Clinical Fellowship Training in Paediatric Cleft and Craniofacial Surgery

Proposal for a Post-CSCST Aspire Fellowship in Cleft Surgery

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Overview

We have a requirement to train a specialist cleft surgeon in order to address succession planning in the National Cleft and Craniofacial Unit. Despite its relatively small population, Ireland has achieved a very high standard of care in the broad area of cleft, craniofacial and paediatric head and neck surgery by closely integrating cleft and craniofacial surgery. This contrasts with the UK, for example, where cleft and craniofacial teams are largely separate. Our model of care is particularly advantageous for the many patients who fall at the intersection of cleft, craniofacial and plastic surgery of the head and neck.

It is therefore essential that an Irish cleft surgeon has, in addition to excellent training in cleft surgery, additional broader training in craniofacial and paediatric head and neck surgery. We believe that the unique configuration of the National Cleft and Craniofacial Unit provides an opportunity for very high quality training in cleft surgery and related areas of craniofacial surgery, tailored to our specific needs. This would be difficult to achieve if we were to rely entirely on fellowship training abroad and might perhaps require two separate fellowships. Furthermore, because outcomes in this area are measured over time periods of twenty years or more, it is essential that long term stability of surgical protocols are maintained. A risk of relying on overseas training is that each new appointee will have been trained in different protocols and procedures, reducing the possibility of meaningful audit and evidence-based quality improvement. We consider that two years of overseas training, with uncertain career prospects, is an unreasonable and unnecessary burden that could mitigate against attracting the most suitable candidates to this demanding area of medicine.

We propose an 18 month fellowship programme in cleft surgery and related craniofacial surgery in the National Cleft and Craniofacial Unit supplemented by shorter targeted visits to one or more international centres of excellence.
Introduction

Paediatric Cleft and Craniofacial Surgery encompasses the treatment of children presenting with orofacial clefts and complex craniofacial malformations (including for example craniosynostoses, craniofacial clefts, Treacher-Collins syndrome, hemifacial microsomia). It also includes treatment of children with facial palsy, vascular malformations and children who require reconstruction of the ear and of complex facial soft tissue defects. Although primarily developed around the treatment of congenital malformations the service now also assumes responsibility for the treatment of children with complex defects in the head and neck acquired through injury or cancer surgery. Surgical excision of complex tumours of the head and neck in children is generally carried out either by or in collaboration with the craniofacial team. Treatment of children with cleft and craniofacial conditions starts with antenatal counselling of parents and is often not completed until the middle of the third decade of the patient’s life. Outcomes are audited to internationally-agreed standards from birth through to adulthood.

Over the past 10 years, a strong and well-integrated National Cleft and Craniofacial Unit has been developed between the Children’s University Hospital, Temple St (CUH) and Our Lady’s Children’s Hospital (OLCH), supported by St James’s and the Mater Hospitals. There is a substantial clinical caseload and Ireland is now self-sufficient in this area, providing tertiary/quaternary services in craniofacial surgery to Northern Ireland. The National Cleft Programme incorporates the cleft lip and palate service in Cork University Hospital, provides a “spoke” unit at University College Hospital, Galway and Sligo General Hospital and participates with the Belfast Unit in an all-Ireland annual audit of outcomes. The same team provides care to both children and adults, allowing seamless transitioning between paediatric and adult services. The programme is described in Chapters 17 and 19 of the National Paediatric Model of Care.

The high degree of integration and close teamwork between the cleft, craniofacial, paediatric plastic surgical and maxillofacial surgical components is a particular advantage of the Irish National Cleft and Craniofacial Unit, particularly for patients who fall at the intersection of these various subspecialties and expands the range of expertise available to all of the patients. This is in contrast to most UK centres for example, where the cleft and craniofacial services are entirely separate. The National Cleft and Craniofacial Unit is fully integrated into the European Reference Network for Rare Diseases.

The complexity of the surgery and the requirement for an adequate caseload to maintain expertise means that it is not possible for an individual surgeon to maintain skills and experience in all areas of the cleft and craniofacial programme. Instead, breadth and depth of expertise is provided by a collaboration of four paediatric plastic surgeons and two maxillofacial surgeons whose areas of special expertise are as follows:

**PLASTIC SURGERY**

**Dylan Murray** (CUH and the Mater Hospital): Craniofacial surgery, facial palsy surgery

**David Orr** (OLCH and St James’s): Cleft surgery, vascular malformations

**Christoph Theopold** (CUH and St James’s): Cleft surgery, facial palsy surgery, head and neck reconstruction
Rationale for post CSCST clinical fellowship training in cleft and craniofacial surgery Ireland

Although the current consultant surgeons acquired specialist skills through fellowship training in Canada, the US, the UK, Australia and Mexico, there is a strong rationale for developing formal fellowship training in the National Cleft and Craniofacial Unit, where we have developed a specific suite of surgical protocols and are achieving consistently good long-term outcomes. Internationally, there is significant variation among cleft and craniofacial units in the specifics of surgical technique, timing and adjunctive protocols. Cleft and craniofacial surgery is unusual in that the long-term outcomes are critically affected by the effects of treatment on facial growth and development, and this is often not evident until adulthood. Thus, a surgeon commencing practice will not receive the final audit results on his or her first cohort of patients for 20 years. For practical purposes therefore, meaningful audit of a particular surgical protocol will span the careers of two generations of surgeons. It is well recognised that the best international centres maintain long-term stability of their surgical protocols, only making incremental changes in response to high quality evidence. We believe that this will be best achieved by training the next generation of cleft and craniofacial surgeons in the specific protocols of the National Cleft and Craniofacial Unit and supplementing this with targeted visits or shorter fellowships in different international centres. Relying on international centres for our training runs the risk that each newly-appointed surgeon will import a radically new protocol that they have learned on fellowship, leading to a loss of long-term continuity and a lack of meaningful audit data that can be used to drive steady incremental improvement.

We believe that the National Cleft and Craniofacial Unit has the capacity to provide excellent fellowship training in either of the formally recognised subspecialties of cleft surgery and craniofacial surgery and to provide fellowship training for a surgeon committed to paediatric plastic surgery who wished to acquire skills in ear reconstruction, complex facial soft tissue reconstruction, vascular malformations or facial palsy surgery for example. A particular advantage is that, unlike in large UK regional cleft centres, the cleft programme is integrated into the broader craniofacial programme. This allows a fellow in cleft surgery the opportunity to learn and understand the broader context of craniofacial malformation and craniofacial development and for a craniofacial fellow to develop a much better understanding of the scope of multidisciplinary cleft care.

Our current requirement is to train a fellow in cleft surgery, in recognition of a requirement for succession planning in the unit. Following this, we will seek to train a fellow in craniofacial surgery in response to the requirement for a second craniofacial surgeon to support Mr Murray. We have the capacity and caseload to provide high quality fellowship training to Irish candidates seeking a career in cleft, craniofacial or more general paediatric plastic surgery. Surgeons from a “home” specialty of either plastic and reconstructive
surgery or maxillofacial surgery would be suitable for this programme, which can be tailored to the needs of the particular fellow. We have previously hosted overseas fellows in cleft surgery from the US and Sri Lanka and have received requests for fellowship training in cleft and craniofacial surgery from overseas candidates who would bring their own funding to the post.

The projected workforce requirements suggest that we need to train one cleft surgeon followed by one craniofacial surgeon in the immediate future. Following this, the requirement for the Irish Health Service would be for one cleft or craniofacial surgeon every five years. However if high quality applicants from overseas apply with external sources of funding during “fallow” years, there is an obvious advantage in maintaining a culture of fellowship level training within the Unit.

Aim of the Clinical Fellowship in Cleft Surgery

The goal of the fellowship is to train a consultant cleft surgeon who can commence specialist independent practice using the surgical procedures and protocols of the National Cleft and Craniofacial Unit, integrating into the existing cleft and craniofacial programme. This relies on the achievement of five core competencies:

**Patient care**
- Accurate and thorough assessment of cleft patients, including complicating medical and developmental co-morbidities
- Deep understanding of the skills, roles and contribution of members of the multidisciplinary cleft team
- Planning of surgical care pathways, taking co-morbidities into account
- Demonstrate clinical, intra-operative and peri-operative decision making that is based upon sound medical knowledge that minimises complications
- Demonstrate high level of knowledge of cleft and craniofacial conditions including associated syndromes and co-morbidities
- Demonstrate proficiency in all aspects of cleft surgery including the management of complications

**Interpersonal and Communication Skills**
- Demonstrate effective communication with patients (especially children) and families
- Demonstrate empathy and a caring attitude to patients and families
- Demonstrate clear and effective oral and written communication with team members and other health personnel
- Demonstrate excellent record keeping

**Scholar and Teacher**
- Demonstrate diligent study of current medical literature and ability to critically evaluate and apply new medical information
- Contribute to clinical research and dissemination of new knowledge
- Demonstrate engaged and effective education of undergraduates and postgraduates

**Professionalism**
• Demonstrate high standards of ethical practice and probity in interactions with patients, colleagues and in relation to research activity
• Recognise limits of skills, knowledge and experience and be prepared to seek or provide all appropriate help to provide the highest standards of care for patients
• Demonstrate compassion, respect and advocacy for patients. Maintain all appropriate patient confidentiality
• Demonstrate commitment to effective teamwork
• Recognise and engage with roles in relation to child protection and welfare
• Be informed and observant of medico-legal guidelines and requirements

Leadership

• Demonstrate effective skills for leadership of the multidisciplinary cleft team
• Demonstrate effective skills for leadership and administrative roles within the wider hospital and the profession of medicine

Structure of the Clinical Fellowship in Cleft Surgery

This programme is designed for a trainee who has completed higher surgical training in Plastic Reconstructive and Aesthetic Surgery or Maxillofacial Surgery, has passed the Intercollegiate Specialty examination and will have achieved CSCST prior to commencing the fellowship. The trainee will have demonstrated academic and clinical commitment to cleft surgery.

This is an 18 month programme designed to equip the trainee with the knowledge, skills and attitudes to commence independent practice as a specialist cleft surgeon within a multidisciplinary cleft team. The fellow will be expected to achieve the knowledge and competencies outlined in the Core Curriculum for Cleft Palate and Other Craniofacial Anomalies of the American Cleft Palate-Craniofacial Association (attached). We would expect that the fellow will follow the 18 months of core training with one or more shorter visits to international centres of excellence in cleft surgery prior to taking up a position as a consultant cleft surgeon in Ireland.

Syllabus

The core syllabus in cleft surgery includes:

• Embryological and anatomical basis of cleft lip and palate and related craniofacial anomalies
• Genetic basis of cleft lip and palate
• Antenatal counselling
• Assessment of the newborn with cleft lip and palate, assessment of co-morbidities and their influence on treatment protocols
• Multidisciplinary management of Pierre Robin sequence
• Management of feeding issues in cleft lip and palate
• Nasoalveolar moulding and orthopaedic/orthodontic preparation for lip repair
• Cleft lip repair (unilateral and bilateral including techniques of simultaneous hard palate repair, primary rhinoplasty and staged lip repairs)
• Cleft palate repair
• Speech assessment and investigation of cleft and non-cleft velopharyngeal speech disorder including nasendoscopy, videofluoroscopy and MRI
• Management of 22q11.2 microdeletion syndrome and similar disorders
• Secondary palate surgery including fistula repair, veloplasty and pharyngoplasty and the assessment and management of sleep apnoea
• Principles of dentofacial development and orthodontics in cleft lip and palate
• Alveolar bone grafting and principles of dental reconstruction in cleft lip and palate
• Principles of orthognathic surgery
• Cleft rhinoplasty and secondary lip surgery
• Psychosocial issues in cleft lip and palate
• Child protection issues in relation to cleft lip and palate and paediatric plastic surgery in general
• Audit protocols for cleft lip and palate

In addition, the fellow will be expected to achieve a strong understanding of the assessment and management of complex craniofacial conditions and the principles of craniofacial surgery, although will not be expected to achieve independent proficiency as a craniofacial surgeon. The fellow will also be expected to achieve a strong understanding of the assessment and management of vascular malformations, facial palsy, complex soft tissue facial defects and ear reconstruction and will expect to achieve independent technical proficiency in one or more of these areas.

Clinical responsibilities
The core clinical responsibilities will be in cleft lip and palate, but there will be extensive additional participation in craniofacial surgery, vascular malformations, facial palsy, complex soft tissue facial defects and ear reconstruction.

Cleft lip and palate

Cleft clinics
The fellow will rotate through multidisciplinary cleft clinics in CUH, OLCH and St James’s Hospital covering all aspects of cleft management including antenatal counselling, new baby assessment, assessment for speech surgery, structured audit and follow up, combined orthodontic and maxillofacial clinics and teenage and adult clinics. The fellow will review clinical records and relevant radiology in preparation for the clinic, participate in discussion with the MDT and produce a summary outcome and action plan for each patient.

Operative surgery
The fellow will rotate through operating lists in CUH, OLCH and St James’s Hospital and progress to independent competence, including the management of complications, in the techniques of primary and secondary cleft surgery standardised in the unit.

Pre- and post-operative management
The fellow will fully participate in pre- and post-operative care of patients on the operating lists that he or she attends, including list planning and discharge and follow up planning.

Emergency and on call duty
During the week, fellow will not be expected to participate in the general on call rota for either plastic or maxillofacial surgery. They will be on call for cleft and/or craniofacial on the night following operative lists that they attend in the relevant hospital.

In order to maintain skills in the generality of their core specialty, the fellow will join the weekend (Saturday and Sunday) on call rota on a 1:6 basis alternating between CUH/Mater Hospital and OLCH/St James’s Hospital.

**Craniofacial**

**Clinics**

The fellow will rotate through craniofacial clinics at CUH, the Mater and St James’s Hospitals as well as the Facial Difference Clinic at OLCH. As in the cleft clinics the fellow will review notes and radiology in preparation for the clinics and produce summary outcome and action plans.

**Operative Surgery**

The fellow will rotate through craniofacial operating lists at CUH and the Mater Hospital and participate in the pre- and post-operative care of patients on those operating lists.

**Paediatric plastic surgery**

**Clinics**

The fellow will rotate through the multidisciplinary vascular malformation clinic at OLCH, complex ear and facial reconstruction clinics at OLCH with Mr O’Donovan and the facial palsy clinics at CUH and St James’s Hospital with Mr Murray and Mr Theopold.

**Operative Surgery**

The fellow will rotate through operating lists to facilitate experience of complex cases as they arise.

**Audit and Quality Improvement**

The fellow will participate in the routine collection of standard long term audit outcome data at clinics and will assist in the preparation and presentation of data at the annual All-Ireland cleft audit day, including reflective analysis of the results and implementation of quality improvement plans.

The fellow will maintain the ongoing audit of early post-operative outcomes of cleft palate repair and present and discuss the CUSUM analysis on a three-monthly basis.

**Research**

The fellow will be expected to make a significant contribution to the clinical research mission of the cleft and craniofacial programme. They will have access to the existing prospective 20-year database of cleft diagnoses and outcomes. In addition to mentoring from senior colleagues in the unit, access to expertise in statistical modelling can be provided through the Children’s Research Centre at OLCH. The fellow will be expected to attend and present clinical research at international meetings, such as the Craniofacial Society of Great Britain and Ireland and to participate in the Clinical Excellence Network in Cleft Surgery at the Craniofacial Society.

Current research themes in cleft in the Unit include:
• Development of clinical prediction rules for outcomes of primary surgery and secondary speech surgery
• Optimising the management of Pierre Robin sequence
• International collaboration to establish a standardised minimum dataset to record outcomes of surgery for velopharyngeal speech disorder
• Development of an enhanced recovery programme for palate repair
• Development of a standardised audit protocol for 22q11.2 microdeletion syndrome

Teaching
The fellow will be expected to contribute to the teaching of undergraduate medical students, core surgical trainees and higher surgical trainees on a regular basis either through lectures or tutorials. He or she will also participate in the development of teaching materials.

Professionalism
The fellow will have the opportunity to participate in relevant modules of the Human Factors Programme in surgical training at RCSI.

Relationship to the Higher Surgical Training Programme
It is important to state that the presence of a cleft fellow will not impair the opportunities for learning and experience in this area of the existing higher surgical trainees. The fellow will be operating at a significantly advanced level from the Specialist Registrars. The presence of the fellow does not preclude the SpR from assisting at the operation or attending the specialist cleft clinics. It is generally not considered appropriate or necessary for SpRs who are not specialising in cleft surgery to actually undertake this kind of surgery themselves during training. We would expect the presence of a cleft fellow to improve the educational experience of the SpRs by contributing to teaching sessions, journal clubs and research meetings at an advanced level. Furthermore, the cleft fellow will be rotating between different potential weekly timetables to provide a balanced range of clinic, theatre, cleft, craniofacial, paediatric plastic surgery, research, audit, teaching and private study and reflection.

Timetables
Appendix 1 outlines a timetable of weekly activities drawn from across the Cleft and Craniofacial Unit. This demonstrates the depth and breadth of activity in the Unit, and clearly the fellow will only be able to attend a subset of this activity on any given week.

Appendix 2 presents a sample of timetables of weekly activity for the fellow. It is anticipated that the fellow will rotate between different potential weekly timetables to provide a balanced range of clinic, theatre, cleft, craniofacial, paediatric plastic surgery, research, audit, teaching and private study and reflection.

Fellowship Governance
Progress of the fellow through the programme will be evaluated and monitored by a Fellowship Review Board consisting of:
- David Orr, Consultant Cleft and Plastic Surgeon at Our Lady’s Children’s Hospital and St James’s Hospital, Dublin
- Dylan Murray, Consultant Craniofacial and Plastic Surgeon at Children’s University Hospital and the Mater Hospital, Dublin
- Christoph Theopold, Consultant Cleft and Plastic Surgeon at Children’s University Hospital and St James’s Hospital, Dublin
- Patricia Eadie, Consultant Plastic Surgeon at Our Lady’s Children’s Hospital and St James’s Hospital. (Dr Eadie is not directly involved in the Cleft and Craniofacial Unit but is a senior plastic surgeon with extensive experience of training and assessment and can provide an external view)

The Fellowship Review Board will report to the Royal College of Surgeons in Ireland through the Irish Postgraduate Surgical Training Committee.

**Assessment and Deliverables**

The fellow will meet with the Fellowship Review Board every six months for an appraisal of satisfactory progression. The fellow will be expected to maintain an operative logbook and a portfolio of audit and research activity and workplace-based assessments. Workplace based assessments will be based on the structured assessment forms provided in the Intercollegiate Surgical Curriculum Programme. In each six month period the fellow should undertake a minimum of three Case Based Discussions and three Procedure Based Assessments of cleft operations. The fellow should also complete a Multi Source Feedback.

This process will allow assessment of the fellow’s progress in the core domains outlined in the Aims of the Clinical Fellowship in Cleft Surgery:

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<th>Domain</th>
<th>Assessment</th>
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<td><strong>Patient care</strong></td>
<td>Feedback from clinical supervisors and MDT</td>
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<td>Case-based discussion</td>
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<td>Procedure-based assessment</td>
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<td><strong>Interpersonal and Communication Skills</strong></td>
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<td>Multi-source feedback</td>
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<td><strong>Scholar and Teacher</strong></td>
<td>Feedback from teaching activity</td>
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<td>Presentation at journal club/research meeting</td>
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<td>Presentation at international scientific meetings</td>
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<td>Minimum of one significant clinical research paper to be published</td>
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<td><strong>Professionalism</strong></td>
<td>Feedback from clinical supervisors and MDT</td>
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<td></td>
<td>Multi-source feedback</td>
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<td><strong>Leadership</strong></td>
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In the event that the fellow shows unsatisfactory progression a remediation process will be offered and put in place as required. If this is unsuccessful, the fellow may be removed from the programme. In such a case, the fellow will have the opportunity for an appeal process through the Irish Surgical Postgraduate Training Committee.