

# MODULE 2

## Craniomaxillofacial

## **Craniomaxillofacial Curriculum for Plastic and Reconstructive Surgery** **Trainees and +2 CMF Trainees**

Many aspects of Craniomaxillofacial Surgery are integral components of general Plastic and Reconstructive Surgery (PRS) SET training. These are defined in the Craniomaxillofacial Module of the PRS SET Curriculum. It is expected that all aspects of the SET Craniomaxillofacial module have been thoroughly covered and examined prior to progression to the +2 training system.

The ANZSCMFS and The Board of Plastic and Reconstructive Surgery have agreed to pursue a focus in the +2 system of Maxillofacial/ Orthognathic surgery which builds upon the existing Craniomaxillofacial surgery covered in the general PRS training.

This Curriculum defines expected theoretical knowledge for both the SET trainee in Plastic and Reconstructive Surgery and the +2 trainee in maxillofacial surgery.

Section A defines the existing curriculum in Craniomaxillofacial surgery for SET trainees and is examined in the general PRS fellowship examination.

Section B defines the curriculum for the +2 training in Maxillofacial surgery. This is considered Core Knowledge for +2 trainees (all aspects examined in detail). It correlates with the Outline Knowledge for general SET PRS trainees (Principles are required but not a detailed knowledge such that the candidate would be in a position to manage the condition alone).

### **Section A**

**Revisional Knowledge** – Much of the basics in this will have been covered in the Plastic and Reconstructive Surgical Science and Principles Examination. Trainees are required to be able to analyse and appropriately apply the science and principles of the following in clinical environments :

- Craniofacial embryology, anatomy, genetics (C)
  - (a) Normal and abnormal embryology and foetal development of the head and neck with special emphasis on the development of the cranium, the maxillary and mandibular complex, the mechanisms of clefting, and the development of the temporomandibular joint and surrounding musculature
  - (b) Bone healing, including primary healing, malunion, non-union, osteomyelitis and the physiology and methods of bone grafting
  - (c) Congenital, developmental and secondary deformities of the head and face, including the embryology, pathogenesis, anatomy, natural history and disease processes and following treatment of those conditions
  - (d) Genetics of craniosynostosis and associated syndromes
- Perioperative Management of major cranial and cranio-orbital operations both adult and paediatric

**Core Knowledge** - A detailed knowledge in these areas will be expected. All trainees are required to be able to diagnose, plan, perform effectively and manage:

*Congenital disorders and disorders of growth:* (C) – This code applies to the whole of this section

§ Craniosynostosis

- Aetiology
- Pathophysiology
- Classification

§ Binder syndrome (diagnosis and assessment required in detail, but management in outline)

§ Pierre Robin sequence (assessment and management in detail)

§ Cleft lip and palate aetiology, pathophysiology, classification, associate syndromes (assessment and management in detail, including speech and hearing problems, secondary deformities, and multidisciplinary management in detail)

*Tumour and tumour-like conditions:* (N) – This code applies to the whole of this section

§ Tumours in the craniomaxillofacial region – benign and malignant, skull base involvement, management

§ Tumour-like conditions eg vascular malformations, neurofibromatosis (diagnosis and assessment required in detail, but management in outline)

§ Bony conditions in the craniomaxillofacial region eg fibrous dysplasia (diagnosis and assessment required in detail, but management in outline)

*Trauma:* (T) – This code applies to the whole of this section

§ Fractures of the nose, malar, zygoma, maxilla, mandible, orbits, cranial base, frontal region of skull and frontal sinus, nasoethmoidal fractures and combinations of these. Aetiology, clinical presentation, assessment, management, treatment (including the assessment and management of dental occlusion and temporomandibular joint function)

§ Post traumatic deformities – (diagnosis and assessment required in detail, but management in outline)

*Other:*

§ Romberg hemifacial atrophy – assessment and management (D)

§ Chin deformity – types and management (D)

§ Aesthetic skeletal augmentation in the craniofacial region (D)

§ Radiation induced deformities, bony and soft tissue – management

§ Techniques (P) – This code applies to the whole of this section

- Craniomaxillofacial surgical exposures
- Distraction osteogenesis – biology and clinical uses
- Imaging in the craniofacial region – US, CT, MRI and angiography
- Internal fixation methods
- Cranial bone grafting/ Iliac crest/ rib grafts
- Prosthetics in the craniomaxillofacial region

## **Section B**

- This is Core knowledge for the +2 trainee (detailed knowledge of all aspects)
- This is Outline knowledge for the SET trainee (Principles are required but not a detailed knowledge such that the candidate would be in a position to manage the condition alone)

### **1. Basic Science of Maxillofacial Disorders/Surgery**

- Normal growth and development of the cranium and face with special attention to dental development and occlusion and to the consequences of congenital anomalies, trauma, surgery and radiation affecting the midface, mandible, temporomandibular joint and dentoalveolar structures
- Orthodontic concepts in relation to congenital and traumatic diseases of the midface and mandible
- Standards of beauty and variability as they relate to the face and an understanding of patterns of facial disharmony

### **2. Clinical conditions and disease processes**

- i) Surgical management of simple and syndromal craniosynostoses including timing and operative procedures
  - ii) First and second branchial arch anomalies/hemifacial microsomia/oculoauriculovertebral spectrum (including microtia). Other facial asymmetries (assessment and management in detail)
  - iii) Treacher Collins syndrome
  - iv) Orbital dystopias
  - v) Complex Craniofacial clefts/ Tessier clefts
  - vi) Binder syndrome
  - vii) Midfacial hypoplasia/ syndromal associations
  - viii) Midfacial hyperplasias/syndromes
  - ix) Mandibular hyper/hypoplasias/syndromes
  - x) Malocclusion problems
  - xi) TMJ disorders
  - xii) Tumours of the jaw and of dental origin
  - xiii) Tumour-like conditions eg vascular malformations, neurofibromatosis (diagnosis, assessment and management in detail)
  - xiv) Bony conditions in the craniomaxillofacial region eg fibrous dysplasia (diagnosis, assessment and management in detail)
  - xv) Post traumatic deformities (diagnosis, assessment and management in detail)
  - xvi) Hyperplasias in the craniofacial region – Beckwith Wiedemann Syndrome/ macroglossia management
- aetiology/assessment/management

### **3. Assessment Methods of Maxillofacial Disorders**

- Clinical history and examination of facial dysharmony
- Radiologic
  - plain x-rays
    - general
    - OPG
    - cephalometrics
    - dentoalveolar
  - U/S
  - CT
  - MRI
  - Arteriography
- Cephalometric analysis and orthognathic operative planning
- Surgical models as part of above
- Psychological assessment
- Videofluoroscopy
- Nasendoscopy

### **4. Operative Techniques**

- (a) Exposure of mid face, mandible, TMJ, chin
- (b) Osteotomy techniques to these areas of craniofacial skeleton
- (c) Orthognathic surgery for congenital/traumatic deformity
  - Le Forte I/II/III
  - Monobloc/facial bipartition
  - Mid facial, fronto facial and mandibular distraction
- (d) Fixation techniques for the midface and mandible
- (e) Bone graft options for the midface and mandible and harvest techniques
- (f) Alloplastic implants for the midface and mandible
- (g) Aesthetic maxillofacial procedures/ orthognathic procedures
- (h) Genioplasty

### **5. Perioperative Clinical Activities and Management**

- (a) Exposure to a functioning multidisciplinary team in a craniomaxillofacial clinic including plastic surgery, neurosurgery, ophthalmology, ENT, dentistry/orthodontics, speech pathology and genetics
- (b) Gain an understanding of the inter-relations between all subspecialties of the multidisciplinary team
- (c) Informed consent to complex craniomaxillofacial procedures
- (d) Understand relevant medical co-pathologies in complex/syndromal problems and how they impact on surgical treatment
- (e) Operative planning with a multidisciplinary team including timing of intervention and relevant protocols of management
- (f) Understand normal variations of postoperative course of complex craniomaxillofacial procedures
- (g) Understand postoperative complications, investigation and management
- (h) Exposure to understanding of the longitudinal nature of care in complex disorders
- (i) Fabrication of dental splints

## **6. Duty of Care, Ethics and Law**

- (a) CMFS trainees will receive education, training and practical experience in the duty of care toward
  - Patients
  - Administrative support staff
  - Allied health services staff
  - Multidisciplinary team members
- (b) CMFS trainees will receive education, training and practical experience in the protocols associated with CMFS
- (c) CMFS trainees will receive education, training and practical experience in ethical issues involving long term care of patients, including
  - Criteria for treatment decision making
  - Patient confidentiality
  - Ownership of patient records
  - Multidisciplinary team follow up protocols
- (d) CMFS trainees will receive education, training and practical experience in their personal legal responsibilities and the team's legal responsibilities
- (e) Administration
  - CMFS trainees will become familiar with all aspects of patient administration including those associated with appointments and record keeping within the multidisciplinary team framework.
  - CMFS trainees will become familiar with the forms required by hospital, insurance, state and federal agencies.

## **7. Research and Scholarly Activities**

- (a) Graduate medical education must take place in an environment of enquiry and scholarship in which trainees participate in the development of new knowledge, learn to evaluate research findings, and develop habits of enquiry as a continuing professional responsibility.
- (b) Directors and faculty should include an environment for CMFS trainees that includes the following types of activities:
  - Participation in clinical discussion, rounds and conferences in a manner that promotes a spirit of enquiry and scholarship. Scholarship implies an in-depth understanding of basic mechanisms of normal and abnormal states and the application of current knowledge to practice
  - Participation in journal clubs and conferences
  - Participation in regional and national professional and scientific societies, particularly through presentations at the organisations' meetings and publications in peer-reviewed journals
  - Observation of the research process, particularly in projects funded following peer review and/or that result in publications or presentations at regional and national scientific meetings
- (c) In addition, CMFS trainees are required to:
  - Be involved in one major research project within the two years of training
  - Prepare and submit one formal, written analysis of the project and the trainee's contribution to the research
  - Submit one article on the research for publication
  - Deliver one presentation or poster on the research