



CURRICULUM FOR POST-FELLOWSHIP TRAINING IN CLEFT CARE



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CURRICULUM FOR POST-FELLOWSHIP TRAINING IN CLEFT CARE



1.0. AIM

To improve the skills of interested surgeons in the comprehensive management of Cleft Lip and Palate and associated problems.

1.1. Learning Objectives

- i. To improve knowledge and understanding of the embryologic and anatomic basis of cleft lip and cleft palate surgery.
- ii. To strengthen understanding and impact of multidisciplinary team care for cleft lip and cleft palate.
- iii. To provide hands on surgical training in primary and secondary repair of cleft lip and cleft palate, as well as alveolar bone graft.
- iv. To develop and advance research in cleft lip and cleft palate and provide a regional platform for these researches.

2.0. ADMISSION REQUIREMENTS

- i. Must have a recognized medical or dental degree
- ii. Must have a postgraduate fellowship in any of the following surgical specialties (or acceptable equivalent):
 - a. Dental Surgery (Oral and Maxillofacial Surgery)
 - b. General Surgery
 - c. Otorhinolaryngology
 - d. Paediatric Surgery
 - e. Plastic and Reconstructive Surgery

To facilitate training, the candidate should possess a current registration/current practicing license from the Medical and Dental Council for the country where he/she is based.

3.0. DURATION OF COURSE

This shall be for a maximum period of nine (9) months.

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4.0. ACCREDITATION

4.1. Requirements

Each prospective training centre will be visited and accredited by the Colleges using a structured and objective accreditation/safety guideline document, which will be modified and updated from time to time. Key components of the accreditation requirements would be:

- i. Cleft Care Workforce (human resources)
- ii. Appropriate Infrastructure
- iii. Systems and Process of Care
- iv. Volume of cleft lip and palate cases seen

4.2. Number of trainees

Maximum of two per training institution for each batch.

5.0. COURSE CURRICULUM

5.1. Mode of Delivery

Mode of delivery shall be through the following:

- i. Self-studies, didactic lectures, seminars, and journal reviews.
- ii. Clinical teachings in the ward rounds and clinics.
- iii. Practice repair on cleft lip and palate simulators.
- iv. Use of Smile Train Virtual Surgery Simulator.
- v. Observe, assist and perform surgeries on CLP patients.

5.2. Faculty

This shall consist of cleft surgeons, orthodontists, speech therapists, nutritionists, pediatricians, anesthesiologists and adjunct lecturers from relevant departments in the accredited hospital in which the training program is domiciled. International facilitators may be invited from time to time.

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5.3. Course Structure

The didactic, seminar and journal review components of the course will be delivered in modules as detailed below:

Month of Training	Module	Activity Type	Contact Hours/week	Credit Units ¹
1 st	Module 1A	Lectures Seminars Journal Reviews Outpatient Clinics Ward Rounds Operating Theatre	18	5
2 nd	Module 1B Formative Assessment 1	Lectures Seminars Journal Reviews Ward Rounds Operating Theatre Research Assessment Test	20	5
3 rd	Module 2A	Lectures Seminars Journal Reviews Outpatient Clinics Ward Rounds Operating Theatre	18	5
4 th	Module 2B Formative Assessment 2	Lectures Seminars Journal Reviews Outpatient Clinics Ward Rounds Operating Theatre Research Assessment Test	20	4
5 th	Module 3A	Lectures Seminars Journal Reviews Outpatient Clinics Ward Rounds Operating Theatre	18	5

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Month of Training	Module	Activity Type	Contact Hours/week	Credit Units ¹
6 th	Module 3B Formative Assessment 3	Lectures Seminars Journal Reviews Ward Rounds Operating Theatre Research Assessment Test	20	5
7 th	Module 4A	Lectures Seminars Journal Reviews Outpatient Clinics Ward Rounds Operating Theatre	18	5
8 th	Module 4B Formative Assessment 4	Lectures Seminars Journal Reviews Outpatient Clinics Ward Rounds Operating Theatre Research Assessment Test	20	5
9 th	Revisions Summative Assessment	Journal Reviews Outpatient Clinics Ward Rounds Operating Theatre Exit Examination	15	4
TOTAL			668	44.4

¹One credit unit = 15 hours

5.4. CONTENTS OF MODULES

5.4.1. Module 1: Introduction to Cleft Lip and Cleft Palate

5.4.1.1 Module 1A

1. **Embryology of the face:** development of the face, lip, nose and palate. Facial prominences. Roles of olfactory, optic and optic placodes. Primary and secondary palates. Role of the neural crest and pharyngeal arch contributions to tongue formation. The role of the neural crests and the pharyngeal arches. The clinical relevance – cleft lip and palate. **(SEMINARS)**
2. **Developmental milestone:** Classification of developmental milestone into categories - motor development, language development, and social/emotional development. Timing and features of these milestone. **(LECTURES)**
3. **Classification system used for orofacial clefts including Tessier and anatomy of the cleft lip and palate:** Evolution of classification systems in Cleft Lip and Palate. Kernahan Y classification, Veau classification, modifications of the common classifications. Tessier classification of orofacial clefts. **(SEMINARS)**
4. **Syndromes associated with orofacial clefts:** aetiogenesis, classification and clinical features of common syndromes associated with cleft lips and palate and orofacial clefts, Goldenhar's Syndrome, Pierre Robin Syndrome, Van der Woude Syndrome, Crouzon's syndrome, Apert's Syndrome, Pfeiffer's Syndrome, Carpenter's syndrome, Pai etc. **(SEMINARS)**
5. **Clinical aspects of cleft care:** Outpatient cleft clinics, ward rounds
6. **Operative cleft surgery:** Surgeries in the operating theatre

5.4.1.2 Module 1B

1. **Aetiology and genetics of cleft lip and palate:** role of the environment and genetics in the development of cleft lip and palate. Gene- environmental interaction. Genes that are linked to non-syndromic and syndromic cleft. Pattern of inheritance **(LECTURES)**
2. **Feeding problems of cleft patients:** challenges encountered with feeding a baby with cleft and how to overcome these challenges. Feeding modifications. Strategies for feeding cleft babies **(SEMINARS)**
3. **Clinical aspects of cleft care:** Outpatient cleft clinics, ward rounds
4. **Operative cleft surgery:** Surgeries in the operating theatre
5. **Research**

5.4.2. Module 2: Multi-disciplinary Team Approach to Cleft Care

5.4.2.1 Module 2A

1. **Multidisciplinary approach to cleft care:** general role of the various disciplines in treating patients with clefts and craniofacial anomalies. Importance of evaluation by different team members- Paediatrician, geneticist, Audiologist, Nurses, Oral and maxillofacial surgeon, Orthodontist, Otolaryngologist, Pediatric dentist, Plastic surgeon, Psychologist and clinical social work, Speech-language pathologist. Management of antenatally detected children and parents **(SEMINARS)**
2. **Anaesthetic challenges and airway management of cleft surgery:** Effect of anatomic variations in cleft on breathing and maintenance of the airway. Management of airway challenges in Pierre Robin sequence **(SEMINARS)**
3. **Clinical aspects of cleft care:** Outpatient cleft clinics, ward rounds
4. **Operative cleft surgery:** Surgeries in the operating theatre

5.4.2.2. Module 2B

1. **Principles of Orthodontic management of the cleft child:** pre-surgical orthopedics Timing of orthodontic management and principles. Orthodontic assessment and management of neonatal, primary, mixed and permanent dentition. Role of orthodontist in alveolar bone graft **(LECTURES)**
2. **Speech therapy for the cleft child:** Goal of speech therapy in a cleft child. Evaluation of four communication parameters for patients with clefts and craniofacial anomalies, from infancy through adulthood. These parameters include resonance, articulation, phonation, and language development **(LECTURES)**
3. **Clinical aspects of cleft care:** Outpatient cleft clinics, ward rounds
4. **Operative cleft surgery:** Surgeries in the operating theatre
5. **Research**

5.4.3. Module 3: Unilateral and Bilateral Cleft Lip

5.4.3.1. Module 3A

- 1. Anatomic basis of cleft lip repair:** Compare anatomy of the normal lip to that of the cleft palate. Anatomy of incomplete, complete and bilateral cleft lip. Abnormal positioning of the muscles, Columella and the ala cartilage **(LECTURES)**
- 2. Anatomy of the soft and hard palate in the normal and cleft child:** bones of the hard palate. Boundaries of the hard palate. Blood supply and innervation. Foramina within the hard palate. Structure of the soft palate. Muscles of the soft palate and their attachments. Blood supply and innervation of the soft palate. Abnormal attachment of the muscles in cleft palate. Compare anatomy in the normal child to that of the cleft palate. Submucous palate. Effects of clefts on structure & function of orofacial region nose & nasal cavity. Ear pathology in cleft **(SEMINARS)**
- 3. Principles and surgical techniques of cleft lip repair:** Goal of surgery. Protocol and timing of repair. Pre-surgical orthopaedics. Different techniques of surgical repair of incomplete, complete and bilateral repairs with their merits and demerits. Primary and secondary rhinoplasty. Management of the premaxilla in bilateral cleft repair. Primary lip repair in children and adults **(LECTURES)**
- 4. Clinical aspects of cleft care:** Outpatient cleft clinics, ward rounds
- 5. Operative cleft surgery:** Surgeries in the operating theatre

5.4.3.2. Module 3B

- 1. Postoperative complications of primary repair of cleft lip and management:** Assessment of outcome. Factors affecting outcome. Common complications and how to avoid them. Notching, hypertrophic scar (causes and management) **(SEMINARS)**
- 2. Clinical aspects of cleft care:** Outpatient cleft clinics, ward rounds
- 3. Operative cleft surgery:** Surgeries in the operating theatre
- 4. Research**

5.4.4. Module 4: Cleft Palate and Alveolar Bone Graft

5.4.4.1. Module 4A

- 1. Surgical techniques of palate repair:** Goal of surgery. Different techniques with indications, merits and demerits. Complications of palatal repair. Secondary repair (LECTURES)
- 2. Velopharyngeal dysfunction:** Role of the velum during speech and breathing. Definition and causes of velopharyngeal dysfunction (VPD). Velopharyngeal insufficiency, incompetence and velopharyngeal mislearning. Speech errors – hyper nasality, articulation errors. Instruments used in the assessment of VPD (Nasometry, Videofluoroscopy), Speech surgery. (LECTURES)
- 3. Postoperative complications of primary repair of cleft palate and management:** Assessment of outcome. Factors affecting outcome. Common complications and how to avoid them. Fistula (causes and management), management of intra and post-operative hemorrhage in cleft palate surgery, velopharyngeal insufficiency (SEMINARS)
- 4. Clinical aspects of cleft care:** Outpatient cleft clinics, ward rounds
- 5. Operative cleft surgery:** Surgeries in the operating theatre

5.4.4.2. Module 4B

- 1. Alveolar bone graft:** Alveolar bone grafting: Timing, primary, secondary. Sources of bone with their advantages and disadvantages. Techniques. Assessment and grading of outcome (SEMINARS)
- 2. Role of orthognathic surgery in orofacial cleft management:** Clinical, imaging technique and laboratory assessment of jaw discrepancies. Mandibular, maxillary and bimaxillary procedures. Distraction osteogenesis techniques in orthognathic surgery (LECTURES)
- 3. Clinical aspects of cleft care:** Outpatient cleft clinics, ward rounds.
- 4. Operative cleft surgery:** Surgeries in the operating theatre
- 5. Research**

5.4.5. Note

For Clinical aspects of cleft care: The candidates will be taken through the various techniques of cleft lip and palate repairs. The technique to be used for each patient will be extensively discussed in a seminar. The participants will watch videos of cleft lip and palate repairs and will be asked to perform the procedures on models where available. They will then participate in the surgical repair in the theater.

They will first observe, assist and then perform the repair under supervision. The participant will take part in the evaluation of the patients and be part of the care of new and old patients. They will be exposed to the surgeons, pediatricians, orthodontists and other specialties involved in cleft care. They will also be exposed to the protocol employed in the training institution.

5.5. Learning Outcome

At the end of the training, the trainee is expected to:

1. Understand the basic anatomy of cleft anomalies.
2. Understand the role of each member of the multidisciplinary team.
3. Understand the principles of pre-operative patient preparation and assessment for safe anesthesia and surgery.
4. Understand the principles of the different surgical techniques for the repair of the cleft lip, palate and alveolus.
5. Demonstrate ability to repair under supervision.
6. Be able to repair without supervision.

6.0. COURSE ASSESSMENT

6.1. Logbook

Each trainee will maintain a logbook of all training activities they have participated in (seminars, journal reviews, ward rounds, cleft clinic), as well as all surgical procedures they have assisted and performed. Each activity/procedure should be signed on same day by the trainers. The recommended minimum number of procedures to be performed by the trainee is detailed below:

Procedure	Assisted Minimum No.	Performed Minimum No.
Primary Cleft Surgery		
Unilateral Cleft Lip Repair	28	14 (2 per month for 7 months)
Bilateral Cleft Lip Repair	14	7 (one every month for 7 months)
Cleft Lip Repair	14	7 (one every month for 7 months)
Secondary Cleft Surgery		
Alveolar Bone Graft	2	1
Palatal Fistula Repair	1	1
Nasal Reconstruction	1	-

6.2. Formative Assessment

The formative assessment will be carried out at the end of every module. This will consist of a short essay question and oral interaction on the surgical procedures. The oral interaction will be scored as Excellent, Very Good, Good, Unsatisfactory, Poor. Then trainees must score Good to Excellent in all aspects to proceed to the next module.

Any score less than that should result in a repeat of that module until they achieve the right score. The pass mark for the short essay shall be 75%. A score below 75% means that the candidate must rewrite that essay until they are able to score 75%. The course coordinators must ensure that the formative assessment at the end of each module is done correctly. And there's provision for a repeat formative assessment for each module.

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6.3. Exit (Summative) Assessment

For the exit assessment, there shall be an examination consisting of the following aspects:

- i. There should be an exit exam. A satisfactory log book should be a prerequisite for qualification to write the exit (Summative) exam.
- ii. Logbook assessment: 30 marks (minimum of 20 marks)
- iii. Oral interaction: 50 marks (minimum of 30 marks)
 - a. Principles of cleft care: 25 marks
 - b. Operative cleft surgery: 25 marks
- iv. Cleft care research (familiarity with literature and pertinent research questions): 20 marks (minimum of 10 marks)
- v. For this section, the trainee must be able to discuss the pertinent literature and controversies on cleft lip and palate.
- vi. At the exit exam, if a candidate performs unsatisfactorily in one or two aspects of the exam, remediation should be done same day or the next day.

6.3.1 Pass Mark at Exit Assessment

The composition of the final mark is:

Formative assessment: 30% (minimum of 20%)

Summative assessment: 70% (minimum of 40%)

The overall pass mark shall be 60%. To pass the exit assessment, a candidate must obtain an overall pass mark of 60%, with a pass in all parts of the examination.

7.0. CERTIFICATE TO BE AWARDED

Certificate in Cleft Surgery (Cert Cleft Surg).