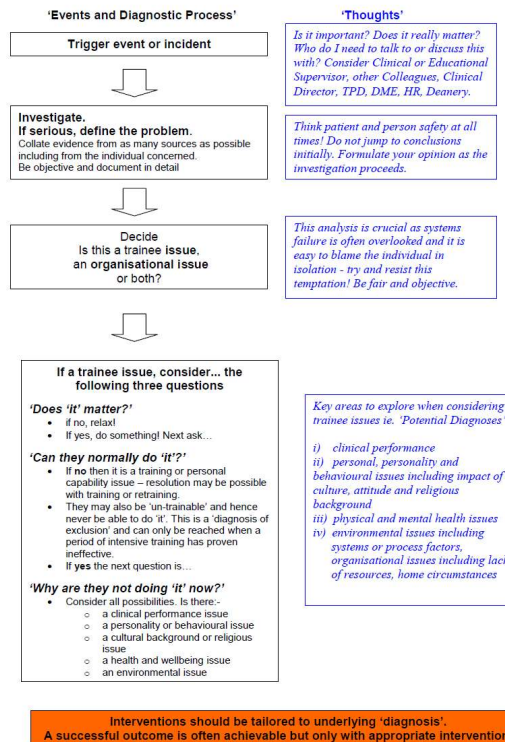
5) Clear documentation.

All relevant discussions and interventions with the trainee should be documented contemporaneously, communicated to the trainee and key individuals in the accountability framework (Trust and/or School/Deanery, possibly GMC) and followed up by named accountability individuals such as the Educational Supervisor, Training Programme Director or Associate Dean to ensure the process is concluded satisfactorily and managed appropriately.
See local Trust and LETB/Deanery guidelines for accountability frameworks.

6) Issues must be communicated: Records must be kept: Solutions must be sought: It may be appropriate to delay progression until issues resolved

Remember: accurate & contemporaneous documentation must be kept

A Diagnostic Framework



Training of skills and the assessment of knowledge/competence should follow a clear, structured format <https://publishing.rcseng.ac.uk/doi/pdf/10.1308/003588408X286017> which will facilitate the documentation of progress. These should include performance assessment, competence assessment, context based tests and factual texts.

Assessment and evaluation

The UEMS OMFS Section and the European Board in Oral & Maxillo-Facial Surgery encourage the adoption of harmonised European Standards for the assessment and evaluation of OMFS Trainees.

The training programme aims to stimulate critical self-evaluation and assessment, self-directed learning in order to achieve the highest possible level of clinical expertise, professionalism, as well as excellence in management and communication skills, including the ability to lead, to interact with other specialties and to conduct research.

Assessment and Governance of Training Programme

The governance of each training programme is the responsibility of the Programme Director and the Institution(s) in which the scheme is being delivered. Trainers will be responsible to the

Programme Director for delivering a training in their area of expertise. The overall governance at national or regional level will be a core competence of the national authority in charge.

In the countries where this does not still apply, UEMS strongly encourages the implementation of structures on a national level that allow for continued reassessment of specialty training programs, in close cooperation with all participants.

Formative Assessment of Trainees

A tutor/trainer will be supervising the trainee's clinical work and performance: regular feedback as well as guidance will be given to the trainee.

Trainees should keep a portfolio which meets the standards of the UEMS-EBOMFS application portfolio (<http://www.ebomfs.eu/becoming-a-member/>), containing details of previous training posts, examinations, lists of publications and presentations at meetings at a local, national and international level, courses attended with the CME/CPD accredited points, evidence of teaching of medical students and junior trainees which is encouraged as a means of learning for the trainee, cumulative operative totals, evidence of completed audits, copies of assessment forms corresponding to the different training periods.

The portfolio will be reviewed by the trainee's trainer, together with the trainee in a formative manner. Operative logbooks will be scrutinized and undersigned by the appropriate trainer and the Training Program Director.

The Programme Director (or designated members of staff) leading the training institution will be meeting with the trainee at regular intervals to discuss work and progress. This appraisal will be documented. The purpose of the appraisal is to engage a constructive discussion on how the trainee's learning needs should be met and to provide support to the trainee.

The logbook must be available at the national medical Board examination.

In summary, the assessment of the trainee should establish a balance between formative and summative assessment and different types of examinations, the use of a logbook, and should make use of specified types of medical examination formats (e.g. DOPS – direct observation of procedural skills, Mini-Cex – mini clinical examination, OSCE – Objective Structured Clinical Examinations, GRS – Global Rating Scales, OSATS – Objective Structured Assessment of Technical Skills).

This includes the assessment of Generic Professional Capabilities (GPCs), which describe common, minimum and generic standards expected of all medical practitioners achieving certification or its equivalent. The GPCs have equal weight in the training and assessment of clinical capabilities and responsibilities in the training programme.

The GPC framework includes:

1. Professional knowledge
2. Professional skills
3. Professional values and behaviours
4. Health promotion and illness prevention
5. Leadership and team-working
6. Patient safety and quality improvement
7. Safeguarding vulnerable groups

Professional behaviour is part of the trainee's assessment using various tools including a multi-source feedback (MSF).

In return, trainee feedback regarding their training is highly recommended.

Having achieved competency in OMFS during their training, trainees will become eligible to take nationally implemented Board examinations in order to obtain certification (summative assessment).

Summative Assessment of Trainees

National assessment

Dedicated National Authorities are responsible for recognition/certification of medical specialties in each member state of the UEMS member states, in accordance to national rules and EU legislation. The majority of these countries now have a compulsory National Examination consisting of an oral or a written examination or both, in order to assess knowledge, skills and clinical judgement of the candidates.

European Board Exam in Oral and Maxillo-Facial / Head and Neck Surgery EBOMFS:

The European Board examination (EBOMFS) does not replace national certification but provides a European standard of certification for OMFS specialists. This examination may be taken by trainees from EU Countries in their last year of training or after completion of training. Nevertheless the certificate will only be validated after the national exam in the respective EU country.

Candidates for the EBOMFS Assessment must satisfy one of the three following terms:

- Recognised specialists in dental oral and maxillo-facial surgery based on a medical and dental degree.
- Recognised specialists in oral and maxillo-facial surgery based on a medical degree and dental education.
- Recognised specialists in oral and maxillo-facial surgery which is dual degree but under dental specialties (e.g. The Netherlands).

The EBOMFS Assessment is composed of two parts

Step 1. Evaluation of the Curriculum vitae (CV) and Logbook, i.e. the candidate's record of the operations performed personally, including the last two years of specialty training, by the EBOMFS scientific committee.

Step 2. Multiple Choice Question exam (MCQ) and the Oral examination.

The available languages of oral examination are English, French, German, Italian, Spanish.

The knowledge, the clinical acumen and the professional behaviour of candidates will be evaluated. Fellows of the European Board in OMFS should be proficient surgeons, able to make rational decisions decision based on the relevance of the clinical findings, the investigations performed, and in the best interest of their patient. The EBOMFS Assessment is composed of two parts:

Step 1. Evaluation of the Curriculum vitae (CV) and Logbook, i.e. the candidate's record of the operations performed personally, including the last two years of specialty training, by the EBOMFS scientific committee.

The Assessment will be conducted under the following broad headings:

- a) Doctoral thesis, PhD, professorship, other research and academic achievements
- b) Publications in recognized national and international journals
- c) Presentations at national or international meetings
- d) Attendance at CME (continuing medical education) conferences and courses
- e) Clinical Activity (Logbook): Operations performed: major, intermediate, minor.

Step 2. 2A Multiple Choice Question exam (MCQ) and the Oral examination.

The MCQ Exam will be conducted before the Oral examination. The assessment of MCQ will be proportional, i.e. the final points given are in relation to correct answers, The total number of

MCQs is 50 + 5. One choice out of four per question is correct, no negative points.. All participants will proceed to the oral examination. Candidates not participating in the MCQ cannot take part in the oral examination. The MCQ examination is executed in English.

- 2B Oral examination:

a) Case report. Each candidate must be ready to present three well documented personal cases using electronic presentation. The jury will select one to be presented within 15 minutes, including discussion.

b) Questions and discussion covering the whole scope of the specialty (40 minutes).

The available languages of oral examination are English, French, German , Italy or Spanish.

The attitude, the clinical skills and the professional behaviour of candidates will be scrutinised. Fellows of the European Board in OMFS should be proficient surgeons, able to make rational decisions decision based on the relevance of the clinical findings, the investigations performed, and in the best interest of their patient.

Training Requirements For Trainers

Process for recognition as trainer

A trainer is a registered medical practitioner and certified OMFS surgeon who can demonstrate that he is in compliance with the requirements of continuing professional development. They must be recognised by the responsible national authority.

A trainer should possess the necessary administrative, communicative, teaching and clinical skills, and commitment to conduct the programme. They should have received instruction for training (assessment of needs and teaching objectives) and evaluation of trainees. They should be able to assess learning needs, advise on teaching objectives.

A trainer should provide evidence of academic activities (clinical and/or basic research, publications in peer reviewed journals and participation in OMFS scientific meetings).

Standards for trainers are available from the Faculty of Surgical Trainers, Royal College of Surgeons Edinburgh <https://fst.rcsed.ac.uk/media/15968/standards-for-surgical-trainers-version-2.pdf>

There should be a sufficient number of trainers. The ratio between the number of qualified specialists (teaching faculty) and the number of trainees should provide a close personal monitoring and provide versatile exposure to different schools of thoughts. Trainers will require administrative support.

Responsibilities of trainers

- To set realistic aims and objectives for a rotation or training period.
- To supervise the day to day work of the trainee in the ward, clinic, the operating theatre and during on-call commitments.
- To support and assess the trainees' progress at the end of each rotation or training period.
- To encourage the trainee to carry out research.
- To ensure an appropriate balance between service commitment and training.
- To ensure that the regular assessments and reports are completed and agreed upon both by the trainer and the trainee (under the supervision of Training Program Director).
- To keep the Training Program Director informed of any problems at an early stage.
- To manage with the other trainers under the guidance of the Training Program Director any inadequacies/ deficiencies demonstrated by a trainee (see 2.5.3). The institution/ network and if

necessary the relevant national authority should become involved if the local conflict between the Training Program Director and the trainee cannot be resolved.

- Recognition across the EU as regards competence to be a trainer despite practitioners coming from different countries and having different routes and extents of training is covered by Directive 2005/36/ EC (Paragraph C2/20).

Training Programme Director

The **Training Programme Director** must be a certified specialist in OMFS for a minimum of 5 years. Their substantial working contract must be within the training institution/network. They organise, supervise and coordinate the training activities.

The CV of the Training Program Director should provide evidence of their continuing professional development (CPD) in the field of OMFS.

The Training Program Director must have full secretarial and administrative support and there must be sufficient protected time for them to carry out their responsibilities.

Responsibilities of the Training Programme Director:

- To establish a transparent and fair selection and appointment process for trainees.
- To organise a balanced training programme with established rotations ensuring that the trainee will have complete exposure to all aspects of OMFS. The programme must be clearly defined and available to trainers and trainees.
- To ensure that there is dedicated time allocated for training and that the trainers are fulfilling their responsibilities to oversee, support and assess the trainees.
- To ensure that the individual trainees' documentation (training portfolios) are up to date.
- To advise trainees and ensure that they attend appropriate and approved courses.
- To provide valid documentation as to the satisfactory completion of training.
- To ensure the annual collection and compilation of the number and types of operative procedures performed in the department and also in participating units connected with the training programme.
- To ensure that European and international evolving training guidelines are implemented and respected.
- To provide opportunity for research, audit and other educationally valid activities such as attending courses and scientific meetings.
- To provide a yearly and the final report on each trainee.

Quality management for trainers:

Quality management for trainers remains a core competency of respective national medical specialty boards.

Trainers should actively keep informed and involved in the new developments of the discipline through a regular attendance to Congresses and Courses duly accredited for CME. Their teaching activity should be supervised and monitored by the training programme director.

To assure the quality of the training programmes, the programme director and trainers may undergo regular auditing and external visitations of the department. This may include evaluation of their cv, practice evaluation in clinical work, surgical work and scientific publications.

Training requirements for training institutions

Process for recognition as training centre

OMFS training may take place in a single institution or in a network of institutions working together to provide training in the full spectrum of clinical conditions and skills detailed in the curriculum.

The standards for recognition of national training institutions and educational networks are matters for national authorities, in accordance with national rules and EU legislation. In order to harmonize the different training programmes of OMFS, the European Specialist Section and Board of Oro-Maxillo-Facial Surgery have to set guidelines, which should be met at national level. Therefore, visitation and evaluation of training institutions is considered an important feedback mechanism for maintaining standards and of quality control. The evaluation should be performed by the regulatory authority, medical society or medical chamber in accordance with the national regulations. The site visiting committee may be assisted by representatives from the EBOMFS, if required.

A training institution / educational network must have national recognition / accreditation, in agreement with UEMS / national standards. In order to be accredited, an educational programme must substantially comply with the special requirements for residency training in OMFS as set down by the national medical Association

The training institution / educational network should possess an adequate infrastructure and offer qualitative and quantitative clinical exposure as defined in the scope of OMFS (European guidelines for specialty training of OMFS/ 2002, www.ebomfs.eu).

The nationally accredited training programmes which abide to the criteria set out by EBOMFS will obtain UEMS European programme approval delivered by the Board.

A training programme must be reviewed every 5 years, or within 12 months following the appointment of a new Training Programme Director.

Training institutions/ networks must offer high standards of training. The training programme should include the following requirements:

A large referral base providing an adequate case mix to support the training programme.

At least one designated fully staffed and appropriately equipped operating theatre available at all times.

Anaesthetic cover available at all times.

Access to designated and fully staffed surgical intensive care beds.

Emergency Department or Major Trauma Unit with 24 hrs admission.

On-call OMFS provision in which the trainees can participate to gain experience of emergencies including urgent/emergency airway (cricothyroidotomy/tracheostomy).

Hospitalization ward with experience in airway management.

Inpatient and outpatient clinics where non-emergency patients are seen before and after surgical procedures.

Access to paediatric OMFS as a mandatory component of a training programme. Where this is not possible, a six-month rotation in an appropriate paediatric unit will be arranged. It must be recognised that in some European states paediatric surgery requires specific training in a protected environment.

Ongoing participation of OMFS surgeons in multi-disciplinary care such as trauma and oncology.

Highly specialised centres not covering the whole OMFS field may be included in rotational systems but cannot be training centres in their own right.

Allied specialities should be sufficiently present in order to provide the trainee with the opportunity of developing their skills, in a team approach, to patient care. The training programme should be closely associated with the following departments or units officially certified for training:

Anaesthesiology, intensive care	Neurosurgery
Dental/ maxillo-facial technical laboratory	Oncology, radiotherapy and palliative care
Dentistry	Ophthalmology
ORL	Paediatrics
General surgery and traumatology	Pathology
Internal medicine	Plastic Aesthetic & Reconstructive Surgery (PRAS)
Imaging modalities (radiology, nuclear medicine)	Vascular surgery

Educational Facilities

A minimum of four hours (according to Bologna agreement) per week within the regular working hours must be made available for educational and scientific activities which are not directly related to patient care.

Access to physical and/or online educational resources to support training

Facilities for online literature searches

Office space for both faculty and trainees

Space and opportunity for practical and theoretical studies

Space and equipment for experimental operative techniques

Space, equipment and supporting personnel for practical skills training, clinical and/or basic research in academic programmes

It is recommended to facilitate financially and timewise the participation to national, European and international meetings, courses and congresses.

It is recommended to facilitate practical training in the use of new techniques like 3D imaging, planning and design applications as well as manufacturing of solid models.

Quality Management within Training Institutions:

The National Authority is responsible for setting up at national level a programme for quality assurance of training as well as of trainers and training institutions, in accordance with national rules and EC legislation.

A training institution must have an internal system of medical audit and quality assurance. Quality assurance must be an integral part of the training programme of all training institutions/ networks. A national register of approved hospital institutions/ networks should be available.

There should be written general guidelines within the training institution concerning patient care and patient information (patient's informed consent), referrals, medical records, documentation, on-call and back-up schedules including formal hand-over arrangements, days off, residents' working schedules, attendance to conferences and to educational activities. These should be available to staff and trainees.

For new trainees there should be comprehensive, formal induction covering the guidelines etc in the preceding paragraph. Prior to their first solo on-call trainees should have been prepared and be 'emergency safe'.

Internal medical quality assurance: There must be an internal system of medical audit, such as mortality and morbidity meetings, together with a clearly defined procedure for reporting of incidents.

The hospital should have taken measures (dedicated committees and/or regulations) in relation to quality control.

A programme and training in risk management should be implemented.

The hospital or the training institution is expected to publish an internal annual activities report.

In addition:

Accreditation

Training institutions must be accredited with the competent national authority.

Additional accreditation on a European level such as provided by the European Board of Oral & Maxillo-Facial Surgery (EBOMFS) is strongly recommended.

Clinical Governance

The Institution needs to ensure all training requirements are met, in particular prioritisation of training above service commitment. UEMS can contribute to the establishment of a robust clinical governance via the participation of CESMA (examination quality control), EACCME (continued professional development and CME points) and NASCE (accredited skills centres).

Manpower planning

will be the prerogative of the national authority and the programme training director of the training institution overlooking the training programme. Manpower planning should be periodically revisited, based on local needs and national priorities.

External auditing

is highly recommended in order to ensure compliance of the training programme with EU directives, national guidelines and regulations, under the auspices of the national authorities.

Transparency of training programmes

UEMS strongly encourages all training institutions to make publicly available their training programmes (e.g. on their website) and selection criteria.

Framework of approval

training programmes should fully clarify how and by whom key achievements of training will be evaluated, in order to enable the trainee to progress in a structured way.

Policies on safeguarding children, adolescents and vulnerable adults

All OMFS departments must have policies in place to safeguard all children, adolescents and vulnerable adults. These policies should include provisions, where appropriate, for implementing reasonable adjustments to accommodate vulnerable patients.

Competencies - Children, adolescents and vulnerable adults

Children and adolescents are considered vulnerable by virtue of their age and stage of development.

Vulnerable patients can also include adults who – due to any number of reasons - may be unable to take care of themselves, or unable to protect themselves against significant harm or exploitation.

The reasons for this vulnerability could include, but are not limited to, any one or a combination of the following factors: learning disabilities, dementia, other psychiatric or physical disorders, adverse financial or social circumstances, a previous history of abuse and/or neglect.

Whilst it is clear that any patient who lacks capacity will by definition be vulnerable, many patients with capacity may still be unable to take care of themselves, or unable to protect themselves from significant harm or exploitation; often due to the infirmity that led them to become patients in the

first place. An acute OMFS illness or injury resulting in hospital admission or attendance can heighten these vulnerabilities.

The healthcare professional is expected to represent the best interests of the patient. A collaborative working relationship with the patient and/or their carers is most likely to support this goal. The design and delivery of services should also consider the views of, and the specific needs of, the most vulnerable patients as well as those known to have low levels of access to healthcare and poor clinical outcomes. Patient safety, dignity and the delivery of patient-focused care in a safe environment should always be primary objectives of the doctor.

All doctors should be familiar with departmental policies for obtaining informed consent for procedures for children, adolescents, and vulnerable adults, and any guidelines relating to the implementation of “reasonable adjustments” for vulnerable patients. All doctors should also have the ability to contribute to multidisciplinary assessments relevant to capacity and, where a person is deemed to lack capacity, ability to sensitively inform the 'Best Interests' procedures.

Appendix 1: OMFS Knowledge Base for Exam Questions/MCQs

The following knowledge base or syllabus indicates the range of knowledge and understanding expected of a specialist in OMFS. **A knowledge base or syllabus is not a list of competencies.** Knowledge of an area of clinical care or of a procedure/intervention does not equate to competency to practice in that domain. This is especially true where the knowledge is of conditions or procedures at the interface with other specialties. Where knowledge is expected at these interfaces, there are references within this syllabus to ETRs of other specialties. These highlight where knowledge of how to share care or refer are essential.

OMFS European National Curricula

Like the whole OMFS ETR, this knowledge base reflects the practice of OMFS across Europe. The national curricula of all OMFS nations in UEMS are available from the OMFS Section website www.omfsuems.eu. The detail within each curriculum varies, but the range is consistent.

Evolving Knowledge Base – Books and Journals

The breadth and depth of the knowledge base of our specialty is illustrated by a number of definitive textbooks.

The knowledge base is continually evolving and being updated through textbooks and scientific journals. Some available journals include:

European	https://www.journals.elsevier.com/journal-of-cranio-maxillofacial-surgery
Belgium	https://ojs.uclouvain.be/index.php/nemesis/about
Czech (inc PRAS)	https://www.prolekare.cz/en/journals/acta-chirurgiae-plasticae
France	https://www.journals.elsevier.com/journal-of-stomatology-oral-and-maxillofacial-surgery
Germany	https://www.springer.com/journal/10006
Germany	https://www.springer.com/journal/12285
Greece	http://www.haomsjournal.org
UK	https://www.bjoms.com/
International	https://www.ijoms.com/

Open Access Textbooks

Oral and Maxillofacial Surgery for the Clinician <https://link.springer.com/book/10.1007/978-981-15-1346-6>

Critical Issues in Head and Neck Oncology <https://link.springer.com/book/10.1007/978-3-030-63234-2>

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eLfh website provides on-line education which is restricted to those based in the UK who provide services to the NHS and Social Care in the UK. The dentistry elements 'eDen' are accessible through <https://www.eintegrity.org/> but at present the e-Face (OMFS) elements of eLfh are not licenced for use in this way. Nations interested in gaining access to e-Face platform should contact eIntegrity via their website.

Resource link and e-Face material shared by kind permission of Health Education England e-Learning for Healthcare.

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1 Trauma

1.1 Epidemiology of maxillo-facial trauma

1.1.1 *"Epidemiology of cranio-maxillo-facial trauma"*

- Present changes and trends in the incidence and aetiology of cranio-maxillo-facial trauma (CMF) with time and explain these changes.
- List associated and predisposing factors associated with CMF trauma.
- Discuss what strategies have been used in the past and are currently being applied to prevent or reduce the experience of cranio-maxillo-facial trauma.
- To make suggestions for future strategies.

1.2 Principles of bone healing

1.2.1 *The structure, function and healing of normal bone*

- Describe the normal development, ossification and structure of bones of the craniofacial skeleton
- Describe how a broken bone heals comparing direct with indirect bone healing
- Discuss the importance of reduction and adequate stability in bone healing
- Describe the effects of compression and tension on bone healing

1.2.2 *What factors can influence bone healing and what can go wrong*

- Define the terms "delayed union", "mal-union" and "non-union"
- Define the terms "osteonecrosis", "osteoradionecrosis" and "osteomyelitis"
- Identify patient factors which may adversely affect healing
- Identify fracture factors which may adversely affect healing
- Identify management factors which may adversely affect healing

1.3 Radiology for maxillo-facial trauma

1.3.1 *Assessment of plain film radiology. Occipitomental, OPG, PA mandible*

List the commonly available plain films, taken as part of a trauma series

- Critically evaluate the quality of the radiographs, and describe the radiological appearance with respect to anatomy
- Critically evaluate the diagnostic value of the various plain films
- Give approximate x-ray dose of all of the radiographs commonly encountered

1.3.2 *Medical CT scan, cone beam CT, use of bone and soft tissue windows*

- Define the indications for ordering a CT scan
- Describe in detail a CT scan with respect to craniofacial fracture diagnosis
- Describe the principles of 'windowing and threshold values of CT data'
- Describe the relevance of slice thickness
- Describe the difference between a cone beam scan and a medical CT with respect to radiation dose and diagnostic potential

1.3.3 *Radiological assessment of mandibular fractures including the condyle*

- Describe the radiographs used for all fractures of the mandible.
- Accurately describe different fracture configurations.
- Discuss the radiological assessment of fractures of the mandibular condyle
- Define which fractures require CT scans
- Accurately assess intracapsular fractures of the mandibular condyle

1.3.4 *Radiological assessment of midfacial and orbital fractures, orbital foreign body*

- Accurately describe fractures of the midface, and orbito-zygomatic complex
- Describe which fractures are best imaged by CT scans
- Describe the limitations of the Le Fort classification
- Describe the role of CT and b mode ultrasound within the orbit

1.3.5 Radiological assessment of Craniofacial fractures

- Demonstrate the common fractures of the anterior skull base
- Describe the different types of frontal sinus and NOE fractures
- Describe the role of imaging in CSF rhinorrhoea

1.4 Principles of fixation

1.4.1 What is fixation and what does it aim to achieve?

- Explain the role and expectations of fixation techniques used in fracture management and in particular should explain the importance of achieving and maintaining anatomical reduction, bony alignment and fracture stability.
- Revise the concept of direct and indirect bone healing
- Explain the concept of weight-sharing and weight-bearing situations in fracture management.
- Explain the concept of tension & compression across fracture sites
- Explain the differences between rigid, semi-rigid and non-rigid fixation

1.4.2 Different methods for fixation: External fixation

- Define the term external fixation
- Describe and compare different methods of external fixation including IMF (intermaxillary fixation), arch-bars, splints and other external fixation devices incorporating pins and/or plates

- List indications for the use of external fixation devices
- Discuss advantages and disadvantages of external fixation devices

1.4.3 Biomechanics of plates & screws

Describe the materials used to make internal fixation devices

- Describe the essential features of plates and screws (size, structure etc)
- Explain what is meant by the following terms: Positional screw, lag screw, tapping, self-tapping screw, self-drilling screw, non-compression plate, compression plate, locking plate

1.4.4 Different methods for fixation: Internal fixation

- Define the term internal fixation
- Describe and compare different methods of internal fixation including the use of screws and plates
- List indications for the use of internal fixation techniques
- Discuss advantages and disadvantages of internal fixation devices

1.4.5 Resorbable fixation devices

- Discuss the differences between resorbable and non-resorbable fixation devices
- Describe some of the materials which have been used in resorbable devices
- Describe how resorbable devices resorb
- Discuss advantages and disadvantages in clinical practice

1.5 Overall management of the traumatised patient (cross-specialty co-ordination)

1.5.1 Overview of how a Trauma Team works including ATLS (European Trauma course - ETc)

- Explain the principles of triage for trauma victims in both a civilian and military setting

- Describe the principles of caring for trauma victims in the pre-hospital setting
- Demonstrate clear understanding of the working of a Trauma Team, and the role an OMFS surgeon may play.
- Give an overview of ATLS/ETc including a description of the primary survey, monitoring and resuscitation, secondary survey and transfer to definitive care.

1.5.2 Primary survey (emphasising specific elements relating to CMF trauma)

- Describe how to approach a victim of trauma, assessing the airway and protecting the cervical spine
- Describe how to achieve a patent airway whilst maintaining c-spine protection
- Describe how to identify and treat potentially life-threatening breathing problems whilst maintaining ventilation
- Describe how to identify and treat potentially life-threatening circulatory problems whilst controlling haemorrhage
- Describe how to assess for a head injury and detect potentially life-threatening intracranial problems
- Explain the importance of exposure with control of temperature
- Explain the principles of resuscitation, stabilisation and monitoring

1.5.3 Secondary survey and transfer to definitive care

- Demonstrate the importance of re-assessment and monitoring of a trauma patient
- Describe how to perform a tip to toe examination
- Describe the principles of formulating a plan for definitive treatment or safe transfer

1.6 Mandibular fractures

1.6.1 Surgical anatomy of the mandible including presenting features, assessment, investigation

and diagnosis of mandibular fractures

- Describe the component parts of the mandible including bone, muscle attachments, articulations, dental structures, nerves, vessels and main blood supply.
- Outline how the anatomical features of the mandible at different ages influence fracture patterns.
- Describe how muscle attachments affect fracture displacement.

1.6.2 Presenting features, assessment, investigation and diagnosis of mandibular fractures

- Describe how to assess a patient who may have sustained a fractured mandible
- List signs and symptoms suggestive of a mandibular fracture
- Specify appropriate investigations to aid diagnosis

1.6.4 Principles of treatment applied to mandibular fractures (excluding the condyle).

- Formulate a treatment plan for patients with mandibular fractures involving the angle, body and parasymphysis taking into account factors relating to the patient and to the fracture
- Apply principles of bone healing and fixation techniques to treatment planning
- Describe and compare different methods of internal fixation

1.6.5 Unfavourable fractures of the mandible (Fractures of the atrophic, osteoporotic and edentulous mandible and mandibular fractures which are comminuted or infected)

- Identify mandibular fractures with unfavourable features
- Formulate a treatment plan for patients with mandibular fractures with

unfavourable features taking into account factors relating to the patient and to the fracture

- Apply principles of bone healing and fixation techniques to treatment planning
- Discuss the use of bone grafts in the treatment of unfavourable mandibular fractures

1.6.6 Mandibular condyle fractures - an overview of the controversies.

- Present the commonly used classifications of condylar fractures
- Give an overview of the options available for the treatment of fractures involving the mandibular condyle
- Explain why there has been uncertainty regarding the best form of treatment
- Present the current guidelines in European and UK practice for the treatment of condylar fractures

1.6.7 Surgical treatment of mandibular condyle fractures

- Describe, compare and contrast the common surgical approaches to the mandibular condyle (Pre-auricular, retromandibular, submandibular, intra-oral inc. endoscopic)
- Describe methods for reduction and aids to reduction
- Compare and contrast different methods of fixation (plates & screws, lag screws, cannulated screws etc)

1.6.8 Outcomes, complications and late/revision surgery after mandibular trauma.

- State the desired outcomes after treatment of patients with fractured mandibles
- List complications which may occur after a fractured mandible whether treated or not (immediate, early, delayed, late)

- Discuss management options for complications

1.7 Maxillary fractures

1.7.1 Surgical anatomy of the midface

- Describe the component parts of the maxilla including bone, muscle attachments, articulations, dental structures, nerves, vessels and main blood supply.

- Outline how the anatomical features of the maxilla influence fracture patterns, and reflect strategies of reconstruction

1.7.2 Presenting features and diagnosis of maxillary injuries

- Describe the cardinal physical signs of a maxillary fracture
- Correlate physical findings with the appearance on plain film and CT imaging
- Describe the differences in the Le Fort patterns
- Describe the significance of the pterygoid plates
- Describe the relevance of sagittal fractures of the palate

1.7.3 General principles of reduction and fixation of maxillary fractures

- Describe the different techniques available for reduction of a maxillary fracture
- Identify and decide which instruments to use for reduction
- Plan sites of osteosynthesis with respect to the pillars of reconstruction, and the fracture elements
- Briefly discuss methods of external fixation (note cross reference to avulsive injuries)

1.7.4 Surgical approaches to the midface (excluding the orbit)

- Describe the different incisions used to access the midface.

- Know the advantages and limitations of the different orbital incisions

1.7.5 Principles of open reduction and internal fixation applied to maxillary fractures

- Describe the different thicknesses of osteosynthesis materials used in the different anatomical zones of the midface

- Describe the plating configurations for each type of maxillary fracture

- Describe the indications and application of primary bone grafting

- Describe the various strategies for managing sagittal fractures of the maxilla

1.8 Orbito-zygomatic fractures

1.8.1 Surgical anatomy of the zygoma including surgical approaches

- Describe the morphology and articulations of the zygomatic bone

- Describe the soft tissue attachments to the zygoma and their role in function and fracture

- Describe the anatomical structures adjacent to the zygoma

- Describe intra-oral and extra-oral surgical approaches to the zygoma

1.8.2 Zygomatic injuries

- Discuss the common mechanisms of zygomatic fractures and the fracture patterns produced

- Quote common classifications of zygomatic fractures and discuss their usefulness

- Describe how to assess a patient who may have sustained a fractured zygoma

- List signs and symptoms suggestive of a zygomatic fracture

- Specify appropriate investigations to aid diagnosis

1.8.3 Treatment options for zygomatic fractures

- Formulate a treatment plan for patients with zygomatic fractures

- Explain what are the indications for closed reduction (+/- external fixation)

- Explain what are the indications for open reduction (+/- internal fixation)

- Describe methods for closed reduction (+/- external fixation)

- Describe methods for open reduction (+/- internal fixation)

1.8.4 Outcomes, complications and late/revision surgery after zygomatic trauma

- State the desired outcomes after treatment of patients with fractured zygomatic complex

- List complications which may occur after a fractured zygoma whether treated or not (immediate, early, delayed, late)

- Discuss management options for complications

1.9 Orbital trauma (inc. Ocular injuries cross-specialty co-ordination)

1.9.1 Surgical anatomy of the orbit,

- Describe the osteology of the bony orbit, together with relevance to the types of fracture seen.

- Describe the dimensions of the orbit, together with the relationship to vital structures

- Describe the relevant curves within the orbit which alter anteroposterior position of the globe.

1.9.2 Presenting features and diagnosis of orbital fractures, emergency management of retrobulbar haemorrhage

- Describe the signs and symptoms of orbital floor and wall fractures

- Relate physical findings to radiological appearance
- Define the concept of orbital volume and pathogenesis of enophthalmos
- Define the cardinal signs of retrobulbar haemorrhage, and the acute medical and surgical management

1.9.3 General principles of assessment of visual acuity, orthoptic assessment, assessment of eye position.

- Accurately assess and record visual acuity
- Describe the role of visually evoked potentials
- Define the role of the orthoptist
- Interpret Hess charts and fields of binocular single vision
- Differentiate between surgical and myogenic, and monocular diplopia
- Describe the use and limitations of the Hertel exophthalmometer
- Define the radiological assessment of enophthalmos
- Describe the role of working with orthoptists and ophthalmologists in a multi-disciplinary way in the management of peri-orbital trauma. This must include awareness of presentation and management of injuries to the globe and retina and how ophthalmology manage these injuries.

1.9.4 Surgical access to the orbit

- Describe the different orbital incisions to access the orbital floor and medial wall
- Contrast the advantages and disadvantages of the various techniques
- Describe and manage the different complications that may arise from each incision

1.9.5 Principles of inferior and medial wall reconstruction.

Use of autogenous and alloplastic materials.

- List the different autogenous and alloplastic materials used in orbital wall surgery
- Contrast the advantages and disadvantages of the various materials available
- Describe the principles of safe dissection of the orbit

1.9.6 Paediatric orbital injuries

- Describe the concept and consequences of a white eye blow out fracture
- Debate the pros and cons of early versus delayed management

1.9.7 Orbital roof fractures

- Describe the relationship between fractures of the orbital roof and signs and symptoms of these injuries
- Prognosticate and treatment plan orbital roof fractures
- Describe the role of the neurosurgeon in these injuries

1.9.8 The management of late enophthalmos

- Describe the relationship between position and extent of orbital fractures and enophthalmos
- Describe the principles and the various strategies of management of this deformity

1.10 Naso-orbito-ethmoid trauma (inc. Nasal fractures – cross-specialty co-ordination)

1.10.1 Surgical anatomy of the NOE complex including canthal tendon, lacrimal apparatus

- Describe the component parts of the NOE region, specifically in relation to the medial canthal tendons. You will understand the relationship of the proximal lacrimal duct to the fracture patterns of the medial orbit.

1.10.2 Surgical anatomy and development of the frontal sinus

- Describe the development and anatomy of the frontal sinus, and the implications of trauma to the structure.
- Describe the anatomical variation and the effect of this in the different fracture patterns in this region

1.10.3 Presenting features and diagnosis of NOE fractures :- differentiation from nasal injuries

- Differentiate between nasal injuries requiring simple management, and those injuries demanding a more advanced surgical approach
- Describe the clinical features of NOE fractures, together with associated features which prognosticate to outcome
- Apply clinical findings to radiological appearance

1.10.4 Classification of NOE and frontal sinus fractures, and treatment planning

- Describe the different classifications used with respect to these injuries
- Describe the relevance of the central fragment in treatment planning
- Define which injuries require neurosurgical collaboration.
- Predict which fractures will be technically more challenging
- Describe the relevance of the posterior wall of the sinus, together with involvement of the nasal frontal duct.

1.10.5 Surgical approaches to the NOE and frontal sinus

- Describe the different approaches to the region
- Describe the surgical anatomy and technique of raising of a coronal scalp flap, together with manoeuvres to increase exposure

- Describe the principles of the neurosurgical approach to the frontal sinus, including the surgical anatomy of the superior sagittal sinus

1.10.6 General principles of reduction and fixation and bone reconstruction of NOE fractures,

- Describe the techniques used in reduction, and the typical plating configurations of these injuries.
- Describe techniques used to reduce fractures of the anterior wall of the frontal sinus.
- Predict which fractures require bone grafting, together with external and internal table bone grafts

1.10.7 Canthal tendon reconstruction, principles of lacrimal duct reconstruction

- Describe the principles of canthal tendon repair, together with the use of the canthal tendon wire.
- Describe the different types of incision required for tendon repair
- Describe the difference in management and prognostication in mono canalicular and bicanalicular injuries.

1.10.8 Management of late complications of fractures of the NOE and frontal sinus

- Appreciate the need to obtain the best primary repair possible
- Describe the appearance of malunion of this area.
- List the long term complications of frontal sinus fractures.
- Describe the principles of mucocele management of the frontal sinus

1.11 Pan-facial fractures (sequencing)

1.11.1 "An introduction to patients with pan-facial injuries

- Define the term "pan-facial fracture

- Discuss the common aetiologies of pan-facial fractures
- Describe the presenting signs and symptoms of a pan-facial fracture
- Describe how to assess, investigate and classify pan-facial fractures
- Describe the initial management and stabilisation of the patient with regard to ATLS/ETc principles.
- Discuss factors influencing the timing of treatment

1.11.2 Surgical treatment of pan-facial fractures

- Discuss the choice of airway (nasal, oral, tracheostomy, submental)
- Emphasize the importance of wide surgical access and describe how this may be achieved.
- Discuss different approaches to sequencing of reduction and fixation (“inside to outside” –Manson / “outside to inside” – Gruss)
- Discuss the role of primary bone-grafting and reconstruction in the treatment of pan-facial fractures

1.11.3 "Post-traumatic/post-treatment complications and management options after pan-facial injuries

- State the desired outcomes after treatment of patients with pan-facial fractures
- List complications which may occur after a pan-facial fracture (immediate, early, delayed, late)
- Suggest management options for complications (deficits in form and function)

1.12 Craniofacial interface fractures (cross-specialty co-ordination)

1.12.1 "Introduction to craniofacial injuries

- Describe the normal development, ossification and structure of bones of the craniofacial skeleton

- Describe how a broken bone heals comparing direct with indirect bone healing
- Discuss the importance of reduction and adequate stability in bone healing
- Describe the effects of compression and tension on bone healing

1.12.2 "Initial presentation, assessment, investigation and management of patients with craniofacial injuries

- Identify patient factors which may adversely affect healing
- Identify fracture factors which may adversely affect healing
- Identify management factors which may adversely affect healing

1.12.3 Definitive treatment of patients with craniofacial injuries

- State the treatment planning objectives for definitive treatment
- Discuss how to decide on the optimal timing for definitive treatment
- Decide upon the most appropriate choice of airway and surgical access
- Sequence repair of craniofacial fractures
- Describe the principles of frontal sinus management
- Describe the options for repair of a CSF leak

1.12.4 Post-traumatic/post-treatment complications and management options after craniofacial injuries

- List complications of craniofacial trauma (immediate, early, delayed. late)
- Suggest management options for complications
- Describe the management options for a persistent CSF leak
- Describe the management options for frontal sinus complications (persistent communication/mucocoele

- Describe cranioplasty techniques

1.13 Paediatric fractures

1.13.1 *An introduction to paediatric trauma*

- Compare and contrast the epidemiology of childhood cranio-maxillo-facial trauma with the adult experience
- Discuss “Non-accidental injury” (NAI) in children
- Describe those features in childhood craniomaxillofacial trauma which might be suspicious of Non-Accidental Injury (see also vulnerable child/adult)
- State what steps should be taken in cases of suspected NAI

1.13.2 *The assessment and general management of the traumatised child*

- Describe how to assess a paediatric trauma patient using ATLS/ETC principles
- Describe how to manage a paediatric trauma patient using ATLS/ETC principles
- Highlight the differences and similarities compared with the adult situation

1.13.3 *Paediatric cranio-maxillo-facial trauma*

- Discuss the management of soft tissue injuries in children mentioning specifically the management of facial bites.
- Highlight the differences in management of mandibular fractures in children compared to adults
- Highlight the differences in management of mid-facial fractures in children compared to adults
- Highlight differences in complications between children and adults sustaining cranio-maxillo-facial trauma

1.13.4 *Dental and Dentoalveolar trauma*

- Classify crown and root fractures in traumatised teeth

- Describe the initial assessment, investigation and management • of fractured, subluxed or avulsed teeth.

- Present different methods for splinting subluxed/avulsed teeth or dento-alveolar fractures

1.14 Fixation of bone fractures

1.14.1 *What is fixation and what does it aim to achieve (incorporating load-sharing & load bearing concept)?*

- Explain the role and expectations of fixation techniques used in fracture management and in particular should be able to explain the importance of achieving and maintaining anatomical reduction, bony alignment and fracture stability
- Revise the concept of direct and indirect bone healing
- Explain the concept of weight-sharing and weight-bearing situations in fracture management
- Explain the concept of tension & compression across fracture sites
- Explain the differences between rigid, semi-rigid and non-rigid fixation

1.14.2 *External fixation*

- Define the term external fixation
- Describe and compare different methods of external fixation including IMF (intermaxillary fixation), arch-bars, splints and other external fixation devices incorporating pins and/or plates
- List indications for the use of external fixation devices
- Discuss advantages and disadvantages of external fixation devices.

1.14.3 *Biomechanics of metal plates & screws*

- Describe the materials used to make internal fixation devices
- Describe the essential features of plates and screws (size, structure etc)

- Explain what is meant by the following terms: Positional screw, lag screw, tapping, self-tapping screw, self-drilling screw, non-compression plate, compression plate, locking plate

1.14.4 Bioresorbable fixation devices

- Discuss the differences between resorbable and non-resorbable fixation devices
- Describe some of the materials which have been used in resorbable devices
- Describe how resorbable devices resorb
- Discuss advantages and disadvantages in clinical practice

1.14.5 Different methods for fixation: Internal fixation

- Define the term internal fixation
- Describe and compare different methods of internal fixation including the use of screws and plates
- List indications for the use of internal fixation techniques
- Discuss advantages and disadvantages of internal fixation devices

1.15 Soft tissue injuries (cross-specialty co-ordination)

1.15.1 Assessment of acute facial soft tissue injury.

- Appreciate the prognostic factors in the acute injury
- Recognise the importance of wound toilet and the strategies and methods used to achieve it
- Describe the concept of the role of aesthetic subunits in wound reconstruction

1.15.2 Principles of repair of acute soft tissue injuries, including wound toilet, primary suturing, local flap repair. Aftercare.

- Describe the different techniques in managing the closure of traumatic wounds.

- Describe the management of the shelved and triangulated wound
- Plan strategies for typical patterns of tissue loss
- Describe the role of wound dressings

1.15.3 Principles of assessment and management of established facial scars.

- The geo-topographic approach, z-plasty, geometric broken line. Facial camouflage. Laser treatment.
- Appreciate the different components of a 'bad scar'
- Differentiate between a keloid and hypertrophic scar
- Discuss the timing of medical and surgical intervention
- Describe the 'Z'plasty, and geometric line as examples of scar revision, and discuss the differences, advantages, disadvantages of both
- Plan a simple Z plasty
- Discuss different types of skin camouflage
- Discuss the role of laser in depigmentation, and resurfacing

1.15.4 Acute repair and secondary correction of dog bite injuries

- Appreciate the difficulties in repair with respect to microbiology, and technical aspects
- Discuss timing of intervention
- Discuss management of different patterns of tissue loss typical in these injuries

1.15.5 Advanced techniques in secondary reconstruction. - Midfacial suspension, Coleman fat transfer, use of fillers.

- Describe the subtleties of soft tissue management particularly around the midface and lower eyelids

- Discuss different strategies for redraping of orofacial tissues
- Demonstrate an understanding of the surgical anatomy of the midface with respect to the position of the malar fat pad and manipulation thereof
- Discuss in broad terms the use of dermal fat, Coleman fat and fillers

1.15.6 Special consideration of the eyelids

- Describe the surgical anatomy of the eyelids with respect to the anterior and posterior lamellae, and strategies of reconstruction.
- Discuss the repair of lacerations of the upper and lower lids
- Discuss the anatomy of the lateral canthus, and principles of canthus repositioning techniques

1.16 High velocity/avulsive injuries

1.16.1 Principles of management of the polytraumatized patient. Typical injuries, timing of surgical intervention.

- Recognise the association of facial injuries with major neck, thoracic, musculo-skeletal and abdominal trauma.
- Discuss timing of surgery with respect to local facial considerations, head injury and systemic damage.
- Discuss principles of control of major facial bleeding

1.16.2 Principles of management of complex injuries of the craniofacial skeleton .

- Internal fixation techniques. Adjunctive methods Including use of intermaxillary fixation, external fixation , internal skeletal fixation as adjuncts to conventional management.
- Recognise the complexity of the craniofacial fracture as a function of energy transfer.

- Treatment and sequence craniofacial fracture in broad terms (note cross reference to sequencing module)

- Recognise the role of 'old fashioned techniques' which may be used in the acute phase, or as support to osteosynthesis techniques.

1.16.3 Management of fractures of the skull base.

- Clinical assessment, radiological diagnosis and management of anterior skull base injuries.
- Recognise the likelihood of base of skull fractures
- Identify radiologically fractures of the skull vault, anterior/middle and posterior cranial base, and recognise the associated physical signs.
- Diagnose extra and intradural cerebral haemorrhages

1.16.4 Principles of assessment and management of gunshot injuries of the craniofacial region

- Describe the pathophysiology of gunshot and blast injuries
- The principles of management in the primary setting, and principles of reconstruction

1.16.5 Principles of management of avulsive trauma. Use of soft tissue and composite flap reconstruction.

- Describe the concept of avulsive trauma and the management challenges that occur
- Treatment plan with respect to quanta of tissue loss.
- Re-examine the concept of primary bone grafting.
- Discuss the reconstructive ladder in the setting of facial trauma
- Discuss the relative merits of the various bone and composite free flaps available.

1.16.6 Principles of managing penetrating eye trauma

- Describe the surgical anatomy and pathology of a penetrating eye wound
- Describe the difference between primary repair, evisceration, and enucleation
- Describe the role of orbital implants

1.17 Endoscopic and stereotactically-assisted fracture management

1.17.1 Principles of stereotactic navigation

- **Describe the equipment requirements for stereotactic surgery**
- Describe the stages in registration and use of stereotactic equipment

1.17.2 Technology used in endoscopic and stereotactic navigational aids to fracture management

- Describe the fracture patterns for which adjunctive and collaborative techniques would facilitate management.
- Describe the benefits and limitations of endoscopic assistance in fractures of face, skull base and paranasal sinuses.

1.17.3 Novel use of 3 D , and orthogonal CT data to aid surgical planning

1.18 Nasendoscopic examination and surgery of the maxillary, ethmoidal and frontal sinuses (see ORL ETR)

1.18.1 Endoscopically assisted sinus surgery

- Describe the use of endoscopic equipment in management of cranioorbital mucoceles, and lacrimal duct injuries by surgeons with experience and training in these fields e.g. ORL surgeons with a sub-specialty interest and high volume practice.

1.18.2 Indications for orbital stereotactic surgery

1.18.3 Principles of endoscopic assisted repair of the medial orbital wall

- mucocele decompression

- endoscopic assisted dacrorhinocystostomy

- Risks associated with this surgery even when undertaken by a surgeon with a sub-specialty interest and a high volume practice.

1.19 Resorbable fixation devices

1.20 Airway inc Emergency Airway

1.20.1 Assessment of compromised airway

1.20.2 Options for emergency 'front of neck access' in trauma patients

- Cricothyroidotomy
- Tracheostomy

1. 20.3 Multi-disciplinary management of airway

- Awake fibre-optic intubation
- Percutaneous Tracheostomy

1. 20.4 Management of airway when nasal intubation inappropriate/impossible

- Planned sub-mental intubation
- Planned Tracheostomy

2 Head and Neck Oncology

2.1 Basic Principles

2.1.1 *History of head and neck oncology*

2.1.2 *Epidemiology*

2.1.3 *Aetiology*

2.1.4 *Pathology*

2.1.5 *Molecular biology*

2.1.6 *Premalignant conditions*

2.1.7 *Prognosis*

2.2 Diagnosis and investigations

2.2.1 *Signs*

2.2.2 *Symptoms*

2.2.3 *Radiological investigations*

2.2.4 *Biopsy and cytology*

2.2.5 *Classification and staging*

2.3 Principles of treatment

2.3.1 *Anaesthesia*

2.3.2 *Nursing care*

2.3.3 *Nutritional support*

2.3.4 *Speech and language therapy*

2.3.5 *Dental management*

2.3.6 *Psycho-social aspects*

2.3.7 *Health-related quality of life*

2.3.8 *Palliative care*

2.4 Surgery for oral and oropharyngeal malignancy

2.4.1 *Anatomy*

2.4.2 *Conventional ablative surgery*

2.4.3 *Access procedures*

2.4.4 *Management of the Mandible*

2.4.5 *Management of the Maxilla*

2.4.6 *Treatment of the tongue base tumour*

2.4.7 *Laser surgery*

2.4.8 *Thermal surgery*

2.4.9 *PDT*

2.4.10 *Management of the airway*

2.4.11 *Complications*

2.4.12 *Prognosis*

2.5 Management of the neck

2.5.1 *Historical perspectives*

2.5.2 *Access and types of Neck Dissections*

2.5.3 *SNB*

2.5.4 *Management of the negative neck*

2.5.5 *Management of the positive neck*

2.5.6 *Prognosis*

2.5.7 *Complications*

2.6 Tumours of the nasal cavity and paranasal sinuses

Outline the roles of the MDT in the planning of the management of these tumours and, where surgery is indicated, management by surgeons with a sub-specialty interest and a high volume practice (see ORL ETR).

2.6.1 *Anatomy*

2.6.2 *Epidemiology*

2.6.3 *Discuss occupational risk factors involved in nasopharyngeal cancer*

2.6.3 *Pathology*

2.6.4 *Presenting features*

2.6.5 *Investigations*

2.6.6 *Staging*

2.6.7 *Management*

2.6.8 *Surgical access*

2.6.9 *Prognosis*

2.7 Tumours of the skull base

2.7.1 *Anatomy*

2.7.2 *Epidemiology*

- 2.7.3 **Pathology**
- 2.7.4 **Presenting features**
- 2.7.5 **Investigations**
- 2.7.6 **Staging**
- 2.7.7 **Management**
- 2.7.8 **Surgical access**
- 2.7.9 **Prognosis**
- 2.8 **Tumours of the parapharyngeal space**
 - 2.8.1 **Anatomy**
 - 2.8.2 **Epidemiology**
 - 2.8.3 **Pathology**
 - 2.8.4 **Presenting features**
 - 2.8.5 **Investigations**
 - 2.8.6 **Staging**
 - 2.8.7 **Management**
 - 2.8.8 **Surgical access**
 - 2.8.9 **Prognosis**
- 2.9 **Rarer head and neck tumours**
 - 2.9.1 **Soft tissue sarcomas**
 - 2.9.2 **Hard tissue sarcomas**
 - 2.9.3 **Odontogenic tumours**
 - 2.9.4 **Lymphoproliferative Disease/tumours**
 - 2.9.5 **Orbital Tumours inc. melanoma and lacrimal tumours**
 - 2.9.6 **Metastases**
 - 2.9.7 **Paediatric tumours**
- 2.10 **Radiotherapy**
 - 2.10.1 **Historical perspectives**
 - 2.10.2 **Principles of treatment**
 - 2.10.2 **Modalities**

Describe the different types of radiotherapy, their mechanisms of action, dosing and administration.

- 2.10.3 **Primary Therapy**

Describe when radiotherapy is the major modality in the treatment of cancer.

2.14.8 **Adjuvant Therapy**

Take a focused history, undertake a careful clinical examination and order relevant investigations to accurately diagnose conditions that may require adjuvant radiotherapy as well as neoadjuvant radiotherapy.

2.10.4 **Scheduling**

Discuss the scheduling of chemotherapy, radiotherapy and surgery in those cancers treated with combined modality therapy.

2.10.5 **Side effects**

Describe the clinically significant or common early, intermediate and late side-effects of radiotherapy for cancer.

2.10.6 **Local recurrence**

Describe when radiotherapy may offer a significant control in local recurrence, thereby impacting on disease-free survival and overall survival.

2.10.7 **Cost Benefit analysis**

Describe when the advantages of radiotherapy are limited, and the cost-benefits ratio is limited.

2.10.8 **Delivery of therapy**

2.10.9 **Complications**

2.10.10 **Critically evaluate trials of radiotherapy treatments.**

2.10.11 **Future therapeutic options**

2.11 **Chemotherapy**

2.11.1 **Historical perspectives**

2.11.2 **Principles of treatment**

2.11.3 **Scheduling**

Discuss the scheduling of chemotherapy, radiotherapy and surgery in those cancers treated with combined modality therapy.

2.11.3 **Delivery of therapy**

2.11.4. **Side effects**

Describe the clinically significant or common early, intermediate and late side-effects of chemotherapy for cancer.

2.11.5 *Critically evaluate trials of chemotherapy treatments.*

2.11.5 *Palliative Care*

2.11.6 *Complications*

2.11.5 *Future therapeutic options*

2.12 **Dental rehabilitation**

2.12.1 *Principles of reconstruction*

2.12.2 *Prosthetic rehabilitation and obturation*

2.12.3 *Implant-borne prostheses*

2.12.4 *Cranio-facial rehabilitation*

2.13 **Future of head and neck oncology**

2.13.1 *Viral therapies*

2.13.2 *Robotic surgery*

2.13.3 *Gene therapies*

2.14 **Outcome Measures and Research**

This should include participation in national and multinational audit projects

2.14.1 *German-Swiss-Austrian Working Group on Maxillo-Facial Tumors*

<https://www.doesak.com/en-gb/home>

2.14.2 *Head and Neck Audits (national/international)*

<https://www.doesak.com/en-gb/home>

<https://savingfaces.co.uk/current-projects/national-head-and-neck-cancer-audit/>

2.14.3 *Peer Review*

In complex areas of care like head and neck cancer, there are advantages to patients and clinicians to have external review of treatment pathways and outcomes.

2.15 **Role of Physical and Rehabilitation Medicine (PRM) in the management of oncology patients**

2-16 **Imaging in Head and Neck Oncology**

2.16.1 *Radiography, CT/MRI/PET/Nuclear imaging*

- Principles, indications, ordering, analysis.
- Guided investigations and treatment.
- Team working with other specialties.

3 Reconstruction

3.1 Introduction

3.1.1 Ladder of reconstruction

- List the reasons why reconstruction in the head and neck is complex
- Illustrate the Reconstructive ladder
- Describe the requirements for the ideal reconstruction
- State the effects of radiotherapy on tissues and how it makes reconstruction difficult

3.2 Tissue expansion

- Introduction
- Principles
- Devices
- Application in head and neck reconstruction

3.3 Local and Random Pattern flaps

3.3.1 Buccal pad of fat

- Describe the anatomy and structure of the buccal pad of fat
- List uses for the buccal pad of fat
- Suggest contraindications to the use of the buccal pad of fat
- Illustrate the technique to mobilize the buccal pad of fat
- List the possible complications in using the buccal pad of fat

3.3.2 Nasolabial flap

- Define the principles of random pattern and axial flaps
- Describe the anatomy of the nasolabial flap
- Suggest the indications and contraindications to the nasolabial flap
- Describe the technique in raising a nasolabial flap
- State the complications of a nasolabial flap

3.3.3 Tongue flap

- Define the principles of tongue flaps
- Describe the anatomy of the tongue flap
- Suggest the indications and contraindications to the tongue flap
- Describe the technique in raising a tongue flap
- State the complications of a tongue flap

3.4 Pedicled flaps

3.4.1 Submental island flap

- Define the principles of flap
- Describe the anatomy of the flap
- Suggest the indications and contraindications to the flap
- Describe the technique in raising the flap
- State the complications of the flap

3.4.2 Temporoparietal, Temporalis flaps

- Describe the anatomy of the scalp
- State the relationship of the flaps to the facial nerve
- Discuss the indications and contraindications to the temporoparietal and temporalis flaps
- Illustrate the operative procedure of the flaps
- Suggest complications of the flaps

3.4.3 Deltopectoral

- Describe the anatomy of the deltopectoral flap
- Illustrate the operative procedure in raising a deltopectoral flap
- Describe the principle of the “delay phenomenon”
- Illustrate the arc of rotation in the flap
- Suggest indications and complications related to the flap

3.4.4 Pectoralis Major flap

- Define the principles of the Mathes and Nahai classification of blood supply to muscles
- Describe the anatomy of the pectoralis major flap
- Suggest indications and complication related to the flap
- Describe the operative procedure in raising a pectoralis flap
- Illustrate the arc of rotation and the defensive incision

3.4.5 Latissimus Dorsi flap

- Define the principles of flap
- Describe the anatomy of the flap
- Suggest the indications and contraindications to the flap
- Describe the technique in raising the flap
- State the complications of the flap

3.4.6 Sternocleidomastoid

- Define the principles of flap

3.4.7 Trapezius

- Describe the anatomy of the trapezius flap
- Suggest the indications and contraindications to the flap
- Describe the operative procedure
- List the possible complications related to the flap

3.5 Free Flaps

3.5.1 Radial forearm flap to include supra-fascial, sub-fascial and osseo-cutaneous

- Describe the anatomy of the flap
- Describe the Allen's test
- Suggest the indications and contraindications to the supra-fascial and subfascial flaps
- Describe the operative procedure for the flaps
- List the complications related to the flap

3.5.2 Radial forearm composite flap

- Describe the anatomy relevant to the composite radial flap
- Describe the operative procedure
- List ways of preventing fracture of the residual radius
- Discuss the role of innervated flaps in Head and Neck reconstruction

3.5.3 Antero-lateral thigh flap

- Describe the anatomy of the flap
- Suggest the indications and contraindications to the ALT flap
- Describe the operative procedure for the flap
- List the complications of the flap

3.5.4 Rectus Abdominis flap

- Describe the anatomy of the flap
- Suggest the indications and contraindications to the flap
- Describe the operative procedure for the flap
- List the complications of the flap

3.5.5 Lateral arm flap

- Describe the anatomy of the flap
- Suggest the indications and contraindications to the lateral arm flap
- Describe the operative procedure for the flap
- List the complications of the flap

3.5.6 Composite fibula flap

- Describe the anatomy of the flap
- Suggest the indications and contraindications to the fibula flap
- Describe the operative procedure for the flap
- List the complications of the flap

3.5.7 DCIA flap

- Describe the anatomy of the flap

- Suggest the indications and contra-indications to the DCIA flap
- Describe the operative procedure for the flap
- List ways of lengthening the DCIA pedicle
- List the complications of the flap

3.5.8 Scapula system of flaps - To include tip of scapula and TDAP

- Describe the anatomy of the flap
- Suggest the indications and contra-indications to the Scapula flap
- Describe the operative procedure for the Scapula flap
- Describe the operative procedure for the Tip of scapula flap
- Describe the TDAP flap
- List the complications of the flap

3.5.9 Jejunal flap

- Describe the anatomy of the flap
- Suggest the indications and contra-indications to the fibula flap
- Describe the operative procedure for the flap
- List the complications of the flap

3.5.10 Gastro-omental flap

- Describe the anatomy of the flap
- Suggest the indications and contra-indications to the fibula flap
- Describe the operative procedure for the flap
- List the complications of the flap

3.5.11 Gracilis flap

- Describe the anatomy of the flap
- Suggest the indications and contra-indications to the gracilis flap
- Describe the operative procedure for the flap
- List the complications of the flap

- List the reasons why this flap is good for facial reanimation

3.6 Surgery for facial paralysis

3.6.1 Causes of facial paralysis

- List the causes of facial paralysis
- Describe the investigations required in a patient with facial paralysis

3.6.2 Static surgery for facial paralysis

- Explain the role of specialist clinics and work up of patients with facial paralysis
- Describe the relevant facial anatomy
- Describe the various static procedures
- State the disadvantages of static procedures

3.6.3 Dynamic surgery for facial reanimation

- List the various dynamic reanimation techniques available
- Describe the relevant anatomy for facial reanimation
- Suggest protocols for postoperative care and follow up

3.7 Prosthetic Rehabilitation

3.7.1 Maxillary Obturators

- Classify maxillary defects
- List the indications for obturation
- Describe the steps in obturator construction

3.7.1 Maxillary Obturators

- List the indications for zygomatic implants
- Describe the placement of zygomatic implants

3.7.1 Nasal Prosthesis

- Classify nasal defects
- Illustrate ideal positions for placement of nasal implants
- Explain the importance of the soft tissue surrounding implants

- State the effects radiotherapy has on implant integration

3.7.1 Orbital Prosthesis

- Describe the anatomy of the bony orbit
- Illustrate the ideal position for placement of orbital implants
- Suggest steps for obturator maintenance

3.7.1 Ear Prosthesis

- Describe the bony anatomy around the ear
- Illustrate the ideal position for placement of orbital implants
- List the complications with placement of auricular implants

3.8 Non-vascularised Tissue Transfer

3.8.1 Skin grafts

- Full thickness
- Split Thickness
- Dermal alloplast

3.8.2 Bone Grafts to include bone grafting for implants

- Describe the various types of bone graft available
- List the advantages and disadvantages of each donor site
- Describe the operative technique for each donor site

3.9 Mandibular Reconstruction

3.9.1 Mandibular Reconstruction

- Describe the importance of the mandible
- Classify mandibular defects
- Describe reconstruction or not of each defect

3.10 Maxillary Reconstruction

3.10.1 Maxillary Reconstruction

- Classify maxillary defects
- Discuss prosthetic vs autologous reconstruction

- Suggest the ideal reconstruction for each type of maxillary defect

3.11 Pharyngeal Reconstruction

3.11.1 Pharyngeal Reconstruction

- Classify the various pharyngeal defects
- Describe the role of the various reconstructive options
- List the complications of pharyngeal reconstruction

3.12 Lateral Skull Base Reconstruction

3.12.1 Lateral Skull Base Reconstruction

- Classify the various lateral skull defects
- Describe the role of pedicle flaps in reconstruction
- Describe the role of free flaps in reconstruction

3.13 Reconstruction after cancer in children

3.13.1 Reconstruction in children

- List ways in which reconstruction in a child varies to that in an adult
- Describe the effects of radiotherapy on growth
- Suggest reconstructive options in a child and why

3.14 Principles of Microvascular Surgery

3.14.1 Principles of Microvascular Surgery

- Explain the assessment of a patient for a free flap
- Describe issues related to free flap reconstruction in patients who have had previous neck surgery or RT
- List essential criteria for successful microsurgery
- Discuss postoperative monitoring of free flaps

4 Salivary Diseases and Other Swellings of the Face and Neck

4.1 Surgical anatomy of the salivary glands

4.1.1 Embryology & Physiology of Parotid

- describe the basic embryology of the parotid salivary gland
- describe the basic physiology and nerve supply of the parotid salivary gland
- describe the basic histological features of the parotid salivary gland

4.1.2 Anatomy of Parotid

- define the anatomical boundaries of the parotid gland
- describe the gross anatomy of the superficial and deep lobes of the parotid gland
- list the anatomical structures within the parotid gland
- identify sites of aberrant parotid tissue

4.1.3 Anatomy of Facial Nerve

- describe the anatomical landmarks used to identify the position of the main trunk of the facial nerve
- list the common variations in patterns of branching of the facial nerve
- Precisely identify variations in the number and position of the mandibular branch of the facial nerve
- identify how the position of the facial nerve is affected by tumour masses within the gland

4.1.4 Embryology & Physiology of Submandibular Gland

- describe the basic embryology of the submandibular salivary gland
- describe the basic physiology and nerve supply of the submandibular salivary gland

- describe the basic histological features of the submandibular salivary gland

4.1.5 Anatomy of Submandibular Gland

- define the anatomical boundaries of the submandibular gland
- describe the gross anatomy of the lobes of the submandibular gland and relationship to adjacent structures
- define the relationship of the submandibular gland to the mandibular and cervical branches of the facial nerve, the lingual and hypoglossal nerves

4.1.6 Anatomy, Embryology & Physiology of Sublingual Gland

- describe the basic embryology and physiology of the sublingual salivary gland
- describe the basic histological features of the sublingual salivary gland
- describe the gross anatomy of the sublingual gland and define the relationship to adjacent structures

4.1.7 Anatomy, Embryology & Physiology of Minor Salivary Gland

- describe the basic embryology and physiology of the minor salivary glands
- describe the basic histological features of the minor salivary glands
- Locate the distribution of minor salivary gland tissues

4.1.8 Miscellaneous developmental disorders of the salivary glands

- describe incidence and nature of ductal aplasia or atresia
- Locate the distribution of minor salivary gland tissues
- describe incidence and nature of aberrant glands

4.2 Investigations of the salivary glands

4.2.1 Cross-sectional Imaging of major salivary Glands

- Explain the mechanism of MRI imaging and the interpretation of T1 and T2 weighted images
- Evaluate the roles and merits of CT and MRI imaging of the parotid gland
- Describe the roles and merits of CT and MRI imaging of the submandibular gland
- Explain the mechanisms of PET and PET/CT imaging
- Describe the current indications for PET and PET/CT imaging
- Describe the current role of radionuclide imaging techniques.

4.2.2 Ultrasound imaging of the major salivary glands

- explain the mechanism of ultrasound imaging
- list the indications and contraindications for ultrasound imaging
- describe the benefits and shortcomings of ultrasound imaging
- describe the indications for ultrasound guided FNAC

4.2.3 Role of FNAC & Core Biopsy

- describe the technique of fine needle aspiration cytology
- identify shortcomings in the technique of fine needle aspiration cytology
- list success rates in interpretation of the results of fine needle aspiration cytology for benign and malignant parotid tumours
- identify the management scenarios when a fine needle aspiration cytology investigation may be especially helpful
- list indications and contraindications to core biopsy of the major salivary glands

4.2.4 Sialography

- Explain the technique of sialography

- Explain the indications and contraindications to sialography

- describe the classic features of a tumour and sialadenitis with sialography

4.3 Neoplasia of the salivary glands

4.3.1 Classification, Staging and Grading of tumours

- explain the benefits of a comprehensive classification system
- describe the TNM staging system
- explain the principles of histological grading of salivary gland tumours
- describe the relative importance of stage and grade in predicting tumour behaviour
- list the main categories of benign and malignant tumours in the WHO classification system

4.3.2 Benign Tumours of Parotid Gland

- list the commonest benign tumours of the parotid gland
- describe the typical behaviour and presentation of a pleomorphic adenoma
- quantify the risk of malignant change in a benign pleomorphic adenoma
- list the factors that increase the risk of malignant change
- quantify the risk of metastatic disease with benign tumours of the parotid gland

4.3.3 Benign tumours of the Submandibular and sublingual glands

- list commonest benign tumours of the submandibular and sublingual glands
- describe behaviour of the pleomorphic adenoma

4.3.4 Malignant Tumours of Parotid Gland

- list commonest malignant tumours of the parotid gland
- quantify risk of malignant transformation with a pleomorphic adenoma

- identify the clinical and imaging features of malignant transformation in a pleomorphic adenoma

- quantify risks of facial nerve involvement with malignant tumours

- identify the clinical and imaging features of malignant invasion of the facial nerve

4.3.5 Malignant Tumours of Submandibular and sublingual Glands

- list commonest malignant tumours of the submandibular and sublingual glands

- identify the clinical and imaging features of malignancy in the submandibular and sublingual glands

- compare the incidence and pattern of malignant tumours within the major salivary glands

4.3.6 Benign and malignant tumours of the minor salivary glands

- list commonest benign tumours of the minor salivary glands

- list commonest malignant tumours of the minor salivary glands

- describe the histological and clinical features of necrotising sialometaplasia

- describe the management of necrotising sialometaplasia

4.3.7 Tumours of non-salivary origin

- list commonest tumours of non-salivary origin

- describe the characteristic imaging features of a lipoma

- describe presentation of systemic lymphoma in the major salivary glands

- explain the options for management of malignant metastatic disease of the intra-parotid lymph nodes

- discuss the indications for sacrifice of the facial nerve

4.4 Management of neoplastic salivary gland disorders

4.4.1 Conservative surgical Approaches to Parotid Tumours

- describe the anatomy of the tumour capsule with a benign pleomorphic adenoma

- describe the technique of extra-capsular dissection

- define the rationale for an extra-capsular dissection

- list the indications for extra-capsular dissection.

- describe the indications and technique of retrograde nerve dissection

4.4.2 Conventional surgical approaches to parotid tumours

- classify the various parotidectomy surgical procedures

- list the surgical skin incisions available

- describe the anatomical markers and methods for identifying the facial nerve trunk and or branches

- list advantages and disadvantages of a face-lift surgical approach

- define the extent and roles of complete and partial superficial parotidectomy

- describe surgical approaches to a deep lobe parotidectomy

- explain the types of intra-operative facial nerve monitoring and during parotid surgery and how they should be used.

4.4.3 Anaesthesia for surgery of the major salivary glands

- identify the correct positioning of patient

- explain the issues involved in selection of the appropriate tube for the airway

- explain the rationale for use of hypotensive anaesthesia and list potential complications

- explain the management of neuromuscular blockade drugs and use of nerve stimulation

- evaluate the role of intra-operative monitoring of the facial nerve
- identify correct recovery procedure and observations

4.4.4 Facial Nerve Paralysis & Paresis

- Describe the House-Brackmann classification of nerve weakness
- compare the incidence of transient and permanent facial nerve palsy after total or partial superficial parotidectomy with extracapsular dissection for a benign tumour
- quantify the incidence of transient and permanent facial nerve palsy after superficial parotidectomy for a malignant tumour
- identify the common patterns of facial nerve weakness after parotid surgery
- list the factors associated with an increased risk of injury to the facial nerve
- list the indications and factors to consider for resection and reconstruction of the facial nerve

4.4.5 Other Complications of Parotid Surgery

- quantify incidence of sialocele
- evaluate management options for persistent sialocele
- quantify incidence of great auricular nerve injury and neuroma
- describe measures to minimise the risk to the great auricular nerve
- outline measures to avoid haematoma formation

4.4.6 Managing Parotid Deformity & Frey's Syndrome

- describe surgical techniques to minimise the contour deformity after superficial and total parotidectomy

- describe the technique for preservation of the superficial lobe during access to deep lobe tumours

- evaluate the role of the SMAS preserving surgical approach

4.4.7 Frey's syndrome

- quantify the Incidence of Frey's syndrome
- describe surgical techniques used to minimise the risk of Frey's syndrome
- evaluate the effectiveness of surgical techniques used to minimise the risk of Frey's syndrome
- describe the non-surgical management of Frey's syndrome

4.4.8 Tumour spillage and residual disease

- list factors associated with tumour spillage
- estimate the incidence of tumour spillage or residual disease after superficial parotidectomy for a pleomorphic adenoma
- evaluate role of radiotherapy for management of spillage of a benign pleomorphic adenoma
- evaluate merits of expectant management after spillage of a benign pleomorphic adenoma

4.4.9 Recurrent Tumour Disease

- quantify the risks of recurrence with extra-capsular dissection for a benign pleomorphic adenoma of the parotid
- quantify the risks of recurrence with partial or complete superficial parotidectomy for a benign pleomorphic adenoma of the parotid
- explain the roles of partial or complete superficial parotidectomy for a benign pleomorphic adenoma of the parotid
- explain how the management of recurrent unifocal and multifocal benign pleomorphic adenoma may differ
- list factors likely to cause an increased risk of recurrent disease that are associated with a malignant tumour

4.4.10 Metastatic neck and systemic disease

- estimate the incidence of metastatic neck and distant disease
- explain the relative importance of staging and histological grade
- outline the surgical and radiotherapy options for management of the neck

4.4.11 Role of radiotherapy

- explain role of radiotherapy in management of malignant disease
- list evidence for improved loco-regional control
- list evidence for improved survival
- Define role of fast neutron therapy

4.4.12 Radiation Induced complications

- list complications associated with radiotherapy
- explain measures aimed at reducing incidence of oral complications
- describe symptomatic treatments available for painful xerostomia

4.5 Inflammatory conditions of the salivary glands

4.5.1 Acute and chronic sialadenitis

- describe clinical features of acute and chronic sialadenitis
- list causes of acute and chronic sialadenitis
- describe the non-surgical management of acute and chronic sialadenitis

4.5.2 Acute and chronic sialadenitis

- identify the indications for surgical treatment of chronic sialadenitis of the parotid gland
- describe the merits of superficial, subtotal and total parotidectomy for chronic sialadenitis

- quantify the incidence of transient and permanent facial nerve palsy after surgery for chronic sialadenitis

- describe the pattern of facial nerve weakness after surgery for chronic sialadenitis

- discuss the management of the parotid duct

4.5.3 Acute and chronic sialadenitis

- identify the indications for surgical treatment of chronic sialadenitis of the submandibular gland

- identify the structures at increased risk of injury during surgical excision of the submandibular gland for chronic sialadenitis

- estimate the incidence of nerve injuries associated with surgical excision of the submandibular gland for chronic sialadenitis

4.5.4 Pathophysiology & Presentation of Sialolithiasis

- estimate the incidence of salivary calculi in the major salivary glands

- describe the pathophysiology of Sialolithiasis in the major salivary glands

- describe the clinical presentation of sialolithiasis in the submandibular and parotid glands

- evaluate the role of the imaging investigations available for sialolithiasis in the major salivary glands

4.5.5 Management of Sialolithiasis of parotid gland

- list conservative treatment measures
- list criteria for sialolithotomy & sialodochoplasty
- describe techniques of sialolithotomy & sialodochoplasty
- quantify success rates
- list differences between the nature of intraluminal obstructions of the parotid

gland and those of the submandibular gland

4.5.6 Management of Sialolithiasis of submandibular gland

- list conservative treatment measures
- list criteria for sialolithotomy & sialodochoplasty
- describe techniques of sialolithotomy & sialodochoplasty
- quantify success rates

4.5.7 Minimally Invasive Surgery for Sialolithiasis

- list indications for sialadenoscopy of submandibular and parotid glands
- describe technique of sialadenoscopy
- evaluate the effectiveness of sialadenoscopy
- describe indications for intra-corporeal lithotripsy
- describe the role of extra-corporeallithotripsy

4.5.8 Systemic Disorders Affecting Salivary Glands

- list causes of unilateral & bilateral enlargement of the parotid gland
- list clinical features of primary & secondary Sjogren's syndrome
- describe the interpretation of the salivary gland biopsy and other diagnostic tests available for Sjogren's disease including immunohistochemistry
- describe the histological features of Sjogren's syndrome
- estimate the incidence of lymphoma & benign lymphoepithelial lesions in Sjogren's syndrome
- list features and management of sicca disease (this is a sixth objective, difficult to cover this much in one session)

4.5.9 Systemic Disorders Affecting Salivary Glands

- describe clinical features of sarcoidosis in head and neck region, and elsewhere
- list features of Heerfordts syndrome and Lofgrens syndrome
- describe the diagnostic tests available for sarcoidosis
- describe management options for soft tissue and intra-osseous lesions of sarcoidosis in the head and neck region
- describe the features and management of sialosis

4.5.10 Bacterial and fungal infections

- identify risk factors associated with infection of the major salivary glands
- identify organisms involved in community acquired and hospital acquired acute and chronic bacterial parotitis
- explain treatment options for acute and chronic bacterial parotitis
- describe features and management of chronic recurrent juvenile parotitis
- describe features and management of tuberculous and non-tuberculous mycobacterial infections

4.5.11 Viral Infections

- describe the presentation of mumps
- describe how to establish the diagnosis of mumps
- describe the pathological processes with HIV associated salivary gland disease
- identify the treatment options for lymphoepithelial cysts associated with HIV in the parotid gland
- identify infections associated with auto-immune disease or the immunosuppressed patient

4.5.12 Cysts of Major & Minor Salivary Glands

- construct a classification of cystic lesions of the major and minor salivary glands

- describe the mucous escape phenomenon or reaction
- define a mucous retention cyst
- identify the management options for a ranula and plunging ranula
- quantify the success rates of marsupialisation and surgical excision for treatment of a ranula

Topic 6 Traumatic injuries of salivary glands

4.6 Injuries to the major salivary glands

- explain management of acute and persistent salivary fistula
- indicate how to make diagnosis of sialocele
- list conservative and surgical management options for persistent sialocele
- classify facial nerve injury
- describe techniques of surgical repair of facial nerve

4.7 Paediatric disorders of salivary glands

4.7.1 Paediatric tumours and other pathology

- describe typical presentations of haemangiomas, haemangioendotheliomas and lymphangiomas
- describe the histological features of haemangiomas, haemangioendotheliomas and lymphangiomas
- outline the timing and nature of medical and surgical treatment options for haemangiomas, haemangioendotheliomas and lymphangiomas
- describe the management of first branchial arch cyst and fistulae
- describe the medical and surgical management of drooling

4.8 Other Swellings of the Face and Neck

4.8.1 Differential diagnosis of face and neck lumps

4.8.2 Developmental cysts

Dermoid cysts

Branchial cleft cysts

Thyroglossal duct cysts

Cystic hygroma

4.8.3 Non-salivary Benign Neoplastic disease of the face and neck inc thyroid

Presentation, diagnosis, investigation and multi-disciplinary management of non-salivary benign tumours of the face and neck.

4.8.4 Non-salivary malignant neoplastic disease of the face and neck inc thyroid

Presentation, diagnosis, investigation and multi-disciplinary management of non-salivary malignant tumours of the face and neck.

Primary including lymphoma

Secondary

4.8.5 Inflammatory Causes of Swelling

Infections

Sarcoid

Autoimmune

4.8.6 Vascular lesions

Management of AV malformations in co operation with other specialties including interventional radiology, vascular, endocrine, ORL, General and PRAS surgery.

AV malformations (PRAS involved)

Carotid Body Tumours

4.8.7 Thyroid disease

•Describe the role of inter-specialty working in the management of thyroid disease including the value of endocrinologists,

oncologists, and endocrine surgeons with a sub-specialty interest and a high volume practice (who may come from a range of surgical specialties including ORL, OMFS, and General Surgery)

5 Deformity

5.1 Introduction/ Basic theory

5.1.1 Craniofacial development

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5.1.2. Dental development

- Describe the development of the facial skeleton
- Describe the development of the dentition and supporting structures
- Appreciate the impact growth modification or delay can have on facial and dental development
- Appreciate the importance of growth potential and its use in surgery

5.1.3 History of Orthognathic surgery

- Describe the evolution of modern orthognathic practice
- Describe the importance of the development of orthognathic practice
- Identify key developments and milestones
- Appreciate how future developments relate to past practice

5.2 Diagnosis

5.2.1 Facial norms

- Identify and measure facial norms
- Describe the concept of facial harmony
- Recognise the relationship between static and dynamic facial norms
- Describe the relationship between teeth, bone and soft tissue in overall facial appearance

5.2.2 Data Collection records, models

- Describe the different methods of data collection. Describe the importance of data collection

- List the essential items in data collection. Describe the role of databases in data collection

- Describe the importance of accurate study models

- Appreciate the importance of confidentiality

5.2.3 Imaging. Radiographs and photography

- Describe the role of different radiological investigations

- Recognise when to request radiological investigations appropriately

- Use of 3D CT imaging in treatment planning and computer models

- Identify the standard photographic views necessary for assessment and record-keeping in facial deformity.

5.2.4 Psychology

- Explain the importance of psychological assessment in the management of facial deformity

- Recognise psychological problems in patients presenting with facial deformity

- Define the role of the psychologist and psychiatrist in facial deformity management

- Describe the features of Body Dysmorphic Disorder (ICD10-CM F45.22)

5.3 Treatment planning

5.3.1 2D and 3D planning

- Describe the principles of planning

- Describe the limitations of 2D planning

- Describe the principles of 3D planning

- Describe the limitations of 3D planning

5.3.2 Software assisted Opal, Dolphin

- List the benefits and drawbacks of computer aided planning
- Describe the input of data and its limitations on planning

5.3.3 Errors in planning recognition and prevention

- List the common planning errors
- Describe how to recognise planning errors
- List steps used to minimise error's in planning
- Describe how to manage late recognition of an error

5.3.4 Model Surgery

- List the benefits of model surgery
- Describe the main planning principles behind model surgery
- Appreciate how errors in model surgery can be identified
- Appreciate the different articulators used in mechanism of action

5.4 Orthodontics for Orthognathic Surgery

5.4.1 Pre surgical

- Define the principles of pre-surgical orthodontics and the importance regards good outcomes in orthognathic surgery
- Recognise extraction patterns in orthognathic surgery treatment plans
- Explain the mechanics of different orthodontic interventions and the role of temporary anchorage devices to a basic level
- Explain the effect of tooth movement on soft tissues
- Recognise when pre-surgical orthodontics is not necessary

5.4.2 Post surgical

- Explain the timing of post-surgical orthodontics
- Recognise what post-surgical orthodontics can and cannot achieve

- Illustrate the importance of long term orthodontic retention

5.5 Mandibular Surgery

5.5.1 Bilateral sagittal split

- List indications for BSSO
- Describe the technique including modifications
- Know the complications associated with the operation
- Appreciate the factors needed for informed consent

5.5.2 Sub sigmoid, Intra and Extra oral

- List indications for EO and IO Sub sigmoid osteotomy
- Describe the technique including modifications
- Know the complications associated with the operation
- Appreciate the factors needed for informed consent

5.5.3 Inverted L

- List indications for the inverted L osteotomy
- Describe the technique including modifications
- Know the complications associated with the operation
- Appreciate the factors needed for informed consent

5.5.4 Segmental and variations

- List indications for segmental procedures
- Describe the technique (s) including named modifications
- Know the complications associated with the operations
- Appreciate the factors needed for informed consent

5.5.5 Sub apical

- List indications for Mandibular sub apical osteotomy
- Describe the technique including modifications
- Know the complications associated with the operation
- Appreciate the factors needed for informed consent

5.5.6 Body osteotomy

- List indications for a body osteotomy
- Describe the technique including modifications
- Know the complications associated with the operation
- Appreciate the factors needed for informed consent

5.6 Genioplasty

5.6.1 Advancement, setback genioplasty

- Recognise the indications for advancement/setback genioplasty as an adjunct to jaw surgery
- Recognise when genioplasty as a sole treatment in facial deformity is indicated
- Describe the surgical technique for genioplasty
- List the complications associated with genioplasty and carry out consent for a patient appropriately

5.6.2 Reduction, augmentation and asymmetric genioplasty

- Recognise the indications for reduction, augmentation and asymmetric genioplasty as an adjunct to jaw surgery
- Recognise when genioplasty as a sole treatment in facial deformity is indicated
- Describe the surgical technique for genioplasty

List the complications associated with genioplasty and carry out consent for a patient appropriately

5.7 Maxillary Surgery

5.7.1 Le Fort I

5.7.2 Le Fort II and III

5.7.3 Kufner procedure

5.7.4 Segmental and variations

5.8 Bimaxillary Surgery

5.8.1 Mandibular asymmetry

- List the causes of mandibular asymmetry and diagnose its various presentations
- Recognise its potential relationship with maxillary and pan facial asymmetry
- Investigate a patient presenting with mandibular asymmetry
- Describe the treatment options for mandibular asymmetry

5.8.2 Anterior open bite

- List the causes of anterior open bites
- Describe the principles of surgical treatment
- Describe the principles of pre-surgical orthodontics
- Appraise the controversies around the management of AOB malocclusions

5.8.3 Non conforming pattern

- Identify patients with jaw deformity not conforming to typical patterns
- Recognise the pitfalls of treatment of patients with non-conforming patterns of jaw deformity
- Design treatment plans to overcome problems with patients with non-conforming patterns of jaw deformity

5.8.4 Transverse discrepancy

- Identify patients with transverse discrepancy of the jaws
- Describe the options to treat transverse discrepancy
- Evaluate the advantages and disadvantages of treatment options

- 5.9 Treatment of specific patterns**
 - 5.9.1 Class I**
 - 5.9.2 Class II – Div I**
 - 5.9.3 Class II – Div II**
 - 5.9.4 Class III**
- 5.10 Soft Tissue Changes / Procedures**
 - 5.10.1 Reliability in soft tissue changes**
 - 5.10.2 Lip lift**
 - 5.10.3 Alar base resection**
 - 5.10.4 Use of Hyaluronate or Botox**
- 5.11 Adjunctive Procedures**
 - 5.11.1 Rhinoplasty
 - 5.11.2 Liposuction
 - 5.11.3 Facelift
- 5.12 Hierarchy of Stability**
 - 5.12.1 Maxillary**
 - 5.12.2 Mandibular**
- 5.13 Complications – Prevention and Management**
 - 5.13.1 Intra operative**
 - 5.13.2 Post operative**
 - 5.13.3 Long term**
 - 5.13.4 Unfavourable results**
- 5.13 Cleft Orthognathic Surgery**
 - 5.13.1 Link to Cleft section**
- 5.14 Distraction osteogenesis**
 - 5.14.1 History
 - 5.14.2 Mechanism of action
 - 5.14.3 Mandibular
 - 5.14.4 Maxillary
 - 5.14.5 Alveolar
- 5.15 Obstructive sleep apnoea**
 - 5.15.1 Introduction**
 - 5.15.2 Sleep medicine basics**
 - 5.15.3 Non surgical treatment**
 - 5.15.4 Surgical options.inc Maxillo mandibular advancement**
 - 5.15.5 Adjunctive procedures**
- 5.16 Gender Reassignment Facial Surgery**
- 5.17 Facial and orbital surgery associated with endocrine disease**

6 Cleft

6.1 Incidence

6.1.1 Introduction

- Discuss the incidence of cleft lip and palate in the context of congenital abnormalities
- Estimate the number of clefts per live births
- Explore the effects of clefting on service provision.

6.1.2 Incidence of cleft lip and/or palate

- Classify clefts of the lip with or without palate.
- List the percentage breakdown of different cleft types
- Discuss the influence of race and twinning on the incidence of cleft lip and/or palate
- List some of the common syndromes that have a cleft of the lip and/or palate as part of the syndrome

6.1.3 Incidence of isolated cleft palate

- Predict the affect of clefts of the secondary palate on case load
- Classify clefts of the secondary palate
- List common syndromes that have a cleft of the secondary palate as part of the syndrome

6.1.4 Incidence of submucous cleft palate

- Estimate the incidence of submucous cleft palate in the general population
- Discuss the presentation of submucous cleft palate
- Recognise the importance of making the diagnosis

6.2 Aetiology

6.2.1 Influence of environmental factors

- Describe the affect of environmental factors on the embryo during lip formation and palatogenesis

- List environmental factors implicated in clefting
- Summarise environmental influence on risk

6.2.2 Genetic influences

- Awareness of features which suggest a chromosomal abnormalities in clefting
- Awareness of features which suggest a monogenic condition in clefting
- Recognise where these genes exercise their influence during embryogenesis

6.2.3 Genetic and environment interactions

- Knowledge of the multifactorial aetiology of isolated clefts
- Knowledge of the difference between isolated and syndromic clefting
- Knowledge of the recurrence risk for siblings and children of a patient with isolated clefting
- Knowledge of the role of genetic assessment and counselling in the care of patients with clefts and their families, and when to refer to genetic services
- Knowledge of how genes are inherited and basic patterns of inheritance: dominant and recessive
- Knowledge of de novo gene variants as a mechanism causing genetic conditions
- Awareness of variable expression and non-penetrance in hereditary conditions
- Awareness of germline mosaicism as a cause of recurrence of rare genetic conditions
- Assess features which suggest a condition is genetic and/or inherited in a patient and/or their parents

6.3 Diagnosis

6.3.1 Antenatal diagnosis

- Discuss the timing, techniques and views used to make ultrasound antenatal diagnosis
- List the factors that influence ultrasound detection rate
- Classify clefts diagnosed on ultrasound
- Recognise the association between cleft type and other chromosomal abnormalities
- Recommend appropriate referral following antenatal diagnosis

6.3.2 *Diagnosis at birth*

- Quote aims of cleft units within the UK following birth of a child with a cleft
- Describe the referral process following diagnosis of a cleft at birth
- Explain the probable treatment pathway from birth to adulthood for different cleft types

6.3.3 *Support at time of diagnosis*

- Discuss the needs of a baby born with a cleft
- Recommend feeding strategies for the particular cleft type
- Summarise the support provided by the cleft team peri-natally

6. 4 Management of cleft lip

6.4.1 *Principles of lip management*

- Recognise the problems caused by clefts of the lip
- Classify clefts of the lip
- Describe the anatomical defect in a unilateral cleft lip and palate
- Describe the anatomical defect in a bilateral cleft lip and palate

6.4.2 *Surgical options*

- Recognise that different timing protocols exist for the management of cleft lip and palate
- Describe the various sequences for the closure of cleft lip and palate

- Explain the rationale for commonly practiced protocols

6.4.3 *Management of unilateral cleft lip and/or palate*

- List the steps in lip repair
- Discuss the aims of skin incision design
- Name and sketch commonly used techniques for lip repair
- List advantages and disadvantages of commonly used techniques
- Describe rotation-advancement repair
- Discuss nasal repair

6.4.4 *Management of bilateral cleft lip and/or palate*

- Analyse the defect
- Discuss the role of pre-surgical orthopaedics
- List the steps in lip repair
- Name and sketch commonly used techniques for lip repair
- Recognise the role of the nose in lip repair

6.4.5 *Management of incomplete cleft lip and/or palate*

- Analyse the defect
- Illustrate the technique best suited to deal with the defect
- Recognise the role of the nose in incomplete lip repair

6.4.6 *Outcome of lip surgery (aesthetic and growth)*

- List outcomes measured after lip surgery
- Discuss influence of lip surgery on growth
- Evaluate the aesthetic outcome of lip surgery

6. 5 Management of palate

6.5.1 *Principles of palate management*

- Describe the underlying anatomical defect in patients with clefts of the palate

- Differentiate between the closure of the soft palate from closure of the hard palate
- Explain the role of functional soft palate repair

6.5.2 Surgical options

- Describe techniques used to repair the hard palate
- Compare and contrast techniques used to repair the soft palate
- Describe in detail the Sommerlad micro-dissection repair of the soft palate

6.5.3 Outcome of palatal surgery (growth and speech)

- List the complications/sequelae of palatal surgery
- Discuss the influence of timing of palatal surgery on speech and growth
- Explain the influence of surgical technique on speech and growth

6.6 Management of the cleft alveolus

6.6.1 Aims of alveolar bone grafting

- List aims of alveolar bone grafting
- Summarise the adverse affects if bone grafting is not carried out
- Describe the surgical technique for conventional alveolar bone grafting
- List the steps necessary for gingivoperioplasty

6.6.2 Timing of bone grafting

- Classify bone graft timing
- Explore the advantages and disadvantages of carrying out alveolar bone grafts at different ages
- Recognise the role of gingivoperioplasty

6.6.3 Pre-bone graft assessment and management

- Carry out an assessment for alveolar bone grafting
- Describe the role of the orthodontist in pre-bone graft management

- Discuss pre-bone graft teeth extraction

6.6.4 Donor site options and novel developments

- List the types of grafting material previously used for alveolar bone grafting
- Compare and contrast donor sites used for bone harvest in alveolar bone grafting
- Discuss the use of bone graft substitutes in the management of the alveolus

6.6.5 Outcome assessment of alveolar bone graft

- Recognise the need for outcome assessment
- List the most commonly used assessment methods
- Summarise the Bergland, Kindelan and Witherow assessment methods
- Explore the use of CT scanning in the assessment of alveolar bone grafting

6.7 Revision procedures

6.7.1 Revision of the lip

- Discuss the possible causes for poor lip outcome
- List the indications for lip revision
- Describe the common techniques for lip revision

6.7.2 Revision of the palate – speech surgery

- Define velopharyngeal insufficiency
- Assess velopharyngeal insufficiency
- Recommend surgical solutions for velopharyngeal insufficiency

6.7.3 Revision of the palate – oronasal fistula repair

- Classify oro-nasal fistulae
- Report the incidence of oro-nasal fistulae and the factors that influence their formation
- Describe the common symptoms and signs of fistulae

- Distinguish between symptomatic and asymptomatic fistulae

- List commonly used techniques for the repair of oro-nasal fistulae

6. 8 Management of the nose

6.8.1 Primary Rhinoplasty

- Define primary rhinoplasty
- Explore the evolution of primary rhinoplasty in cleft lip patients
- Discuss common surgical techniques
- Explain the need for and possible types of post-surgical splinting

6.8.2 Secondary Rhinoplasty

- Discuss the timing of secondary rhinoplasty
- Recognise the need for psychological support
- Analyse the nasal defect and decide on a logical approach
- Describe commonly employed grafting materials and suture techniques

6. 9 Orthognathic surgery

6.9.1 Principles of orthognathic surgery in cleft patients

- Recognise the influence of cleft type on the need for orthognathic surgery
- Summarise the common skeletal growth disturbances in cleft patients
- Evaluate a cleft patient for orthognathic surgery
- Explain the role of the psychologist in the decision making process

6.9.2 Traditional orthognathic surgery

- Reflect on the surgical technique to maximise movement and minimise avascular necrosis
- Assess the effect of orthognathic surgery on local anatomy
- Discuss the factors that contribute to relapse

- List probable complications

6.9.3 Distraction osteogenesis

- List the advantages and disadvantages of distraction osteogenesis
- Summarise the indications for distraction osteogenesis
- Describe the commonly used distraction osteogenesis techniques employed in cleft patients

6.9.4 Influence of orthognathic surgery on speech

- Recognise the risks posed by orthognathic surgery to speech
- Explain the pre-operative speech work-up for a cleft patient undergoing orthognathic surgery
- List the ways in which the risks to speech may be minimised

6. 10 Speech

6.10.1 Introduction to the development of speech

- Recognise the complexity of speech development
- Discuss the role of the velopharyngeal mechanism in speech
- Describe velopharyngeal anatomy

6.10.2 Influence of cleft palate on speech

- Explore the relationship between speech development and timing of cleft palate surgery
- Explain the possible effects of clefting on velopharyngeal sufficiency
- Define and explain the role of the speech therapist in the cleft team

6.10.3 Speech assessment

- Demonstrate knowledge of the nationally-agreed parameters for the description and assessment of speech associated with cleft palate.

- Describe the methods used in the investigation of palatal structure and function during speech.

- Interpret findings from velopharyngeal/palatal investigations and explain how they influence treatment decisions

6.10.4 Role of speech therapy

- List the common types of speech therapy
- Explain the role of the different types of therapy in managing children with cleft palates
- Discuss the use of speech prostheses in the management of velopharyngeal insufficiency

6.11 Hearing

6.11.1 Introduction to hearing in cleft patients

- Explain the importance of hearing on the development of speech
- Describe the effect of cleft palate on Eustachian tube function
- Discuss the pathophysiology of Eustachian tube dysfunction in clefts
- Summarise the possible effects of cleft palate surgery on Eustachian tube dysfunction

6.11.2 Management of hearing loss and otitis media with effusion

- Discuss the current European, UK and international guidelines for the management of cleft patients with middle ear effusion
- Identify patients with hearing loss secondary to middle ear effusion that need intervention
- Describe the alternatives for the management of cleft patients with middle ear effusion with or without hearing loss including surgical management for example by an ORL surgeon who is part of the cleft team (and has a sub-specialty

interest and a high volume practice) – see ORL ETR.

6.12 Orthodontics

6.12.1 Orthodontic intervention prior to primary lip surgery

- Describe the role of the orthodontist prior to primary surgery
- Explore the role of pre-surgical orthopaedics and naso-alveolar moulding in the management of cleft patients
- Summarise the dental and occlusal development in deciduous and mixed dentition in cleft patients.

6.12.2 Orthodontic management prior to and immediately after alveolar bone grafting

- Explain the rationale for pre-alveolar bone graft orthodontics
- Discuss the possible orthodontic interventions that may be indicated
- Formulate a plan for the management of the pre-maxilla in bilateral cleft patients

6.12.3 Definitive orthodontic management following eruption of the permanent dentition

- Summarize the dental and occlusal development in the permanent dentition in cleft patients.
- List the common orthodontic problems encountered in the permanent dentition in cleft patients
- Differentiate between orthodontic camouflage and de-compensation in cleft patients
- Discuss the options (orthodontic and prosthodontic) for dealing with missing teeth in the line of the cleft

6.13 Psychology

6.13.1 Introduction to the psychology in clefts of the lip and palate

- Discuss the factors important in determining healthy psychosocial adjustment
- Predict the transitional points when the risk of psychosocial maladjustment is increased
- List the psychological difficulties common in cleft lip and palate patients.

6.13.2 *Role of the psychologist in the cleft team*

- Discuss the influence the psychologist has on the team and the patient.
- Summarise the role of the psychologist as the child passes through the various developmental stages on the way to adulthood.
- Describe the common psychosocial adjustment problems in adult cleft patients and the psychological approach to these.
- Explore the need for psychological input prior to surgery for patients and families affected by clefting.

6.13.3 *Evaluation of treatment outcome in clefts of the lip and palate*

- Examine the need for outcome evaluation
- Differentiate between patient outcome evaluation and professional outcome evaluation
- Interpret the meaning of outcome evaluation

7 Facial Aesthetic Surgery

7.1 Assessment of the patient for facial rejuvenation surgery

7.1.1 Anatomy and physiology of the aging face.

- Describe the anatomical changes that occur with aging
- Describe the aetiology and physiology of aging

7.1.2 Assessment of the patient seeking facial rejuvenation surgery

- Describe the features of ageing seen in the face
- Explain how to assess a patient seeking facial rejuvenation

7.1.3 Specific assessment for upper face and eyelid surgery

- Explain how to assess hairline, brow position and upper lid in relation to facial rejuvenation surgery
- Describe the position of the lids and canthal areas in relation to facial rejuvenation
- List the causes of acquired upper eyelid ptosis

7.1.4 Specific assessment for lower face surgery

- Explain how to assess the midface and jowls
- Describe how to assess a patient with laxity of the neck
- Describe the role of fillers and implants for tissue volume replacement
- Discuss the role of surgery in lower face rejuvenation

7.2 Browlifting

7.2.1 History and relevant surgical anatomy (ref coronal flaps)

- Describe the history of brow lifting

- Describe the anatomy of the forehead
- Revise coronal flap anatomy and technique

7.2.2 Open brow lifting techniques

- Describe the surgical procedures of open brow lifting
- Explain the different surgical approaches available
- Describe the advantages and disadvantages of each approach

7.2.3 Endoscopic techniques including relevant equipment

- Describe the equipment used in endoscopic brow lifting
- Describe the endoscopic approach to brow lifting
- List the types of fixation available

7.2.4 Complications and adaptation to facial deformity

- Describe how to avoid, diagnose and treat the complications associated with both open and endoscopic approaches
- Discuss how these techniques can be used for facial deformity

7.3 Eyelid surgery

7.3.1 Surgical anatomy of the upper lid

- Describe the anatomy of the skin, muscles and septum of the upper lid
- Describe the anatomy of the orbital fat compartments, the course of the extraocular muscles and the muscle cone along with the vessels and innervation entering the orbit, and the anatomy of the lacrimal apparatus.
- Describe the normal anatomy of the globe position to the upper lid

7.3.2 Management of dermatochalasia

- Explain how to assess a patient with laxity of the skin of the upper eyelids

- Discuss the position of the brow in relation to the upper lid when considering lid surgery

- Describe the surgical procedures available for rejuvenation of the upper lid

7.3.3 Assessment and treatment of ptosis

- List the causes of acquired upper eyelid ptosis

- Explain how to assess a patient with acquired upper eyelid ptosis

- Describe the range of procedures available

7.3.4 Surgical anatomy of lower eyelid

- List the causes of laxity of the skin and tissues of the lower eyelids

- Describe the normal anatomy of the globe position to the lower lid

- Discuss how to assess the shape and position of the medial and lateral canthal attachments

- Describe that anatomy of the periocular fat in relation to the lower lid and orbital septum

7.3.5 Lower blepharoplasty surgical techniques

- Describe the transconjunctival, sub-ciliary approaches to lower lid rejuvenation

- Describe the different approaches to addressing the fat bags including fat removal and fat preservation techniques

- Describe the indications for and the surgical technique of lateral canthopexy

7.3.7 Complications of eyelid surgery and their management

- List the complications of eyelid surgery

- Discuss how to avoid, recognise and treat these complications

7.4 Face and Necklifting

7.4.1 A history of facelifting

- Give an overview of the history of facelifting

- Discuss the commonly used terms in facelifting

7.4.2 Facelift and necklift surgical anatomy

- Describe the anatomy of the SMAS in the head and neck

- Describe the anatomy of the facial nerve and greater auricular nerve branches in relation to the SMAS

- Discuss the anatomy of the true facial ligaments and their importance in facelifting

7.4.3 Overview of current facelift techniques

- Describe the range of face lift procedures available

- Explain how to select the most suitable procedure for a given patient

- Describe the main steps taken to perform each

- Describe how to assess a patient's suitability for a face lift

7.4.4 Management of the neck in facial rejuvenation

- Explain the aetiology of platysmal bands

- Describe the surgical management of platysmal bands

- Describe a range of procedures for neck lifting

- Describe how to avoid, recognise & treat the complications of each

7.4.5 Complications of facelifting and secondary facelift surgery

- List the complications of face lift

- Describe the steps that should be taken to minimise complications

- Explain how to recognise and treat complications of face lift

- Describe how to assess the outcome of a face lift

- List the indications for secondary surgery following face lift

- Describe the range of procedures available

7. 5 Facial Reshaping (see also orthognathic)

7.5.1 Indications and imaging for facial reshaping

- Describe how to assess the facial proportions

- List the indications for facial reshaping

- Describe the differences between skeletal and soft tissue augmentation

- Describe clinical, photographic and radiographic assessment for facial augmentation

7.5.2 Materials used in facial augmentation

- List the material used in facial augmentation

- List the advantages and disadvantages of each material

- Describe fixation methods for the materials listed

7.5.3 Facial implants

- Discuss the anatomical types of cosmetic facial implants available

- Describe the surgical techniques for placement of implants

- Describe how to avoid, recognise & treat the complications of each

7.5.4 Malar osteotomies

- Describe the normal anatomy of the zygomatic complex

- Discuss the advantages and disadvantages of malar osteotomies v's implants

- Describe the surgical techniques of zygomatic osteotomies

- Describe how to avoid, recognise and treat any complications

7.5.5 Genioplasty (see also orthognathic surgery)

- Discuss the advantages and disadvantages of genioplasty v's chin implants

- Describe the surgical techniques and of osseous genioplasty

- Describe how to avoid recognise and treat complications of chin surgery

7.5.6 Management of the large chin and "witches" chin deformity

- Discuss the surgical management of the large/protruding chin

- Describe the surgical treatment for the ""witches chin" deformity

- Describe how to avoid, recognise and treat the complications of each

7.5.7 Lip surgery techniques

- Describe the anatomy of the lips in relation to the lower face and dentition

- Discuss how the aging process changes the appearance of the lips

- Describe the surgical techniques of lip reduction

- Describe surgical technique of lip augmentation with autologous and alloplastic materials

- Describe how to avoid, recognise and treat the complications of lip surgery

7. 6 Rhinoplasty (see also cleft)

7.6.1 Surgical anatomy of the nose in relation to septorhinoplasty

- Name the surface markings of the nose

- Describe the anatomy of the nasal bones, Nasal analysis and treatment planning connecting soft tissues

- Discuss the anatomical variations between different ethnicities

7.6.2 Assessment of nasal function

- Discuss clinical, radiographic and endoscopic assessment of nasal function
- Discuss the pathophysiology of the turbinates in relation to nasal function

7.6.3 Nasal analysis and treatment planning

- Discuss general facial assessment and the relationship of the nose to the face
- Describe how to analyse the upper mid and lower thirds of the nose
- Outline specific assessment of the nasal tip and the nasal base
- Discuss how to formulate a surgical plan for septorhinoplasty

7.6.4 Nasal septal surgery

- List the indications for septoplasty
- Outline the approach and surgical techniques used in septoplasty
- Describe how to avoid, recognise and treat the complications of septoplasty

7.6.5 Harvesting of nasal septal cartilage

- Outline the surgical technique for septal cartilage harvest
- Describe how to avoid recognise and treat complications of septal cartilage harvest

7.6.6 Harvest of ear cartilage

- Describe the surgical techniques for harvest of ear cartilage
- Describe how to avoid, recognise and treat complications of harvest of ear cartilage

7.6.7 Harvest of costal cartilage

- Describe the surgical technique for costal cartilage harvest
- Describe how to avoid, recognise and treat the complications of costal cartilage harvest

7.6.8 Rhinoplasty - approaches/incisions

- Outline the basic incisions used in septorhinoplasty
- Discuss the advantages and disadvantages of endonasal v's open techniques

7.6.9 Basic rhinoplasty techniques

- Outline the basic surgical principles involved in rhinoplasty for dorsal hump reduction
- Discuss the delivery and non-delivery techniques for endonasal rhinoplasty
- Getting it right first time - basic principles discussed

7.6.10 Management of the nasal tip

- Discuss the support mechanisms of the nasal tip
- Outline the commonly used grafts in nasal tip surgery
- Outline suture techniques in nasal tip surgery

7.6.11 Nasal osteotomies and management of the nasal bones in septorhinoplasty

- List the indications for nasal bone osteotomies
- Discuss the surgical techniques of lateral and medial nasal bone osteotomies
- Describe how to avoid, recognise and treat complications of nasal bone osteotomies

7.6.12 Management of the deviated nose

- Analyse the cause of the deviated nose
- Outline the principles of treatment of the deviated nose
- Describe how to avoid recognise and treat complications of surgery for the deviated nose

7.6.13 Adult cleft rhinoplasty

- Discuss the timing of secondary cleft rhinoplasty

- Recognise the need for psychological support
- Analyse the nasal defect and decide on a logical approach
- Describe commonly employed grafting materials and suture techniques

7.6.14 Rhinoplasty complications

- List the general, functional and aesthetic complications of septorhinoplasty
- Summarise the terms for the key iatrogenic nasal deformities of septorhinoplasty
- Outline the management of complications of septorhinoplasty

7.6.15 Secondary rhinoplasty surgery

- Discuss assessment of the patient requesting secondary rhinoplasty
- Outline the surgical correction of iatrogenic nasal deformity
- Discuss how to avoid, recognise and treat complications of secondary nasal surgery

7.7 Aesthetic Procedures on the Ears

7.7.1 Anatomy and assessment of ears in the child and the adult

- Be able to describe the normal anatomy of the ears
- Describe the anatomy of the protruding ear
- Explain how to assess a patient requesting surgery for prominent ears

7.7.2 Surgical Procedures to correct prominent ears

- Describe the common surgical approaches for correction of prominent ears
- List the advantages and limitations of the different approaches
- Explain how to avoid, recognise and treat complications of otoplasty

7.7.3 Correction of earlobe deformity

- Describe the aetiology of enlarged earlobes
- Describe a range of procedures for reduction of earlobes
- Explain how to avoid, recognise & treat complications of earlobe reduction

7.7.4 Repair of split earlobes

- Describe the causes of split earlobes
- Describe a range of procedures for correction of split earlobes
- Explain how to avoid, recognise & treat complications of surgery for split earlobes

7.8 Fillers, Toxins and Peels

7.8.1 Anatomy and Physiology of aging skin

- Discuss the normal anatomy of the skin
- List the aetiological causes of aging of the skin
- Describe the changes in the anatomy of the skin with aging

7.8.2 Dermal fillers- types and indications

- Describe and classify the types of alloplastic material used as dermal fillers
- Give examples of the appropriate use of each alloplastic material
- Explain the relative advantages, risks and complications of each alloplastic material

7.8.3 Autologous fat grafting

- Discuss the principles of fat harvest
- Describe the surgical procedure of fat harvest and transfer
- List the complications of fat transfer
- Discuss how to avoid and treat the complications of fat transfer

7.8.4 Botulinum toxin cosmetic use

- Describe how to assess a suitability for botulinum injections in glabella, forehead, and crows feet

- Explain how to perform botulinum injections in the glabella, forehead and crows feet

- Describe how to avoid, recognise & treat complications

7.8.5 Botulinum toxin - head and neck indications and techniques - non cosmetic

- Describe how to assess a suitability for botulinum injections in the face

- Explain how to perform botulinum injections in the facial muscles

- Describe how to avoid, recognise & treat complications

7.8.6 Skin peels

- Explain the advantages & disadvantages of the agents available for facial peeling

- Describe how to assess a patient's suitability

- Describe how to perform a chemical peel

- Describe how to avoid, recognise & treat complications

7.8.7 Lasers and IPL in facial rejuvenation

- List the range of lasers available for facial rejuvenation

- Explain the advantages & disadvantages of fractional and ablative lasers

- Describe how to assess a patient's suitability for laser rejuvenation

- Describe how to avoid, recognise & treat complications

7.8.8 Cosmeceuticals and their relevance to the maxillofacial surgeon

- Name the 7.a1 agents available for rejuvenation of facial skin

- Explain the evidence base for each

- Describe how each should be used

7.9 Imaging in head and neck aesthetic and cosmetic surgery.

7.9.1 Photography, laser scanning and 3D imaging

- Principles, indications, ordering, analysis.

- Guided investigations and treatment.

- Team working with other specialties.

7.9.2 Radiography, CT/MRI/PET/Nuclear imaging

- Principles, indications, ordering, analysis.

- Guided investigations and treatment.

- Team working with other specialties.

8 Facial Pain

8.1 Introduction to facial pain

8.1.1 Pathophysiology of facial pain

- Classify different types of pain
- Describe the conduction pathways for different types of pain
- Describe the receptors and neurotransmitters for pain transmission

8.1.2 Clinical Pharmacology of agents used in facial pain management

- Describe the pharmacology of drugs used in pain management. The following examples are the most commonly used agents but knowledge/understanding should include rarely used drugs and novel agents.
- Describe pharmacology of non-steroidal anti-inflammatory drugs
- Describe the pharmacology of tricyclic antidepressants, antipsychotics, anticonvulsants and other co-analgesic agents.
- Describe the pharmacology of drugs used in neuropathic pain e.g. carbamazepine, gabapentin, pregabalin and others.

8.2 Neuropathic pain

8.2.1 Trigeminal neuralgia

- Describe the anatomy of the trigeminal nerve
- Identify the characteristics of the pain of trigeminal neuralgia
- Explain the underlying causes and risk factors for trigeminal neuralgia
- Request and interpret appropriate investigations

8.2.2 Glossopharyngeal neuralgia

- Discuss the anatomy of the glossopharyngeal nerve
- Identify the key signs and symptoms of glossopharyngeal neuralgia

8.2.3 Medical management of neuropathic pain

- Construct a therapeutic ladder for the management of trigeminal neuralgia and glossopharyngeal neuralgia
- Identify contraindications and side effects associated with the commonly used medical therapies
- Identify those patients who may benefit from surgical referral

8.2.4 Surgical management of neuropathic pain

- Describe the different surgical options available for the treatment of neuralgia
- Counsel a patient about the risks and benefits of each modality of surgical treatment
- Describe the principles of stereotactic radiosurgery

8.2.5 Non-pharmacological adjuncts to the management of facial pain

- Define the roles of the members of a pain MDT
- Describe adjuvant treatments prescribed by the MDT

8.2.6 Post herpetic neuralgia

- Describe the disease process
- Explain medical management to prevent and treat the pain

8.3 Headache disorders

8.3.1 Migraine

- Describe the causes of migraine
- List the common precipitating factors
- Recognise the clinical presentation of migraine
- Describe the different types of migraine
- Formulate a treatment plan for migraine

8.3.2 Tension headache

- Describe the clinical presentation of tension headaches

- Formulate a treatment plan for the medical management of tension headache
- Counsel a patient with regard to non-medical interventions

8.3.3 Cluster headache

- Summarise possible causes and patient characteristics of cluster headaches
- Describe the clinical presentation of cluster headache
- Suggest investigations for the disorder
- Formulate a treatment plan for treatment and prevention of cluster headache

8.3.4 Paroxysmal hemicranias

- Describe the clinical presentation of paroxysmal hemicranias
- List the characteristics of patients presenting with paroxysmal hemicrania
- Formulate a management plan for paroxysmal hemicranias

8.3.5 SUNCT (short lasting unilateral neuralgiform headache with conjunctival injection and tearing)

- Describe the clinical presentation of SUNCT
- List the possible underlying causes of SUNCT
- List possible investigations for SUNCT
- Formulate a treatment plan for a patient presenting with SUNCT

8.3.6 Intra-cranial space occupying lesions presenting as head and neck pain

- Describe that intra-cranial lesions may masquerade as maxillofacial pathology
- Recognise common head and neck symptoms caused by intra-cranial pathology

8.4 Infective causes of facial pain

8.4.1 Rhinosinusitis

- Describe the aetiologies and anatomy of the paranasal sinuses
- Identify the common organisms leading to rhinosinusitis
- Describe the clinical presentation of rhinosinusitis
- Suggest appropriate antibiotic therapy for common organisms
- Describe common surgical interventions and outline how these would be undertaken by an ORL surgeon with a sub-specialty interest and a high volume practice e.g. using Functional Endoscopic Sinus Surgery (FESS) – see ORL ETR.

8.4.2 Odontogenic infections

8.5 Other causes of facial pain

8.5.1 Maxillo-Facial presentations of multiple sclerosis

- Identify common presentations of multiple sclerosis in the head and neck regions
- Describe the basis pathology of multiple sclerosis
- List appropriate investigations in the diagnosis of multiple sclerosis
- Have a basic understanding of treatment regimes that these patients may be prescribed

8.5.2 Atypical facial pain (persistent idiopathic facial pain)

- Explain the definition of atypical facial pain
- Describe the common clinical presentation of the disorder
- List investigations required to be able to establish a diagnosis
- Counsel a patient presenting with atypical facial pain

8.5.3 Burning mouth syndrome

- Describe the clinical presentation of burning mouth syndrome
- Describe the epidemiology of burning mouth syndrome

- List usual investigations and treatment for burning mouth syndrome

8.5.4 *TMJ disorders and myofacial pain*

8.6 **Role of Physical and Rehabilitation Medicine (PRM) in the management of facial pain**

8.7 **Imaging in head and neck pain and TMJ disorders.**

8.7.1 *Radiography, CT/MRI/PET/Nuclear imaging*

- Principles, indications, ordering, analysis.
- Guided investigations and treatment.
- Team working with other specialties.

- 9 Disorders of the TMJ**
- 9.1 Background
 - 9.1.1 *Developmental anatomy/physiology of TMJ*
 - 9.1.2 *Congenital and developmental conditions of TMJ*
 - 9.1.3 *Etc re sessions...Epidemiology of TMJ conditions*
- 9.2 Imaging/Investigations/Others
 - 9.2.1 *Clinical examination of TMJ*
 - 9.2.2 *Pathophysiology of TMJ dysfunction*
 - 9.2.3 *Imaging of the TMJ*
 - 9.2.4 *Tumours of the TMJ*
 - 9.2.5 *Rare conditions of the TMJ*
 - 9.2.6 *TMJ ankylosis*
 - 9.2.7 *Trismus*
 - 9.2.8 *Otalgia and other ear diseases i.e. conditions which may present as 'TMJ' for which ORL referral is appropriate - See ORL ETR*
- 9.3 Non surgical management of TMJDS
 - 9.3.1 *Role of splints*
 - 9.3.2 *Role of occlusion and interface with restorative/orthodontics*
 - 9.3.3 *Role of physiotherapy*
 - 9.3.4 *Injectables – steroids, sodium hyaluronate, opiates, Botox*
- 9.4 *Minimally invasive TMJ procedures*
 - 9.4.1 *Arthrocentesis*
 - 9.4.2 *Arthroscopy*
 - 9.4.3 *Advanced procedures ie. laser, suturing*
- 9.5 Surgery
 - 9.5.1 *Open TMJ Surgery*
 - 9.5.2 *The surgical approach to the TMJ*
 - 9.5.3 *Meniscopexy*
 - 9.5.4 *Discectomy/Menisectomy*
 - 9.5.5 *Disc plication*
 - 9.5.6 *High Condylar Shave*
 - 9.5.7 *Modified Condylotomy*
 - 9.5.8 *Eminectomy/Eminoplasty*
- 9.6 TMJ Replacement Surgery
 - 9.6.1 *Indications, risks and benefits*
 - 9.6.2 *Autogenous TMJ Reconstruction*
 - 9.6.3 *Alloplastic TMJ Reconstruction*
 - 9.6.4 *Distraction osteogenesis and TMJ reconstruction*
 - 9.6.5 *Management of the failed surgical patient*
- 9.7 Evidence base for treatment

10 Oral Surgery

10.1 Anatomy of mandible & maxilla

10.1.1 Embryological development of mandible & maxilla

- List derivatives of 1st and 2nd pharyngeal arches and facial prominences.
- Describe the development of the mandible and maxilla
- Explain the commoner facial deformities in terms of failure of normal development

10.1.2 Anatomy of inferior dental nerve and its relationship to the teeth.

- Describe the course of the inferior dental nerve.
- Identify which structures and areas it innervates.
- Know the relationship of the teeth to the nerve and explain the risk from surgery

10.1.3 Anatomy of maxillary antrum and its relationship to the teeth.

- Describe the anatomy of the maxillary antrum.
- Know its relationship with the teeth.
- Explain the risk to the antrum from surgery

10.2 Exodontia

10.2.1 Pre-operative assessment of dental extractions

- List the considerations which should be made prior to undertaking dental extraction
- Identify the anatomical features which suggest surgical bone removal may be required
- Explain where radiography may be helpful in assessment

10.2.2 History of Dental elevators and forceps.

- List the commonly used dental extraction forceps and elevators
- Describe how they should be used

- Know who they are named after and their contribution to Oral Surgery

10.2.3 Non surgical extraction techniques.

- Identify which teeth can be removed without surgical bone removal
- Discuss the techniques of removing teeth with forceps and elevators alone

10.2.4 Indications for extraction and consent.

- List the indications for removal of a tooth
- Discuss what information should be given to a patient to enable them to consent to the procedure

10.2.5 Complications of extractions

- List the complications of dental extractions
- Identify what action should be taken to minimise the risk of each
- Discuss the management of these complications

10.2.6 Flap design and technique for surgical extraction.

- Describe soft tissue flap design for dental extraction
- Explain the principle of bone removal and tooth division to facilitate dental extractions

10.3 Impacted Third Molars

10.3.1 Indication for removal

- Describe the indications for removal of third molars
- Discuss available guidance on third molar surgery (NICE, SIGN)

10.3.2 Radiological assessment.

- Describe the indications for radiography for assessment of impacted third molars
- Discuss what factors should be assessed on the radiographs

10.3.3 Surgical technique for third molar removal.

- Discuss the surgical technique for removing third molars using a surgical bur

- Know what other techniques are available

10.3.4 Relationship of lingual and inferior dental nerves to third molars.

- Describe the anatomical relationship between the lower third molars and the lingual and inferior dental nerves
- Classify the damage that can occur to the nerves during surgery
- Know what information to give to a patient to facilitate them giving consent for surgery and the relative risks
- Know how to manage an injury to a nerve caused during lower third molar surgery
- Know how to modify surgical technique to minimise the risk of nerve damage

10.3.5 Complications of extractions

- List other complications that may occur as a result of third molar surgery
- Know how to minimise risk of complications
- Describe the indications for use of antibiotics in third molar surgery

10.3.6 Consent and risk of nerve damage

10.3.7 Management of nerve damage.

10.3.8 Choice of anaesthesia & sedation for third molar surgery.

- Explain the relative indications for sedation and anaesthesia for third molar surgery
- Explain the fiscal and safety issues with regard to general anaesthesia for surgery

10.4 Unerupted canines

10.4.1 Dental development in relation to canines.

- State the normal ages of development of the adult dentition
- Know the age and path of eruption of the permanent upper canines

10.4.2 Assessment and treatment options for misplaced canines.

- List the considerations to be made in the decision to treat canine impaction
- Identify the features to be noted in the clinical examination
- Know what radiological techniques are available which help in the decision to treat and predict the position of the tooth

10.4.3 Surgical technique and risks of removal of impacted canines.

- Describe the surgical technique for removal of impacted canines
- Identify the risks and complications of removal
- Explain the indications, limitations and success of canine transplantation

10.4.4 Surgical technique for exposure of misplaced canines.

- Describe the techniques for exposure of maxillary canines
- Know the materials available for bonding orthodontic brackets
- Explain the indications technique and success for canine exposure and bonding

10.5 Premolars & other impacted teeth

10.5.1 Indications and consent for removal of impacted teeth.

- Describe the indications for removal of impacted teeth
- Know what complications and side effects should be discussed with a patient for consent

10.5.2 Techniques of removing premolars & other impacted teeth.

- Describe the technique for removing premolars and other impacted teeth

- Describe the specific problems that might be encountered in removal of impacted teeth

10.6 Peri radicular surgery

10.6.1 Treatment options for failed endodontics.

- Describe the criteria, clinical and radiographic, for diagnosis of failed endodontics
- Differentiate which cases are best managed by repeat endodontics and the indications for surgery
- Discuss the success of endodontic surgery for multi-rooted teeth compared to single roots

10.6.2 Dental root anatomy in relation to apical seal.

- Describe the anatomy of dental root canals
- Describe the advantages and disadvantages of material available for sealing root canals during surgery

10.6.3 Instruments and technique for apical surgery.

- Know what instruments are available for apical surgery
- Describe the techniques which can be used for apicectomy and sealing of root canals

10.6.4 Prognosis and technique for surgery for multi rooted teeth.

10.6.5 Complications and failure of apical surgery.

- Describe the potential complications of apical surgery
- Describe the options that are available if surgery fails

10.7 The Maxillary Antrum and Oral Surgery

10.7.1 The relationship between the antrum and maxillary teeth.

- Differential diagnosis of odontogenic and sinusitis pain.

- Know the pathogenesis of sinus disease
- Know the symptoms and signs of inflammatory disease of the sinuses
- Describe the radiological investigations and findings
- Interface of inflammatory sinus pathology with ENT/ORL including FESS
- Know the incidence and symptomatology of malignant disease of the sinuses

10.7.2 Immediate management of dental roots displaced into antrum.

- Know the risks of root displacement and how to minimise this complication
- Investigation of root displacement into the antrum
- Know the indication for timing of surgery for root retrieval

10.7.3 Surgical technique for root removal from antrum.

- Know how to access a case of root displaced into the antrum
- Describe the techniques for root retrieval
- Know the side effects and complications of surgery

10.7.4 Oro antral communication aetiology, diagnosis and immediate management.

- Know the risk factors for communication
- List the potential aetiologies
- Know the symptoms a communication may lead to
- Know the indications for surgery vs. conservative management

10.7.5 Techniques for closure of fistula.

- Know the indications for closure of a fistula

- Know the features which must be considered in the assessment of a case
- Know the surgical techniques available to close a communication
- Know the procedures available to prevent sinusitis

10.7.6 Management of sinusitis.

- Know the aetiologies and symptoms of sinusitis
- Know the investigations which may be used
- Know the management of acute sinusitis
- Describe the surgical techniques available for management of chronic sinusitis by an ORL surgeon with a sub-specialty interest and a high volume practice e.g. using Functional Endoscopic Sinus Surgery (FESS) – see ORL ETR.
- Describe the interface with ENT/ORL in the management of acute and chronic sinus disease.

10.7.7 Prevention and management of fractured tuberosity

- Know the risk factors for fracture of the maxillary tuberosity
- Know which technique to use for dental extraction to avoid such a fracture

10.8 Odontogenic cysts

10.8.1 Definition and classification of cysts..

- know the definition of a cyst
- learn the classification of cysts as per WHO
- know theories of cyst formation

10.8.2 Radicular, lateral periodontal and residual cysts, causes and treatment.

- Explain lateral periodontal cyst theories of origin
- Know lateral periodontal cyst clinical features

- Learn apical and residual cysts theories of origin

- Know apical and residual cysts clinical features

10.8.3 Investigation and diagnosis of cystic lesions.

- Know the special investigations that can be used in the diagnosis of cystic lesions
- Know the implications of investigations in deciding treatment plans

10.8.4 Dentigerous cysts, diagnosis and treatment.

- Learn the definition of a dentigerous cyst
- Explain the theories of development
- Know the clinical presentations of a dentigerous cyst
- Know and explain the treatment of a dentigerous cyst

10.8.5 Complications of surgery for cystic lesions of jaws

- Explain the rationale of surgery for odontogenic cysts (excluding KOT)
- Know the factors that may modify routine surgery
- Be able to consent for removal of a mandibular cyst
- List the problems in removal of a maxillary cyst

10.9 Odontogenic keratocyst

10.9.1 Pathology, epidemiology and theories of development.

- Know the epidemiology of a keratinising odontogenic tumour
- Explain the theories of development and natural history
- List the features of basal cell naevus syndrome
- Know how to diagnose a keratinising odontogenic tumour

10.9.2 Surgical techniques and recurrence rates.

- Explain the surgical management of KOT
- Know the adjunctive treatments available
- Explain the relevance of decompression and KOT
- Recurrence rates and various surgical treatments

10. 10 Benign tumours of the jaws

10.10.1 Classification of odontogenic tumours.

- Know the classification of odontogenic tumours
- Explain the theories of development
- Know the clinical presentation of various odontogenic tumours

10.10.2 Epidemiology of odontogenic tumours.

- Know the epidemiology and progression of ectodermal tumours
- Know the epidemiology and progression of mixed tumours
- Know the epidemiology and progression of mesenchymal tumours

10.10.3 Classification of Ameloblastomas

- Classify ameloblastoma on the basis of investigations
- Classify ameloblastoma on the basis of the pathology
- Know the relevance of these in relation to treatment

10.10.4 Management of Ameloblastomas

- Explain a rationale for various surgical strategies
- Know the role and uses of adjunctive treatments
- Learn the recurrence rates associated with the different strategies

10.10.5 Diagnosis & management of rarer odontogenic tumours

•epithelial odontogenic tumour, adenomatoid odontogenic tumour, mixed odontogenic and mesenchymal odontogenic tumours.

- Know the epidemiology of rarer tumours
- Learn the aetiology and investigations of rare odontogenic tumours
- (List possible?) Treatment of rarer odontogenic tumours

10. 11 Non odontogenic cysts of the mouth

10.11.1 Incisive canal and traumatic (solitary) bone cyst diagnosis and management.

- Learn Incisive canal cysts epidemiology, aetiology diagnosis and treatment
- Know the theories related to Globulomaxillary cyst odontogenic or non odontogenic
- Learn traumatic bone cyst epidemiology, aetiology, diagnosis and treatment

10.11.2 Mucous cysts.

- Explain the aetiology and diagnosis of mucous cysts
- Know the relevance of investigations and treatments for mucous cysts
- Be able to consent and surgical technique for removing mucous cyst of lip

10. 12 Granulomas

10.12.1 Management of pyogenic granulomas

- Know the epidemiology and aetiology of pyogenic granuloma
- Make the diagnosis of pyogenic granuloma
- Know other tumours mimicking pyogenic granulomas

10.12.2 Diagnosis and management of central giant cell granulomas.

- Learn the epidemiology and aetiology of central giant cell lesions

- Apply the investigations in the management of central giant cell granulomas

- Know the treatment of central giant cell granulomas

10.12.3 Langerhans cell histiocytosis

- Know the epidemiology of Langerhans cell histiocytosis

- Learn the aetiology of Langerhans cell histiocytosis

- Explain the treatment of Langerhans cell histiocytosis

10.12.4 Diagnosis and management of Granulomatosis with polyangiitis

- Know the epidemiology and investigation of Granulomatosis with polyangiitis

- Explain the pathophysiology of Granulomatosis with polyangiitis

- Demonstrate the signs and symptoms of Granulomatosis with polyangiitis

- Apply the treatment of Granulomatosis with polyangiitis.

10. 13 Fibro-osseus lesions

10.13.1 Classification of fibrous dysplasia

- Know the epidemiology and aetiology of fibrous dysplasia

- Explain the signs and symptoms

- List the classification of fibrous dysplasia

10.13.2 McCune Albright syndrome.

- Explain the cause of McCune Albright syndrome

- Know the signs and symptoms

- Explain the natural history and progression of McCune Albright disease

10.13.3 Management of fibrous dysplasia.

- Explain the medical management of fibrous dysplasia

- Show the uses of surgery

- Explain the new treatments available

10.13.4 Ossifying fibroma diagnosis and management.

- Explain the diagnosis and investigation of ossifying fibroma

- Know the management of ossifying fibroma

10.13.5 Condensing osteitis diagnosis and management.

- Know the causes and diagnosis of condensing osteitis

- Explain the treatment of condensing osteitis

10.13.6 Paget's disease diagnosis and management

- Explain the epidemiology and natural history

- Know the signs and symptoms

- Explain the investigation of Paget's disease

- Show the value of the treatments available

10. 14 Osteonecrosis of the jaw

10.14.1 Pathology, risk factors and prevention of osteoradionecrosis of the jaws

- Know the causes and risk factors

- Explain the biochemistry and pathology of osteonecrosis

- Know the methods of prevention and risk reduction

10.14.2 Clinical course and management of osteonecrosis

- Know the clinical course of osteonecrosis if not treated

- Explain the management of osteonecrosis with respect to OMFS

- Explain the role of surgery using the evidence available

10.14.3 History and epidemiology of bisphosphonate induced osteonecrosis of the jaws.

- Know the history of bisphosphonate induced osteonecrosis
- Explain (describe?) why this is a recent phenomenon
- Know the classification and epidemiology of bisphosphonate induced osteonecrosis

10.14.4 Use of bisphosphonates in medicine and their pharmacology

- Know the classification of bisphosphonates
- Know the pharmacology of bisphosphonates
- Explain (list?) the range of uses of bisphosphonates in medicine

10.14.5 Pathology and risks of bisphosphonate induced osteonecrosis.

- Explain the pathophysiology of bisphosphonates on bone
- The risks of each class of bisphosphonates
- Explain why some bisphosphonates may be used in osteoradionecrosis

10.14.6 Clinical course and management of established bisphosphonate induced osteonecrosis.

- Explain the clinical course of untreated bisphosphonate osteonecrosis
- Know the management of early bisphosphonate osteonecrosis
- Demonstrate the role of surgery in bisphosphonate induced osteonecrosis

10.14.7 Prevention of necrosis and dental extractions.

- Know the pre-extraction treatment
- Present the management of extractions in patients with osteonecrosis

- Present the management of patients who develop osteonecrosis following extraction

10. 15 Osteomyelitis

10.15.1 Classification, microbiology and pathology of osteomyelitis.

- Know the classification of osteomyelitis
- Know the microbiology and range of bacteria involved
- Explain the pathology and histology

10.15.2 Investigations and diagnosis and of osteomyelitis

- Know the signs and symptoms of osteomyelitis
- Explain the investigations and special tests

10.15.3 Medical and surgical management of established osteomyelitis.

- Know the choice of antibiotics
- Explain surgical options and usage
- Know the timing of surgery

10.15.4 Garre's (non-suppurating) osteomyelitis.

- Know the epidemiology and causal theories
- Explain the diagnosis and investigations available
- Present the treatment of Garre's osteomyelitis

10. 16 Tissue sampling for pathological diagnosis

10.16.1 Fine needle aspiration cytology, principal and technique.

- Describe the indication for and limitation of FNAC.
- List the clinical scenarios when it may be appropriately used in Oral Surgery.
- Know the technique for gaining an optimal sample

10.16.2 Incisions biopsy principal and technique..

- Know the general indication for Incisional biopsy
- Describe the characteristics of an ideal sample

10.16.3 Excisional biopsy principal and technique..

- Know when it is appropriate to take an Excisional biopsy rather than an Incisional
- Describe how to take an Excisional biopsy

10.16.4 Punch biopsy indications and technique.

- Know the clinical scenarios when it may be advantageous to use a punch biopsy technique for sampling oral pathology
- Describe the limitations of the technique

10. 17 Post operative care

10.17.1 Management of post operative pain following minor oral surgery.

- Know the different mechanisms of delivering analgesia to relieve post oral surgery pain.
- List the most appropriate medicaments and their principal side effects.
- Know adjunctive techniques which may help minimise the pain experienced.

10.17.2 Management of post operative bleeding.

- Know the principal reasons why excessive post operative bleeding may occur and how this may be minimized at surgery.
- Know how to diagnose the cause of excessive bleeding including investigations
- Describe how to stop local post operative bleeding

10.17.3 Management of post operative infection.

- Describe how to minimize post operative infection during minor oral surgery.

- Know which organisms are the most likely causative agents.

- Know the indications for antibiotics and contraindications to their use

10.17.4 Indications for prophylactic antibiotics.

- Describe when it would be appropriate to use prophylactic antibiotics
- Know the consequence of inappropriate antibiotic use
- Know the evidence and how and when to administer the antibiotics

10.17.5 Aetiology and management of post extraction osteitis.

- Know the Pathophysiology and risks for post extraction osteitis
- Know how to manage it clinically and the evidence

10. 18 Pre operative preparation

10.18.1 Application of principles of consent to minor oral surgery.

- Know the principals of consent for surgery
- Know the specific issues regarding minor surgery in the mouth

10.18.2 Management of anxiety.

- Describe the causes of anxiety in patients undergoing minor oral surgery
- Know how to manage anxiety by modification of patient management (excluding sedation or anaesthesia)

10.18.3 Management of extractions in the immunocompromised.

- Know which patients presenting for minor oral surgery may be immunocompromised.
- Know how to manage patients who may have decreased immunity.

10.18.4 Management of extractions with coagulopathy.

- Know the causes of the most common coagulopathies.

- Know method of managing patients with the commoner coagulopathies.

10.18.5 Management of extractions in those taking anti coagulants/anti- platelets.

- Know the indications and mechanism of anticoagulant and antiplatelet medication.
- Know the indications and risk for their modification and the evidence

11 Pre-prosthetic Surgery

11.1 Pre-prosthetic surgery

11.1.1 History of pre-prosthetic surgery

- Describe the historical development of pre-prosthetic surgery
- Discuss the prosthetic difficulties that are amenable to surgical correction
- Outline the measures in pre-prosthetic surgery that can help to reduce future prosthetic difficulties

11.1.2 Classification of ridge morphology

- Classify ridge morphology
- Explain the relevance of ridge morphology to pre-prosthetic surgery
- Draw a diagram of the main types of ridge morphology

11.1.3 Alveoloplasty, tuberosity reduction and flabby ridge reduction

- Explain how to carry out alveolectomy, tuberosity reduction and flabby ridge reduction
- List the indications for these techniques
- Describe the common complications of these techniques

11.1.4 Vestibuloplasty

- Explain how to carry out a vestibuloplasty
- List the indications for vestibuloplasty
- Describe the common complications of this technique

11.1.5 Maxillary osteotomy in pre-prosthetic surgery

- Explain how to carry out a maxillary osteotomy in the edentulous patient
- List the indications for maxillary osteotomy in the edentulous patient
- Describe complications of this procedure, specifically in the edentulous maxilla

- Describe its disadvantages and complications

11.2 Dental implantology

11.2.1 History of dental implantology

- Describe the historical development of dental implantology
- Describe the different types of implant that have been used in the past and their disadvantages
- Discuss the early dental implant research work carried out by Brånemark

11.2.2 Anatomy of relevance to dental implantology

- Explain the relevance of the maxillary sinus to dental implant placement
- Explain the relevance of the inferior dental nerve to dental implant placement
- Discuss the blood supply of the maxilla and mandible

11.2.3 Biology of osseointegration

- Define the term “osseointegration”
- Describe how biocompatibility of different implant surfaces is influenced by the type of material that it is composed of
- Describe the histological appearance of the bone-implant interface

11.2.4 Composition and surface properties

- Describe the composition and shape of a typical implant
- Explain how implant composition and shape influence osseointegration
- Explain the methods by which implant surfaces are roughened
- List the differences in surface properties between machined and roughened implants

11.2.5 Patient assessment including classification of bone quality

- Explain how to assess a patient requiring dental implants

- Discuss why placement of dental implants is dictated by restorative considerations
- State the classification of bone quality in the jaws

11.3 Surgical planning

11.3.1 *Indications and contraindications for dental implant placement*

- Describe the indications for dental implant placement
- Outline the medical contraindications to dental implant placement
- Discuss the relevance of radiotherapy to dental implant placement
- Discuss the relevance of bisphosphonate treatment to dental implant placement

11.3.2 *Imaging for dental implant placement and CT guides*

- Discuss the use of imaging in surgical planning for dental implant placement and the significance of image magnification
- Explain the advantages of CT scanning and cone-beam scanning in planning
- Explain what a surgical stent is
- Explain what a CT guide is

11.3.3 *Consenting in dental implantology*

- Discuss informed consent in dental implantology
- Describe what you would discuss with a patient having an implant placed in the lower first molar area
- Describe what you would discuss with a patient having an implant placed in the upper second premolar area
- Describe the steps required to assess a patient's capacity to give informed consent

11.3.4 *Medico-legal issues in dental implantology*

- Explain what competencies are required to surgically place dental implants
- Discuss the term "duty of care"

- Define the word "negligence"
- Discuss the most common reasons for litigation in the surgical placement of dental implants

11.4 Implant placement surgery

11.4.1 *Basic procedure of implant placement*

- Discuss sterility, infection control and pre-operative antibiotics in dental implant placement
- Describe the basic instruments and equipment required for implant placement
- Discuss local anaesthesia for dental implant placement
- Discuss the normal steps in preparation of the implant site
- Discuss optimum drill speed for site preparation and use of the torque wrench

11.4.2 *Access incisions, flaps and soft tissue management*

- Discuss flapless implant placement and its indications
- Discuss the importance of appropriate alveolar crest incisions
- Outline the relationship between keratinised gingiva and the implant collar
- Describe the types of flaps utilised for implant placement
- Describe the types of sutures used to close implant sites

11.4.3 *Principles of immediate, early and late loading and healing times*

- Discuss the indications for extraction and immediate implant placement
- Discuss the indications and protocol for immediate loading
- Discuss the indications and protocol for early loading
- Discuss the indications and protocol for late loading
- Define "healing time" for dental implants

11.4.4 Zygomatic implants

- List the advantages of zygomatic implants
- List the disadvantages of zygomatic implants
- Describe the technique of zygomatic implant placement
- Describe the most common complications associated with zygomatic implants
- Describe the instruments and equipment required to place zygomatic implants

11.4.5 Assessment of implant integration

- Outline the clinical assessment of implant integration
- Discuss the clinical symptoms and signs of implant failure
- Explain the principles of resonance frequency analysis
- Describe how to explant a dental implant and the problems associated with this procedure

11.4.6 Follow-up and aftercare

- Describe the follow-up protocols for dental implant patients
- List the post-operative instructions given to dental implant patients
- Describe the post-operative antibiotics and analgesics normally used in implant practice
- Outline the radiographic control of dental implants in the post-operative period

11.5 Bone grafting

11.5.1 Guided-bone regeneration techniques (GBR)

- Discuss the concept of guided-bone regeneration (GBR)
- List the indications for GBR
- List the main types of membranes used in clinical practice
- Discuss the main differences between resorbable and non-resorbable

membranes and their respective advantages and disadvantages

- Describe fixation of membranes

11.5.2 Particulate bone grafting

- Discuss the indications for particulate bone grafting
- Define the term “osteinduction”
- Define the term “osteoconduction”
- Discuss the advantages of combining the use of autologous bone graft and xenograft materials
- Describe the use of the bone mill

11.5.3 Onlay bone grafting

- Discuss the use of onlay grafting in the anterior maxilla and its indications
- Discuss the technique of onlay grafting
- Describe the protocols for implant placement in bone grafted sites
- Explain how you would prepare the alveolus for an onlay graft
- Describe how particulate bone and xenografts such as bovine bone and porcine membranes are used together in clinical practice

11.5.4 Use of allograft, xenograft and synthetic materials

- Explain what bovine bone (Bio-Oss) is and discuss its properties
- Explain what porcine collagen (Bio-Gide) is and discuss its properties
- Discuss the use of cadaveric bone
- Discuss the risk of CJD with the use of bovine bone
- Discuss the use of synthetic bone-like materials and membranes

11.5.5 Sinus lift

- List the indications for sinus lift
- Discuss the technique of sinus lift
- Describe the complications of sinus lifting

- Outline the use of piezo-electric surgery in sinus lifting

11.5.6 Harvesting bone grafts

- List the common intraoral sites for bone harvest
- Describe the technique of chin harvest
- List the common complications of chin harvest
- Describe the technique of calvarial bone harvest and its complications
- Describe in detail the technique of iliac crest harvest and its complications

11.6 Specific surgical procedures

11.6.1 Alveolus distraction

- Outline the concept and advantages of alveolus distraction
- Outline the contraindications of using an alveolus distractor
- Discuss the surgical technique of fitting an alveolus distractor
- Outline the normal post-operative distraction protocol
- Describe the different types of alveolus distractor currently available

11.6.2 Ridge expansion (splitting) and sinus tap

- Discuss the concept of ridge expansion (splitting)
- Outline the indications for ridge expansion
- Describe the instruments used for ridge expansion (splitting)
- Describe the technique of sinus tapping and its limitations

11.6.3 Inferior dental nerve lateralisation

- Discuss the indications for inferior dental nerve lateralisation
- Describe the technique of lateralisation
- List the complications of this technique

11.7 Complications of implant surgery

11.7.1 Generalized complications

- Discuss the generalized complications of implant placement
- Outline the failure rates for implants in the maxilla and mandible, respectively
- Discuss the relationship between smoking, periodontal disease and implant failure

11.7.2 Specific complications (nerve damage, tooth damage, failure to obtain primary stability)

- Outline the specific risk to the inferior dental nerve in posterior mandibular implant placement and how to reduce this risk
- Describe which techniques in dental implant surgery place the mental nerve at risk
- List the likely causes of tooth damage in implant surgery
- Explain the significance of implant spin and wobble in primary stability

11.7.3 Implant loosening (failure)

- Describe the clinical signs of implant loosening or failure
- Describe the radiographic features of implant loosening or failure
- Explain the management of a failing implant under a fixed bridge
- Explain the management of a failing implant supporting a denture

11.7.4 Peri-implantitis

- Define peri-implantitis
- Describe the prevention of peri-implantitis
- Outline the clinical features of peri-implantitis
- Discuss the management of peri-implantitis

- List the common medical conditions associated with peri-implantitis

11.7.5 Placement of implants in irradiated sites

- Define and discuss osteoradionecrosis
- Explain how radiotherapy affects bone
- Discuss the risks of placing implants into irradiated bone sites
- Describe the consenting process in placing implants into irradiated bone sites

11.8 Restorative dentistry principles

11.8.1 Restorative preparation, diagnostic wax-up, surgical guides

- Discuss the restorative preparation and planning required prior to implant placement
- Discuss the benefits and use of a diagnostic wax-up
- Explain what a surgical guide is and its advantages in clinical practice

11.8.2 Implant-borne dentures

- Explain the indications for an implant-borne denture
- Describe the advantages and disadvantages of implant-borne dentures over conventional dentures
- Discuss the advice that a patient should be given with implant-borne dentures

11.8.3 Fixed reconstructions

- Explain the indications for a fixed reconstruction
- Describe the advantages and disadvantages of a fixed reconstruction over an implant-borne denture
- Discuss the advice that a patient should be given with a fixed reconstruction
- Briefly describe the “All-on-4” technique

11.9 Cranio-facial implants

11.9.1 Historical aspects

- Describe the historical aspects of cranio-facial implant treatment

- Discuss early materials used in cranio-facial obturators

- Describe the development of the bone-anchored hearing aid (BAHA)

11.9.2 Principles of dental obturation

- Discuss the indications for dental obturation
- Outline how a dental obturator is fabricated
- Explain what a hollow box is
- Explain how a conventional dental obturator is retained

- List the advantages of implant-retained dental obturators

11.9.3 Principles of cranio-facial obturation

- Discuss the indications for cranio-facial obturation
- Outline how a cranio-facial obturator is fabricated
- Discuss the advantages of the use of magnets and metal-based skeletons on implants
- Discuss the advantages and disadvantages of cranio-facial obturators against the use of free tissue transfer reconstruction for oncological facial defects

11.9.4 Implant-borne prostheses-planning and fabrication

- Outline the planning of complex implant-borne prostheses
- Describe impression-taking techniques for these prostheses
- Discuss the fabrication of these prostheses

11.9.5 Prosthetic reconstruction of the ear, nose and eye

- Discuss the use of adhesives for prosthetic ears
- Describe the fabrication of prosthetic eyes

- Outline the use of implants for prosthetic noses

- Outline the use of implants for prosthetic ears

11.10 Evidence for implants

11.10.1 Longitudinal studies of implant success rates

- Outline the success rates for maxillary implants from current research

- Outline the success rates for mandibular implants from current research

- Discuss the pivotal research papers that have looked at the long-term success rates for dental implants

- Discuss the factors that determine implant success

12 Infection

12.1 Microbiology of organisms causing infections of the head and neck

12.1.1 Structure and classification of micro-organisms

- Describe the general structure of bacteria
- Outline the classification of bacteria
- Discuss medically important groups of bacteria causing systemic infections
- Discuss common organisms causing head and neck infection.

12.1.2 Microbiology of important bacteria

Describe the microbiology of common bacteria causing head and neck infection. Examples: staphylococci, streptococci, mycobacteria, clostridia and infections caused by combinations of bacteria.

12.1.3 Definitions and properties of viruses, fungi and prions

- Define viruses and outline their properties
- Explore the structure of viruses
- Discuss medically important DNA and RNA viruses
- Briefly describe the classification of fungi and their structure
- Briefly overview prions and associated infections.

12.1.4 Pathogenesis of bacterial infections

- Describe mechanisms of bacterial virulence
- Discuss the pathogenic actions of bacteria
- Explore the immune response to infection and Immunopathogenesis of bacterial infections
- Describe the mechanisms of escaping host defence
- Discuss bacterial survival and transmission of infection.

12.1.5 Vaccinations and medical use of micro-organisms

- Describe the principles of passive and active immunisation
- Discuss the commonly used vaccines for prevention of viral and bacterial infections
- Explore the medical uses of viruses
- Describe the medical uses of bacteria

12.1.6 Laboratory investigation of infection

- Explore the types of specimen and collection technique
- Discuss microscopy and special stains, fluorescence and electron microscopy; Describe culture techniques for microorganisms
- Discuss serological techniques in microbiology
- Explore molecular techniques and their applications
- Discuss typing techniques and their applications.

12.1.7 Disinfection, antiseptics and sterilisation

- Define antiseptics, decolonisation, decontamination, disinfection and sterilisation and outline the differences
- Discuss the principles of antiseptics, decolonisation, decontamination, disinfection and sterilisation
- Explore the methods of antiseptics, decolonisation, decontamination, disinfection and

Sterilisation

12.2 Antimicrobial chemotherapy and prophylaxis

12.2.1 Mode of action of antimicrobial agents

- Describe the important terminology in the use of antimicrobial agents
- Discuss the classification, spectrum of activity, mode of action and clinical uses of

all commonly used antibiotics and anti-microbials

- Explore the uses of anti-viral agents
- Briefly overview anti-fungal agents and their uses.

12.2.2 Causes of treatment failure and antimicrobial resistance

- Discuss the side effects of anti-microbials
- Outline causes of anti-microbial treatment failure and methods of reducing this
- Describe the mechanisms of anti-microbial resistance
- Discuss multi-drug resistant organisms.

12.2.3 MRSA, ESBL, carbapenemases and other multi drug resistant organisms

- Discuss MRSA and infections caused by this organism
- Discuss VRE and associated infections (vancomycin resistant enterococcus)
- Explore other multidrug resistant organisms
- Discuss methods of minimising the risk of multi drug resistant organisms

12.2.4 Antimicrobial prophylaxis

- Outline the principles of antimicrobial prophylaxis
- Discuss surgical site infection classification and need for antimicrobial prophylaxis
- Describe the general principles of management of surgical site infection
- Compare antimicrobial prophylaxis vs treatment.

12.3 Medical aspects of infection

12.3.1 Healthcare-associated infections

- Discuss factors increasing susceptibility to Healthcare-associated infections

• Outline the types of healthcare-associated infections; Describe the organism types, source and consequences of infection

• Classify surgical site infections (see antimicrobial prophylaxis section)

• Discuss infection in intensive care units

• Describe isolation procedures and minimising risk of healthcare-associated infections

12.3.2 Occupational body fluid exposure

• Explore the types of body fluid exposure to health care staff

• Discuss infections caused by body fluid exposure

• Outline general precautions to minimise body fluid exposure

• Discuss the management of a patient following body fluid exposure

12.3.3 Necrotizing fasciitis and purpura fulminans

• Define necrotising fasciitis

• Describe the pathophysiology of necrotising fasciitis

• Discuss the management of necrotising fasciitis

• Define and classify purpura fulminans

• Describe the management of purpura fulminans

12.3.4 Pyrexia of unknown origin (PUO)

• Define PUO

• Describe the aetiology and differential diagnosis of PUO

• Discuss the management of a patient with PUO

12.3.5 Sepsis and septic shock

• Define SIRS, sepsis, severe sepsis and septic shock

- Describe the pathophysiology of septic shock; discuss the clinical features and microbiology of septic shock
- Discuss the management of septic shock
- Discuss multi organ failure
- Prognosis of septicaemia and multi organ failure

12.3.6 Infective endocarditis

- Define infective endocarditis
- Discuss the epidemiology, risk factors and clinical features of infective endocarditis; Describe the pathogenesis and microbiology of infective endocarditis
- Outline the management of infective endocarditis
- Discuss antimicrobial prophylaxis in infective endocarditis

12.4 Viral, fungal and opportunistic infections of the head and neck

12.4.1 The immune compromised patient and opportunistic infections

- Define immune compromise and outline conditions leading to immune compromise
- Specify precautions and management protocols of the immune compromised patient in general and in the surgical patient
- Discuss the microbiology of infections in the immune compromised patient vs the healthy patient.

12.4.2 HIV and AIDS in relation to the head and neck

- Explore the biology and natural history of HIV infection
- Discuss the diagnosis and classification of HIV infections
- Outline conditions that define AIDS
- Discuss sino- nasal disease in HIV infected patients
- Describe otologic and neuro-otologic manifestations of HIV infection patients

- Discuss the oral manifestations of HIV infection.

12.4.3 Management of an HIV patient with a neck lump and neoplasms in HIV patients

- Outline the differential diagnosis of cervical lymphadenopathy in HIV infection
- Discuss the management of a neck lump in a patient with HIV infection
- Explore HIV associated salivary gland disease and its management
- Describe AIDS defining neoplasms of the head and neck plus other common neoplasms in HIV infected patients.

12.4.4 Herpes virus infection

- Classify the herpes virus family and describe their general
- Describe infections caused by human herpes virus types 1 and 2
- Discuss infections caused by varicella zoster virus and other herpes viruses. Explore Herpes viruses and cancer (e.g. EBV and nasopharyngeal carcinoma)

12.4.5 Other viral infections of the head and neck

- Describe coxsackie viral infections of the head and neck
- Discuss Human papilloma virus infections (HPV) of the head and neck
- Explore uncommon viral infections of the head and neck
- Investigate viral infection and cancers of the head and neck

12.4.6 Fungal infections of the head and neck

- Outline Candida species causing head and neck infections
- Discuss Candida albicans
- Describe factors predisposing to oral candidal infection (see immune compromise patient)

- Classify and describe acute oral candidosis
- Classify and describe chronic oral candidosis
- Explore uncommon fungal infections of the head and neck.

12.5 Applied surgical anatomy and the management of fascial space infections of the head and neck

12.5.1 *Surgical anatomy of the head and neck in relation to infections*

- Discuss the anatomy of the tissue spaces of the head and neck
- Outline potential pathways of spread of infection from teeth and other structures
- Describe the anatomical basis of spread of infection outside the head and neck region
- Describe the lymphatic drainage of the head and neck
- Discuss the blood supply to the face and spread of infection

12.5.2 *Abscess, tissue space infections and spreading infections including principles of surgical access*

- Describe the clinical features of infection of various fascial spaces
- Outline the special investigation of fascial space infections
- Discuss Ludwig's angina
- Describe the surgical access to fascial spaces and principles of surgical management

12.5.3 *Severe fascial space infections*

- Explore severity scores of fascial space infections
- Discuss the principles of management of patients with severe infections

- Describe the evaluation and management of the airway in severe fascial space infections

- Discuss the microbiology of fascial space infections

- Outline the complications of fascial space infections.

- Discuss deep space infections from quinsy and the ENT/ORL interface in diagnosis and treatment

12.6 Infection of specific anatomical regions of the head and neck

12.6.1 *Infections of the teeth and supporting structures*

- Describe the microbiology of odontogenic infection

- Discuss acute and chronic periapical and periodontal infection

- Discuss pericoronal infections and their management

- Define alveolar osteitis and explain its treatment

- Describe acute ulcerative gingivitis

- Define cancrum oris.

12.6.2 *Infections of the bone including osteomyelitis*

- Describe the management of acute osteomyelitis

- Explain the management of chronic osteomyelitis.

12.6.3 *Salivary gland infection*

- Discuss the aetiology and risk factors of salivary gland infection

- Describe the presentation and management of acute suppurative sialadenitis

- Explore sialadenitis of neonates and children; Discuss the aetiology and management of chronic sialadenitis;

- Describe viral infections of the salivary glands

- Investigate granulomatous infections of the salivary glands

12.6.4 Infections of the nose and para-nasal sinuses

- Describe the surgical anatomy and function of the nose and para-nasal sinuses
- Explore the microbiology of infections of the nose and para-nasal sinuses
- Discuss acute bacterial sinusitis
- Discuss unilateral infective maxillary sinusitis associated with periapical infection.
- Discuss chronic sinusitis
- Explain the complications of sinusitis
- Explore sinusitis in children
- Discuss fungal sinusitis.
- Describe the interface with ENT/ORL in the management of acute and chronic sinus disease including surgical treatment where appropriate by an ORL surgeon with a subspecialty interest and a high volume practice e.g. using Functional Endoscopic Sinus Surgery (FESS) – see ORL ETR.

12.6.5 Infections of the ears

- Discuss acute otitis externa
- Describe the management of acute and chronic otitis media
- Explain the complications of middle ear infections.
- Explain the interface with ENT/ORL in the management of ear infections disease including surgical treatment where appropriate by an ORL surgeon with a subspecialty interest and a high volume practice – see ORL ETR.

12.6.6 Immunity of the eye and infections of the eyelids and lacrimal system

- Explore the surface protection of the eye and local immunity
- Define the blood ocular barrier

- Discuss pre and post-septal orbital cellulitis
- Discuss necrotising fasciitis of the eyelids
- Explore infections of the lids and lacrimal system.
- Describe the role of multi-disciplinary care with ophthalmology and oculoplastic colleagues.

12.6.7 Other infections of the eye and complications

- Describe infections of the conjunctiva, cornea and anterior chamber
- Explore acute uveitis and endophthalmitis
- Discuss HIV infection and the eye
- Explain the complications of eye infections.

12.6.8 Infections of the skin and adnexal structures

- Describe streptococcal skin infection of the head and neck
- Discuss staphylococcal skin infections of the head and neck
- Explore other important skin infections.

12.6.9 Infections of the pharynx and larynx

- Discuss acute pharyngitis
- Explore the management of tonsillitis
- Describe the management of acute epiglottitis
- Summarise management of infections of the larynx.
- Explain the interface with ENT/ORL in the management of parapharyngeal infections especially quincy and deep neck infections.

12.6.10 Mycobacterial and other chronic infections of the head and neck

- Describe the oral manifestations of TB
- Discuss Non – TB mycobacterial infection of the head and neck
- Explore the oral manifestations of syphilis

- Discuss Actinomyces infections of the head and neck.

12.7 Emergency Airway

12.7.1 Assessment of compromised airway

12.7.2 Multi-disciplinary management of airway

- Awake fibre-optic intubation
- Percutaneous Tracheostomy

12.7.2 Options for emergency 'front of neck access'

- Cricothyroidotomy
- Tracheostomy

12.8 Imaging in head and neck infections.

12.8.1 Radiography, CT/MRI/PET/Nuclear imaging

- Principles, indications, ordering, analysis.
- Guided investigations and treatment.
- Team working with other specialties.

13 Oral Mucosa

13.1 Diagnosis

13.1.1 Examination of the oral mucosa

- Describe how to examine the oral mucosa
- Illustrate the techniques

13.1.2 Diagnostic techniques- Biopsy of the oral mucosa

- Describe how to perform an incisional biopsy
- Describe how to perform an excisional biopsy
- Identify the use of the different techniques at different sites

13.1.3 Diagnostic techniques - Special tests

- Describe how to perform a biopsy for immunofluorescence
- Describe other non-invasive sampling techniques

13.2 Lips

13.2.1 The aetiology, diagnosis and management of angular cheilitis

- Describe the aetiology of angular cheilitis
- Describe the treatment options available

13.2.2 The aetiology diagnosis and management of Herpes labialis

- Identify the clinical presentation
- Describe the treatment options available
- Identify the causative organism

13.2.3 The aetiology, diagnosis and management of Orofacial granulomatosis

- Identify the clinical presentation of OFG
- Describe the postulated aetiology
- Discuss the management options

13.2.4 The diagnosis and treatment of Lichen planus affecting the lips

- Describe the clinical appearance of LP of the lips
- Discuss the treatment options available

13.2.5 The aetiology, diagnosis and management of Actinic change/ dysplasia of the lips

- Describe the aetiology of actinic/dysplastic changes to the lips
- Discuss the surgical and non-surgical treatment options

13.2.6 The aetiology, diagnosis and management of pigmented lesions of the lips and perioral tissues

- Describe the commonly occurring pigmented lesions of the lips and perioral tissues
- Describe the appearance of pigmentation as a result of systemic conditions (such as Addison disease,
- Describe the management of the commonly occurring conditions

13.2.7 The aetiology, diagnosis and management of exophytic lesions of the lips

- Identify the common causes of exophytic lesions of the lips
- Describe the management of these lesions

13.3 Oral ulceration

13.3.1 The aetiology diagnosis and treatment of recurrent aphthous ulceration

- Discuss the aetiology of RAU
- Describe the presentations of the 3 types of recurrent ulceration (minor, major and herpetiform)
- Identify the treatment options in each case

13.3.2 The aetiology, diagnosis and management of acute herpetic gingivo-stomatitis

- Describe the presentation of acute herpetic gingivo-stomatitis
- Identify the causative organisms
- Discuss the management options

13.3.3 The aetiology, diagnosis and management of acute viral ulceration (including, hand foot & mouth disease and herpangina)

- Describe the presentations of acute viral ulceration
- Identify the causative organisms
- Discuss the management options
- Illustrate the differences between the conditions

13.3.4 The aetiology, diagnosis and management of acute necrotising gingivo-stomatitis

- Describe the presentation of acute necrotising gingivo-stomatitis
- Identify the causative organisms
- Discuss the management options
- Define the risk factors which predispose to this condition

13.3.5 The aetiology, diagnosis and management of bacterial ulceration of the oral mucosa

- Describe the presentation of acute bacterial ulceration of the oral mucosa
- Discuss the differential diagnosis and diagnostic tests
- Identify the specific management issues

13.3.6 The aetiology, diagnosis and management of drug induced oral mucosal ulceration

- Describe the features of drug induced oral ulceration
- List the drugs that are known to cause ulceration
- Discuss the management of these cases

13.3.7 The aetiology, diagnosis and management of oral ulceration caused by haematological conditions (leukaemia, lymphoma etc)

- Describe the features of ulceration caused by haematological conditions
- Discuss the diagnosis and management

13.3.8 The aetiology, diagnosis and management of oral ulceration caused by gastrointestinal disease

- Describe the features of ulceration caused by gastrointestinal disease
- Discuss the diagnostic tests available
- Describe the management options available

13.3.9 The aetiology, diagnosis and management of Behçet's syndrome

- Describe the features of Behçet's syndrome
- Discuss the aetiology
- Describe the management options

13.3.10 The aetiology, diagnosis and management of Pemphigus

- Describe the features of Pemphigus
- Discuss the diagnostic tests available
- Describe the management

13.3.11 The aetiology, diagnosis and management of Pemphigoid

- Describe the features of Pemphigoid
- Discuss the diagnostic methods available
- Discuss the management options

13.3.12 The aetiology, diagnosis and management of Erythema multiforme

- Describe the features of Erythema multiforme
- Discuss the aetiology
- Describe the diagnostic methods available
- Discuss the management options

13.3.13 The aetiology, diagnosis and management of potentially malignant ulcers of the oral mucosa

- Describe the features of potentially malignant ulcers
- Discuss the aetiology
- Describe the diagnostic methods available
- Discuss the management options

13.3.14 The aetiology and diagnosis of malignant oral ulceration (SCC)

- Describe the features of malignant squamous cell ulcers
- Discuss the aetiology
- Describe the diagnostic methods available
- Discuss the management options

13.3.15 The aetiology and diagnosis of malignant oral ulceration (other than SCC)

- Describe the features of malignant non squamous cell ulceration
- Discuss the aetiology
- Describe the diagnostic methods available
- Discuss the management options

13.3.16 The aetiology, diagnosis and management of traumatic ulceration (1)

- Describe the features of traumatic ulceration

- Discuss the aetiology
- Discuss the management options

13.3.17 The aetiology, diagnosis and management of uncommon causes of oral ulceration (dermatitis artefacta , etc)

- Describe the features of unusual causes of oral ulceration
- Discuss the aetiology and diagnostic methods available
- Discuss the management options

13.4 White patches

13.4.1 Congenital causes of white patches in the mouth

- Describe the features of congenital causes of white patches in the mouth
- Discuss the aetiology
- Describe the management options

13.4.2 The aetiology, diagnosis and management of infective causes of white patches of the mouth - acute pseudo-membranous candidosis

- Describe the features of infective causes of white patches
- Discuss the aetiology
- Describe the management options

13.4.3 The aetiology, diagnosis and management of infective causes of white patches of the mouth - chronic hyperplastic candidosis

- Describe the features
- Discuss the aetiology
- Describe the management options
- Discuss the malignant potential

13.4.4 The aetiology, diagnosis and management of infective causes of white patches of the mouth - Viral HPV, HIV etc

- Describe the features
- Discuss the aetiology
- Describe the management options

13.4.5 The aetiology, diagnosis and management of infective causes of white patches of the mouth - bacterial – syphilis etc.

- Describe the features
- Discuss the aetiology
- Describe the management options

13.4.6 The aetiology, diagnosis and management of lichen planus/lichenoid reactions

- Describe the features
- Discuss the aetiology
- Describe the management options
- Discuss the malignant potential

13.4.7 The aetiology, diagnosis and management of “leukoplakia”

- Describe the features
- Discuss the aetiology
- Describe the management options

13.4.8 The aetiology diagnosis and management of “miscellaneous” white patches of the oral mucosa

- Describe the features
- Discuss the aetiology
- Describe the management options

13.5 Red patches/pigmented

13.5.1 The aetiology, diagnosis and management of geographic tongue (erythema migrans)

- Describe the features
- Discuss the aetiology
- Describe the management options

13.5.2 The aetiology, diagnosis and management of acute pseudomembranous candidosis

- Describe the features
- Discuss the aetiology
- Describe the management options

13.5.3 The aetiology diagnosis and management of acute atrophic candidosis

- Describe the features
- Discuss the aetiology
- Describe the management options

13.5.4 The aetiology, diagnosis and treatment of atrophic lesions of the oral mucosa

- Describe the features
- Discuss the aetiology
- Describe the management options

13.5.5 The aetiology classification and pathophysiology of vascular lesions of the oral mucosa

- Describe the features of vascular lesions of oral mucosa
- Discuss the aetiology
- Describe the classification of vascular lesions

13.5.6 The diagnosis of vascular lesions

- Describe the diagnostic techniques
- Illustrate the results of the techniques with examples of the different types of vascular lesion

13.5.7 The management of vascular lesions

- Describe the management options
- Illustrate the options

13.5.8 The aetiology, diagnosis and management of benign

pigmented lesions of the oral mucosa

- Describe the features
- Discuss the aetiology
- Describe the management options

13.5.9 *The aetiology, diagnosis and management of “malignant” pigmented lesions of the oral mucosa*

- Describe the features
- Discuss the aetiology
- Describe the management options

13.5.10 *The aetiology, diagnosis and management of drug related lesions of the oral mucosa*

- Describe the features
- Discuss the aetiology
- Describe the management options

13.5.11 *Miscellaneous causes of red/pigmented lesions of the oral mucosa*

- Describe the features
- Discuss the aetiology
- Describe the management options

13. 6 Lumps and swellings

13.6.1 *The aetiology, diagnosis and management of congenital/developmental swellings of the oral mucosa*

- Describe the features
- Discuss the aetiology
- Describe the management options

13.6.2 *The aetiology diagnosis and management of fibro-epithelial polyps (1)*

- Describe the features
- Discuss the aetiology
- Describe the management options

13.6.3 *The aetiology, diagnosis and management of inflammatory gingival swellings/lumps (epulides etc.)*

- Describe the features
- Discuss the aetiology
- Describe the management options

13.6.4 *The aetiology, diagnosis and management of traumatic swellings of the oral mucosa*

- Describe the features
- Discuss the aetiology
- Describe the management options

13.6.5 *The aetiology, diagnosis and management of inflammatory swellings of the minor salivary glands*

- Describe the features
- Discuss the aetiology
- Describe the management options

13.6.6 *The aetiology, diagnosis and management of benign neoplastic swellings of the minor salivary glands*

- Describe the features
- Discuss the aetiology
- Describe the management options

13.6.7 *The aetiology, diagnosis and management of malignant neoplastic swellings of the minor salivary glands*

- Describe the feature
- Discuss the aetiology
- Describe the management options

13.6.8 *The aetiology, diagnosis and management of miscellaneous causes of swellings/lumps in the oral mucosa*

- Describe the features

- Discuss the aetiology
- Describe the management options

13. 7 Miscellaneous Oral mucosal conditions

13.7.1 *The aetiology, diagnosis and management of Burning Mouth syndrome*

- Describe the features
- Discuss the aetiology
- Describe the management options

14 Skin surgery

14.1 Aetiology and risk factors of skin

14.1.1 General risk factors

- Describe the risk of sun exposure in skin cancer
- Describe the risk of sun beds in skin cancer
- Classify skin types according to response to sun exposure (Fitzpatrick)
- Describe the molecular / genetic basis of skin cancer
- Outline occupational risks for skin cancer

14.1.2 Risk factors for melanoma

- Describe the risk factors for melanoma (giant congenital naevus, number of moles, previous melanoma, family history)

14.1.3 Pre-cancerous lesions/ conditions

- Define pre-cancerous lesions and conditions.
- Enumerate the common pre-cancerous lesions / conditions
- Define risk of cancer in patients with pre-cancerous lesions / conditions. (Actinic keratosis, Bowen's disease, Lentigo maligna) Precancerous conditions (Gorlin's syndrome, Xeroderma Pigmentosum)

14.2 Epidemiology of skin cancer

14.2.1 Epidemiology

- Define prevalence and incidence
- Describe the global burden of skin cancer in general and UK in particular
- Describe the reasons for the increasing incidence of skin cancer in the UK
- Describe the current methods of skin cancer surveillance and their shortcomings (? Notifiable disease)

14.3 Pathology of skin cancer

14.3.1 Skin cancer (general)

- Describe the classification of skin cancer

- List the types of non melanoma skin cancer

14.3.2 Basal cell carcinoma

- Describe the origin and salient histological features of basal cell carcinoma
- Enumerate the histological sub-types of basal cell carcinoma
- Describe the mode of spread of basal cell carcinoma
- Define the minimal data set in the reporting of basal cell carcinoma

14.3.3 Cutaneous Squamous cell carcinoma

- Describe the origin and salient histological features of cutaneous squamous cell carcinoma
- Define the grading of cutaneous squamous cell carcinoma
- Describe the mode of spread of cutaneous squamous cell carcinoma
- Define the minimal data set for the reporting of cutaneous squamous cell carcinoma

14.3.4 Cutaneous Melanoma

- Describe the origin and salient histological features of melanoma
- Define the classification / types of melanoma
- Define the role of biopsy in the diagnosis of melanoma
- Describe the methods of reporting thickness and its importance
- Describe the mode of spread of melanoma
- Define the minimal data set for the reporting of melanoma

14.4 Management skin cancer /precancerous lesions

14.4.1 Surgical

- List the various surgical options for the treatment of skin cancer / pre-cancerous lesions

- Describe Curettage and Cautery and define its role
- Describe excision with pre-determined margin and define its role
- Describe Moh's surgery and define its role

14.4.2 Non-Surgical

- List the various non-surgical options for the treatment of skin cancer / pre-cancerous lesions
- Radiotherapy: Describe the mechanism of action and define its role
- Cryotherapy: Describe the mechanism of action and define its role
- Chemotherapy: List the modes of administration and drugs used in the treatment of skin cancer / pre-cancerous lesions
- 14.a1 chemotherapy: Describe the mechanism of action and define the role of diclofenac, 5F-U and imiquimod
- Photodynamic therapy: Describe the mechanism of action and define its role

14.4.3 Multidisciplinary teams (MDT's) including dermatology

- Define the referral pathway for patients suspected of skin cancer
- Describe the organisation of skin cancer services (LSMDT / SSMDT)
- Define the composition and role of the MDT's
- Define the referral criteria for LSMDT / SSMDT
- Demonstrate understanding of the role of dermatology colleagues in the management of skin conditions and the skills and knowledge they can bring to a Skin Multi-disciplinary clinic including: dermoscopy, digital dermoscopy, intravital confocal microscopy and Mohs micrographic surgery.
- Describe when referral to Dermatologists is appropriate e.g. to clinically differentiate non-malignant lesions which may mimic

malignant lesions eg. granuloma faciale, pseudolymphoma, cutaneous leishmaniasis, pyogenic granuloma, seborrhoeic keratoses, verruca vulgaris, lupus erythematosus tumidus, deep mycoses etc. Dermatologists are trained and competent in treating more superficial neoplasms/premalignant lesions eg. superficial BCC, intraepithelial carcinoma, actinic keratoses etc. with less invasive methods such as topical immunotherapy (eg. Imiquimod), topical chemotherapy (eg. 5-fluorouracil), cryotherapy, curettage/electrocautery & photodynamic therapy.

14.5 Management of basal cell carcinoma

14.5.1 Diagnostic features and risk stratification

- Describe the diagnostic features and clinical sub types of BCC's
- Define the risk stratification and prognostic factors for BCC's

14.5.2 Treatment of previously untreated BCC's

- Evaluate the various modes of treatment based on risk stratification and outcome
- Define the current guidelines for the management of previously untreated BCC's (for example British Association of Dermatology – BAD <https://www.bad.org.uk/healthcare-professionals/clinical-standards/clinical-guidelines>).

14.5.3 Management of Incompletely excised / recurrent BCC's

- Describe the possible outcomes following incomplete excision
- List the risk factors for recurrence
- Evaluate the various modes of treatment of recurrent BCC's based on outcome
- Define the referral criteria to the MDT for BCC's

14.5.4 Follow up

- Describe the follow up protocol for BCC's

- Define the rationale for follow up
- Describe the advice offered during follow up

14.6 Management of cutaneous squamous cell carcinoma

14.6.1 Diagnostic features, risk stratification, staging

- Describe the diagnostic features of a squamous cell carcinoma
- Describe the risk stratification and prognostic factors for SCC
- Describe the staging of cutaneous squamous cell carcinoma (AJCC 2009)

14.6.2 Treatment of squamous cell carcinoma

- Evaluate the various modes of treatment based on risk stratification and outcome
- Define the current “BAD” guidelines for the management of SCC
- Regional metastasis – Risk factors and patterns of metastasis
- Define the risk factors for cervical/parotid metastasis
- Describe the pattern of cervical/parotid metastasis

14.6.3 Cervical/parotid metastasis – Assessment and management

- Describe the modalities and efficacy of assessment of cervical metastasis (CE, USS, CT, MRI, FNAC)
- Describe the role of elective / therapeutic neck dissection in the management of cervical metastasis (Extent of ND, parotidectomy)
- Define the role of radiotherapy /adjuvant treatment in the management of cervical metastasis

14.6.4 Follow up

- Describe the follow up protocol for SCC's
- Define the rationale for follow up

- Describe the advice offered during follow up

14.7 Management of melanoma

14.7.1 Diagnostic features and role of biopsy

- Describe the diagnostic features of melanoma
- Define the role of biopsy in the diagnosis of melanoma
- Define the staging of melanoma (AJCC 2009)

14.7.2 Treatment of primary lesion and Wide Local Excision

- Describe the management of the primary lesion based on thickness / “BAD” guidelines
- Define the prognosis based on thickness of the primary lesion

14.7.3 Investigation of regional/distant metastasis

- Describe the modalities and efficacy of assessment of cervical/parotid metastasis (CE, USS, CT, MRI, FNAC – see SCC)
- Define the timing and modalities of evaluation for distant metastasis.
- Describe the use of sentinel node biopsy in the assessment of cervical/parotid metastasis

14.7.4 Management of cervical/parotid metastasis

- Describe the pattern of cervical/parotid metastasis
- Describe the role of elective / therapeutic neck dissection in the management of cervical metastasis (Extent of ND, parotidectomy)
- Define the role of radiotherapy /adjuvant treatment in the management of cervical/parotid metastasis
- Describe the management of head and neck metastasis from an unknown primary melanoma

14.7.5 Management of distant metastasis / palliative care

- Define the treatment options for the management of distant metastasis (surgery/ RT/ chemotherapy)
- Describe the role of palliative care in the management of advanced disease

14.7.6 Follow up / special circumstances

- Describe the follow up protocol for melanoma
- Define the rationale and assessments undertaken during follow up
- Describe the advice offered during follow up
- Define the role of OCP / pregnancy / HRT in melanoma

14.8 Organ transplant / Immunosuppression and skin cancer

14.8.1 Organ transplant / Immunosuppression and skin cancer

- Define the risk of skin cancer in patients with organ transplant / immunosuppression
- Describe the modifications in the management and surveillance of this patient group

14.9 Local anaesthesia for head and neck skin surgery

14.9.1 Drugs used in local anaesthesia

- List the modes of delivery of local anaesthesia
- List the commonly used drugs and their mechanism of action
- Define the safe doses and adverse effects

14.9.2 Local anaesthesia for upper / mid face

- Describe the sensory nerve supply of the upper / mid face (list nerves, area supplied, surface anatomy)

- Describe the techniques of achieving local anaesthesia for specific sites (nerve block / field block)

14.9.3 Local anaesthesia for lower face / neck

- Describe the sensory nerve supply of the lower face / neck (list nerves, area supplied, surface anatomy)
- Describe the techniques of achieving local anaesthesia for specific sites (nerve block / field block)

14.10 Reconstructive options for head and neck skin defects

14.10.1 Reconstructive ladder and local skin flaps

- List the reconstructive options for head and neck skin defects (ladder)
- Define the terminology used in the description of skin flaps (blood supply, movement, components)
- Describe the principles and technique of common local skin flaps (rotation, advancement, transposition, Island, Limberg, bilobed +/- others)

14.10.2 Skin grafts

- List the types of skin grafts
- Describe the healing of skin grafts (donor / recipient site)
- List the sites available for harvesting skin grafts (FT / ST)
- Describe the methods of immobilising skin grafts

10.3 Facial units and decision making process

- Describe the concept of facial units / sub-units and list the various components
- Define RSTL, LME, Langer's lines, etc
- List the factors taken into account when deciding on the reconstructive option

14.11 Reconstruction of scalp defects

14.11.1 Scalp anatomy and sub-units

- Describe the anatomy of the scalp (layers, blood / nerve supply / position of muscle / nerves)

- Define the sub-units (mobile / fixed)

14.11.2 Reconstructive options

- List the local factors influencing choice of reconstruction

- Describe the reconstructive options for specific sites of the scalp

14. 12 Reconstruction of forehead defects

14.12.1 Forehead anatomy and sub-units

- Describe the relevant anatomy of the forehead (blood / nerve supply, position of muscles / nerves, RSTL)

- Define the sub-units of the forehead

14.12.2 Reconstructive options

- List the local factors influencing choice of reconstruction

- Describe the reconstructive options for specific sites of the scalp

14. 13 Reconstruction of eyelid defects

14.13.1 Eyelid anatomy

- Describe the relevant anatomy of the eyelids (blood / nerve supply, skin, muscles, fat, septum, tarsal plate, canthus, canaliculi)

- Define the components of the lamellae

14.13.2 Reconstruction of upper eyelid defects

- List the local factors influencing choice of reconstruction

- Describe the reconstructive options for upper eyelid defects

14.13.3 Reconstruction of lower eyelid defects

- List the local factors influencing choice of reconstruction

- Describe the reconstructive options for lower eyelid defects

14. 14 Reconstruction of cheek defects

14.14.1 Cheek anatomy and sub-units

- Describe the relevant anatomy of the cheek (position of blood vessels / nerves / parotid duct / muscles)

- Define the sub-units of the cheek

14.14.2 Reconstructive options

- List the local factors influencing choice of reconstruction

- Describe the reconstructive options for specific sites of the cheek

14. 15 Reconstruction of nasal defects

14.15.1 Anatomy and sub-units of the nose

- Describe the relevant anatomy of the nose (skin, cartilage, blood vessels / nerves)

- Define the sub-units of the nose

14.15.2 Partial thickness defects

- List the local factors influencing choice of reconstruction

- Describe the reconstructive options for partial thickness defects

14.15.3 Full thickness defects

- List the local factors influencing choice of reconstruction

- Describe the surgical options for full thickness defects

- Describe the prosthetic options for full thickness defects

14. 16 Reconstruction of lip defects

14.16.1 Anatomy and sub-units of the lips / chin

- Define the relevant anatomy of the lips / chin (blood vessels / nerves, muscles)

- Define the sub-units of the lips

14.16.2 Partial thickness defects

- List the local factors influencing choice of reconstruction

- Describe the reconstructive options for partial thickness defects

14.16.3 Full thickness defects

- List the local factors influencing choice of reconstruction
- Describe the reconstructive options for full thickness defects

14. 17 Reconstruction of ear defects

14.17.1 Ear anatomy

- Define the relevant anatomy of the ear (blood / nerve supply / cartilage)
- List the parts of the external ear
- Explain the interface with ENT/ORL in the management of managing pharyngeal arch defects – see ORL ETR.

14.17.2 Reconstructive options

- List the local factors influencing choice of reconstruction
- Describe the reconstructive options for partial thickness defects
- Describe the reconstructive options for full thickness defects (surgical / prosthetic)

14. 18 Reconstruction of neck defects

14.18.1 Neck anatomy and reconstructive options

- Define the relevant anatomy of the neck (nerves / blood vessels / muscles)
- List the local factors influencing choice of reconstruction
- Describe the reconstructive options for neck defects

14.19 General Skin surgery Knowledge and skills

14.19.1 Describe in detail the harvest full thickness and split thickness skin grafts from all body areas.

14.19.2 Describe in detail how the same skills can be used to excise skin lesions from all body areas.

15 Craniofacial Surgery

15.1 Introduction to craniofacial

15.1.1 History of craniofacial surgery and Organisation of craniofacial surgery in Europe

- Define Craniofacial surgery
- Discuss the history of Craniofacial surgery, the development of multi-disciplinary surgery inc. work of Tessier
- Outline European Reference Network

15.1.2 Classification

- Recall the main classification of craniofacial problems split this into the different sections
- not completed yet

15.1.3 Nomenclature

- Explain how suture growth produces head shape
- Define the descriptive terms used to describe head shape,
- Define exorbitism
- Define Telecanthus and the normal age related values
- Define intra-orbital distances and normal age related values
- Describe skeletal mandibular and maxillary relationships

15.2 Aetiology of Craniofacial pathology

15.2.1 Embryology

- Describe normal development of the head and brain
- Describe the normal development of the orbit and vision
- Recall how CSF is formed
- Describe some of the common congenital abnormalities

15.2.2 Craniofacial anatomy and physiology

- Describe the circulation of CSF and explain how hydrocephalus develops.

- Describe how respiratory compromise and raised intra cerebral pressure are related.

- Describe the anatomy of the orbits

- Describe how vision develops and factors that affect vision

- Describe monocular and binocular vision

15.2.3 Genetics

- Knowledge of the role of genetic assessment and counselling in the care of patients and their families, and when to refer to genetic services

- Awareness of features which suggest a condition is, or may be, genetic and/or inherited in a patient and/or their parents

- Knowledge of how genes are inherited and basic patterns of inheritance: dominant and recessive

- Knowledge of de novo gene variants as a mechanism causing genetic conditions

- Awareness of variable expression and non-penetrance in hereditary conditions

- Awareness of germline mosaicism as a cause of recurrence of rare genetic conditions

- Awareness of the common genes for Crouzon, Apert, Pfeiffer, Carpenter, and Muenke syndromes• Explain the relationship of craniofacial abnormalities with elderly parents

15.2.4 Investigations and diagnosis

- Recall the important features in the history and examination of a patient

- Discuss the role of intrauterine diagnosis of craniofacial problems

- Define the role of radiology in diagnosis

15.3 Management of patients in the multidisciplinary team

15.3.1 The Multidisciplinary team

- Define the members of the multidisciplinary team
- Explain the role of each member
- Discuss what factors make a good team

15.3.2 The role of ORL / polysomography/ Audiology

- Describe the problems that craniofacial patients may have with respect to their hearing and breathing
- Describe the investigations undertaken by audiology,
- Describe what aids can be used to improve hearing including Bone Assisted hearing aids.
- Describe the role of the ORL surgeon with respect to managing craniofacial patients
- Explain the role of polysomography
- Describe what aids are available to improve a patient's airway

15.3.3 The role of Ophthalmology

- List the common ophthalmological problems that patients with craniofacial conditions may have and explain why.
- List the investigations undertaken by the Orthoptist and Ophthalmologist in managing craniofacial patients.
- Describe the relationship between electrodiagnostic testing (visually evoked potentials) and raised Intracranial pressure.
- Describe the treatment of globe dislocation
- Discuss the short and long term treatment of patients with functional eye problems as a result of exorbitism

15.3.4 The role of Speech and language / Dieticians

- List the possible causes of nutritional deficiencies in patients with craniofacial abnormalities and explain the impact of poor nutrition on development.
- Describe techniques used for assessing swallowing including video-fluoroscopy

- Describe the techniques for placing percutaneous endoscopic and radiologically placed gastrostomy tubes
- List the possible causes of speech and language problems in craniofacial patients.
- Describe the basic phonetics of speech

15.3.5 The role of the clinical psychologist

- List some of the psychological problems patient and families with craniofacial disorders may have
- Describe reactions to grief
- Describe assessment techniques
- Explain how patient age changes their reaction to their facial appearance
- Discuss therapeutic techniques for psychological problems

15.3.6 The role of the Orthodontist

- Recall the classification of both skeletal and occlusal malocclusions (angle's Classification)
- List the possible orthodontic problems patients with craniofacial syndromes may have
- List the aims of orthodontics

15.3.7 The role of the Neurosurgeon

- List the possible neurological complications that patients with craniofacial conditions may develop
- Explain the consequences of raised intracerebral pressure
- Describe methods of assessing raised intracerebral pressure

15. 4 Simple suture synostosis and positional plagiocephaly

15.4.1 Overview of simple synostoses

- Explain the consequences of synostosis in terms of head shape
- Discuss any functional problems that may occur with simple suture synostosis

- Describe the management of a patient with a simple synostosis

- Recall the causes of synostosis

15.4.2 Positional plagiocephaly

- Define positional plagiocephaly

- Differentiate positional plagiocephaly from synostotic plagiocephaly

- Describe the aetiology

- Discuss the treatment options for positional plagiocephaly

15.4.3 Sagittal synostosis

- Define Sagittal synostosis, its aetiology and explain the head shape that occurs

- List any functional problems that may occur as a result of the sagittal synostosis.

- Discuss the management of a patient with Sagittal synostosis

- Imagine you are a doctor consenting a patient for a total vault remodelling procedure. How would you consent them?

15.4.4 Me15. synostosis

- Define Me15. synostosis, its aetiology and explain the head shape that occurs.

- List any functional problems that may occur as a result of the me15. synostosis.

- Discuss the management of a patient with Me15.synostosis

- Imagine you are a doctor consenting a patient for fronto-orbital remodelling procedure. How would you consent them?

15.4.5 Unicoronal, Bicoronal synostosis

- Define Unicoronal and bicoronal synostosis and explain the head shape that occurs

- List any functional problems that may occur as a result of these synostoses.

- Discuss the management of a patient with a bicoronal or sagittal synostosis

15.4.6 Syndromic synostosis, Muenke

- Define Muenke syndrome

- Explain the aetiology

- List any functional problems these patients have

- Discuss the management of a patient with Muenke syndrome.

15.5 Complex Cranial synostosis

15.5.1 Overview of Complex cranial synostosis and aesthetic problems

- List the functional and aesthetic problems that patients with complex cranial synostosis may have and explain why they have them

- Discuss the routine assessments these patients will undergo.

- Discuss the general management of these patients

15.5.2 Crouzon Syndrome

- Define Crouzon's syndrome and its aetiology.

- List the features of Crouzon's syndrome.

- List any functional problems that may occur as a result of Crouzon's.

- Discuss the management of a patient with Crouzon's

15.5.3 Pfeiffer Syndrome

- Define Pfeiffer's syndrome and its aetiology.

- List the features of Pfeiffer's syndrome.

- List any functional problems that may occur as a result of Pfeiffer's.

- Discuss the management of a patient with Pfeiffer's

15.5.4 Saethre-Chotzen Syndrome

- Define Sathre-Chotzen syndrome and its aetiology.

- List the features of Sathre-Chotzen syndrome.

- List any functional problems that may occur as a result of Sathre-Chotzen

- Discuss the management of a patient with Sathre-Chatzen

15.5.5 Apert Syndrome

- Define Apert's syndrome and its aetiology.
- List the features of Apert's syndrome.
- List any functional problems that may occur as a result of Apert's.
- Discuss the management of a patient with Apert's

15.5.6 Carpenter Syndrome

- Define Carpenter syndrome and its aetiology.
- List the features of Carpenter syndrome.
- List any functional problems that may occur as a result of Carpenter's
- Discuss the management of a patient with Carpenter's

15.6 Surgical techniques

15.6.1 Aims of surgery and general principles

- Explain the aims of surgery in the role of managing patients with multiple cranial synostosis
- List the problems of undertaking surgery in infants and children
- Give examples of the techniques that can be used intraoperatively to reduce blood loss
- Discuss post-operative monitoring of patients who have undergone craniofacial surgery
- Discuss the management of CSF leaks

15.6.2 Fronto-orbital and posterior vault expansion

- Define both fronto-orbital advancement, remodelling and posterior vault expansion
- Explain when each of the above would be used.
- List the potential complications and how these can be minimised

15.6.3 Monobloc osteotomy

- Define the monobloc Osteotomy and discuss its history
- Describe the osteotomy cuts for a monobloc osteotomy
- list the potential complications of the monobloc osteotomy
- Discuss the indications for the monobloc over and above more traditional treatment

15.6.4 Facial bipartition

- Define the Facial Bipartition Osteotomy and discuss its history
- Describe the osteotomy cuts for a facial Bipartition
- List the potential complications of this osteotomy
- Discuss the indications for the Facial bipartition

15.6.5 Orbital osteotomies

- Define orbital dystopia and hypertelorism.
- List the aetiology of Orbital dystopia and hypertelorism
- Explain the different types of osteotomy
- List the potential complications of this surgery and discuss how they can be minimised

15.6.6 Le Fort III and Orthognathic surgery

- Define the Le Fort III osteotomy
- Describe the osteotomy cuts both for the sub-cranial and intracranial Le Fort III.
- Explain the indications for the le fort III
- List the possible complications of the le fort III osteotomy

15.7 The role of distraction

15.7.1 History of distraction

- Define the meaning of osseous distraction
- Explain the evolution of distraction
- List the advantages of distraction over conventional surgery with bone grafting
- List the potential morbidity of distraction

15.7.2 External distraction

- Define external distraction
- Explain the distraction process and the formation of new bone
- Discuss the different types of external distractor
- List the advantages and disadvantages of external distractors

15.7.3 Internal distraction

- Define internal distraction
- Explain the distraction process and the formation of new bone
- Discuss the different types of internal distractor
- List the advantages and disadvantages of internal distractors

15. 8 Craniofacial clefting disorders

15.8.1 Classification

15.8.2 Encephaloceles

15.8.3 Craniofronto nasal dysplasia

15.8.4 General management

15. 9 Hypertelorism

15.9.1 Aetiology

15.9.2 Management

15. 10 Craniofacial microsomia

15.10.1 Definition and aetiology

15.10.2 Classification

15.10.3 Management and assessment

15.10.4 Treatment of Hard tissue problems

15.10.5 Treatment of soft tissue problems

15.10.6 Ear reconstruction

15. 11 Treacher Collins

15.11.1 Definition and aetiology

15.11.2 Management

15. 12 Hemifacial atrophy / Romberg's disease

15.12.1 Definition Aetiology investigation

15.12.2 Management

15. 13 Fibrous dysplasia

15.13.1 Classification

15.13.2 Management

15. 14 Vascular malformations involving the craniofacial region

15.14.1 Classification

15.14.2 Investigation

15.14.3 Management of AV malformations

15.14.4 Management of low flow lesions

15.14.5 Sturge Weber disease

15. 15 Neurofibromatosis

15.15.1 Aetiology and definition

15.15.2 Management

15. 16 Skull base surgery

15.16.1 *General principles including imaging*

15.16.2 *Access Surgery 1*

15.16.3 *The role of endoscopy*

15.16.4 *Congenital anomalies*

15.16.5 *Meningioma*

15.16.6 *Chordoma*

15.16.7 *Odontoid peg instability*

15. 17 Cranioplasty

15.17.1 *Definition and aetiology*

15.17.2 *Materials and Technique*

15.18 Branchial Arch anomalies

Differentiation of the branchial apparatus;
Potential resulting anomalies and their
classification (site, structures involved)

Diagnosis and Management:

15.18.1 *First branchial arch anomalies*

15.18.2 *Second branchial arch anomalies*

15.18.3 *Third branchial arch anomalies*

15.18.4 *Fourth branchial arch anomalies*

16 Research and Ethics

16.1 Regulation

16.1.1 Good medical practice

16.1.2 Codes of Practice in an Organisation

16.2 Administration

16.2.1 The NHS and Healthcare Organisations

16.2.2 The Legal Framework for Healthcare Organisations

16.3 Governance

16.3.1 Accountability in Healthcare Organisations

16.3.2 codes of Practice in an Organisation

16.3.3 Governance and Change

16.3.4 Adverse incidents

16.3.5 Errors and Experiences

16.3.6 Minimising Risk in Healthcare Organisations

16.4 Medicolegal

16.4.1 How to write a witness statement for the police

16.4.2 How to write a medico-legal report in a clinical negligence case

16.5 Evidence based medicine

16.5.1 How to make evidence based decisions

16.5.2 How to put guidance into practice

16.5.3 Quality Improvement

16.6 Surgery

16.6.1 Informed consent

16.6.2 Photography

16.6.3 Safe surgery

16.7 Audit

16.7.1 Principles of audit

16.7.2 How to use audit to improve patient care

16.8 Research

16.8.1 Clinical and scientific research

16.8.2 Ethics and Research Committees

16.8.3 Grants and Funding

16.8.4 Designing a project

16.8.5 Statistical analysis

16.8.6 Presentations at meetings

16.8.7 Writing a paper

16.8.8 How to read a paper

16.8.9 How to get a Thesis

16.9 Multidisciplinary Meeting

16.9.1 Principles & practice of MDT meetings

16.9.2 The performance of an MDT meeting

16.9.3 The oncology head and neck MDT meeting

16.10 Leadership

16.10.1 Introduction to Leadership

16.10.2 Introduction to Medical Leadership Competence Framework

16.10.3 Introduction to Developing Personal Qualities

16.10.4 Introduction to Working with Others

16.10.5 Introduction to Managing Services

16.10.6 Introduction to Improving Services

16.10.7 Introduction to Setting Direction

16.10.8 The Impact on Others

16.10.9 The Role of Team Dynamics

- 16.10.10 Options and Contexts for Leadership Styles**
- 16.10.11 Connections and Teams**
- 16.10.12 Hearing from Others**
- 16.10.13 When Healthcare gets it Wrong**
- 16.10.14 Gathering Patients' Experiences**
- 16.10.15 Quality Improvement Methods 1**
- 16.10.16 Quality Improvement Methods 2**
- 16.10.17 Quality Improvement Methods to Ensure Patient Safety**
- 16.10.18 Quality Improvement Methods for Operating Theatres**
- 16.10.19 Quality Improvement Methods for Community Services**
- 16.10.20 Change and Systems: Wheels within Wheels**
- 16.10.21 The Effect of Change**
- 16.10.22 Measurement of change**
- 16.10.23 Stress and Strain: Support Available**
- 16.10.24 Stress and Strain: Tools and Techniques**
- 16.10.25 Prejudice and Preferences**
- 16.10.26 Achieving a Facilitative Approach**
- 16.10.27 Change Management**
- 16.10.28 Dealing with Conflict**
- 16.10.29 Creating new Solutions to old problems**
- 16.10.30 Decisions: How are they made?**
- 16.10.31 Getting Messages Heard**
- 16.10.32 Project Management**
- 16.10.33 Collecting Data and Information for Healthcare**
- 16.10.34 Business Management for Healthcare**
- 16.10.35 Day to Day Management**
- 16.10.36 Responsibilities and Colleagues**
- 16.10.37 Ensuring Development and Learning**
- 16.10.38 Providing Care Efficiently**
- 16.10.39 Commissioning and Fulfilling Contracts for Healthcare**
- 16.10.40 Managing Financial Pressures**
- 16.10.41 Ethics of Management**
- 16.10.42 Organisational Performance**
- 16.10.43 Patient Outcomes**

17 Professional and Behavioural Standards

There is no single recommended framework for this important element of training. There are many excellent national frameworks in these areas/standards and so the OMFS Section and Board flags these available resources and recognises that there is overlap.

17.1 CanMEDS Definitions, Standards and Roles

Definitions and Standards defined by the CanMEDS Framework

<https://www.royalcollege.ca/rcsite/canmeds/canmeds-framework-e>

17.1.1 Medical Expert (the integrating role)

17.1.2 Communicator

17.1.3 Collaborator

17.1.4 Leader

17.1.5 Health Advocate

17.1.6 Scholar

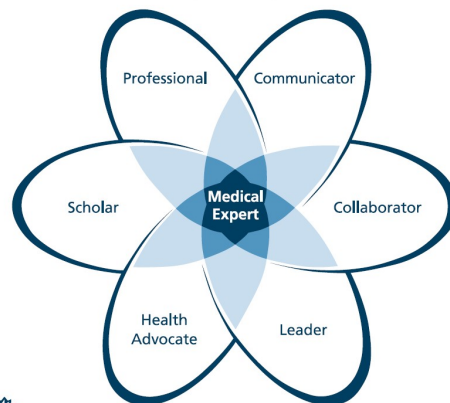
17.1.7 Professional

17.1.8 CanMEDS Handover

<https://www.royalcollege.ca/rcsite/canmeds/framework/canmeds-handover-e>

17.1.9 CanMEDS patient safety and quality improvement

<https://www.royalcollege.ca/rcsite/canmeds/framework/patient-safety-quality-improvement-e>



CANMEDS

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<https://www.royalcollege.ca/rcsite/canmeds/canmeds-framework-e>. Reproduced with permission.

17.2 Capabilities in Practice and Generic Professional Capabilities – General Medical Council - UK.

These are used in the United Kingdom across all surgical curricula. They are also present in the UK OMFS Curriculum which is available at <https://www.gmc-uk.org/-/media/documents/oral---maxillofacial-surgery-curriculum-aug-2021-approved-oct-20-pdf-84479356.pdf>

17.2.1 Capabilities in Practice (the high-level outcomes of training)

A capability is a set of skills that can be developed through training from novice to expert and therefore these high-level clinical outcomes are known as Capabilities in Practice.

- Manages an out-patient clinic
- Manages the unselected emergency take
- Manages ward rounds and the on-going care of in-patients
- Manages an operating list
- Manages multi-disciplinary working

17.2.2 Generic Professional Capabilities

The generic knowledge, skills, behaviours and values shared by all doctors are

described in the GPC framework of the UK General Medical Council and are listed below. The GPC framework has nine domains.

- a) Professional values and behaviours
- b) Professional skills
Practical skills, Communication and interpersonal skills, Dealing with complexity and uncertainty, Clinical skills.
- c) Professional knowledge
Professional requirements, National legislative requirements, The health service and healthcare system in the four countries
- d) Capabilities in health promotion and illness prevention
- e) Capabilities in leadership and team working
- f) Capabilities in patient safety and quality improvement
- g) Capabilities in safeguarding vulnerable groups
- h) Capabilities in education and training
- i) Capabilities in research and scholarship

17.3 Children's Rights

All professionals should be aware of and work within the statutory frameworks as they relate to Children and Young People in the country in which they practice their clinical specialty

Within the overarching principles of The United Nations Convention on the Rights of the Child (UNCRC) The principles of
FAIRNESS PROTECTION AUTONOMY

17.4 Children's Autonomy

Encouraging children's voice and participation in decision-making at a level commensurate with their maturity

- Shared decision making
- appropriate balance in Child Parental involvement and in particular informed consent

18 New Technologies in OMFS

Objectives: acquire the necessary knowledge and understanding to apply new technologies in the diagnosis and treatment of oral and maxillofacial pathology of all types.

18.1 Collaborative working in new technologies.

Describe the advantages of collaborative training and working in new technologies including working with ORL colleagues – see ORL ETR.

18.2 Robotic Surgery

- Describe use of robotic surgery techniques in the diagnosis and surgical treatment

18.3 Computer Planning

- Describe collaborative work and computer support techniques in the diagnosis and treatment of oral and maxillofacial pathology

18.4 Endoscopic Surgery

- Collaborate in endoscopy techniques for the diagnosis and treatment of oral and maxillofacial pathology

18.4 Navigation Techniques

- Collaborate in navigation techniques in the diagnosis and treatment of oral and maxillofacial pathology

18.5 Complications of New Technologies

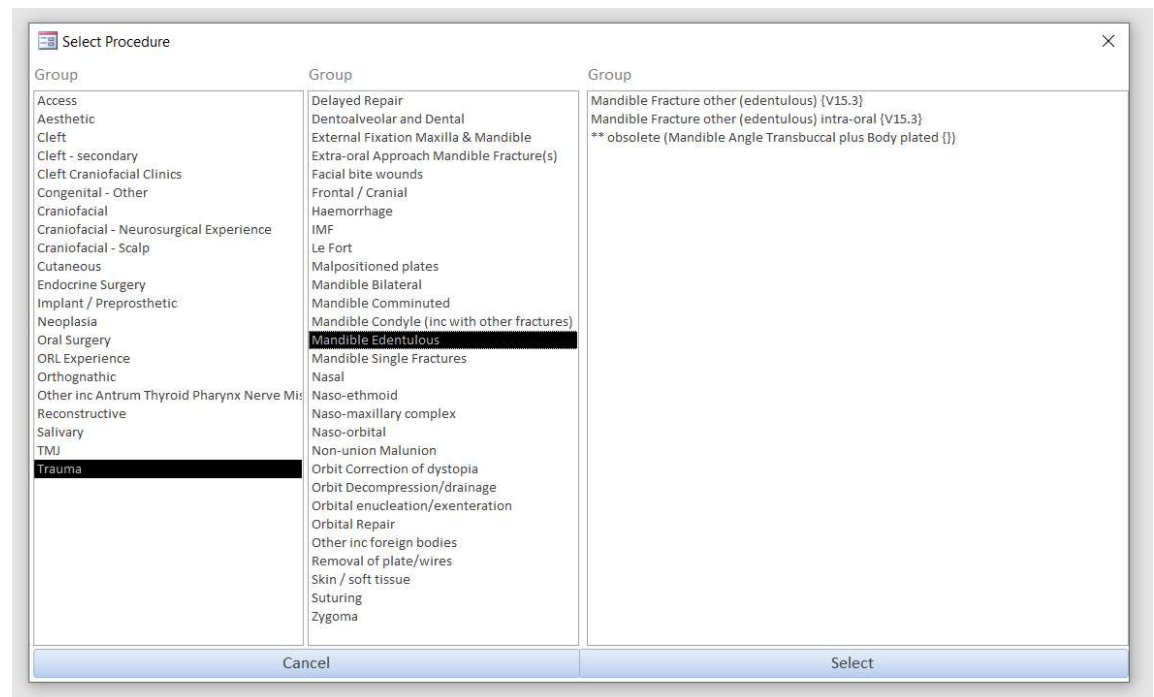
- Diagnose and treat complications and sequelae derived from the use of new technologies in oral and maxillofacial pathology.

18.6 Research and Ethics of new techniques.

Appendix 2 – OMFS UEMS Surgical Experience Register – Download free from www.omfsuems.eu

The OMFS Section of UEMS have designed and made freely available a surgical experience register designed to run in Access©. This new European resource is designed to be standalone and useable in any European nation. An alternative for those who wish to use a web-based platform is the eLogbook at www.elogbook.org

Both “experience registers” use similar coding and hierarchy so data should be comparable if a mixed economy of “experience registers” were used. eLogbook is freely available worldwide to record experience of OMFS trainees working in OMFS and when they work in other specialties such as ORL. Both The full codes are shared to allow the development of national or European logbooks.



Codes for levels of participation

The logbook records the level of participation of the surgeon/trainee and generates a report based on this level. The options for participation are listed below.

O	Observed	S-TS	Supervised-trainer scrubbed	UC	Under my care
A	Assisting	S-TU	Supervised-trainer unscrubbed but in theatre	PCC	Performed with specialist colleague
		P	Performed	PPT	Performed in part by trainee
		T	Training a trainee	PAT	Performed: assisted by trainee

Acknowledgements

Julian Baker – The Access Man - <https://www.theaccessman.co.uk/> who worked quickly and efficiently to create a European Surgical Experience Register for the specialty of OMFS. He would be happy to make a similar resource for any other UEMS Section/Board.

Royal College of Surgeon of Edinburgh: who provide the eLogbook for all surgical specialties in the UK and Patrick Magennis as the OMFS specialty lead for eLogbook who originally designed and undertakes regular maintenance of the eLogbook.

Disclaimers

Flat Table - A 'flat' representation of hierarchical software can only give a general impression of how the data is recorded.

Surgical Experience Registers: Both the OMFS UEMS Access programme and the eLogbook are surgical experience registers. They are neither a curriculum nor a syllabus.

Interface procedures which are NOT OMFS competencies are highlighted at the end of this section. The syllabus (knowledge base) of OMFS is detailed in Appendix 1 and competencies within the ETR. We do not expect any OMFS surgeon to practice beyond their knowledge and understanding. The logbook includes operative experience in other surgical specialties which OMFS can record to demonstrate inter-specialty experience and working.

For example there are neurosurgical procedures to which an OMFS surgeon may contribute by providing trans-facial access for neurosurgical colleagues but would NOT undertake the neurosurgical element e.g. the management of a frontal encephalocoele. In the logbook we would expect a trainee to record that they performed/assisted the OMFS access and would then record that they observed the neurosurgical procedure.

The objective of multi-disciplinary training is so that surgeons can clearly understand where their expertise ends and that of other specialties' begin. We thank our colleagues from the Neurosurgical Section for helping us clarify this important issue.

Logbook Tables – the numerical code in the right column is simply a unique identifier

Group Title	Type	Sub-type	Operation	Code
Access				
	Airway Access			
			Cricothyroidostomy {E42.2}	4001
			Submental intubation {}	4717
			Tracheostomy {}	4002
			Tracheostomy - permanent {E42.1}	4003
			Tracheostomy - temporary {E42.3}	4004
	Cranial			
			Frontal bandeau osteotomy {V01.3b}	4005
			Olfactory / cribriform osteotomy {V10.1a}	4006
	Mandible			
			Pre-auricular {}	4007
			Retromandibular {}	4008
			Risden {}	4009
	Maxilla			
			Altemir {}	4010
			Le Fort 1 {V10.4 V11.2}	4011
			Zygomatic osteotomy {Y46.8a}	4012
	Neck			
			Exploration of neck {}	4013
	Nose			
			Lateral rhinotomy {E17.4}	4014
	Orbit			
			Blepharoplasty {}	4015
			Mid-tarsal incision {}	4016
			Transconjunctival {}	4017
	Scalp			
			Coronal flap {S47.5a}	4018
			Hemi-coronal flap {S47.5a}	4019

Group Title	Type	Sub-type	Operation	Code
	Robot and Scope Assisted			
			Endoscopically Assisted Other {}	4721
			Robot Assisted Other {}	4719
			Transoral Laser Resection {}	4720
			Transoral Robot Assisted Procedure {}	4718
Aesthetic				
	Ears			
			Ear Reconstruction - Aesthetic {D03.1}	360
			Meatoplasty of external ear {D03.4}	4020
			Pinnaplasty {D03.3}	359
			Plastic operations on external ear {D03}	4021
			Reconstruction of external ear NEC {D03.2}	4022
			Reconstruction of external ear using graft {D03.1}	4023
	Eyes			
			Blepharoplasty - Lower {C13.4}	4024
			Blepharoplasty - Upper {C13.4}	4025
			Blepharoplasty NOS {C13.4}	361
			Correction of deformity of eyelid {C15}	4026
			Correction of ectropion {C15.1}	362
			Correction of entropion {C15.2}	4027
			Correction of ptosis of eyelid use.sling of fascia {C18.3}	4028
			Correction of telecanthus {C11.4}	4029
			Correction of trichiasis {C15.3}	4030
			Dacryocystorhinostomy {}	365
			Lateral tarsorrhaphy {C1640}	364
			Medial canthopexy {}	3909
			Operations on canthus {C11}	4031
			Other - Eye lid surgery {C22.8}	363
	Face			
			Brow lift {S014}	367

Group Title	Type	Sub-type	Operation	Code
			Chemical peel {}	4552
			Facelift - Skin only {}	4624
			Facelift - skin/SMAS {}	4625
			Facelift + tightening of platysma {S01.1}	4032
			Facelift NOS {S01.2}	366
			Facelift other {}	4626
			Laser resurfacing {}	4033
			Mid-face lift {}	4034
			Submental lipectomy / liposuction {S01.3}	4035
		Injection / augmentation		
			Injection of filler {}	4037
			Intramuscular Botulinum Injection {X37.5a}	4038
			Steroid Injection into Scar or Wound {}	4042
			Zygomatic osteotomy {}	4043
			Coleman and Dermal Fat	
			Dermal fat graft harvest {}	4733
			Dermal fat graft inset {}	4734
			Harvest of Coleman Fat Graft {}	4731
			Injection of fat {}	4036
		Alloplast		
			Alloplastic implant - augmentation chin {}	4039
			Alloplastic implant - augmentation frontal {}	4040
			Alloplastic implant - augmentation infraorbital {}	4041
			Alloplastic implant(s) - malar {}	4603
			Alloplastic implant(s) - piriform fossa {}	4602
		Laser		
			Dye laser head and neck {S09.1}	379
			Dye laser other body region {S09.2}	380
			Laser resurfacing {}	3904
			Tattoo Removal {S06.3}	383
		Masseter		

Group Title	Type	Sub-type	Operation	Code
			Masseter Reduction {T77.3a}	368
	Nasal			
			Augmentation Rhinoplasty {E02.4}	373
			Division of adhesions {E04.4}	377
			Hump reduction {E02.8}	374
			Inferior turbinectomy {E04.2}	375
			Nasal reconstruction {}	3906
			Operations on septum of nose {E03}	4044
			Other - nasal surgery {E02.8}	378
			Reduction Rhinoplasty {E02.5}	372
			Rhinophyma reduction {}	4045
			Rhinoplasty {E02.6}	370
			Septoplasty {E03.6}	369
			Septorhinoplasty {E02.5}	371
			Septorhinoplasty using graft {E02.4}	4046
			Septorhinoplasty using implant {E02.3}	4047
			SMR - Submucous resection {E03.1}	376
			(LINK) Turbinectomy {}	4226
	Other			
			Dermabrasion {S60.3}	382
			Head and neck plastics NOS {S01.9}	389
			Large Congenital Pigmented Naevus excision {S06.5*}	388
			Pigmented Naevus excision {S06.5*}	387
			refashioning of scar NEC {S60.4}	4048
			Sternomastoid Release {T38.2}	384
			Submental lipectomy {}	386
			tattooing of skin {S60.3}	4049
			Thyroid surgery {B08.8}	385
	Scar			
			Scar Revision {S60.4}	381
			Z Plasty {}	4531

Group Title	Type	Sub-type	Operation	Code
	Neck			
			Neck lift {}	4549
			Neck lift platysma plication {}	4550
			Neck lift platysma plication and digastric reduction {}	4551
	Feminisation Surgery			
			(LINK) Brow lift {S014}	367
			Facial Feminisation Surgery {}	4751
			Facial feminisation MDT {}	4750
			Forehead reduction by anterior table osteotomy and setback {}	4753
			Forehead reduction by shaving bone {}	4752
			(LINK) Genioplasty Horizontal Reduction {V16.8}	151
			(LINK) Genioplasty Vertical Reduction {V19.2}	150
			Hairline Advancement {}	4754
			Lip Lift {}	4749
			Mandibular Angle Shave {}	4755
			(LINK) Rhinoplasty {E02.6}	370
			Thyroid Reduction Surgery {}	4748
Cleft Craniofacial Congenital				
	Cleft Alveolus Surgery			
			Alveolar Bone graft {V13.2}	58
			Bone Graft - palatal cleft {F29.8}	59
			Bone Harvest from tibia {Y66.8}	4053
			Cleft Grafts {}	57
			(LINK) Gingivoplasty of cleft {F20.4}	61
			(LINK) Iliac crest block bone graft {Y66.3}	248
			(LINK) Iliac crest cancellous only bone graft {Y66.3}	247
			(LINK) Iliac crest trephine {}	249
	Cleft lip			

Group Title	Type	Sub-type	Operation	Code
		Unilateral Cleft		
			Cleft lip adhesion {}	4569
			Gingivoplasty of cleft {F20.4}	61
			Unilateral cleft lip primary repair {F03.1}	4570
		Bilateral Cleft		
			Bilateral cleft lip repair (1st stage) {F03.1}	4571
			Bilateral cleft lip repair (2nd stage) {F03.1}	4572
			Bilateral cleft lip repair (single stage) {F03.1}	4573
		Cleft lip revision		
			Major full revision of cleft lip {F03.2}	52
			Minor cleft lip revision involving mucosa {F03.2}	4574
			Minor cleft lip revision involving muscle {F03.2}	4575
			Minor cleft lip revision involving skin {F03.2}	4576
			Minor cleft lip revision involving vermilion {F03.2}	4577
	Cleft nose			
			Cleft Oro-nasal fistula closure {F29.2}	4600
			Cleft rhinoplasty {E02.5}	55
			Cleft septo-rhinoplasty {E07.3}	4599
			Columella lengthening {Y69.4}	4601
			(LINK) Conchal Cartilage {}	4303
			(LINK) Costochondral {}	256
			Other fistula repair technique {F29.2}	56
	Cleft Palate			
		Primary palate surgery		
			Other clefts - specify {}	62
			Primary Palate Repair {F29.1}	53
			Primary repair cleft palate Furlow {F29.1}	4579
			Primary repair of cleft palate IVVP {F29.1}	4578
		Palatal fistula repair		
			Buccal myomucosal flap for palatal fistula {}	4587

Group Title	Type	Sub-type	Operation	Code
			Direct repair of palatal fistula {F29.2}	4588
			Famm flap for palatal fistula {F29.2}	4589
			Local flap for palatal fistula {F29.2}	80
			Other fistula repair technique {F29.2}	4590
			Repair of palatal fistula with interpositional graft {F29.2}	4591
			Tongue flap division {}	4592
			Tongue flap repair of palatal fistula {F30.3}	81
		Pharyngoplasty		
			Interpositional sandwiched buccinator flaps lengthening of repaired cleft palate {F30.5}	4586
			Pharyngeal flap {}	4056
			Pharyngoplasty {E21.8}	4054
			Pharyngoplasty - Sphincter/lateral pharyngeal flaps {E21.3}	4057
			Pharyngoplasty using posterior pharyngeal flap {E21.2}	4058
			Pharyngoplasty using posterior pharyngeal implant {E21.1}	4059
			Revision pharyngoplasty {E21.8}	60
			Unspec. repair of pharynx {E21.9}	4062
		Revision surgery - palate		
			Buccal myomucosal flap repair of cleft palate {F30.5}	4583
			Cleft palate re-repair {F29.2}	54
			Cleft palate re-repair Furlow {F29.2}	4582
			Cleft palate re-repair IVVP {F29.2}	4581
			FAMM flap to palate {F30.5}	4584
			(LINK) Tongue flap division {}	4592
			Tongue flap repair of cleft palate {F30.3}	4585
			Vomer flap repair of hard palate {F30.5}	4580
		Cleft Facial Aesthetic Surgery		
			(LINK) Alloplastic implant - augmentation chin {}	4039
			(LINK) Alloplastic implant - augmentation infraorbital {}	4041
			(LINK) Alloplastic implant(s) - malar {}	4603

Group Title	Type	Sub-type	Operation	Code
			(LINK) Alloplastic implant(s) - piriform fossa {}	4602
			(LINK) Injection of fat {}	4036
	Craniofacial			
			Nasal stents / airway insertion {}	4097
			Tracheostomy {}	4128
		Distraction		
			Bone Distraction Mandibular 2nd stage {}	4067
			Bone Distraction Midface 1st stage {}	4068
			Bone Distraction Midface 2nd stage {}	4069
			Bone Distraction Orbitozygomatic 1st stage {}	4070
			Bone Distraction Orbitozygomatic 2nd stage {}	4071
			Fronto-orbital advancement by distraction {}	4614
		Vault Surgery		
			Distraction - Posterior vault expansion by distraction - Craniotomy and insertion of distractors {}	4620
			Distraction - Removal of cranial vault distractors {}	4617
			Other - Cranioplasty etc {V01.9}	68
			Posterior release {}	4100
			Release of Cranial Synostosis {V01.3}	64
			Remodelling Anterior Cranial Vault {}	4616
			Remodelling Posterior Cranial Vault {}	4101
			Remodelling Total Cranial Vault {}	4618
			Strip craniectomy / suturectomy + / - Micro Barrel Staving {}	4122
			Strip with lateral plication or equivalent {}	4123
			Strip with pi- extension or equivalent {}	4124
			Vault expansion - Lateral panel or equivalent {}	4130
			Vault expansion - Posterior panel or equivalent {}	4615
			Vault reconstruction / cranioplasty acrylic / substitute inlay {}	4131
			Vault reconstruction / cranioplasty acrylic / substitute onlay {}	4132
			Vault reconstruction / cranioplasty split calvarial {}	4133
			Vault reconstruction / cranioplasty titanium plate {}	4134

Group Title	Type	Sub-type	Operation	Code
			Washout / Debridement of Cranial Vault Infection {}	4619
		Frontal Fronto-orbital Forehead		
			Anterior fossa repair by graft {}	4064
			Anterior fossa repair by local flap {}	4065
			Anterior obliteration of frontal sinuses {}	4066
			Cranialization of frontal sinuses {}	4076
			Forehead remodelling without orbital advancement {}	4088
			Frontal Bone Advancement / Set Back {V05.8}	65
			Frontal sinus drainage- transnasal /endoscopic {}	4089
			Frontofacial monobloc advancement {}	4090
			Fronto-Orbital Advancement + Remodelling (FOAR) / equivalent {}	4091
			Resection + reconstruction of frontal mucocoele {}	4113
		Orbit inc canthus and lid		
			Box - type Hypertelorism correction {}	4073
			Correction of Ocular Hypertelorism or equivalent {C08.8}	67
			Direct DCR or equivalent {}	4078
			Endoscopic DCR {}	4081
			Enophthalmos correction {}	4082
			Eyelid reconstruction {}	4083
			Lateral canthopexy {}	4094
			Medial canthopexy soft tissue suspension / plication {}	4095
			Medial canthopexy with transnasal wire or bone anchor {}	4096
			Orbital Advancement / Set Back {C08.8}	66
			Orbital reconstruction including bone grafting {}	4098
			Orbital reconstruction/expansion with orbitotomy {}	4099
			Ptosis correction - direct approach {}	4102
			Ptosis correction - Sling or equivalent {}	4103
			Socket reconstruction with inlay grafting {}	4116
			Tarsorrhaphy {}	4125

Group Title	Type	Sub-type	Operation	Code
			Vertical dsytopia correction by box translocation / equivalent {}	4135
		Harvest of Bone		
			Harvesting of bone grafts or cartilage: Rib {}	4052
			Harvesting of bone grafts: Calvarial split in situ (in vivo) {}	4050
			Harvesting of bone grafts: Calvarial with craniotomy + splitting (in vitro) {}	4051
			Harvesting of bone grafts: Iliac crest {}	4063
		Facial inc Transcranial Le Fort III and clefts		
			Bony facial cleft repair {}	4072
			Facial bipartition {}	4084
			Facial contour correction by local osteotomy {}	4085
			Facial contour correction by onlay bone graft {}	4086
			Facial contour correction by prosthetic onlay {}	4087
			Le Fort III Osteotomy + Facial Bipartition {}	4613
			Repair of major craniofacial cleft {}	4109
			Soft tissue facial cleft repair {}	4117
			Subcranial Le Fort III Osteotomy {}	4612
			Transcranial Lefort III {}	4129
		Encephalocoele and other tumours		
			Craniofacial / transcranial access for tumour / trauma {}	4077
			Excision atretic meningocele {}	4716
			Repair / resection of transcranial / intraosseus dermoid {}	4111
			Repair / resection of transnasal dermoid {}	4112
			Repair of basal encephalocoele {}	4107
			Repair of interfrontal encephalocoele {}	4108
			Repair of naso/frontal/ethmoidal/orbital encephalocoele {}	4110
			resection of intraosseous meningioma {}	4732
		CSF Bolts and Dural repair		
			C.S.F. drain insertion lumbo-peritoneal {}	4074

Group Title	Type	Sub-type	Operation	Code
			C.S.F. drain insertion VP {}	4075
			Dural reconstruction by graft / patch {}	4079
			Dural repair {}	4080
			Intracranial pressure monitoring {}	4092
		Scalp surgery and metalwork removal		
			Removal of plates - coronal approach {}	4104
			Removal of plates - direct approach {}	4105
			Removal of wires {}	4106
			Scalp reconstruction by local flap/s {}	4114
			Tissue Expander - second stage reconstruction {}	4126
			Tissue expansion - 1st stage insertion {}	4127
		Soft tissue and bone repair		
			Intracranial Osteotomy: unspecified {V10.1}	63
			Intracranial Reconstruction / Repair requiring microvascular free tissue transfer {}	4093
			Scar revision by direct excision + repair {}	4115
			Soft tissue (or other) repair / reconstruction requiring microvascular free tissue transfer {}	4121
			Soft tissue repair / reconstruction by local flap {}	4118
			Soft tissue repair / reconstruction requiring skin graft full thickness or split {}	4119
			Soft tissue repair / reconstruction with composite graft {}	4120
	Other Congenital			
		Developmental		
			Branchial cleft - operations {T94}	4145
			Branchial cleft - unspecified ops {T94.9}	4150
			Branchial Cyst / Sinus Excision {T94.1}	77
			Branchial fistula closure {T94.2}	4136
			Ear deformity e.g. microsomia {}	72

Group Title	Type	Sub-type	Operation	Code
			Excision of labial frenulum of mouth {F42.8a}	4142
			Sublingual dermoid {T94.1}	78
			Thyroglossal cyst / duct excision {B10.1}	4144
			Thyroglossal tissue operation {B10}	4146
			Unspecified Misc Congenital lesions {T96*}	76
			Unspecified Other - soft tissue {T96}	4149
		Lympho - Vascular		
			Arteriovenous abnormality - embolisation {L75.3}	4137
			Arteriovenous malformation - excision {L75.1}	74
			Arteriovenous malformation - Excision Congenital {L75.1}	4138
			Arteriovenous operations - unspecified {L75.8}	4147
			Cystic hygroma - excision {T96.1}	4140
			Haemangioma excision {L75.8a}	4141
			Lymphangioma / Hygroma Excision {T96.1}	79
			Other - Vascular lesion excision {L75.9}	75
			Unspec. other arteriovenous operations {L75.9}	4151
		Cutaneous		
			Congenital Pigmented Naevus Excision {S06.5a}	4139
			Congenital pigmented naevus excision (large) {S06.5b}	4143
			Other - Cutaneous excision {S06.9*}	71
		Cleft Orthognathic Surgery		
		Add details of surgery in orthognathic section		
		SAC Code - one code per op		
			Cleft Bimaxillary - lead surgeon {}	4593
			Cleft Bimaxillary - second surgeon {}	4594
			Cleft Single Mandible - lead surgeon {}	4595
			Cleft Single Mandible - second surgeon {}	4596
			Cleft Single Maxilla - lead surgeon {}	4597

Group Title	Type	Sub-type	Operation	Code
			Cleft Single Maxilla - second surgeon {}	4598
		Cleft alveolus surgery		
		Cleft.Craniofacial Clinics		
			Cleft clinic {}	4623
			Craniofacial Clinic {}	4555
		Non Cleft VPI		
Cutaneous				
	Flap			
			(LINK) Advancement flap {S27.3}	214
			(LINK) Bilobed Flap {}	4319
			Excision & Flap Closure {S30.2}	393
			(LINK) Glabellar Flap {}	4627
			(LINK) Island Flap {}	4322
			(LINK) Nasolabial flap {S27.1}	215
			(LINK) Pericranial Flap {}	4628
			(LINK) Rhomboid Flap {}	4530
			(LINK) Rotational flap {S27.0}	213
			(LINK) Transposition flap {}	4325
			(LINK) V Y Advancement {}	4539
		Laser Cryo PDT Curretage		
			Cryosurgery NOS {S10.2}	395
			Cryosurgery to lesion of skin {}	4630
			Curretage of lesion of skin {}	4629
			Laser Excision / Photocoagulation {S09.1}	394
			(LINK) Photodynamic Therapy {}	4542
	Simple			
			Curretage of Skin Lesion {}	4537
			Excision & Primary Closure {S06.5}	390
			Excision of skin cyst {}	4536
			Excisional Biopsy {S15.1}	396

Group Title	Type	Sub-type	Operation	Code
			Fine Needle Biopsy / Punch Biopsy {S13.1}	397
			Incisional Biopsy {}	4533
			Other - Cutaneous {}	398
			Primary Closure after biopsy or excision {}	4706
			Shave Biopsy of Skin {}	4526
	Skin graft			
			Excision & dermal integration framework (e.g. Integra) {}	4773
			Excision & Split Skin Graft {S35.3}	391
			Excision & Wolfe Graft {S30.2}	392
	Skin incision and misc			
			Drainage of lesion of skin NEC {S47.2}	4287
			Excision of lipoma {}	3907
			Extraoral drainage of lesion of skin of head / neck {S47.1}	4288
			Incision of lesion of skin NEC {S47.4}	4289
			Incision of lesion of skin of head / neck {S47.3}	4290
			Incision of skin NEC {S47.6}	4291
			Incision of skin of head / neck {S47.5}	4292
			Opening of skin {S47}	4293
			Oth.spec. opening of skin {S47.8}	4294
			Removal of extra-oral piercing {}	4730
			Unspec. opening of skin {S47.9}	4295
Oral Surgery				
	Acute Care			
		Abscess drainage		
			Exploration of Tissue Spaces & Drainage {S47.8}	33
			Incision & Drainage E/O(Abscess) {S47.1}	32
			Incision & Drainage I/O (Abscess) {F16.1}	31
			Other - Infection {S47.9}	34
		Suturing		
			(LINK) Suture of external nose {E09.3}	4419

Group Title	Type	Sub-type	Operation	Code
			(LINK) Suture of eyebrow {C10.4}	4420
			(LINK) Suture of gingiva {F20.5}	4165
			(LINK) Suture of palate {F30.7}	358
			(LINK) Suture of skin of head or neck {S41}	4421
			(LINK) Suture of tongue {F26.5}	4422
		Necrotising Fasciitis		
			Debridement of Necrotising Fasciitis {}	4703
			Wide excision of necrotising fasciitis {}	4704
	Apicectomy			
			Apicectomy {F12.1}	15
			Apicectomy + Cyst / Granuloma Enucleation {F12.8}	17
			Apicectomy + Retrograde Root Filling {F12.1}	16
			Other - Apicectomy {F12.9}	19
			Root canal therapy - orthograde {F12.2}	18
	Cysts and lesions			
			Aspiration of cyst contents for cytology/analysis {}	4768
			Biopsy and decompression of cyst - placement of drain e.g. grommet {}	4762
			Biopsy and marsupialisation of cyst {F18.2}	21
			Biopsy of cyst {}	4767
			Enucleation of Cyst {F18.1}	20
			Excision of Fibro Osseous lesion {V07.3b}	4152
			Excision of Giant cell lesion of bone {V07.3a}	4153
			Other - Cyst {F18.9}	22
	Extractions and Coronectomy			
		Clearance		
			Clearance - full {F10.1}	11
			Clearance - lower {F10.3}	13
			Clearance - upper {F10.2}	12
		Extractions		
			Extraction - aided by division of roots using drill {}	4761
			Extraction - multiple {F10.4}	14

Group Title	Type	Sub-type	Operation	Code
			Extraction - primary dentition tooth {}	4775
			Extraction - simple {F10.8}	5
			Extraction - surgical {F09.2}	6
			Root - simple elevation {}	4443
			Root - surgical removal {F09.5}	8
		Third Molar NOS		
			Third molar - simple extraction {F10.9}	1
			Third molar(s) - Other {F09.9}	4
			Third molar(s) Surgical Extraction {F09.1}	2
			Third molar(s) Transplantation {F08.2}	3
		Third Molar Detail		
			Third Molar(s) Surgical Extraction - Distal {}	4458
			Third Molar(s) Surgical Extraction - Horizontal {}	4459
			Third Molar(s) Surgical Extraction - Mesial {}	4460
			Third Molar(s) Surgical Extraction - Oblique/Atypical {}	4461
			Third Molar(s) Surgical Extraction - Vertical {}	4462
		Coronectomy		
			Coronectomy (Intentional Partial Odontectomy) {D7251}	4429
			Coronectomy (Intentional Partial Odontectomy) - Distal {}	4437
			Coronectomy (Intentional Partial Odontectomy) - Horizontal {}	4438
			Coronectomy (Intentional Partial Odontectomy) - Mesial {}	4439
			Coronectomy (Intentional Partial Odontectomy) - Oblique/Atypical {}	4440
			Coronectomy (Intentional Partial Odontectomy) - Unspec. Tooth {}	4441
			Coronectomy (Intentional Partial Odontectomy) - Vertical {}	4442
		Failed coronectomy		
			Removal of 8 after failed coronectomy {}	4568
		Other / OAF repair / Sedation		
			Alveoplasty Techniques {W08.8b}	4154
			IV Sedation {}	4157
			Other - specify in op note entry {}	50
			Closure of fistula betw.maxillary antrum & mouth	

Group Title	Type	Sub-type	Operation	Code
			** obsolete (Closure of fistula betw.maxillary antrum & mouth {E13.5})	4155
			Oro-Antral Fistula repair Buccal fat pad flap {}	4434
			Oro-Antral Fistula repair Buccal flap {E13.5}	4430
			Oro-Antral Fistula repair Other {E13.9}	4431
			Oro-Antral Fistula repair Palatal flap {E13.9}	4432
		Bone Removal Osteomyelitis Sequestrectomy		
			Bone debridement for ORN {}	4737
			Bone sequestrectomy {}	49
			Excision of boney exostosis {W08.1}	4156
			Other - excision of bone {W08}	4158
			Surgery for Osteomyelitis of mandible {}	4534
			Surgery for Osteomyelitis of maxilla {}	4535
		Platelet Rich Plasma		
			L-PRF (leucocyte and platelet rich fibrin) {}	4735
			PRGF (platelets rich in growth factors) {}	4736
	Periodontology			
			Augmentation of alveolus using membrane {F11.3a}	4159
			Biopsy of lesion of gingiva {F20.3}	4160
			Bone Regeneration Techniques {F11.8}	46
			Excision of gingiva {F20.1}	4161
			Excision of lesion of gingiva {F20.2}	4162
			Gingivectomy {F20.1}	42
			Gingivoplasty {F20.4}	44
			Mucosal Graft {S38.1}	45
			Operations on gingiva {F20}	4163
			Oth.spec. graft of mucosa {S38.8}	4164
			Periodontal Crown Lengthening {}	4632
			Repositioned Flap {F20.4}	43
			Suture of gingiva {F20.5}	4165

Group Title	Type	Sub-type	Operation	Code
			Unspec. graft of mucosa {S38.9}	4167
			Unspec. ops on gingiva {F20.9}	4166
		Re-implant Transplant tooth		
			Allotransplantation of tooth {F08.1}	4168
			Autotransplantation of tooth {F08.2}	4169
			Implantation of tooth {F08}	4170
			Oth.spec. implantation of tooth {F08.8}	4171
			Replantation of tooth {F08.3}	4172
			Repositioning of tooth {F08.4}	4173
			Transplantation of tooth {F08.2}	9
			Unspec. implantation of tooth {F08.9}	4174
		Soft tissue - intra-oral		
			Biopsy intra-oral - excisional {}	4175
			Biopsy intra-oral - incisional {}	4176
			Frenectomy - labial {F26.4}	47
			Frenectomy - tongue {F26.2}	4177
			Removal of intra-oral piercing {}	4729
			Tongue Tie Division - Baby {F263}	4543
			Tongue Tie Division NOS {F263}	4544
		Implant / Preprosthetic		
		For Implant or Preprosthetic go to that group {}		4436
		Orthodontic		
		Exposure inc canine		
			Exposure (Closed) buccal impacted canine + bonding of bracket {}	4742
			Exposure (Closed) impacted tooth (other) + bonding of bracket {}	4444
			Exposure (Closed) palatal impacted canine + bonding of bracket {}	4445
			Exposure (Open) buccal canine {}	4567
			Exposure (Open) impacted tooth (other) + bonding of bracket {}	4446
			Exposure (Open) palatal impacted canine {}	4448

Group Title	Type	Sub-type	Operation	Code
			Exposure (Open) palatal impacted canine + bonding of bracket {}	4447
			Exposure of tooth {F14.5}	10
			Extraction - surgical removal of Canine {F09.5}	7
			Extraction - Â supernumerary tooth/teeth {}	4454
		Frenectomy		
			(LINK) Frenectomy - labial {F26.4}	47
			(LINK) Frenectomy - tongue {F26.2}	4177
		Impacted Canine Premolar Supernum		
			Impacted mandibular canine {}	4449
			Impacted mandibular premolar {}	4455
			Impacted maxillary canine {}	4450
			Impacted maxillary premolar {}	4452
			Mesiodens {}	4453
			Odontome {}	4451
Implant / Preprosthetic				
	Hard tissue			
		Augmentation		
			Augmentation - bone harvest {}	195
			Augmentation Allograft Bone Graft {}	4774
			Augmentation Alloplastic Material {F11.3}	197
			Augmentation Autogenous Bone Graft {F11.2}	196
			Mandible Ridge Augmentation {F11.3}	198
		Mandible		
			Alveoplasty Techniques {F11.1}	193
			Excision Exostosis {W08.1}	191
			Interpositional bone graft {}	201
			Mandible preprosthetic other {F11.9}	200
			Mandible Reduction of Bone Ridge {W08.8}	192
			Osteotomy {F11.8}	199

Group Title	Type	Sub-type	Operation	Code
			Other - hard tissue excision {F11.9}	194
			Visor Osteotomy {F11.8a}	4183
		Maxilla		
			Preprosthetic maxilla Osteotomy other {}	204
			Reduction of Bone Ridge {W08.8a}	4181
			Reduction of Maxillary Tuberosity {F42.8b}	4182
			Ridge augmentation {}	203
			Sinus lift {}	202
		Distraction		
			Distraction - Dentoalveolar {}	4178
	Soft tissue			
		Frenectomy		
			Frenectomy - preprosthetic {F26.2}	180
		Sulco-vestibuloplasty		
			Sulcoplasty / Vestibuloplasty Mucosal Graft {F11.4}	188
			Sulcoplasty / Vestibuloplasty Primary Closure {F11.4}	187
			Sulcoplasty / Vestibuloplasty Skin Graft {F11.4}	189
			Sulcoplasty Other {W08.9}	190
		Excision		
			Excision Hyperplastic tissue {F42.3}	181
			Maxillary Tuberosity Reduction {W08.1}	182
			Other - soft tissue excision {F42.9}	184
			Tongue Reduction / Partial Glossectomy {F22.2}	183
		Repositioning		
			Mental nerve repositioning {A67.8}	185
			Mylohyoid muscle repositioning {}	186
	Implant			
			Implant Other {F11.9}	209
			Implant revision surgery {}	4743
		Extra-oral		
			BAHA (Bone Anchored Hearing Aid) Stage 1 {}	4179

Group Title	Type	Sub-type	Operation	Code
			BAHA (Bone Anchored Hearing Aid) Stage 2 {}	4180
			Implant Extraoral Osseous Integrated 1st stage {F11.8}	206
			Implant Extraoral Osseous Integrated 2nd stage {F11.8}	208
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			Mandibular Rim resection {V14.8}	105
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			Segmental Mandibulectomy {V14.8}	106
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			Total Mandibulectomy {V14.2}	109
		Maxilla Bone Resection		
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			Hemimaxillectomy {V07.2 Z64.4}	113
			Maxillary Decortication / Alveolectomy {V07.8}	112
			Orbital Exenteration {C01.1}	116
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			Partial Maxillectomy / Fenestration {V07.2}	114
			Total Maxillectomy {V07.1}	115
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Group Title	Type	Sub-type	Operation	Code
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			Electrochemotherapy {}	4744
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			Excision & Primary Closure - Cancer {S06.5}	85
			Excision & Split Skin Graft - Cancer {S35.3}	86
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			Local Excision Skin Lesion repaired with flap (choose flap type from Reconstructive Category) {}	93
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			Excision of frontal osteoma {}	4740
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			Excision of Odontogenic Tumour {F18.8a}	4202
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			Excision of tumour (unspec.) {F38.1}	97
			Floor of mouth {F38.1}	102
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			Total Glossectomy {F22.1}	101
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			Diagnostic endoscopic examination nasopharynx NEC {E25.3}	4184

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		Larynx		
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			Laryngectomy (Total) {E29.1}	142
			Laryngectomy NEC {E29.6}	4187
			Laryngofissure + chordectomy of vocal chord {E29.5}	4188
			Larynx Other {}	4189
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			Microlaryngoscopy +/- biopsy {}	4191
			Oth.spec. excision of larynx {E29.8}	4192
			Partial laryngectomy - horizontal {}	4193
			Partial laryngectomy - vertical {}	4194
			Partial laryngectomy NEC {E29.4}	4195
			Unspec. excision of larynx {E29.9}	4196
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			Pharyngectomy + free jejunum {}	4206
			Pharyngectomy + stomach pull-up {}	4207
			Pharyngolaryngectomy {}	4208
		Neck Dissection and Surgery		
			(LINK) Excision of lipoma {}	3907
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			Repair of chyle leak with local flap {}	4760
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Group Title	Type	Sub-type	Operation	Code
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			Neck dissection - Radical {T85.1}	127
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			Neck dissection - Supraomohyoid {T85.8}	124
		SNAB and Node sampling		
			Cervical Lymph node sampling {T87.2}	129
			Sampling of cervical lymph nodes {T86.1}	4197
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			Tumour debulking {F38.1}	95
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			Lip removal (other) {F01.9}	121
			Lip Shave {F06.3}	119
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			Other Part Excision of Ear {}	4541
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			Operations on external nose {E09}	4200
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Group Title	Type	Sub-type	Operation	Code
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Orthognathic				
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			Distraction Osteogenesis: Internal Device {V13.8b}	4210
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			External distractor-mandible {}	3902
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	Mandible - single jaw or bimax (once) then detail			
			(LINK) Bimax {}	4556
			(LINK) Single mandible {}	4557
		Ramus		
			C Osteotomy {V16.8d}	4219
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Group Title	Type	Sub-type	Operation	Code
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			Angle Ostectomy {V16.8f}	4216
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		Anterior symphysis		
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			Symphyseal Ostectomy {V16.8}	162
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			Lower Labial Segmental {V16.3}	159
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			Posterior Segmental Mandibular Osteotomy {V16.3d}	4222
			Segmental Mandibular {V16}	158
			Vertical Alveolar Osteotomy / Ostectomy {V16.3b}	4224
		Other mandible		
			Total Subapical Mandibular {V16.3}	165
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		Mandibular Genioplasty		
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			Genioplasty Advancement {V16.9}	153
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Group Title	Type	Sub-type	Operation	Code
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			Genioplasty Vertical Reduction {V19.2}	150
			Rotation genioplasty for asymmetry {V16.8}	4215
		Maxilla - single jaw or bimax (once) then detail		
			(LINK) Bimax {}	4556
			(LINK) Single maxilla {}	4560
		Le Fort I		
			Le Fort 1 - set back (retrusion)Â {V10.4 V11.2}	4225
			Le Fort 1 Advancement {V10.4 V11.2}	167
			Le Fort 1 Extrusion {V10.4 V11.2}	169
			Le Fort 1 Impaction {V10.4 V11.2}	168
			Le Fort 1 Other {V10.3 V11.2}	171
			Le Fort 1 Segmental {V10.5 V11.5}	170
			Turbinectomy {}	4226
		Le Fort 2 3 and other		
			Le Fort 2 + combinations {V10.2 V11.2}	172
			Le Fort 3 + combinations {V10.9 V11.2}	173
			Other - maxillary osteotomy {V10.9}	174
		Obsolete Codes		
		Orbital / zygoma		
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			Bimax {}	4556
			Single mandible {}	4557
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			Surgery for RME {}	4527
		Orthognathic Clinics		

Group Title	Type	Sub-type	Operation	Code
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			Orthognathic Planning Clinic {}	4554
Other inc Antrum Thyroid Pharynx Nerve Misc				
	Biopsies			
			(LINK) Biopsy intra-oral - excisional {}	4175
			(LINK) Biopsy intra-oral - incisional {}	4176
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	Nerve Surgery			
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			Cryotherapy to lesion of peripheral nerve {A61.2}	4232
			Destruction of lesion of peripheral nerve NEC {A61.4}	4233
			Destruction of peripheral nerve {A60}	4234
			Enucleation of Peripheral Nerve {A60.1}	4235
			Excision of lesion of peripheral nerve {A61.1}	4236
			Extirpation of lesion of peripheral nerve {A61}	4237
			Injection of destructive substance into peri.nerve {A60.5}	4238
			Microsurgical graft to peripheral nerve NEC {A62.3}	4239
			Microsurgical repair of peripheral nerve {A62}	4240
			Oth.spec. destruction of peripheral nerve {A60.8}	4241
			Oth.spec. extirpation of lesion of peripheral nerve {A61.8}	4242
			Oth.spec. microsurgical repair of peripheral nerve {A62.8}	4243
			Oth.spec. repair of peripheral nerve {A64.8}	4244
			Other - repair of peripheral nerve {A64}	4245
			Primary approximation of peripheral nerve {A64.1}	4246
			Primary microsurgical graft to peripheral nerve {A62.1}	4247
			Primary microsurgical repair peripheral nerve nec {A62.4}	4248
			Primary repair of peripheral nerve NEC {A64.2}	4249
			Radiofrequen.control.thermal dest.peripheral nerve {A60.4}	4250
			Radiotherapy to lesion of peripheral nerve {A61.3}	4251

Group Title	Type	Sub-type	Operation	Code
			Secondary microsurgical graft to peripheral nerve {A62.2}	4252
			Secondary microsurgical repair periph.nerve NEC {A62.5}	4253
			Secondary repair of peripheral nerve NEC {A64.4}	4254
			Secondary repair periph.nerve + mobilis.periph.nerve {A64.3}	4255
			Transection of peripheral nerve {A60.3}	4256
			Unspec. destruction of peripheral nerve {A60.9}	4257
			Unspec. extirpat. of lesion of peripheral nerve {A61.9}	4258
			Unspec. microsurgical repair of peripheral nerve {A62.9}	4259
			Unspec. other repair of peripheral nerve {A64.9}	4260
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			Cricopharyngeal myotomy {}	4261
			Pharyngeal pouch surgery - endoscopic {}	4262
			Pharyngeal pouch surgery - external {}	4263
			Tonsillectomy {}	4696
	Scopes and PEGs			
			(LINK) Diagnostic endoscopic examination nasopharynx NEC {E25.3}	4184
			(LINK) Diagnostic endoscopic examination of pharynx {E25}	4185
			Direct laryngoscopy {}	4264
			Oesophagoscopy fibreoptic {}	4265
			Oesophagoscopy rigid {}	4266
			Oesophagoscopy Rigid + FB {}	4229
			Panendoscopy {}	4230
			PEG placement {G44.5}	4267
			Temporary gastrostomy {G34.2}	4268
	Sinus / Caldwell Luc			
			Antrostomy {E13.1}	36
			Biopsy of lesion of maxillary antrum {E13.4}	4269
			Caldwell Luc {E12.2}	35
			Drainage of maxillary antrum NEC {E13.1}	4270
			Drainage of maxillary antrum using sublabial appr. {E12.2}	4271
			Excision of lesion of maxillary antrum {E13.2}	4272

Group Title	Type	Sub-type	Operation	Code
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			External frontoethmoidectomy {}	4274
			Inferior meatal antrostomy {}	4275
			Intranasal antrostomy {E13.3}	4276
			Irrigation of maxillary antrum using sublab.appr. {E12.3}	4277
			Ligation of maxillary artery using sublabial appr. {E12.1}	4278
			Oro-Antral Fistula repair Buccal fat pad flap {}	4433
			Oro-Antral Fistula repair Buccal flap {E13.5}	39
			Oro-Antral Fistula repair Other {E13.9}	41
			Oro-Antral Fistula repair Palatal flap {E13.9}	40
			Oth.spec. ops on maxillary antrum {E13.8}	4280
			Oth.spec. ops on maxillary antrum w/ sublab.appr. {E12.8}	4279
			Other - ops on maxillary antrum {E13}	4281
			Puncture of maxillary antrum {E13.6}	4282
			Removal of Tooth From Antrum {E13.8}	37
			Transantral vidian nerve neurectomy vidian sublab.appr. {E12.4}	4283
			Trefine frontal sinus {}	4284
			Unspec. ops maxillary antrum using sublabial appr. {E12.9}	4285
			Unspec. other ops on maxillary antrum {E13.9}	4286
			Washout / irrigation and drainage {E13.1}	38
	Temporal artery			
			Temporal artery biopsy {}	48
	Thyroid			
			Isthmusectomy {}	4296
			Parathyroid resection - multiple {}	4297
			Parathyroid resection - single {}	4298
			Thyroglossal cyst excision {B10.1}	4299
			Thyroidectomy {B08.1}	4300
			Thyroidectomy - Partial {}	4302
			Thyroidectomy - Sub-total {B08.3}	4301
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Group Title	Type	Sub-type	Operation	Code
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			Trigeminal neuralgia - Cryosurgery {A61.2}	24
			Trigeminal Neuralgia - Nerve Section {A60.3}	25
			Trigeminal Neuralgia - Other {A60.9}	26
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			Blood Cultures {}	4607
			General Clinic {}	4605
			Insertion of PICC Line - Peripherally Inserted Central Catheter {L91.2}	4772
			IV cannula placement {}	4765
			Urinary catheter placement {}	4766
			Venipuncture {S9529}	4604
			Ward round {}	4608
	Skull Base			
			Endoscopic resection of pituitary adenoma {}	4708
			Endoscopic trans nasal skull base access {}	4709
			Styloid process removal - trans-cervical {}	4764
			Styloid process removal - trans-oral {}	4763
	Alternative Therapies			
			Acupuncture for Facial Pain {}	4715
			Acupuncture for Gag Reflex {}	4714
Reconstructive				
	Ears and Noses			
		Ear		
			Ear Reconstruction First Stage {Z20.1}	4305
			Ear Reconstruction NOS {Z20.1}	266
			Ear Reconstruction Second Stage {Z20.1}	4306
			Harvest of composite of skin and cartilage from ear {Y67.1}	4341
		Nose		
			Reconstruction of nose NEC {E02.2}	4338

Group Title	Type	Sub-type	Operation	Code
			Total reconstruction of nose {E02.1}	4339
	Free flap			
		Internal mammary artery perforator flap {}		4739
		ALT		
			ALT - Anterior Lateral Thigh {Y24.1 Y59.8 F39.1}	4307
			ALT - Anterior Lateral Thigh perforator {Y24.1 Y59.8 F39.1}	4308
		Anastomosis & Vein Graft		
			Anastomosis - artery {}	242
			Anastomosis - nerve {}	244
			Anastomosis - vein {}	243
			Exploration/dissection of the Superficial Temporal Vessels for anastomosis {}	4635
			Interposition vein graft in head & neck {L97.5c}	4314
			Vein Graft Harvest {}	4546
		DCIA SCIP		
			DCIA (bone + perforator flap to skin) {Y66.3 Y69.9 Z40.7}	4310
			DCIA (bone muscle skin) flap {Y66.3 Y69.9 Z40.7}	4311
			DCIA (bone muscle) flap {Y66.3 Y69.9 Z40.7}	231
			DCIA (bone only) flap {Y66.3 Y69.9 Z40.7}	230
			superficial circumflex iliac artery perforator (SCIP) flap {}	4547
		Fibula and leg flaps		
			Fibula (bone only) flap {Y66.6 Y69.9 Z40.7}	232
			Fibula (composite) flap {Y66.6 Y69.9 Z40.7}	233
			Gracilis Free Flap {}	4528
			Medial sural artery perforator flap (MSAP) {}	4545
			Peroneal artery perforator (PAP) {}	4633
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Group Title	Type	Sub-type	Operation	Code
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			Latissimus Dorsi (composite) flap {Y61.3 Z40.7 Z39.9}	236
			Latissimus Dorsi (muscle only) flap {Y63.1 Z40.7 Z39.9}	235
			Latissimus Dorsi (soft tissue) flap {Y61.3 Z40.7 Z39.9}	234
			Scapula fasciocutaneous flap {Y61.9 Z68.5 Z40.7}	237
			Scapula flap + Scapula {Y61.9 Z68.5 Z40.7}	238
			TAP (Thoracodorsal artery perforator flap) {Y61.3 Z40.7 Z39.9}	4317
		Radial Lateral Arm		
			Lateral Arm Flap {}	4315
			Radial (composite) flap {Y59.2 Y66.4}	229
			Radial (soft tissue) flap {Y59.2}	228
		Abdominal Flaps		
			DIEP (Deep inf epigeastric perf.) {Y61.5 Z40.7 Z39.9}	4312
			Jejunal flap {Y69.8 Z27.5 Z40.7}	240
			Rectus Abdominus flap - muscle only {Y61.5 Z40.7 Z39.9}	4316
			Rectus Abdominus flap - muscle skin {Y61.5 Z40.7 Z39.9}	239
		Closure Insetting Other		
			Closure of donor site NOS {}	4309
			Insetting of free flap NOS {}	4313
			Other flap - free {Y59.8}	241
			Unspec. harvest of flap of skin and muscle of trunk {Y61.9}	4318
		Local - Skin Lip Face Flaps		
		Lip		
			Abbe-Estlander flap {F04.2}	216
			Fan flap {}	4320
			Karapandzic flap {}	4323
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			Other - lip flap {F04.9}	217
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			Antia - Buch flap for ear reconstruction {}	4769

Group Title	Type	Sub-type	Operation	Code
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			Delayed flap {S27.9}	218
			Forehead flap {}	4321
			Glabellar Flap {}	4627
			Pericranial Flap {}	4628
			Temporalis flap {}	4324
			Tongue flap {S28.1}	219
		Skin flaps		
			Advancement flap {S27.3}	214
			Bilobed Flap {}	4319
			Island Flap {}	4322
			Melolabial - superiorly based local flap {}	4770
			Nasolabial flap {S27.1}	215
			O to Z plasty {}	4771
			Rhomboid Flap {}	4530
			Rotational flap {S27.0}	213
			Transposition flap {}	4325
			V Y Advancement {}	4539
		Nerve Repair		
		Repair of nerve {}		355
		Non-vasc bone cartilage		
		Iliac		
			Iliac crest block bone graft {Y66.3}	248
			Iliac crest cancellous only bone graft {Y66.3}	247
			Iliac crest trephine {}	249
		Rib		
			Rib and cartilage harvest {}	4334
			Rib harvest {}	4335
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Group Title	Type	Sub-type	Operation	Code
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			Nasal Septum {}	4304
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			Alloplastic Implant {W32.2}	253
			Compound Auto / Allograft bone graft {W32.8}	254
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		Calvarium Mandible Tibia		
			Calvarial bone graft {Y66.1}	251
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			Tibial bone harvest {}	4561
		Bone graft use descriptors		
			Cancellous chip autograft of bone {W31.4}	4326
			Cancellous strip autograft of bone {W31.3}	4327
			Inlay autograft to cortex of bone {W31.1}	4328
			Onlay autograft to cortex of bone {W31.2}	4329
		Other bone graft codes		
			Oth.spec. autograft of bone {W31.8}	4331
			Oth.spec. harvest of bone {Y66.8}	4330
			Other - autograft of bone {W31}	4332
			Other - bone graft {}	252
			Other - graft of bone {W32}	4333
			Unspec. other autograft of bone {W31.9}	4336
		Flap debulk inset salvage		
			De-bulking of flap {}	4340
			Flap divide / Inset flap {}	220
			Flap salvage {}	246
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Group Title	Type	Sub-type	Operation	Code
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			Sural nerve harvest {Y541}	268
			Vein graft harvest {}	245
	Pedicled			
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			Latissimus Dorsi Flap {Y61.3}	221
			Other flap - pedicled {}	227
			Pectoralis Major + rib {Y61.9}	223
			Pectoralis Major Flap {Y61.2}	222
			Submental island flap (pedicled) {}	4776
			Temporalis (+parietal) {Y61.9}	225
			Tongue flap - pedicled {S28.1}	226
	Reanimation			
			Fixation Of Temporary Obturator {W28.1}	265
			Microsurgical Nerve Repair / Graft {A62.1}	261
			Reanimation Cross nerve graft {A24.3}	259
			Reanimation Free Nerve Adhesions {A73.2}	262
			Reanimation Gold weight / Spring {C22.8}	257
			Reanimation Hypoglossal / Facial nerve {W32.8}	260
			Reanimation Microvascular flap (select from free flap) {A24.3}	264
			Reanimation Other {}	263
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	Skin graft			
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			Full thickness graft to head / neck {S36.1}	212
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Salivary				
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Group Title	Type	Sub-type	Operation	Code
			Dilation of submandibular duct {F55.2}	4344
			Instrumentation of salivary duct {F55.8}	4345
			Instrumentation of salivary duct {F55.8}	27
			Oth.spec. dilation of salivary duct {F55.8}	4346
			Removal of Sialolithiasis {F51.8}	28
			Repositioning of parotid duct {F50.1}	140
			Repositioning of submandibular duct {F50.2}	141
			Unspec. dilation of salivary duct {F55.9}	4347
	Other			
			Biopsy of lesion of salivary gland {F48.1}	4348
			Closure of fistula of salivary gland {F48.2}	4349
			Excision of plunging ranula {}	4756
			Oth.spec. excision of salivary gland {F44.8}	4350
			Repair of salivary gland NEC {F48.3}	4351
			Sialography {F48.4}	4352
			Ultrasonography salivary glands {}	4353
			Unspec. other ops on salivary gland {F48.9}	4354
	Parotid			
			Deep lobe tumour {}	4525
			** obsolete (Endoscopically assisted resection of parotid mass {})	4707
			Extended Radical Parotidectomy with temporal bone / petrousectomy {}	4355
			Extracapsular Dissection {}	4356
			Lateral protective suture of eyelid {C20.3}	4357
			Lateral protective suture of eyelid {C20.3}	4205
			Nerve reconstruction in Parotidectomy {A62}	135
			Parotid biopsy (open) {F48.1a}	132
			Superficial Parotidectomy {F44.1}	131
			Superficial Parotidectomy (partial) {}	4710
			Total Conservative Parotidectomy {F44.1}	133
			Total Radical Parotidectomy {F44.0}	134
	Salivary (Minor)			

Group Title	Type	Sub-type	Operation	Code
			Biopsy Labial Gland {F48.1}	29
			Excision of minor salivary tumour {F45.4}	139
			Excision of Mucocoele {F44.8a}	4358
			Other - Salivary {F48.9}	30
	Sialolith			
			Endoscopic exploration of duct {}	4359
			Endoscopic removal sialolithiasis {}	4360
			Open extraction of calculus from parotid duct {F51.1}	4361
			Open extraction of calculus from salivary duct {F51}	4362
			Open extraction of calculus from submandibular duct {F51.2}	4363
			Sialolithotripsy {}	4364
			Unspec. open extraction calcul.from salivary duct {F51.9}	4365
	Sublingual			
			Excision of Sublingual Gland {F44.5}	137
			Other - Sublingual {F44.9}	138
	Submandibular			
			Open submandibular salivary gland biopsy {F48.1b}	4366
			Submandibular Gland Excision {F44.4}	136
TMJ				
	Ankylosis			
			Excision of ankylosis {V21.9}	4367
			Intraarticular arthroplasty of temporomandibular joint {V20.3}	4368
	Arthroscopy			
			Arthroscopic surgery {W88.9 Z65.2 W88.1}	278
			Arthroscopy Lower Space Arthrocentesis {W88.1 Z65.2}	277
			Arthroscopy Lower Space Diagnostic {W88.1 Z65.2}	275
			Arthroscopy Upper Space Arthrocentesis {W88.1 Z65.2}	276
			Arthroscopy Upper Space Diagnostic {W88.1 Z65.2}	274
	Condyle Osteotomy			
			Condyle osteotomy other {V21.9}	289

Group Title	Type	Sub-type	Operation	Code
			Condylotomy {V16.8}	287
			Gap Arthroplasty {V20.3}	288
		Condyle Removal		
			Condyle Other {}	286
			Condylectomy {V14.8}	285
			High Condylar Shave {V20.3}	284
		Coronoid		
			Coronoidectomy Extraoral Approach {V16.8}	294
			Coronoidectomy Intraoral Approach {V16.8}	293
			Other - Coronoid Surgery {V16.9}	295
		Dislocation		
			Dislocation Capsular Plication {W77.1}	297
			Dislocation Manipulation / Reduction {V21.2}	296
			Dislocation Myotomy {T83.2}	302
			Eminectomy {V21.8}	299
			Eminence Augmentation {W77.4}	301
			Extra-articular Sclerosant Injection {V21.8}	298
			Reduction of dislocation of temporomandibular joint {V21.2}	4369
			Zygomatic Arch Down fracture {W77.5}	300
		Meniscus		
			Meniscus - Other {V21.9}	283
			Meniscus Alloplastic Replacement {V21.8}	282
			Meniscus Re-attachment {V21.8}	280
			Meniscus Repair {V21.8}	279
			Meniscectomy {V21.1}	281
		Other		
			Open excision of intraarticular osteophyte {W71.2}	4370
		Radiology		
			TMJ Injection (Arthrogram) {}	303
		Reconstuction		
		Alloplastic		

Group Title	Type	Sub-type	Operation	Code
			TMJ Prosthesis condyle head {V20.2}	291
			TMJ Prosthesis glenoid fossa {V20.2}	290
			TMJ Prosthesis Total {V20.1}	292
		Rib or other		
			Reconstruction of temporomandibular with rib or similar {V20}	4372
			Unspec. reconstruction of temporomandibular joint {V20.9}	4373
		Complications		
			Removal of TMJ implant (partial or total) {}	4371
			Revision of TMJ implant (partial or total) {}	4621
			Revision of TMJ reconstruction (partial or total) {}	4622
	Simple treatments			
			Arthrocentesis {81.91}	4566
			Cryoneurectomy {A73.8}	272
			Injection of Botulinum Toxin {}	4374
			Intra-articular injection chemical neurolysis {W90.3}	270
			Intra-articular injection of Anaesthetic {W90.3}	269
			Intra-articular injection of sodium hyaluronate {}	4741
			Intra-articular injection Steroid injection {}	304
			Neurectomy {A59.1}	271
			Other - puncture of joint {W90.9}	273
			Splint - Bite Disrupting {}	4694
			Splint - Hard {}	4693
			Splint - Michigan / Tanner {}	4691
			Splint - Soft {}	4692
Trauma				
	Dentoalveolar and Dental			
			Reduction of fracture of alveolus of mandible {V15.1}	4375
			Reduction of fracture of alveolus of maxilla {V08.1}	4376
			Splinting of Teeth {}	4463
	Haemorrhage			

Group Title	Type	Sub-type	Operation	Code
			Anterior + Posterior nasal pack {}	310
			Anterior nasal pack {}	309
			Exploration of wound + control of haemorrhage {}	4377
			Ligation of external carotid artery(s) {}	4378
	IMF			
			Acid etch archbars {}	4481
			Bone anchored archbars {}	4482
			Custom arch bars {}	4379
			Erich arch bars {}	4380
			Eyelets {}	4381
			Intermaxillary screws IMF {}	357
			Leonard Buttons {}	4382
			Rapid IMF {}	4383
			Ulster Hospital Hooks {}	4384
			zIMF device removal {}	4631
	External Fixation & Mandible	Maxilla &		
			Le Fort 1 External Fixation +/- IMF {V11.3 V11.1}	339
			Le Fort 2 External Fixation +/- IMF {V11.3}	341
			Le Fort 3 External Fixation +/- IMF {V11.3}	343
			Mandible Angle AND Condyle External Fixation {V15.9}	4478
			Mandible Angle AND parasymph External Fixation {V15.9}	4477
			Mandible Angle External fixation {V15.9}	313
			Mandible Body External fixation {V15.8}	316
			Mandible Comminuted External Fixation {V15.9}	4386
			Mandible Complex Fractures External Fixation {V15.9}	4480
			Mandible Symph AND Body External Fixation {V15.9}	4479
			Mandible Symph AND Condyle External Fixation {V15.9}	4476
			Mandible Symphyseal External Fixation {V15.9}	322
	Maxilla Le Fort / Craniofacial			
		Le Fort		

Group Title	Type	Sub-type	Operation	Code
			Le Fort 1 Internal Fixation +/- IMF {V11.2}	340
			Le Fort 2 Internal Fixation +/- IMF {V11.2}	342
			Le Fort 3 Internal Fixation +/- IMF {V11.2}	344
		Frontal / Cranial		
			Anterior craniotomy repair {V03.1}	347
			Coronal flap {}	3006
			Cranialisation of frontal sinus {E14.8b}	4393
			Craniotomy complicating fracture repair {V05.4}	346
			Exploratory open craniotomy {V03.1}	4394
			Frontal open approach to contents of cranium {Y46.2}	4395
			Internal fixation frontal bone of face {V11.8b}	4396
			Obliteration of frontal sinus {E14.8a}	4397
			Open reduction frontal bone fracture {V09.8a}	4398
			Supraorbital Ridge fracture repair {V05.4}	345
	Nasal	naso-max		
		naso-orb		
		naso-ethmoid		
		Nasal		
			Nasal fracture closed Manipulation {V09.2}	333
			Nasal fracture Open Reduction + Fixation {V09.2}	334
		Naso-orbital		
			Naso-orbital Closed Reduction + Fixation {V09.1}	335
			Naso-orbital Open Reduction + Fixation {V09.1}	336
		Naso-ethmoid		
			Naso-ethmoid Closed Reduction + Fixation {V09.1}	337
			Naso-ethmoid Open Reduction + Fixation {V09.1}	338
		Naso-maxillary complex		
			Naso-maxillary complex - closed reduction {}	4562
			Naso-maxillary complex - open reduction {}	4563
	Orbit			
		Orbital Repair		

Group Title	Type	Sub-type	Operation	Code
			Orbital repair - Patient Specific Implant {}	4746
			Orbital repair Alloplast {V09.8}	331
			Orbital repair autogenous - see reconstructive for graft harvest {V09.8}	332
			Unspec. plastic repair of orbit {C05.9}	4407
		Correction of dystopia		
			Correction of enophthalmus {}	4399
			Correction of hypoglobus {}	4400
		Decompression/drainage		
			Decompression of orbit {C06.3}	4401
			Drainage of orbit {C06.2}	4402
			Emergency lateral canthotomy {}	4564
			Exploration of orbit {C06.5}	4403
			Incision of orbit {C06}	4404
			Lateral orbitotomy {}	3908
			Retrobulbar haemorrhage decompression {}	350
		Orbital enucleation/exenteration		
			Eye Enucleation {C01.2}	348
			Eye Exenteration {C01.1}	349
		Other inc canthopexy		
			Other - ops on orbit {C08}	4405
			Transposition of ligament of orbit / canthopexy {C08.1}	4406
		Other inc foreign bodies		
			Bone Graft {}	356
			Oth.spec. reduction of fracture of other bone {V09.8}	4408
			Reduction of fracture of other bone {V09}	4409
			Removal of Foreign Body {S44.8}	307
			(LINK) Removal of Foreign Body (inc tooth) from lip {}	4747
			Removal of Foreign Body Other {}	308

Group Title	Type	Sub-type	Operation	Code
			Unspec. reduction of fracture of other bone of face {V09.9}	4410
		Trauma Complications		
		Removal of plate/wires		
			Removal of buttress plate {}	4515
			Removal of FZ Plate {}	4514
			Removal of mandible plate - extra-oral {}	4513
			Removal of mandible plate - intra-oral {}	4512
			Removal of orbital implant - Medpore {}	4516
			Removal of orbital implant - NOS {}	4518
			Removal of orbital implant - Titanium {}	4517
			Removal of osteosynthesis plate {}	351
			Removal of osteosynthesis wire {}	353
			Removal of pack etc {}	354
			Removal Silastic {}	352
			(LINK) zIMF device removal {}	4631
		Non-union Malunion		
			Debridement removal of failed plate(s) - Ex-fix {}	4521
			Debridement removal of failed plate(s) - IMF {}	4519
			Debridement removal of failed plate(s) - New Plate(s) EO {}	4522
			Debridement removal of failed plate(s) - New Plate(s) IO {}	4520
		Malpositioned plates		
			Replacement/removal malpositioned plate(s) EO {}	4611
			Replacement/removal malpositioned plate(s) IO {}	4610
		Skin / soft tissue		
			Drainage of haematoma of external ear {D04.1}	4412
			Removal of Foreign Body (inc tooth) from lip {}	4747
			Soft tissue flap repair {S27.5}	306
			Facial bite wounds	
			Lackmann's I Superficial injury without muscle involvement {}	4722
			Lackmann's IIA Deep injury with muscle involvement {}	4723

Group Title	Type	Sub-type	Operation	Code
			Lackmann's IIB Full thickness injury cheek / lip with oral mucosal involvement (through and through) {}	4724
			Lackmann's IIIA Deep injury with tissue defect (complete avulsion) {}	4725
			Lackmann's IIIB Deep avulsive injury exposing nasal and auricular cartilages {}	4726
			Lackmann's IVA Deep injury with severed facial nerve and/or parotid duct {}	4727
			Lackmann's IVB Deep injury with concomitant bony fracture {}	4728
		Delayed Repair		
			Delayed primary suture of skin of head or neck {S41.2}	4411
			Resuture of skin of head or neck {S41.4}	4417
			Secondary suture of skin of head / neck {S41.3}	4418
		Suturing		
			Oth.spec. suture of skin of head or neck {S41.8}	4413
			Other - intraoral suturing {}	4414
			Primary suture of skin of head / neck NEC {S41.1}	4415
			Repair of external ear NEC {D06.3}	4416
			Repair of Lip Laceration {}	4548
			Soft tissue primary closure {S41.1}	305
			Suture of external nose {E09.3}	4419
			Suture of eyebrow {C10.4}	4420
			Suture of palate {F30.7}	358
			Suture of skin of head or neck {S41}	4421
			Suture of tongue {F26.5}	4422
			Unspec. suture of skin of head / neck {S41.9}	4423
	Zygoma			
			Open Reduction Zygoma Other {V09.8}	330
			Zygoma Antral Pack {V09.8}	329
			Zygoma Closed {V09.3}	324
			Zygoma Closed Reduction + external fixation {V09.}	325
			Zygoma Open Reduction + Buttress + FZ + IOM Plate {V09.8}	4424

Group Title	Type	Sub-type	Operation	Code
			Zygoma Open Reduction + Buttress + FZ Plate {V09.8}	4425
			Zygoma Open Reduction + Buttress + IOM Plate {V09.8}	4426
			Zygoma Open Reduction + Buttress Plate {V09.8}	328
			Zygoma Open Reduction + Infraorbital plate {V09.8}	327
			Zygoma Open Reduction + ZF plate {V09.8}	326
			Zygomatic osteotomy post-traumatic deformity {}	4427
		Mandible Fractures		
		Mandible Fractures	Single	
			Mandible Angle Closed reduction / Fixation (IMF) {V15.3 V17.1}	311
			Mandible Angle Open Reduction + Fixation {V15.2}	312
			Mandible Angle Open Reduction + Fixation + IMF {V15.2}	4389
			Mandible Angle Open Reduction + Fixation Oblique Ridge {V15.2}	4469
			Mandible Angle Open Reduction + Fixation Trans-buccal {V15.2}	4470
			Mandible Body Closed reduction / fixation (IMF) {V15.3 V17.1}	314
			Mandible Body Open Reduction + Fixation {V15.3}	315
			Mandible Body Open Reduction + Fixation + IMF {V15.3}	4390
			Mandible Symphyseal Closed Reduction + Fixation (IMF) {V15.3 V17.1}	320
			Mandible Symphyseal Open Reduction + Fixation {V15.2}	321
			Mandible Symphyseal Open Reduction + Fixation + IMF {V15.2}	4391
			Mandible Symphyseal Open Reduction + Fixation Single plate {V15.2}	4464
			Mandible Symphyseal Open Reduction + Fixation Single plate & Bridle wire {V15.2}	4465
			Mandible Symphyseal Open Reduction + Fixation Two plates {V15.2}	4466
		Mandible Comminuted		
			Mandible Comminuted Closed Reduction + Fixation (IMF) {V15.3 V17.1}	4385
			Mandible Comminuted Open Reduction + Fixation {V15.2}	4387
			Mandible Comminuted Open Reduction + Fixation and IMF {V15.2}	4388
		Mandible Edentulous		
			Mandible Fracture other (edentulous) {V15.3}	323

Group Title	Type	Sub-type	Operation	Code
			Mandible Fracture other (edentulous) intra-oral {V15.3}	4467
		Mandible Condyle (inc with other fractures)		
			Endoscopic assisted ORIF Condyle {V15.2}	4392
			Mandible Condyle Closed Reduction + Fixation (IMF) {V15.3 V17.1}	317
			Mandible Condyle Open Reduction + Fixation {V15.2}	318
			Mandible Condyle Other {V15.9}	319
		Symph Body		
			Mandible Symph AND Body Closed reduction IMF {V15.3 V17.1}	4483
			Mandible Symph AND Body Open Reduction + Fixation + IMF {V15.2}	4487
			Mandible Symph Single plate & wire AND Body plated {15.2}	4485
			Mandible Symph Single plate AND Body plated {V15.2}	4484
			Mandible Symph Two plates AND Body plated {V15.2}	4486
		Symph Angle		
			Mandible Angle AND Parasymph Closed reduction / Fixation (IMF) {V15.3 V17.1}	4488
			Mandible Angle Oblique Ridge AND Symph Single plate {V15.2}	4489
			Mandible Angle Oblique Ridge AND Symph Single plate & Wire {V15.2}	4490
			Mandible Angle Oblique Ridge AND Symph Two plates {V15.2}	4491
			Mandible Angle Trans-buccal AND Symph Single plate {V15.2}	4492
			Mandible Angle Trans-buccal AND Symph Single plate & Wire {V15.2}	4493
			Mandible Angle Trans-buccal AND Symph two plates {}	4609
		Bilateral Angle / Angle plus Body		
			Mandible Bilateral Angle Closed reduction / Fixation {V15.2 V17.1}	4471
			Mandible Bilateral Angle Oblique Ridge Plates {}	4473
			Mandible Bilateral Angle Open Reduction + Fixation {V15.2}	4472
			Mandible Bilateral Angle Open Reduction + Fixation + IMF {V15.2 V17.1}	4475
			Mandible Bilateral Angle Trans-buccal plates {V15.2}	4474
		Closed condyle plus other #		

Group Title	Type	Sub-type	Operation	Code
			Mandible Angle AND Condyle Closed reduction / Fixation (IMF) {V15.3 V17.1}	4500
			Mandible Angle Oblique Ridge AND Condyle archbars {V15.2}	4506
			Mandible Angle Oblique Ridge AND Condyle Buttons {V15.2} {}	4504
			Mandible Angle Oblique Ridge AND Condyle not treated {V15.2}	4502
			Mandible Angle Transbuccal AND Condyle archbars {V15.2}	4505
			Mandible Angle Transbuccal AND Condyle Buttons {V15.2}	4503
			Mandible Angle Transbuccal AND Condyle not treated {V15.2}	4501
			Mandible Symph AND Condyle Closed reduction / Fixation (IMF) {V15.3 V17.1}	4494
			Mandible Symph Single plate & Bridle wire AND Condyle archbars {V15.2}	4507
			Mandible Symph Single plate & Bridle wire AND Condyle buttons {V15.2}	4499
			Mandible Symph Single plate & Bridle wire AND Condyle not treated {V15.2}	4496
			Mandible Symph Single plate AND Condyle archbars {V15.2}	4508
			Mandible Symph Single plate AND Condyle Buttons {V15.2}	4498
			Mandible Symph Single plate AND Condyle not treated {V15.2}	4495
			Mandible Symph Two plates AND Condyle archbars {V15.2}	4509
			Mandible Symph Two plates AND Condyle buttons {V15.2}	4510
			Mandible Symph Two plates AND Condyle not treated {V15.2}	4497
		Extra-oral Approach Mandible Fracture(s)		
			Extra-oral plate - dentate mandible {}	4565
			Extra-oral plate - edentulous mandible {V15.3}	4468

Highlighting Interface Experience – Observation expected of trainees rather than competency

Endocrine Surgery – Subspecialty Interest – not core OMFS

	Thyroid		
		Isthmusectomy {}	4296
		Parathyroid resection - multiple {}	4297
		Parathyroid resection - single {}	4298
		Thyroglossal cyst excision {B10.1}	4299
		Thyroidectomy {B08.1}	4300
		Thyroidectomy - Partial {}	4302
		Thyroidectomy - Sub-total {B08.3}	4301

Neurosurgery experience of OMFS trainees (observed/assisted) – not OMFS

		Excision atretic meningocele {}	4716
		Repair / resection of transcranial / intraosseus dermoid {}	4111
		Repair / resection of transnasal dermoid {}	4112
		Repair of basal encephalocoele {}	4107
		Repair of interfrontal encephalocoele {}	4108
		Repair of naso/frontal/ethmoidal/orbital encephalocoele {}	4110
		resection of intraosseous meningioma {}	4732
		CSF Bolts and Dural repair	
		C.S.F. drain insertion lumbo-peritoneal {}	4074
		C.S.F. drain insertion VP {}	4075
		Dural reconstruction by graft / patch {}	4079
		Dural repair {}	4080
		Intracranial pressure monitoring {}	4092

Oto-rhino-laryngology Experience for OMFS trainees (observed/assisted) – not OMFS

	Pharynx		
		Cricopharyngeal myotomy {}	4261
		Pharyngeal pouch surgery - endoscopic {}	4262

			Pharyngeal pouch surgery - external {}	4263
			Tonsillectomy {}	4696
	Larynx and Pharynx			
		Larynx		
			Excision of larynx {E29}	4186
			Laryngectomy (Total) {E29.1}	142
			Laryngectomy NEC {E29.6}	4187
			Laryngofissure + chordectomy of vocal chord {E29.5}	4188
			Larynx Other {}	4189
			Microlaryngoscopy + laser {}	4190
			Microlaryngoscopy +/- biopsy {}	4191
			Oth.spec. excision of larynx {E29.8}	4192
			Partial laryngectomy - horizontal {}	4193
			Partial laryngectomy - vertical {}	4194
			Partial laryngectomy NEC {E29.4}	4195
			Unspec. excision of larynx {E29.9}	4196
		Pharynx		
			Pharyngectomy + free jejunum {}	4206
			Pharyngectomy + stomach pull-up {}	4207
			Pharyngolaryngectomy {}	4208

		Implant		
			BAHA (Bone Anchored Hearing Aid) Stage 1 {}	4179
			BAHA (Bone Anchored Hearing Aid) Stage 2 {}	4180
		Sinus		
			Functional endoscopic surgery	
			External ethmoidectomy {}	4273
			External frontoethmoidectomy {}	4274
			Inferior meatal antrostomy {}	4275
			Intranasal antrostomy {E13.3}	4276
			Transantral vidian nerve neurectomy vidian sublab.appr. {E12.4}	4283
			Trefine frontal sinus {}	4284

Appendix 3 – European Training Requirements (ETRs) of Related Specialties

OMFS is a specialty which works collaboratively with dental and medical specialties. Trainees and specialists in OMFS should have a good understanding of the skills, knowledge and understanding of their colleagues including colleagues in allied professions.

There are currently 86 ETRs on the UEMS website <https://www.uems.eu/areas-of-expertise/postgraduate-training/european-standards-in-medical-training> which include ETRs on specialties and competencies written by UEMS bodies including Multi-disciplinary Joint Committees (MJC)s and Sections, often with the collaboration and support of European scientific associations. Reading these documents may help OMFS trainee and specialists working with or referring to colleagues.

- [UEMS 2020.33 European Training Requirements in Paediatric Surgery.pdf](#) 
- [UEMS 2020.31 European Training Requirements in ORL.pdf](#)
- [UEMS 2020.12 Syllabus - Rare Diseases](#) 
- [UEMS 2020.12 Description of Competency - Rare Diseases](#)
- [UEMS 2020.11 European Training Requirements in Rare Adult Solid Cancers](#)
- [UEMS 2018.37 European Training Requirements in Radiology.pdf](#) 
- [UEMS 2018.42 European Training Requirements in Transplant Surgery.pdf](#) 
- [UEMS 2018.35 European Training Requirements for Wound Healing.pdf](#) 
- [UEMS 2018.39 European Training Requirements in Infectious Diseases.pdf](#)
- [UEMS 2018.19 - European Training Requirements in Emergency Medicine - .pdf](#) 
- [UEMS 2018.18 - European Training Requirements in Obstetrics and Gynaecology.pdf](#) 
- [UEMS 2018.17 - European Training Requirements in Anaesthesiology.pdf](#) 
- [UEMS 2018.16 - European Training Requirements in Endocrinology.pdf](#)
- [UEMS 2018.15 - European Training Requirement PRM specialty.pdf](#)
- [UEMS 2017.30 - European Training Requirements Orthopaedics](#) 
- [UEMS 2017.29 - European Training Requirements in Dermatology & Venerology](#)
- [UEMS 2015.34 - Annex 1 - ETR Neurosurgery - Appendix.pdf](#) 
- [UEMS 2017.07 - European Training Requirements in Nuclear Medicine](#)
- [UEMS 2015.34 - European Training Requirements in Neurosurgery.pdf](#)
- [UEMS 2015.29 - European Training Requirements Plastic, Reconstructive and Aesthetic Surgery \(PRAS\).pdf](#)
- [UEMS 2016.13 - European Training Requirements Internal Medicine.pdf](#) 

Appendix 4 – Resources for OMFS Training Programme Directors and Trainees

UK OMFS Curriculum – 2021

<https://www.iscp.ac.uk/media/1105/oral-maxillofacial-surgery-curriculum-aug-2021-approved-oct-20.pdf>

Joint oncology competences developed by surgeons, medical & radiation oncologists

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Landmark publications about training in OMFS

EACMFS Recommendations For Education And Training

European Association of Craniomaxillofacial Surgeons

<https://www.eacmfs.org/information/training-guidelines/training-guidelines/>

International guidelines for speciality training in oral and maxillofacial surgery,

Journal of Cranio-Maxillo-Facial Surgery, Volume 20, Issue 6, 1992, Pages 280-283, ISSN 1010-5182, [https://doi.org/10.1016/S1010-5182\(05\)80446-9](https://doi.org/10.1016/S1010-5182(05)80446-9) (<http://www.sciencedirect.com/science/article/pii/S1010518205804469>)

International guidelines for specialty training in oral and maxillofacial surgery.

Int J Oral Maxillofac Surg. 1992 Jun;21(3):130-2. doi: 10.1016/s0901-5027(05)80777-5. PMID: 1640123

Training in oral and maxillofacial surgery. What's in a name?

Stoelinga PJ. *Int J Oral Maxillofac Surg.* 1989 Jun;18(3):129. doi: 10.1016/s0901-5027(89)80106-7. PMID: 2503569

Oral and Maxillofacial Surgery in Europe

[Article in German]

Mund Kiefer Gesichtschir 2000 May;4 Suppl 1:S3-10. doi: 10.1007/PL00022956.

W K Busch PMID: 10938639 DOI: 10.1007/PL00022956

History of the German Society of Oral and Maxillofacial Surgery (1951-2001)

[Article in German]

Erdsach T: *Die Geschichte der Deutschen Gesellschaft für Mund-, Kiefer- und Gesichtschirurgie (1951-2001).*

Heinz Pier, Erfstadt, 2004. ISBN 3-924576-08-4

The History of Oral and Maxillo-Facial Surgery

Hoffann-Axthelm W: *Die Geschichte der Mund-, Kiefer und Gesichtschirurgie.*

Quintessenz, Berlin, Chicago, London, Sao Paulo, Tokio, Moskau, Prag, Warschau, 1995.

ISBN 3-87 652-077-0 []

e-Face – Oral and Maxillofacial Surgery Training Programme

<https://www.e-lfh.org.uk/programmes/oral-and-maxillofacial-surgery/>

Appendix 5 – Contributors to the OMFS ETR

In addition to the help of the ETR Committee, and the UEMS Executive for their contributions, we would like to formally acknowledge the following and thank them for their help.

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Allergology
Anaesthesiology
Cardiology
Child and Adolescent Psychiatry
Dermato-Venereology*
Emergency Medicine
Geriatric Medicine
Hand Surgery
Infectious diseases
Laboratory Medicine
Medical Genetics
Medical microbiology
Medical Oncology
Nephrology
Neurology
Neurosurgery
Nuclear Medicine
Obstetrics and Gynaecology
Occupational Medicine Section
Orthopaedics and Traumatology
Oto-Rhino-Laryngology*
Paediatric Surgery
Pharmacology
Physical and Rehabilitation Medicine (PRM)
Plastic Surgery
Psychiatry
Public Health
Radiation Oncology & Radiotherapy
Radiology
Rheumatology
Surgery
Thoracic Surgery
Urology

Named respondent (sometimes of many)

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BAHNO British Association of Head and Neck Oncologists
eLearning For Health (eLfh)
European Association of Facial Plastic Surgeons (EAFPS)*
Confederation of European Otorhinolaryngology H&N Surgery*

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* Objections in letter(s) as yet unresolved – all correspondence shared on UEMS Dropbox.

Contributing non-UEMS International OMFS bodies

International Association of Oral and Maxillofacial Surgeons (IAOMS) Prof Ghali Ghali
European Association of Cranio-Maxillo-Facial Surgery Frank Hölzle

Contributing non-UEMS OMFS Bodies

Organisation

Austrian Society of Oral-Maxillofacial-Surgery
Belgian Royal Society for Oral and Maxillo-Facial Surgery

Croatian Society of Maxillofacial Surgery
Cyprus Association of Oral and Maxillofacial Surgery
Czech Association for Maxillofacial Surgery
Danish Association for Oral and Maxillofacial Surgery

Estonian Association for Maxillofacial Surgery
Finnish Association for Maxillofacial Surgery
French Association of Facial Surgeons: SFSCMFCO
Georgia Society of Oral and Maxillofacial Surgeons

German Society of Oral- and Maxillofacial-Surgery

Hellenic Association for Oral and Maxillofacial Surgery (HAOMS)

Hungarian Association of Oral and Maxillofacial Surgeons
Irish Oral and Maxillofacial Surgeons Group
Italian Society of Maxillo-Facial Surgery
Latvian Association of Oral and Maxillofacial Surgeons
Lithuanian Oral and Maxillofacial Surgeons Group
Maltese OMFS Surgeons Group
Dutch Association of Oral and Maxillofacial Surgeons
Norwegian Society for Maxillofacial Surgery
Polish Association for Cranio-Maxillofacial Surgery
Portuguese Society of Maxillo-Facial Surgery
Romanian Society for Oral and Maxillofacial Surgery
Slovenian Association for Maxillofacial and Oral Surgery
Spanish Association of Oral and Maxillofacial Surgery

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OMFS Section and Board Core ETR Development Team

Background

The team listed on this page are only the most recent group of European OMFS surgeons who have worked to define and refine training in OMFS. We acknowledge, with thanks, those who drafted our original Chapter 6, created and ran our European Board examination, and built the OMFS Section and Board into the vigorous entity it is today. There names are too many to list, but we are forever grateful to all of them.

This ETR draws heavily on all the national training programmes across Europe. All the national training programmes are available on the OMFS Section website www.omfsuems.eu. We hope that this hybrid document will return the favour and allow national training programmes to take the best of European OMFS training and included it within their national programme. Some nations, who do not currently have the specialty of OMFS or who do not have a written training curriculum, may wish to use this ETR to structure their OMFS training.

OMFS ETR Team (alphabetically by surname)

Paulo Coelho	Lisboa, Portugal	Vice President of Board
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Hans-Peter Ulrich	Lübeck, Germany	Secretary General, Section
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Appendix 6 – CANMED¹⁰ Competencies – Abridged for UEMS

With the permission of the Royal College of Physicians and Surgeons of Canada, we have summarised the core competencies which are expected of a specialist. These competencies are copyrighted by the Royal College, but can be incorporated in European Training Requirements (ETRs) in UEMS member countries. To secure permission to use this abridged document in your own country and/or specialty, please contact the Royal College of Physicians and Surgeons of Canada. Full details are available from the CANMED website

<https://www.royalcollege.ca/rcsite/canmeds/canmeds-framework-e>

European Training Requirements - Please find here the [template structure](#) for ETRs as well as the [Terms of Reference](#).



CANMED Roles

Medical Expert

applying medical knowledge, clinical skills, and professional values in their provision of high-quality and safe patient-centred care.

194

Communicator

As Communicators, physicians form relationships with patients and their families* that facilitate the gathering and sharing of essential information for effective health care.†

195

Collaborator

As Collaborators, physicians work effectively with other health care professionals to provide safe, high-quality, patient-centred care.

196

Leader

As Leaders, physicians engage with others to contribute to a vision of a high-quality health care system and take responsibility for the delivery of excellent patient care through their activities as clinicians, administrators, scholars, or teachers.

197

Health Advocate

As Health Advocates, physicians contribute their expertise and influence as they work with communities or patient populations to improve health. They work with those they serve to determine and understand needs, speak on behalf of others when required, and support the mobilization of resources to effect change.

198

Scholar

As Scholars, physicians demonstrate a lifelong commitment to excellence in practice through continuous learning and by teaching others, evaluating evidence, and contributing to scholarship.

199

Professional

As Professionals, physicians are committed to the health and well-being of individual patients and society through ethical practice, high personal standards of behaviour, accountability to the profession and society, physician-led regulation, and maintenance of personal health.

200

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Medical Expert¹¹

applying medical knowledge, clinical skills, and professional values in their provision of high-quality and safe patient-centred care.

Key competencies	Enabling competencies
Physicians are able to:	
1. Practise medicine within their defined scope of practice and expertise	1.1 Demonstrate a commitment to high-quality care of their patients 1.2 Integrate the CanMEDS Intrinsic Roles into their practice of medicine 1.3 Apply knowledge of the clinical and biomedical sciences relevant to their discipline 1.4 Perform appropriately timed clinical assessments with recommendations that are presented in an organized manner 1.5 Carry out professional duties in the face of multiple, competing demands 1.6 Recognize and respond to the complexity, uncertainty, and ambiguity inherent in medical practice
2. Perform a patient-centred clinical assessment and establish a management plan	2.1 Prioritize issues to be addressed in a patient encounter 2.2 Elicit a history, perform a physical exam, select appropriate investigations, and interpret their results for the purpose of diagnosis and management, disease prevention, and health promotion 2.3 Establish goals of care in collaboration with patients and their families, which may include slowing disease progression, treating symptoms, achieving cure, improving function, and palliation 2.4 Establish a patient-centred management plan
3. Plan and perform procedures and therapies for the purpose of assessment and/or management	3.1 Determine the most appropriate procedures or therapies 3.2 Obtain and document informed consent, explaining the risks and benefits of, and the rationale for, a proposed procedure or therapy 3.3 Prioritize a procedure or therapy, taking into account clinical urgency and available resources 3.4 Perform a procedure in a skilful and safe manner, adapting to unanticipated findings or changing clinical circumstances
4. Establish plans for ongoing care and, when appropriate, timely consultation	4.1 Implement a patient-centred care plan that supports ongoing care, follow-up on investigations, response to treatment, and further consultation
5. Actively contribute, as an individual and as a member of a team providing care, to the continuous improvement of health care quality and patient safety	5.1 Recognize and respond to harm from health care delivery, including patient safety incidents 5.2 Adopt strategies that promote patient safety and address human and system factors

Communicator

As Communicators, physicians form relationships with patients and their families* that facilitate the gathering and sharing of essential information for effective health care.†

Key competencies	Enabling competencies
Physicians are able to:	
1. Establish professional therapeutic relationships with patients and their families	1.1 Communicate using a patient-centred approach that encourages patient trust and autonomy and is characterized by empathy, respect, and compassion 1.2 Optimize the physical environment for patient comfort, dignity, privacy, engagement, and safety 1.3 Recognize when the values, biases, or perspectives of patients, physicians, or other health care professionals may have an impact on the quality of care, and modify the approach to the patient accordingly 1.4 Respond to a patient’s non-verbal behaviours to enhance communication 1.5 Manage disagreements and emotionally charged conversations 1.6 Adapt to the unique needs and preferences of each patient and to his or her clinical condition and circumstances
2. Elicit and synthesize accurate and relevant information, incorporating the perspectives of patients and their families	2.1 Use patient-centred interviewing skills to effectively gather relevant biomedical and psychosocial information 2.2 Provide a clear structure for and manage the flow of an entire patient encounter 2.3 Seek and synthesize relevant information from other sources, including the patient’s family, with the patient’s consent
3. Share health care information and plans with patients and their families	3.1 Share information and explanations that are clear, accurate, and timely, while checking for patient and family understanding 3.2 Disclose harmful patient safety incidents to patients and their families accurately and appropriately
4. Engage patients and their families in developing plans that reflect the patient’s health care needs and goals	4.1 Facilitate discussions with patients and their families in a way that is respectful, non-judgmental, and culturally safe 4.2 Assist patients and their families to identify, access, and make use of information and communication technologies to support their care and manage their health 4.3 Use communication skills and strategies that help patients and their families make informed decisions regarding their health
5. Document and share written and electronic information about the medical encounter to optimize clinical decision-making, patient safety, confidentiality, and privacy	5.1 Document clinical encounters in an accurate, complete, timely, and accessible manner, in compliance with regulatory and legal requirements 5.2 Communicate effectively using a written health record, electronic medical record, or other digital technology 5.3 Share information with patients and others in a manner that respects patient privacy and confidentiality and enhances understanding

Collaborator

As Collaborators, physicians work effectively with other health care professionals to provide safe, high-quality, patient-centred care.

Key competencies	Enabling competencies
Physicians are able to:	
1. Work effectively with physicians and other colleagues in the health care professions	1.1 Establish and maintain positive relationships with physicians and other colleagues in the health care professions to support relationship-centred collaborative care 1.2 Negotiate overlapping and shared responsibilities with physicians and other colleagues in the health care professions in episodic and ongoing care 1.3 Engage in respectful shared decision-making with physicians and other colleagues in the health care professions
2. Work with physicians and other colleagues in the health care professions to promote understanding, manage differences, and resolve conflicts	2.1 Show respect toward collaborators 2.2 Implement strategies to promote understanding, manage differences, and resolve conflicts in a manner that supports a collaborative culture
3. Hand over the care of a patient to another health care professional to facilitate continuity of safe patient care	3.1 Determine when care should be transferred to another physician or health care professional 3.2 Demonstrate safe handover of care, using both verbal and written communication, during a patient transition to a different health care professional, setting, or stage of care

Leader

As Leaders, physicians engage with others to contribute to a vision of a high-quality health care system and take responsibility for the delivery of excellent patient care through their activities as clinicians, administrators, scholars, or teachers.

Key competencies	Enabling competencies
Physicians are able to:	
<p>1. Contribute to the improvement of health care delivery in teams, organizations, and systems</p>	<p>1.1 Apply the science of quality improvement to contribute to improving systems of patient care</p> <p>1.2 Contribute to a culture that promotes patient safety</p> <p>1.3 Analyze patient safety incidents to enhance systems of care</p> <p>1.4 Use health informatics to improve the quality of patient care and optimize patient safety</p>
<p>2. Engage in the stewardship of health care resources</p>	<p>2.1 Allocate health care resources for optimal patient care</p> <p>2.2 Apply evidence and management processes to achieve cost-appropriate care</p>
<p>3. Demonstrate leadership in professional practice</p>	<p>3.1 Demonstrate leadership skills to enhance health care</p> <p>3.2 Facilitate change in health care to enhance services and outcomes</p>
<p>4. Manage career planning, finances, and health human resources in a practice</p>	<p>4.1 Set priorities and manage time to integrate practice and personal life</p> <p>4.2 Manage a career and a practice</p> <p>4.3 Implement processes to ensure personal practice improvement</p>

Health Advocate

As Health Advocates, physicians contribute their expertise and influence as they work with communities or patient populations to improve health. They work with those they serve to determine and understand needs, speak on behalf of others when required, and support the mobilization of resources to effect change.

Key competencies	Enabling competencies
Physicians are able to:	
<p>1. Respond to an individual patient's health needs by advocating with the patient within and beyond the clinical environment</p>	<p>1.1 Work with patients to address determinants of health that affect them and their access to needed health services or resources</p> <p>1.2 Work with patients and their families to increase opportunities to adopt healthy behaviours</p> <p>1.3 Incorporate disease prevention, health promotion, and health surveillance into interactions with individual patients</p>
<p>2. Respond to the needs of the communities or populations they serve by advocating with them for system-level change in a socially accountable manner</p>	<p>2.1 Work with a community or population to identify the determinants of health that affect them</p> <p>2.2 Improve clinical practice by applying a process of continuous quality improvement to disease prevention, health promotion, and health surveillance activities</p> <p>2.3 Contribute to a process to improve health in the community or population they serve</p>

Scholar

As Scholars, physicians demonstrate a lifelong commitment to excellence in practice through continuous learning and by teaching others, evaluating evidence, and contributing to scholarship.

Key competencies	Enabling competencies
Physicians are able to:	
1. Engage in the continuous enhancement of their professional activities through ongoing learning	1.1 Develop, implement, monitor, and revise a personal learning plan to enhance professional practice 1.2 Identify opportunities for learning and improvement by regularly reflecting on and assessing their performance using various internal and external data sources 1.3 Engage in collaborative learning to continuously improve personal practice and contribute to collective improvements in practice
2. Teach students, residents, the public, and other health care professionals	2.1 Recognize the influence of role-modelling and the impact of the formal, informal, and hidden curriculum on learners 2.2 Promote a safe learning environment 2.3 Ensure patient safety is maintained when learners are involved 2.4 Plan and deliver a learning activity 2.5 Provide feedback to enhance learning and performance 2.6 Assess and evaluate learners, teachers, and programs in an educationally appropriate manner
3. Integrate best available evidence into practice	3.1 Recognize practice uncertainty and knowledge gaps in clinical and other professional encounters and generate focused questions that address them 3.2 Identify, select, and navigate pre-appraised resources 3.3 Critically evaluate the integrity, reliability, and applicability of health-related research and literature 3.4 Integrate evidence into decision-making in their practice
4. Contribute to the creation and dissemination of knowledge and practices applicable to health	4.1 Demonstrate an understanding of the scientific principles of research and scholarly inquiry and the role of research evidence in health care 4.2 Identify ethical principles for research and incorporate them into obtaining informed consent, considering potential harms and benefits, and considering vulnerable populations 4.3 Contribute to the work of a research program 4.4 Pose questions amenable to scholarly inquiry and select appropriate methods to address them 4.5 Summarize and communicate to professional and lay audiences, including patients and their families, the findings of relevant research and scholarly inquiry

Professional

As Professionals, physicians are committed to the health and well-being of individual patients and society through ethical practice, high personal standards of behaviour, accountability to the profession and society, physician-led regulation, and maintenance of personal health.

Key competencies	Enabling competencies
Physicians are able to:	
1. Demonstrate a commitment to patients by applying best practices and adhering to high ethical standards	1.1 Exhibit appropriate professional behaviours and relationships in all aspects of practice, demonstrating honesty, integrity, humility, commitment, compassion, respect, altruism, respect for diversity, and maintenance of confidentiality 1.2 Demonstrate a commitment to excellence in all aspects of practice 1.3 Recognize and respond to ethical issues encountered in practice 1.4 Recognize and manage conflicts of interest 1.5 Exhibit professional behaviours in the use of technology-enabled communication
2. Demonstrate a commitment to society by recognizing and responding to societal expectations in health care	2.1 Demonstrate accountability to patients, society, and the profession by responding to societal expectations of physicians 2.2 Demonstrate a commitment to patient safety and quality improvement
3. Demonstrate a commitment to the profession by adhering to standards and participating in physician-led regulation	3.1 Fulfill and adhere to the professional and ethical codes, standards of practice, and laws governing practice 3.2 Recognize and respond to unprofessional and unethical behaviours in physicians and other colleagues in the health care professions 3.3 Participate in peer assessment and standard-setting
4. Demonstrate a commitment to physician health and well-being to foster optimal patient care	4.1 Exhibit self-awareness and manage influences on personal well-being and professional performance 4.2 Manage personal and professional demands for a sustainable practice throughout the physician life cycle 4.3 Promote a culture that recognizes, supports, and responds effectively to colleagues in need

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Medical Expert	182
applying medical knowledge, clinical skills, and professional values in their provision of high-quality and safe patient-centred care.	182
Communicator	183
As Communicators, physicians form relationships with patients and their families* that facilitate the gathering and sharing of essential information for effective health care.†	183
Collaborator	184
As Collaborators, physicians work effectively with other health care professionals to provide safe, high-quality, patient-centred care.	184
Leader	185
As Leaders, physicians engage with others to contribute to a vision of a high-quality health care system and take responsibility for the delivery of excellent patient care through their activities as clinicians, administrators, scholars, or teachers.	185
Health Advocate	186
As Health Advocates, physicians contribute their expertise and influence as they work with communities or patient populations to improve health. They work with those they serve to determine and understand needs, speak on behalf of others when required, and support the mobilization of resources to effect change.	186
Scholar	187
As Scholars, physicians demonstrate a lifelong commitment to excellence in practice through continuous learning and by teaching others, evaluating evidence, and contributing to scholarship.	187
Professional	188
As Professionals, physicians are committed to the health and well-being of individual patients and society through ethical practice, high personal standards of behaviour, accountability to the profession and society, physician-led regulation, and maintenance of personal health.	188
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