

# HIGHER SPECIALIST TRAINING IN PAEDIATRIC SURGERY

## CURRICULUM EDUCATIONAL CONTENT AND STRUCTURE OF TRAINING PROGRAMMES

### BACKGROUND

At its inception as a recognised independent surgical specialty association in 1953, the aim of the British Association of Paediatric Surgeons (BAPS) was to “set a standard, not create a monopoly”. The number of full-time paediatric surgeons was limited to a few pioneers in the specialty.

Since then, there has been a progressive increase in the number of fully trained paediatric surgeons, as well as in the number of specialist centres where neonatal and index cases can be concentrated. In 1996, the number of consultant paediatric surgeons was 90, with 22 senior registrars and 16 career registrars in training. The BAPS recommendations for a specialist centre are:-

1. Trained and accredited paediatric surgeons (four general paediatric surgeons and one paediatric urologist) and paediatric anaesthetists.
2. Full range of specialist services for children including paediatrics, neonatology, intensive care, radiology, neurosurgery, nephrology, cardiology, oncology and pathology.
3. Nursing staff trained in paediatric nursing and paediatric critical care nursing.
4. Support services catering for the specific needs of children including dietitians, social workers, play leaders and teachers.
5. Facilities designed for children in accident and emergency departments, outpatients, wards, operating theatres, day care unit, radiology and laboratory services.
6. Accommodation for parents with unrestricted access to their children.

In the 1980s the goal of the BAPS was one paediatric surgeon per one million population; this has recently been revised to 1:500,000 with the ultimate aim of treating all children under the age of five years. Although this objective is not achievable in the immediate future, with the increased number of trainees it should be feasible within the next five to ten years.

The Calman recommendations for higher specialist training (HST) in surgery have resulted in a contraction of the training period with increased emphasis on supervised training and reduction in the amount of time trainees spend “as a pair of hands” carrying out health service provision.

## **ORGANISATION**

### **1. Objectives**

To provide a comprehensive and structured training programme in Paediatric Surgery for those who have completed basic surgical training.

To enable trainees to achieve the experience and training necessary for independent practice and, having passed the Intercollegiate Specialty Examination, to be awarded a Certificate of Completion of Specialist Training and entry in the GMC Specialist Register.

### **2. Entry Criteria**

The minimum entry criteria are satisfactory completion of basic surgical training (or equivalent) and possession of the MRCS/AFRCS (or equivalent), such equivalence being jointly agreed by the surgical Royal Colleges of Great Britain and Ireland. However, the SAC in Paediatric Surgery has recommended that it is desirable for entrants to higher training to have an additional one year of experience in post MRCS/AFRCS general surgery (or equivalent) and six months in neonatal medicine.

### **3. Duration**

The programme will be six years in HST of which a minimum of five years must be spent in clinical Paediatric Surgery. One year (the 'flexible year') can be spent in research or a 'sub-specialty' such as paediatric urology, hepatobiliary surgery or intensive care. However trainees must seek SAC approval of work undertaken in the flexible year **prospectively** or recognition of the period(s) in question may be denied.

### **4. Organisation**

The SAC has established six training consortia as follows:-

Glasgow/Edinburgh/Newcastle  
Leeds/Sheffield/Nottingham  
Liverpool/Manchester  
Birmingham/Bristol/Cardiff  
Southampton/Thames Regions (London)/Oxford  
Belfast/Dublin

The groupings were agreed taking into consideration the locality of the centres involved, the variety and breadth of clinical material and the strengths and weaknesses of each individual centre. It was envisaged that the rotation would involve only SINGLE move between the centres involved.

Each consortium has a co-ordinator with overall responsibility for the training consortium and each centre has a local programme director.

### **5. Assessment**

The initial trainee assessment will be at six months following entry to HST. Assessments will then be made at one year and the annually thereafter.

An unsatisfactory assessment may result in the termination of the appointment.

Assessment forms are to be completed by the trainers and signed by both the trainers and trainee.

Trainees will complete an annual assessment of their training post/slot which will NOT be seen by the trainer by sent directly to the SAC, the regional postgraduate dean and the programme director.

**6. Log Books**

Logbooks must be produced at annual assessments and SAC visits of inspection to training centres. Trainees are required to submit logbooks to the SAC for inspection at the end of year 4 and immediately prior to the end of the training programme before consideration for the award of the CCST.

Programme directors will review logbooks on a regular basis throughout the training programme.

**7. Intercollegiate Specialty Examination**

Trainees are eligible to apply for the Intercollegiate Specialty Examination after satisfactory completion of the fourth year of HST.

**8. Award of the Certificate of Completion of Specialist Training (CCST)**

The assessment of trainees by the SAC for the recommendation of the award of the CCST (UK) at the end of the training programme will be dependent on the following:-

- (a) satisfactory completion of six years of HST, of which a minimum of five years must have been spent in clinical paediatric surgery;
- (b) satisfactory submission of logbooks demonstrating that the trainee has met the 'indicative targets' listed in the *Higher Surgical Training Curriculum*;
- (c) evidence of active participation in the activities outlined in the Educational Content for *Higher Specialist Training (SpR)* in Paediatric Surgery;
- (d) success in the Intercollegiate Board Examination in Paediatric Surgery;
- (e) satisfactory submission of the JCHST Trainee Assessment Forms and Record of In-Training Assessment Forms (RITA) signed by the programme director/trainers and the trainee;
- (f) references from the consortium co-ordinator/programme director/consultant supervisor, on behalf of all the trainers involved in the training, indicating a generally satisfactory performance.

In order to ensure that the above conditions are met at the end of the training period, it is essential that the consortium co-ordinator, programme director, consultant supervisors, Postgraduate Dean and SAC maintain close contact.

Trainees awarded the CCST will be eligible to apply to the General Medical Council for entry into the Specialist Register.

## **CURRICULUM**

### **1. Operative Surgery Content of Programme**

The minimum required operative experience is laid down as an aggregate for each logbook defined group of procedures; the exceptions to this are clearly indicated. The numbers given are indicative targets. It is expected that each trainee will be intimately involved in all aspects of the treatment of most of the cases for which he or she scrubs.

### **2. Operative Experience**

The basic requirements are outlined. Operative experience will be acquired through progressively increasing surgical responsibility from pre- and post-operative management and assisting at surgery in years 1 and 2, to operative responsibility with 'minimum supervision' in clinical years 4 and 5.

#### **Neonatal**

The trainee should scrub for 150 cases from the following list:

- Anorectal malformations – (i) high (ii) low
- Diaphragmatic Hernia
- Duodenal Atresia/Stenosis
- Exomphalos
- Gastroschisis
- Hirschsprung's (biopsy)
- Hirschsprung's (colostomy)
- Hirschsprung's (primary pull through)
- Hydrocephalus
- Intestinal Atresia/Stenosis
- Malrotation/Volvulus
- Meconium Ileus
- Neonatal N.E.C.
- Oesophageal Atresia
- Spina Bifida
- Tumour

In addition the trainee should scrub for the following operations as listed:

Central Venous lines (all ages)	50
Inguinal Hernia/Hydrocele (all ages)	200
Infantile Hypertrophic Pyloric Stenosis	40

#### **Gastrointestinal**

The trainee should scrub for 200 cases from the following list:

- Anorectal/definitive
- Biliary Atresia
- Cholecystectomy
- Colostomy
- Colostomy closure
- Fundoplication

Gastroscopy  
Gastrostomy  
Hirschsprung's/definitive  
Ileostomy  
Ileostomy closure  
Intestinal obstruction  
Intestinal resection  
Intussusception  
Splenectomy  
Umbilical/epigastric hernia

In addition the trainee should scrub for the following operations as listed:

Appendicectomy	100
Laparoscopy	20

### **Urology**

The trainee should scrub for 175 cases from the following list:

Calculus extraction (endoscopic)  
Cystolithotomy  
Cystoscopy  
Nephrectomy  
Nephrostomy (open)  
Nephrostomy (percutaneous)  
Operation for torsion  
Orchidectomy  
Partial nephrectomy  
Posterior urethral valves  
Pyelolithotomy  
Pyeloplasty  
Ureteric reimplant  
Ureterolithotomy  
Ureterostomy  
Urinary diversion  
Urinary un-diversion

In addition the trainee should scrub for the following operations as listed:

Circumcision	100
Orchidopexy	150
Hypospadias repair	50

### **Thoracic**

The trainee should scrub for 75 cases from the following list:

Aortopexy  
Bronchoscopy  
Oesophageal dilatation  
Oesophagoscopy  
Oesophageal replacement

- Oesophageal resection
- Pleural drainage
- Pulmonary resection
- Thoracotomy for excision of duplication (cyst)
- Thoracotomy for tumour excision

### **Malignant**

The trainee should scrub for 20 major excisions (not including biopsies) from the following list:

- Hepatoblastoma
- Neuroblastoma
- Rhabdomyosarcoma
- Wilms/nephrectomy

### **General**

The trainee should scrub for 75 cases from the following list:

- Abscess drain
- Branchial remnant
- Cleft lip
- Cleft palate
- Ganglion/bursa etc.
- I.G.T.N.
- Joint aspiration
- Shunt (VP/VA)
- Shunt revision
- Skin graft
- Thyroglossal remnant
- Tracheostomy
- Wound toilet/suture

### **3. Non-Operative Surgery Content**

The operative content of the programme must not be seen as the only important one. Training must also include guidance and instruction in:

- Advanced Paediatric Life Support (APLS or equivalent course)
- Antenatal diagnosis and counselling
- Appropriate investigation
- Audit
- Clinical research
- Complications - recognition and management of
- Computer technology
- Day case surgery
- Diagnosis of cold and emergency cases (including trauma)
- Embryology
- Genetics
- Growth and development of the child
- Head injury management
- Health and safety at work
- Health Care Management
- Imaging techniques

- Junior staff management
- Multidisciplinary patient management
- Neonatal intensive care
- Non-operative management (when indicated)
- Nutrition (including total parenteral)
- Outpatient management and follow up
- Physiology of the new-born
- Physiological response of the child to injury
- Pre and post operative care
- Preparation of scientific papers for publication
- Priority setting
- Teaching
- Transplantation in childhood (Principles)
- Waiting list management

If the centre(s) in which the trainee works cannot provide all these elements of training there is a need for attendance at appropriate courses/training sessions.

At all times the trainee must keep abreast of relevant surgical literature.

There should be a structured educational programme as suggested in Paragraph 4 below.

#### **4. Suggested Educational Programme**

##### **(a) Year 1: Basic Principles**

- Embryology and genetics
- Physiology of the neonatal and paediatric surgical patient
- Endocrine and metabolic response to surgery
- Fluid and electrolyte management
- Respiratory physiology and management
- Cardiovascular physiology and support
- Nutritional support – enteral and parenteral
- Infection and immunity
- Haematological problems and management
- Paediatric anaesthesia
- Trauma and resuscitation
- Malignancy and chemotherapy

##### **(b) Year 2: Management of Common Conditions**

- Hernias and hydroceles
- Undescended testis
- Disorders of the umbilicus
- Pyloric stenosis
- Circumcision
- Appendicitis and non-specific abdominal pain
- Intussusception
- Urinary tract infection and vesicoureteric reflux
- Swellings of the head and neck
- Vascular access
- Management of burns
- Head injuries

(c) Year 3

Diaphragmatic hernia  
Gastrooesophageal reflux  
Child abuse  
Malrotation and meconium ileus  
Intestinal atresia  
Hypospadias  
Necrotizing enterocolitis  
Renal disorders and fetal urology  
Abdominal trauma, including liver, spleen, kidney, gastrointestinal  
Duplications and Meckel's diverticulum  
Gastrointestinal endoscopy  
Anterior abdominal wall defects

(d) Year 4

Pelvi-ureteric junction obstruction  
Neuroblastoma  
Bladder and urethral disorders, neuropathic bladder  
Nephroblastoma  
Spina bifida  
Pulmonary disorders and chest wall deformities  
Oesophageal atresia  
Anorectal anomalies  
Hirschsprung's disease  
Miscellaneous tumours – rhabdomyosarcoma, endocrine tumours  
G.I. bleeding  
Portal hypertension

(e) Year 5

Transplantation  
Paediatric laparoscopy  
Ambiguous genitalia  
Liver tumours  
Biliary atresia and choledochal cyst  
Oesophageal replacement  
Short bowel syndrome  
Ulcerative colitis and Crohn's disease  
Vascular malformations  
Exstrophy and prune belly syndrome  
Pancreatic disorders  
Thyroid and parathyroid disorders



## **5. Educational Content for Higher Specialist Training (SpR) in Paediatric Surgery**

As a basic requirement, trainees are expected to demonstrate regular attendance and active participation in:

Clinical discussions, ward rounds and conferences

Journal clubs

Morbidity and mortality conferences

Audit meetings

Radiological and pathological conferences

Tumour board meetings

Antenatal diagnosis and counselling

Clinical research

Regional, national and international association meetings with presentation of papers and publications of original articles and case reports. Trainees are required to attend a minimum of six to ten Specialist Registrar Training Days organised by BABS and three Attendance at a management course

Certificate in Advanced Paediatric Life Support (APLS)

Intensive Care