



**THE BRITISH ASSOCIATION OF
PAEDIATRIC SURGEONS**

**PAEDIATRIC SURGERY:
STANDARDS OF CARE**

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The aim of Paediatric Surgery is to set a standard,
not to seek a monopoly.

- Sir Denis Browne

Abbreviations:

AED	Accident and Emergency Department
APLS	Advanced Paediatric Life Support
ATLS	Advanced Trauma Life Support
BAPS	British Association of Paediatric Surgeons
DGH	District General Hospital
JCHST	Joint Committee on Higher Surgical Training
NSCAG	National Specialist Commissioning Advisory Group
PLS	Paediatric Life Support
SAC	Specialist Advisory Committee

1. BACKGROUND

Paediatric Surgery has evolved as a speciality over the past 60 years in response to the recognition of the anatomical, physiological and emotional differences between children and adults, the unique surgical conditions affecting infants and children, and the social and psychological needs of children and their families. Children are best cared for in a dedicated paediatric environment by multidisciplinary staff trained and experienced in the care of children¹⁻⁵. Specialist paediatric surgery is provided mainly in specialist children's surgical units by staff who specialise in the care of children; however, many children undergoing surgery are treated in DGH by general surgeons with experience in paediatric surgery¹. The current configuration of paediatric surgical services is a regional network arrangement with a regional specialist centre linked to several DGH providing general paediatric surgery. Although it may be argued that, in an ideal world, all children who require surgery should be cared for by a specialist paediatric surgeon in a children's unit, the manpower and resources currently available are unable to support this and there still is a need for high quality general paediatric surgery at DGH.

The past decade has seen major changes in the delivery of health care in the United Kingdom, which has influenced the flow of children between DGH and specialist centres. The initial changes emanated from fiscal restructuring; more recently, transparency and accountability, now embodied in Clinical Governance⁶, have influenced clinical practice and referral patterns, which are still adapting to the new order. The indications are that in the future there will be fewer general surgeons with training in paediatric surgery available to provide children's surgery at DGH, with a resultant increase in the need for children and their families to travel to regional centres for surgical care.

In the light of these developments, this document seeks to define the scope of paediatric surgery at DGH as well as specialist centres, sets standards for the provision of paediatric surgery and addresses the manpower and resource needs of the speciality. In working to achieve these goals, a pragmatic approach is needed to avoid compromising existing arrangements that do not yet meet these standards, but none-the-less provide a good quality service for children.

2. THE SPECTRUM OF PAEDIATRIC SURGERY

The speciality of Paediatric Surgery embraces a wide range of organ systems and is the only specialty defined by the age of the patient as well as the disorder. Paediatric Surgery comprises Specialist Paediatric Surgery, General Paediatric Surgery and Paediatric Urology

This definition of Paediatric Surgery **does not include** speciality surgical services for children which have devolved from adult services and are provided either by surgeons who combine adult and paediatric practices, or by full-time paediatric specialists in these disciplines. The Royal College of Surgeons of England has published standards for these paediatric services¹, which include Otorhinolaryngology, Oral and Maxillo-facial Surgery, Ophthalmology, Orthopaedic Surgery, Plastic Surgery, Neurosurgery and Cardiothoracic Surgery.

SPECIALIST PAEDIATRIC SURGERY

Specialist paediatric surgery consists of the following five categories.

- **Neonatal Surgery** - This is defined as the surgery of infants up to 44 weeks post-conceptual age (gestational age + postnatal age)². With the availability of antenatal diagnosis, neonatal surgical care also includes antenatal counselling of parents and other health professionals, and advising on antenatal therapeutic intervention when appropriate.
- **The surgical management of infants and children with conditions requiring specialist expertise.** These include:
 - complex congenital abnormalities, such as ano-rectal malformations.
 - benign and malignant tumours (notably abdominal, thoracic and soft tissue tumours)*, and provision of central venous access.
 - hepato-biliary disorders
 - major or potentially complex gastro-intestinal abnormalities, including gastro-oesophageal reflux surgery, intussusception, inflammatory bowel disease.
 - major trauma** and care of the intentionally injured (abused) child
 - abnormalities of the chest, including congenital lung abnormalities, empyema, chest wall deformity
 - endocrine disorders
 - vascular and lymphatic abnormalities
 - other soft tissue abnormalities

- certain variants of common abnormalities, such as the impalpable testis
- diagnostic endoscopy
- endoscopic surgery.
- **The management of infants and children with relatively straightforward surgical conditions, who have an associated disorder which in itself requires management in a specialist centre.** An example is a child with an inguinal hernia who also has congenital cardiac disease or who requires specialist anaesthetic management.
- **Paediatric Urology** is the surgical management of congenital and acquired anomalies of the genito-urinary system in children. In particular, expertise is needed for the pre-and post-natal management of congenital anomalies of the urinary tract discovered on prenatal ultrasound screening, and for the management of functional disorders of the urinary tract, notably vesico-ureteric reflux, the neuropathic bladder and urinary tract stone disease.
- **Adolescent and adult surgery** requiring the expertise of a paediatric surgeon, for example congenital conditions recognised late or requiring further reconstruction, such as female genital anomalies.

There is overlap with other paediatric specialities for some conditions. In some regions one speciality group will manage a condition, in others a different group, or more than one group, may manage the same condition. This is acceptable on condition that providers are appropriately trained and a high quality of care is maintained. Examples of other speciality involvement include:

Condition	Other speciality groups
Hypospadias	Plastic surgery
Gastro-intestinal endoscopy	Paediatric gastroenterology
Bronchoscopy	ENT, respiratory paediatrics
Chest wall deformity	Paediatric thoracic surgery

***Oncology:**

Childhood tumours are biologically different to adult malignant tumours and the best outcomes are achieved in specialist paediatric oncology centres. Children with suspected malignancy must be referred to a specialist centre for investigation and treatment, including surgical biopsy.

****Major Trauma**

Trauma is the leading cause of death in children over one year of age. Optimal management is provided at specialist centres with collective experience and an understanding of the unique anatomical and physiological characteristics of the injured child⁷; this is particularly relevant to the non-operative management of abdominal solid organ injuries, and the psychological effects of injury. The emotional needs of the child must also be provided for. The specialist paediatric surgeon plays an important role in coordinating the care of the child with multiple injuries.

GENERAL PAEDIATRIC SURGERY

General paediatric surgery is the surgical treatment of relatively common disorders that usually do not require the resources of a specialist surgical unit. These include the following:

Elective procedures:

- "herniotomy" for congenital inguinal hernia and hydrocoele
- orchidopexy for the palpable undescended testis
- circumcision
- removal of minor soft tissue abnormalities
- repair of umbilical hernia

Emergency procedures:

- appendicectomy
- correction of torsion of the testis
- operation for incarcerated inguinal hernia
- pyloromyotomy
- less complex trauma

The decision whether or not to treat locally is the responsibility of the local surgeon. Particular difficulties arise with emergencies when the general paediatric surgeon and/or the paediatric anaesthetist are not on call. This is discussed in Section 5, page 15.

GUIDELINES FOR GENERAL PAEDIATRIC SURGICAL CONDITIONS

Elective surgery

Inguinal hernia: in infants, operation is advised as soon as possible after diagnosis because of the high risk of incarceration during infancy.

Hydrocoele: most hydrocoeles diagnosed in infancy will resolve spontaneously, therefore operation for hydrocoele should be delayed until after 18 months of age.

Undescended testis: orchidopexy is recommended before the age of two years. The non-palpable testis should be referred to a specialist centre.

Circumcision: the only firm medical indication for circumcision is pathological phimosis characterised by scarring of the prepuce, which is rare before the age of five years⁸.

Umbilical hernia: most will resolve spontaneously and the risk of incarceration is

low. Operation is rarely necessary before the age of five years.

The following conditions require urgent management

Incarcerated Inguinal Hernia: Reduction must be attempted with care to avoid damaging the incarcerated bowel. If successfully reduced, herniotomy is performed after 48 hours. Repair of a non-reducible (incarcerated) inguinal hernia in an infant should be undertaken by a surgeon with experience in infant hernia surgery.

Torsion of the Testis: In a child with an acute scrotum, torsion of the testis must be presumed until definitively excluded; emergency exploration usually is required to confirm the diagnosis. In the newborn infant, urgent referral to a specialist unit is mandatory.

Appendicitis: Presentation may not be typical in the younger child, who may be disproportionately ill. The possibility of transfer should be discussed with the specialist centre.

Infantile Hypertrophic Pyloric Stenosis: Patients must be managed in partnership with a paediatrician. Pre-operative correction of fluid, electrolyte and acid-base abnormalities is essential.

Intussusception: Arrangements for management should be agreed by the specialist centre and the DGH. Although the surgical management may appear straight-forward, infants with intussusception often are seriously ill and the disorder carries significant morbidity and mortality as a result of delayed diagnosis and inadequate or inappropriate management⁹. Most infants can be treated successfully by pneumatic reduction; for the uncomplicated case, surgery is not an acceptable alternative when radiological facilities are not available. Radiological reduction must only be attempted in a hospital where the radiologist has the appropriate continuing experience and where a surgeon and an anaesthetist competent to deal with any complications are available. Generally, transfer after diagnosis and resuscitation is in the best interests of the infant.

Trauma: The management of the injured child is significantly different to that of adults. Major injuries are uncommon in children and should be managed in a specialist paediatric surgical centre. The number of children presenting to DGH AED departments with severe injuries is relatively small (0.007% of AED attenders at a DGH compared to 0.2% at a children's hospital)¹⁰. Protocols for management and criteria for transfer should be in place¹¹. Early consultation between consultants at the DGH and the specialist centre is strongly advised. Children who are seriously injured should be stabilised at the nearest hospital with paediatric facilities and then transferred to a specialist unit. Hospitals receiving injured children should have in place a trained trauma response team that includes APLS certified staff and structured care pathways¹².

3. A CHILD CENTRED SERVICE

In planning and delivering surgical services for children, the physical and emotional needs of the child are paramount. The family or other carers, as well as the child if sufficiently mature, should be involved in discussions and decision making and fully informed at all stages of the management process.

Services for children must take into account the need for child friendly facilities, including the day care unit, outpatient department and pre- and postoperative wards. The privacy of the child must be protected.

In the outpatient clinic, sufficient time must be available for discussion and counselling.

Obtaining informed consent is a process that may involve more than one meeting with the surgeon, and input from other disciplines, notably nursing and anaesthesia. Assent or consent should be obtained from the competent child.

Before admission for operation, the child and family should be provided with information about the hospital, as well as the pre- and postoperative management and discharge arrangements. Where possible, information should be verbal, written and illustrated.

The parents/carers must be allowed to be with the child as far as is reasonable in the ward, in the anaesthetic induction room and when fetching the child from recovery, and to participate in the care of the child in the ward.

Surgeons and other staff caring for children must have received the appropriate training and accreditation¹³. It is the responsibility of employers to verify this.

4. SPECIALIST PAEDIATRIC SURGERY

The best clinical outcomes are achieved when the number of patients being treated in a unit is sufficient for a high level of surgical, anaesthetic and nursing expertise to be maintained in respect of the selection of patients for operation, pre- and postoperative care, and operative skills¹⁴. In addition, children differ from adults physically and psychologically, and have special needs that must be provided for.

THE SPECIALIST PAEDIATRIC SURGICAL UNIT

The specialist care of children at tertiary level should be concentrated in designated units where there are the appropriate staff and facilities and a critical mass of patients sufficient to ensure an effective level of experience^{1,3,14,15,16}. Most specialist paediatric surgery is based in large regional units located in a children's hospital or in the children's wing of a regional hospital, with access to the full range of specialist paediatric services and to maternal units.

Standards for a specialist paediatric surgical service:

- Specialist paediatric surgeons and paediatric urologists accredited by the JCHST through the SAC for Paediatric Surgery, with ATLS and APLS certification
- Anaesthetists accredited in paediatric anaesthesia^{17,18} with responsibility for children's anaesthesia and for providing and monitoring a policy for post-operative pain control
- A full range of specialist services for children, including paediatric medicine, neonatal medicine, paediatric intensive care, paediatric radiology (with 24 hour cover), and paediatric specialists in neurosurgery, orthopaedics, plastic surgery, nephrology, cardiology, oncology, gastroenterology and pathology, as well as child psychiatry and child psychology. Ideally these should be on a single site
- A surgical neonatal unit on the same site as the paediatric surgical unit to facilitate continuity of care.
- Nursing staff accredited in children's nursing, paediatric critical care nursing and neonatal nursing².
- Support services catering for the specific needs of children, including dietitians, physiotherapists, social workers, play leaders and teachers.
- In-patient wards specifically for children.

- Separate facilities for children in the accident and emergency department, outpatient clinic, operating theatre (including a dedicated emergency theatre for children), day case unit, radiology department and laboratories.
- Investigative / physiological laboratory services staffed and equipped for children, such as gastro-intestinal and gait laboratories.
- Accommodation for parents, who in general should have unrestricted access to their children and participate in their care.
- In-patient facilities for adolescents¹⁹.
- An organised system for the emergency care of injured children, including a trained paediatric trauma team¹².
- Links with community child services to ensure seamless care following discharge from hospital.
- Links with adult services for a smooth transition to adult care. This is particularly important for patients with multiple disabilities and special needs.
- Secretarial services and offices to support the surgical staff.

THE SPECIALIST PAEDIATRIC SURGEON

Consultant workload.

The New Deal and working time directives, as well as the effect of Calman training on the experience of specialist registrars, are having a significant impact on the working life of surgeons. Increasing sub-specialisation may also bring additional responsibilities. With the fragmentation of hours of work of junior doctors and the move to a pattern of shift work in surgery and other specialties, continuity of care is more than ever dependant on consultant paediatric surgeons. The demands on surgeons arising from revalidation and Clinical Governance must also be taken into account when developing job plans. All consultants should have the opportunity to undertake clinical or laboratory based research as a component of their continuing professional development, and to contribute to the development of the Health Service.

The responsibilities of a Consultant Paediatric Surgeon²⁰ include:

- outpatient clinics
- outreach clinics
- ward rounds
- operating lists
- pre- and postoperative counselling, including obtaining informed consent from parents / carers and the child if competent.
- antenatal counselling

- providing support and counselling to bereaved parents
- continuing professional development
- education and training of medical undergraduates and postgraduates, nurses and other disciplines.
- clinical audit
- office and management duties.
- research / special interest studies

In addition, there may be regional, national or international commitments for service provision, education, training and research.

The recommended weekly Job Plan for a full-time consultant paediatric surgeon should comprise the following²¹:

- outpatient clinics (2 sessions)
- operating lists, including special interests and day surgery (minimum of 2 sessions)
- ward rounds (1 session)
- office work, management
- audit, clinical governance
- formal teaching, research
- on call duties and continuing care.

Notes:

- 1) Planning of outpatient clinics and operating lists must take into account the time needed for communicating with patients/carers (including obtaining consent) and for teaching and training.
- 2) Travelling time to outreach clinics may be significant and must be accounted for.

Manpower requirements and service arrangements for Specialist Paediatric Surgery

Taking into account the heavy demands of out of hours work and the increasing range of responsibilities being placed on consultant surgeons, it is inevitable that consultant numbers will increase. The actual number of consultant staff will vary according to the size of the populations served for secondary and tertiary level services. The BAPS recommends at least five specialist paediatric surgeons plus one to two paediatric urologists in a specialist centre serving a population of 2.5 million. This will provide a sufficient workload to allow the development of sub-speciality interests and ensure an adequate level of clinical competence^{21,22}. The Senate of Surgery target for specialist paediatric surgeons, including paediatric urologists, is 1:300,000 population. This level of service has been achieved in Scotland, but in England and Wales an increase in the consultant workforce from 104 to 173 would be required²².

Team-working: The increasing number of consultants will lead to dilution of individual operative experience. To ensure that a critical level of skills is maintained for the less common index cases as well as rare abnormalities, sub-specialisation and team working within units should be developed²³. Examples of sub-speciality interests include urology, upper or lower intestinal surgery, oncology, thoracic surgery and care of the severely injured child. Within these sub-groups, and particularly for complex cases, surgeons are encouraged to operate in pairs. Such team working is important for newly appointed, less experienced surgeons.

Surgeons also work in multidisciplinary teams, providing surgical care (as with oncology and major injuries) or co-ordinating the overall care of the patient and providing continuity of care (as with the child with complex congenital anomalies or multiple injuries).

Paediatric surgeons may work in partnership with adult surgeons with expertise in conditions which are uncommon in children, such as thyroid and parathyroid disorders and certain gastrointestinal conditions.

Regional networking: Some specialist paediatric surgery is provided in smaller units with two or three specialist paediatric surgeons. These smaller centres should establish links with their regional centre for the management of less common major surgical conditions.

Supra-Regional services have been designated by NSCAG in England and Wales for the management of biliary atresia (Birmingham, Leeds and King's College Hospital, London) and bladder exstrophy (Manchester and Great Ormond Street Hospital, London).

5. GENERAL PAEDIATRIC SURGERY

In specialist paediatric surgical units it is neither professionally desirable nor cost effective for specialist paediatric surgeons to concentrate entirely on specialist paediatric surgery and the specialist unit must also provide for the non-specialist general paediatric surgical requirements of the surrounding conurbation. This is a significant proportion of the paediatric surgical workload in a regional unit and is essential for supervised training.

In district general hospitals general paediatric surgery is provided by general surgeons and urologists and occasionally by visiting specialist paediatric surgeons. It is accepted that surgeons (and anaesthetists) should not undertake occasional paediatric practice^{14,24,25,26} and a DGH should have one or more surgeons designated to perform general paediatric surgery^{1,3,17,27}. This individual is referred to as a general (rather than specialist) paediatric surgeon. In the future, general surgeons providing paediatric surgery must meet the standards defined below, and must be supported by the recommended services and facilities for children. It is the responsibility of Trusts to ensure this. Contact with specialist paediatric surgeons is important, and hub and spoke arrangements with the regional specialist paediatric surgical centre must be in place for consultation and for transfer of patients when indicated.

Age restrictions: In the past, age has been one of the criteria for defining patients who should be referred to a specialist centre. Recently, the standards of care for general paediatric surgery have been clearly defined³. Provided these standards are met, including the training and achievement of competence by the surgeon and the anaesthetist, the age of the patient in itself is no longer the overriding factor determining where the child should be treated, with the exception of newborn infants. The principal determinant should be the quality of service measured by audited outcomes. It is the responsibility of the surgeon to decide whether the local staff and facilities meet the standards for the emergency or elective management of individual patients.

Meeting the standards: The Royal College of Surgeons of England has recommended that all standards should be met by the end of 2004¹. A grandfather clause may be applied to experienced and competent general surgeons currently providing general paediatric surgery, but their successors must meet the training requirements.

STANDARDS FOR GENERAL PAEDIATRIC SURGERY AT A DISTRICT GENERAL HOSPITAL

The requirements for in-patient paediatric surgery at a DGH:

- General surgeons designated to provide general (non-specialist) paediatric surgery (general paediatric surgeons), who should:
 - have had six months training and demonstrated competence in the un-supervised management and performance of general paediatric surgery³ (see page 18; section 10)
 - care for a sufficient number of children annually to maintain a high level of competence. One operating list a fortnight dedicated to children is the recommended aim³. Occasional practice is not acceptable except in an emergency^{25,26,27}
 - maintain continuing professional development in paediatric surgery.
 - be trained in paediatric resuscitation. APLS or PLS training is recommended (see page 20).
- A urologist may undertake the urological general paediatric surgical procedures (e.g: orchidopexy, circumcision). The same competence criteria apply as for a general surgeon.
- Anaesthetists designated to provide anaesthesia for children, who meet the criteria laid down by the Royal College of Anaesthetists^{17,18}. The anaesthetist should also be responsible for providing and monitoring a policy for post-operative pain control.
- A paediatrician available 24 hours a day for consultation and assistance in the care of any surgical child.
- Radiological services for children
- A children's ward, to which all children should be admitted
- A children's day care unit
- Immediate availability of paediatric high dependency care and a clearly defined policy for access to a paediatric intensive care unit
- An accident and emergency department with separate amenities for children
- Surgical outpatient clinics specifically for children, with child friendly amenities.
- In all areas, nurse staffing must include nurses with training in the care of children¹⁵.

Responsibility for General Paediatric Surgery at a DGH

There must be close collaboration between the surgical specialties, with a named consultant responsible for children's surgery in each speciality. At each DGH a Lead Clinician should be responsible for coordinating children's surgical services in that Trust. A multidisciplinary committee should coordinate, oversee and monitor children's surgical services in the Trust.

The decision whether to treat a child locally or to refer to a specialist centre is the responsibility of the consultant surgeon. In an emergency, telephone consultation with a specialist paediatric surgeon is strongly advised.

Trusts must be proactive and ensure that a sufficient number of consultant general surgeons and anaesthetists are trained to provide a general paediatric surgical service, with succession planning to ensure continuity of service.

Emergency Cover for General Paediatric Surgery:

For emergencies, special arrangements are necessary to ensure continuous cover by staff with the necessary training and continuing experience in paediatric surgery. The surgical and anaesthetic consultants involved in the care of children should draw up a paediatric surgical on call roster and agree written criteria for providing emergency surgery for children, for example in terms of the minimum age of the patients they are prepared to manage.

Particular difficulties arise at a DGH when the designated general paediatric surgeon and/or the paediatric anaesthetist are not on call. Options include transferring the child to a specialist unit or to another DGH where the appropriate staff and facilities are available. Pressure on beds may delay admission to a specialist centre. A *regional network plan* with several DGH participating in a general paediatric surgery on-call roster inclusive of surgeons and anaesthetists may be a suitable model in some regions. This complex issue is the subject of ongoing discussions by the BAPS with other professional bodies.

6. THE INDEPENDENT SECTOR

All of the standards for specialist and general paediatric surgical services apply equally to the public and independent sectors.

7. DAY CARE SURGERY

Whenever possible, admission to hospital should be avoided by providing elective surgery through a day care unit²⁸. The proportion of children suitable for day care surgery will vary depending on the speciality and the case mix of a particular hospital, but in general should account for 50-70% of the elective paediatric surgical workload in a specialist centre, and 60-80% for paediatric general surgery in a DGH^{1,28,29}.

Procedures suitable for day care surgery include repair of inguinal hernia, hydrocoele and umbilical hernia, orchidopexy, circumcision, excision of small skin lesions, operation for ingrown toenail, endoscopy and examination under anaesthesia.

Requirements for day care surgery:

In “Just for the Day”²⁸, standards for day care surgery for children are defined. These include:

- a dedicated day care unit for children
- guidelines for the care of children within the unit and in the operating theatre, including staffing requirements.
- procedures for preparing the child for admission to hospital, including written information for the child and the parents or other carers.
- arrangements for the care of the child after discharge, including, if necessary, community or other services. Parents/carers should receive clear information about follow-up and arrangements for dealing with post-operative emergencies.
- arrangements for admission to in-patient wards or the paediatric intensive care unit, should these be necessary.
- regular audit and review of day-care activity.

Outwith the specialist paediatric surgical centres, the following additional criteria apply:

- Day surgery must be provided by a general paediatric surgeon or visiting specialist paediatric surgeon and a designated children’s anaesthetist in a dedicated day care ward for children
- There should be on-site paediatricians and paediatric wards, immediate access to paediatric high dependency care, and clear arrangements for access to paediatric intensive care. Paediatric medical cover should be available for the duration of the theatre list.
- Accredited children’s nurses must staff day-case sessions.

Interim arrangements where on-site paediatricians and/or paediatric wards are not available ¹:

- The consultant surgeon will be personally responsible for assessing the patients to confirm their suitability for day-care surgery, and assumes responsibility for the well being of the patients from admission until discharge.
- An experienced consultant paediatric anaesthetist must be present, and will share responsibility for assessing the suitability of the child for day care surgery and for the well being of the child until discharge.
- The surgeon must remain at the hospital until arrangements have been made for the discharge of all patients or (exceptionally) patients have been transferred to a hospital with paediatric in-patient beds. Visiting specialist surgeons may schedule paediatric outreach clinics to coincide with day theatre lists.
- Surgeons treating day cases in a hospital without in-patient paediatric support are strongly advised to hold the APLS certificate.

8. OUTREACH CLINICS

Where feasible, outreach (also known as peripheral or combined) clinics may be established at DGH, attended by a local paediatrician and a visiting specialist paediatric surgeon. This reinforces the hub and spoke arrangements and enhances communication between consultants. The outreach clinic provides a consultation service for local patients for advice or for subsequent operation either locally or at the specialist centre, and provides an opportunity to follow up patients treated at the specialist centre.

The surgical outreach service must be provided in partnership with the local general paediatric surgeon and should not undermine local referral patterns. This is particularly important if a visiting specialist paediatric surgeon undertakes a day case list at a DGH. Such lists should be arranged with the agreement of the local surgeon, where there is one in post.

9. TRANSFER OF PATIENTS BETWEEN HOSPITALS

Retrieval of ill infants and children by a team from the specialist centre is well-established practice. Premature infants with respiratory distress and infants with severe cardiac disease are regularly transferred to Specialist Units. Equally, infants and children requiring specialist paediatric surgical management can be transported safely to a regional centre after initial stabilisation. Good communication between staff at the referring and receiving hospitals, and a transport team including trained medical and nursing staff, are essential requirements. Parents usually are willing to accept travel to a regional centre if this is in the best interests of their child³⁰.

In the case of a severely injured child, valuable time may be saved if a local transport team from the referring hospital is used to transfer the patient. This will depend on the individual circumstances and the availability of local staff with the necessary expertise.

10. EDUCATION AND TRAINING

Continuing medical education in paediatric surgery is an essential component of **continuing professional development** for medical and nursing staff and members of professions allied to medicine who are involved with the care of children. Provision must be made for all staff to participate in CME activities. The regional specialist paediatric surgical centre should support, develop and provide CME for staff providing paediatric surgical care.

Training in paediatric surgery for general surgeons may be provided in a specialist paediatric surgical unit³. At least six months training is recommended during years 4, 5 or 6 of Higher Surgical Training, or proleptically on appointment to a consultant post. Part of this training may be undertaken with an experienced general paediatric surgeon in a DGH. Suitable posts will be approved by the SACs for General Surgery and Paediatric Surgery.

Higher surgical training in paediatric surgery for trainees in specialist paediatric surgery is provided at specialist centres where there is a training programme approved by the SAC for Paediatric Surgery.

Basic surgical training in paediatric surgery is available in all accredited hospitals providing specialist paediatric surgery.

Undergraduate teaching in paediatric surgery is provided at specialist centres and DGHs linked to a Medical School.

Consultant job plans and planning of outpatient clinics and operating lists must take into account the time needed for teaching and training.

11. CLINICAL GOVERNANCE

Surgeons providing specialist or general paediatric surgery must be appropriately trained and accredited. The Kennedy report¹³ states that “all surgeons who operate on children, including those who operate on adults, must undergo training in the care of children and obtain a recognised professional qualification in the care of children”.

Audit of paediatric surgical practice is an essential component of clinical governance and revalidation. Regular multidisciplinary audit must be carried out at all units providing paediatric surgery and must include pre- and postoperative management.

There must be documented peer review of perioperative deaths and major complications, including deaths following discharge from hospital.

Clinical practice must be evidence-based where possible, and should be evaluated against validated outcome measures where these are available.

The quality of trauma management should be measured against national standards through membership of the Trauma Audit and Research Network⁷.

Investment in information technology is essential to support audit.

Examples of Audit Filters

- Selection of patients for operation:
 - Age at operation: are patients being operated on at an age, which is appropriate for the particular condition?
 - Indications for operation: how and by whom are patients being selected for operation? For example, the number of children per childhood population undergoing circumcision varies between hospitals⁸, suggesting that some boys may be having an unnecessary circumcision.

- Quality of treatment:
 - The nature and frequency of postoperative complications, including the need to transfer patients to an intensive care unit, or from a DGH to a specialist unit.
 - Length of stay before and after elective operation.
 - Availability and utilisation of paediatric day care facilities.

12. SUMMARY

- The scope of specialist paediatric surgery is defined by the age of the patient and embraces all organ systems
- General paediatric surgery may be regarded as a subspecialty of adult general surgery and in the future must be provided by surgeons with approved training and evidence of achieving competence in general paediatric surgery.
- Paediatric surgery must be supported by children's specialists in other disciplines, notably anaesthesia, paediatrics and radiology, trained children's nurses and facilities designed specifically for children.
- Children should be treated as day cases whenever possible.
- The child's family or other carers should have unrestricted access to their child, within reason, and participate in the care of the child.
- Consent for procedures must be properly informed through discussion with the surgeon, anaesthetist and nurses where appropriate, and documented. Where possible, the assent of the child should be obtained.
- Steps must be taken to ensure that clinical audit is supported by validated outcome measures.
- Teaching, training and research are integral to paediatric surgical practice.
- At all times the best interests of the child are paramount.

CONTACTS

For APLS and PLS courses contact the Advanced Life Support Group, Salford. Tel. 0161 877 1999. Many Trusts provide local PLS courses for staff.

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