



Working together to improve the local delivery of the General Surgery of Childhood

Statement of Intent, April 2018

Introduction

This document has been written in the context of the Department of Health paper 'Next Steps on the NHS Five Year Forward View' published in March 2017¹. The editorial working group is from a wide range of stakeholders whose focus is to improve services for children with common surgical conditions and have relied heavily on the output of Short Working Life Groups from the Royal College of Surgeons of England, the Royal College of Surgeons of Edinburgh, the Royal College of Physicians and Surgeons of Glasgow and the Surgical Forum. It is addressed to NHS Commissioners, Sustainability and Transformation Partnerships/Integrated Care Systems, NHS Employers in England and their equivalent in Scotland, Wales and N. Ireland.

In support of the 'Next Steps' document we advocate the local delivery of elective and emergency General Surgery of Childhood via functioning regional networks that are formally commissioned and funded by the NHS. These networks will ensure local provision of care preventing transfer to specialist centres and a resulting increased cost to the NHS. Colleges and training organisations are also required to ensure trainees are competent to manage emergency surgical conditions in children.

We anticipate the current review of Specialised Children's Surgery by NHS England will endorse these conclusions adding a timeframe for implementation.

Only by ***Working Together*** can we maintain the local delivery of the General Surgery of Childhood.

The Problem

The surgery of childhood is provided by a range of surgical specialities providing specialist and non-specialist (general) care in all ten surgical disciplines. These are:

- Cardiothoracic Surgery
- Otolaryngology (ENT)
- General Surgery
- Neurosurgery
- Oral and Maxillofacial Surgery
- Trauma and Orthopaedic Surgery
- Paediatric Surgery
- Plastic Surgery
- Urology
- Vascular Surgery

The majority of surgical consultants combine adult and childhood practice except for the discipline of Paediatric Surgery, which solely provides specialist and non-specialist surgical care to children.

Various terms are used to describe the services and subsequently terminology can be confusing. We recommend using:

- **General Surgery of Childhood (GSC)** - Non-specialised surgical services in children performed by all surgical disciplines.
- **General Paediatric Surgery (GPS)** - Non-specialised children's surgery performed by specialist paediatric surgeons or by surgeons who primarily operate on adults but have appropriate experience in paediatric surgery.
- **Specialised Surgery in Children** - A large and diverse group including all specialised surgical services in children.
- **Specialist Paediatric Surgery** - As one single and specific surgical specialty contained within the wider group of Specialised Surgery in Children.

In England non-specialised General Surgery of Childhood and General Paediatric Surgery services are funded by CCG's. Whilst Specialised Surgery in Children and Specialist Paediatric Surgery services are funded by NHS England and are defined within 'The Manual for Prescribed Specialised Services'².

The issues addressed in this document are common to all surgical specialities within the General Surgery of Childhood (GCS) but are most pressing for the discipline of General Paediatric Surgery (GPS).

The overriding principles of delivering this care are to ensure that it is performed safely, by competent staff and as close to the patient's home as possible. However, in many English CCG's and Scottish Health Boards these services are neither available nor are they offered locally and patients are referred to specialist surgical centres.

The consequences of the decline in the provision of GPS/GSC at a local level are far-reaching;

- Specialist services are under increasing pressure to deal with non-specialist cases, which impact on their ability to provide treatment to those children that need specialist care.

- Conversely, local skills are being lost, including anaesthesia, radiology, paediatric surgical nursing, O.T. and physiotherapist skills.
- Patients and families unable to access these services locally have to incur long periods away from home as well as long distances to travel for clinics and surgery, which adds significantly to the burden of care.
- Children with time-sensitive conditions such as testicular torsion, which should and could be delivered locally, may have long delays for transport before they receive the emergency assessment and surgery they require, potentially adversely affecting their outcomes.
- There is a significant financial impact to the NHS as treatment in a specialist centre is inherently more expensive than that provided locally.

The reasons for the increased rates of referral / transfer to specialist centres are multi- factorial:

- a lack of appropriate training and continuing professional development,
- minimal service level support and planning in local hospitals
- an absence of appropriate governance and multi-disciplinary working between local and specialist providers.

The Solution

The Royal Colleges of Surgery and the Federation of Surgical Specialist Associations all agree the following actions are required to establish and improve the provision of GPS/GSC.

1. The current provision of GPS/GSC services should be comprehensively monitored with annual reporting on changes, both positive and negative.
2. This will require changes in national coding.
3. It is essential to ensure National Workforce Planning has the aim of maintaining a sustainable workforce capable of providing high quality GPS/GCS by:
 - a. Creating and implementing innovative models for training the existing workforce, including engaging specialist paediatric surgeons in the training and CPD of consultant general surgeons and using the experience of established general surgeons providing this service.
 - b. Ensuring all current and future general surgery and urology trainees are competent to diagnose and treat common emergency surgical presentations in children.
 - c. Encouraging general surgery and urology trainees to develop a special interest in elective GPS.
 - d. Units providing GPS/Urology services having a succession plan for appointing consultants with a certified period of paediatric surgery training or with a proleptic appointment/secondment at a suitable unit.
 - e. Service planning to allow enough time to support CPD and maintain competence both for the clinicians being trained and those providing the training at specialist hospitals.
4. Regional networks of local and specialist providers should be established and maintained to ensure that the right pathways of elective and emergency care are planned and provided through collaborative working, with robust professional and managerial arrangements. These should be fully integrated with Paediatric medical services with multidisciplinary shared care. This includes;
 - a. Planning GPS/GSC within the context of integrated paediatric, surgical, anaesthetic, nursing, physiotherapy and O.T. services.
 - b. Shared care arrangements with local paediatricians providing a multidisciplinary approach (which must be recognised in their workload) when a child with potential surgical problems is admitted to a general hospital.
 - c. Implementing pathways of care that are consistent with those determined by professional groups with appropriate quality assurance.
 - d. Providing robust plans for 7-day emergency cover for children's surgery, including surgeons, anaesthetists, paediatricians and radiologists. Tertiary specialist Paediatric Surgery centre support is essential with the ability for surgeons and paediatricians in peripheral centres to get urgent advice from colleagues 24 hours a day.
5. Ensure that Children's Surgical Services nationwide are of a consistent high quality, operating at agreed standards and held to account by national inspection agencies.

The key bodies to deliver change

The following organisations all have key roles in working together to deliver each of the solutions described above for the provision of high quality GPS services throughout the UK:

- NHS England/Scotland/Wales & N.Ireland
- NHS informatic services in England, Scotland, Wales, N.Ireland
- NHS Employers
- NHS Improvement, Health Improvement Scotland and equivalent in Wales/N.Ireland
- Commissioners – Clinical Commissioning Groups and Specialised Commissioning
- Health Education England (HEE), NHS Education Scotland, Health Education and Improvement Wales/ and the Northern Ireland Medical and Dental training agency
- Sustainability and Transformation Partnerships (STPs)/Integrated Care Systems (ICSs)
- Joint Committee on Surgical Training, and in particular the General Surgery, Urology and Paediatric Surgery Specialty Advisory Committees
- Care Quality Commission (CQC) and equivalent in Scotland/Wales/N. Ireland
- The National Institute of Clinical and Healthcare Excellence (NICE)
- Non-specialist Hospitals
- Specialist Paediatric Surgical Centres
- Local Delivery Networks
- The Royal Colleges of Surgeons
- Federation of Surgical Specialty Associations (FSSA)
- Royal College of Anaesthetists (RCoA)
- Royal College of Radiologists (RCR)
- Royal College of Nursing (RCN)
- Association of Paediatric Anaesthetists of Great Britain and Ireland (APAGBI)
- Royal College of Paediatrics and Child Health (RCPCH)
- The Chartered Society of Physiotherapy
- The Royal College of Occupational Therapists

Appendix I – Examining the Key Actions in Detail

Delivery of care

- Elective care should be provided locally where possible as tertiary services are unable to manage the increasing workload associated with transfer of non-specialist patients.
- Urgent, time-sensitive interventions should only be transferred following consultation with the local tertiary centre and should normally be managed by the local team.
- Solutions must encompass all of the parties involved in training, commissioning/planning and delivering surgical services. Amending just one side of this complex issue will not result in the required changes.
- The following work streams need to start in the near future and develop concurrently.

Action 1: Quantification of current GPS/GSC

In order to understand the current level of activity the following need to be evaluated:

- Number of GPS/GSC cases in each hospital.
- Types of cases operated on locally and those transferred.
- Ages that are or are not operated on or anaesthetised in hospital or are transferred.
- Times to manage transfer and eventual time to theatre from initial presentation.
- Any impacts of delays or transfers on the outcome for patient.
- Availability of local service during week, nights and weekends.

As it is not currently possible to quantify these data items using routinely collected hospital activity data alternative sources of this data are:

- a. National Paediatric Surgical Review (NHS England)
- b. ISD Scotland
- c. Clinically-led quality and efficiency programme (GIRFT)
- d. Surgical Workload Outcomes Audit Database (SWORD) project

Future work:

- e. National dataset for surgery in childhood
Ideally a nationally agreed set of defined data items, to be collected routinely via Hospital Episode Statistics and reported using NHS information services would allow improved benchmarking and quantification of issues.

Lead body for action:

- NHS information services in England, Scotland, Wales and Northern Ireland

Action 2: Workforce

Establishing an elective and emergency GPS service in the practice of existing general surgical consultants is a major challenge although it is currently less of an issue in other surgical disciplines.

This will require a collaborative approach between commissioners, providers and current consultants with support from Royal Colleges and Specialty Associations. This must be complimented by a specific emphasis on the achievement of GPS competences within general surgery and urology training as a requirement for GMC Certification.

a. Innovative models for training for the existing Consultant workforce

It is essential that there is support for attaining and maintaining the required competences to provide adequate local delivery of surgical care. Employing hospitals and local commissioners must support surgeons with inclusion within their job planning of sufficient time to access ongoing CPD and to ensure appropriate risk management and indemnity support.

There are significant difficulties in maintaining competences in surgical areas where patient volumes are low. Traditional training for professional development of surgical skills is less useful in such a low volume area and more innovative models may be required. This could include virtual training, secondments to specialist services or outreach training. The GMC proposals for credentialing may be a way for established surgeons to gain the necessary skills and competences³.

b. The role of specialist paediatric surgical services

Specialist paediatric surgeons and anaesthetists are an essential part of supporting local care and providing training and advice. Where urgent, time-sensitive surgery is required, surgeons from different specialties, with different surgical skills must be willing to support each other in order to achieve the best outcome for the patient. Sufficient time should be allocated to the training of non-specialist clinicians in the job plans of specialist clinicians.

c. Certificate of Fitness for Honorary Practice

In England, this certificate⁴ allows NHS consultants to work and gain experience in hospitals that are not their primary employer. This has been developed with the Academy of Medical Royal Colleges and NHS Employers and should be used rather than setting up individual honorary contracts for surgeons within multiple hospital sites. Use of this certificate will simplify the process whereby general surgeons/urologists and anaesthetists visit specialist units to gain practical experience of elective and emergency procedures.

Responsible for action:

- Individual general surgeon/urologist/anaesthetist
- Individual specialist paediatric surgeon/anaesthetist
- Non-specialist hospitals
- Specialist hospitals
- Professional surgical associations
- NHS Employers

d. Supporting succession planning

As senior surgeons with a GPS/GSC practice retire, services should ensure that those recruited to succeed them are similarly equipped to manage children presenting with non-specialist conditions. Services also have a responsibility to ensure that in local hospitals where GPS/GSC is provided, the consultant general surgeons, urologists and other staff that are recruited have undergone an appropriate period of training.

Lead bodies for action:

- Non-specialist hospitals
- Local delivery networks
- Local and specialist commissioners
- Health Education England (HEE), NHS Education Scotland, Health Education and Improvement Wales/ and the Northern Ireland Medical and Dental Training Agency workforce planning

e. Changes to Postgraduate training

Consultants of the future must be equipped with the skills to diagnose and treat common emergency surgical presentations in children. The General Surgery curriculum is currently being revised by the Specialty Advisory Committee for General Surgery. This revision will ensure all trainees are competent in emergency GPS at completion of training.

General surgery and Urology trainees will be encouraged to develop an interest in elective GPS with access to appropriate posts in their respective training programmes⁵. This will entail experience at specialist paediatric surgical centres as well as at local units with a GPS trainer and may be provided as a post CCT training fellowship in GPS.

Lead bodies for action:

- JCST and the General Surgery and Urology SACs
- Schools of Surgery
- RCoA and the Association of Paediatric Anaesthetists of Great Britain and Ireland (APAGBI)
- Health Education England (HEE), NHS Education Scotland, Health Education and Improvement Wales/ and the Northern Ireland Medical and Dental training agency

Action 3: Changes to regional configuration

Regional networks

The relationship between local services, which may collaborate to deliver care, and regional specialist centres is fundamental to the development of the proposed model of care providing GPS/GSC locally. There should be resourced regional networks which provide a professional and managerial infrastructure in the context of standardised operational and clinical guidance. Networks must not be developed in isolation; a multi-disciplinary approach must be taken to include anaesthetic, paediatric medicine, nursing and radiology services including access to high dependency and paediatric intensive care units. Alternative models of a less formal structure are unlikely to sustain the service model. The RCPCH provide examples of networks in action and how these were achieved⁶.

Commissioning/Planning

Commissioning/planning^{7,8,9,10} of services by local providers is key to the success of the proposed model. This will ensure not only the availability of the services close to patients' homes but also the overall governance and accountability for a high class service. This will require close collaboration between specialist commissioning for paediatric surgery and local commissioning by Clinical Commissioning Groups for emergency surgery for adults and children alike. Specific requirements will include multidisciplinary team working across paediatric services, supportive and joint working between specialist and local providers with detailed arrangements for patient transfer, outreach activity and quality assurance processes to ensure appropriate outcomes. Sustainability and transformation partnerships and Integrated Care Systems which are designed around the needs of whole areas and not individual organisations provide a mechanism to achieve this integrated or 'accountable' care system.

The commissioning guides developed by RCSEng and SSAs provide a valuable resource upon which to base commissioning evidence based and effective surgical care¹¹.

7-day services

Each hospital that accepts children as emergencies should assess its ability to provide safe surgical, anaesthetic, radiological, nursing, physiotherapy and O.T. care and facilities at all times.

Outreach services by specialist surgeons cannot cover emergency surgical presentations within local units. Published standards^{12,13} describe the necessary multi-disciplinary service infrastructure including GPS, paediatric medicine, anaesthesia and radiology. There may need to be some transition arrangements across these specialties as the service model is initially implemented.

Service planning

Job descriptions and job planning should include sufficient time to maintain competences and hospitals should support access to CPD activities. In a UK online survey, 20.3% (113/555) of surgeons and 23.3% (364/1561) of anaesthetists did not believe that the types of CPD they had undertaken in the last three years had been sufficient to maintain or update their expertise in their paediatric practice¹⁴.

Lead bodies for action:

- Non-specialist hospitals
- Specialist Paediatric Hospitals
- NHS England/Scotland/Wales/N. Ireland
- Local commissioners
- Specialist commissioners
- STPs
- Local delivery networks

Action 4: Standards

Policies and pathways

Services must have clear and pre-defined operational policies on what GPS/GSC will be carried out, approved by the local delivery networks and agreed in collaboration with general and specialised surgeons.

Decisions about whether to operate or to transfer children could be greatly facilitated by clear policies that are shared with all staff including primary care providers. Services should be working towards meeting the standards set out by national forums^{7,8,9,12,13.}

Appraisal of surgical practice

Measures currently used in annual appraisal for surgeons/urologists and anaesthetists should include GPS/GSC practice.

Strengthening hospital inspections

National Inspection Agencies should include GPS/GSC during hospital visits. In England the CQC are piloting a revised inspection framework for hospitals admitting children. The focus of this framework will be to ensure hospitals have adequate facilities and planning (policies/ pathways) such that services have clear understanding of management of children admitted for elective or emergency surgery.

Lead bodies for action:

- Local delivery networks of specialist and non-specialist hospitals
- Trust appraisers
- The CQC, Health Improvement Scotland and equivalent in Wales and N. Ireland

Appendix II – General Paediatric Surgery-GPS

General Paediatric Surgery (GPS) is defined as the surgical management of common, non- specialist general surgery and urology conditions in children who do not require complex perioperative care arrangements. It can be performed by:

1. specialist paediatric surgeons within specialist services or by outreach within non- specialist centres; or
2. general surgeons/urologists who have undertaken an appropriate level of training in GPS (as defined in the General Surgery and Urology curricula⁵).

Similarly, all anaesthetists at CCT are competent to manage children from three years upwards with specialist paediatric anaesthetists tending to work in tertiary centres¹⁵.

Elective GPS includes:

- a. Inguinal herniotomy/surgery for hydrocele
- b. Circumcision
- c. Umbilical herniotomy
- d. Minor soft tissue abnormalities
- e. Orchidopexy for palpable undescended testicle

Emergency GPS includes:

- a. Minor injuries
- b. Appendicectomy
- c. Testicular torsion / acute scrotum
- d. Abscesses
- e. Lifesaving surgery, including trauma

The on going establishment of Major Trauma Centres will ensure operational policies for the resuscitation and appropriate transfer of children who have sustained major injuries.

Current provision

There has been a steady decline in the number of GPS cases operated on in local, non- specialist hospitals. A review in 2004/5 showed that specialist services were responsible for 39% of children's surgery compared with 24% in 1994/1995¹⁶, a similar trend has been observed in Scotland¹⁷. This change has been most marked in general surgery and urology. The shift has been greatest for children up to the age of four years¹⁸.

In 2010 58.3% (178/305) of non-specialist services were providing elective GPS and 48.5% (148/305) provided both elective and emergency care¹⁹. A secondary analysis of the 2013 United Kingdom National Health Service (NHS) Anaesthesia Activity Survey shows paediatric anaesthesia activity in detail²⁰. 41% of all anaesthetics in those under 16 years of age took place in a local non-specialised hospital. Most ENT, Orthopaedics and Dental surgery took place in local, non-specialist hospitals, whereas GPS was more likely to be carried out in specialist centres.

Training and CPD

There has been a dramatic decline in exposure to elective GPS in the training of general surgeons and urologists. One of the reasons that general surgical trainees have not chosen to take up a GPS special interest in their training is the lack of available consultant posts with inclusion of GPS in the job description. This is partly a result of poor succession planning for the cohort of general surgeons and urologists as they retire, who have traditionally provided this service. Increased surgical specialisation over the last decade has also exacerbated this situation.

In 2008 the Association of Surgeons of Great Britain and Ireland (ASGBI) found that of those hospitals providing a non-specialist GPS service, 86% would wish to continue to do so, as it was seen as a good service for their population²¹.

In a 2010 survey, responders indicated that 38% (213/555) of surgeons and 42% (659/1561) of anaesthetists had less than 1 PA allocated for care of children within their job plans¹⁹.

Local provider networks

In Standards for Children's Surgery (2013)¹² the Children's Surgical Forum identified the key benefits that non-specialist children's surgery and anaesthesia delivered through local provider networks comprising specialist and non-specialist providers could bring. Scotland, Wales and N. Ireland have made similar recommendations^{7,8,9}.

Implementation of local provider networks has been variable²² but they remain vital in underpinning the delivery of safe services locally and enabling units to share resources, services and expertise with other hospitals and tertiary centres in the area. They are interconnected systems of service providers, which enable the following:

- collaborative working
- CPD
- the development and implementation of standards and outcomes of care and regional audit to support continuous quality improvement
- routes of communication
- agreed thresholds for patient transfer through an effective transfer system
- local job planning for surgical posts to include a GPS component
- a collective way of ensuring that user engagement and experience influences the development of future clinical model(s) of care.

Appendix III – Other surgical specialties and the provision of the General Surgery of Childhood

Trauma and Orthopaedics

All holders of the CCT in Trauma and Orthopaedics have been examined in the generality of Trauma and Orthopaedic Surgery, which specifically includes paediatric trauma and the conservative/early management of many elective paediatric conditions. Treatment protocols for the early management of conditions such as club foot (CTEV, talipes) and DDH (developmental dysplasia of the hip) are well established and often involve specialist nurses/physiotherapists as part of the MDT. Similarly, networks exist for the management of bone and joint infection (and pyomyositis). Inpatient care pathways require joint care of a child by a consultant paediatrician and a consultant orthopaedic surgeon and most cities or regions have established networks for the onward referral of cases that subsequently require surgery and/or the more complex cases. Shared care models (Hub and Spoke) are common.

Consultants who practice with a major interest in paediatric orthopaedics are likely to have received appropriate fellowship training.

The selection of surgical cases to be performed in any given centre will depend on several factors including the complexity of the surgery, the presence of co-morbidities, facilities for anaesthetic provision and appropriate perioperative care.

ENT

Ear, nose and throat surgery of childhood comprises the largest elective childhood surgical workload in the UK. There are a small number of tertiary centres that treat the complex, the syndromic and provide airway reconstructive services. Tertiary centres, also, but not exclusively provide cochlear implant services. Most district general hospitals provide an elective surgical service that mostly, but not exclusively, comprises adeno-tonsillar surgery and chronic ear disease.

Emergency work includes the management of acute airway problems, foreign body retrieval and the management of septic children with an acute abscess in ear, throat, paranasal sinus or eye. Emergency problems present locally and establishing an integrated service between the district general hospital and the tertiary centre is crucial to child safety. ENT UK pioneered the “paediatric emergency safe course” to ensure that the consultant body is prepared for this challenging emergency workload. In the last 5 years more than 300 consultants have attended a “PESC” or paediatric emergency safe course. Paediatric ear, nose and throat disease comprises 25% of the intercollegiate exit fellowship examination.

The planned integration of district general units and tertiary centres into a hub and spoke model is important. ENT UK have asked the British Association of Paediatric Otolaryngology (BAPO) to produce a strategy document on the delivery of high quality paediatric/childrens’ ear, nose and throat services in the United Kingdom. The time frame for this strategy document is for completion by the end of 2018.

Neurosurgery

All neurosurgical interventions and procedures must be undertaken in a regional specialist neurosurgical provider environment.

Mild closed head injury may be managed in a non-specialist, paediatric surgical/medical setting with appropriate expertise, following neurosurgical consultation.

Plastic Surgery

Plastic surgical procedures that would be expected to be done in a district general hospital (DGH) include excision of simple skin lesions, straightforward elective surgery, and minor trauma in children over three years old. A DGH is not generally suitable for plastic surgery operations on children under three years old, children with complex comorbidities requiring specialist anaesthetic or ITU support, more complex trauma requiring input from other specialties, particularly orthopaedics and neurosurgery, and complex congenital disorders requiring multispecialty MDTs.

Children that should be operated on in a regional plastic surgery unit/specialist children's centre include complex congenital deformities, such as cleft lip and palate and craniofacial surgery, complex trauma and soft tissue injuries, operations requiring free tissue transfer, laser cases, children with burn injuries meeting the criteria for referral to a designated paediatric burn centre, where there is tissue destruction such as in necrotising fasciitis.

Oral and Maxillofacial Surgery

Care pathways for paediatric patients presenting outside paediatric hospitals with acute oral and maxillofacial surgery (OMFS) conditions are usually well defined. Restrictions in the provision of oral and maxillofacial surgery out with specialist paediatric hospitals are usually caused by the restrictions in general anaesthetic provision for paediatric patients during 'office hours' and 'out of hours'. As the most common GA procedure for the paediatric age group is the extraction of teeth, district general hospitals often have paediatric OMFS lists. Emergency admissions for acute dental infections, which cannot wait until the next elective list, may sometimes be safely and appropriately treated in non-paediatric hospitals, but where there is a potential airway risk urgent and expert risk assessment is needed.

Airway risk assessment is also an important element of paediatric facial injuries. Lacerations which have proved impossible to repair without a general anaesthetic could be managed in a 'patch and plan' manner and treated 'in hours' but some cases will still need to be treated out-of-hours.

Appendix IV – Training

The main driver for this paper has been the specific aspects of General Surgery conditions in children. However, district general hospitals provide surgery of childhood services including Otolaryngology, Trauma and Orthopaedics, Oral and Maxillofacial and Plastic surgery and in turn these are excellent training opportunities.

The approach to postgraduate training is undergoing significant reform reflecting the recommendations of the Shape of Training report particularly in the context of more generalist practice. Both the Shape of Training steering group and the GMC are looking to Royal Colleges to develop curricula to produce trained practitioners to provide what the NHS needs. In the context of the surgery of childhood the service needs competent surgeons to manage and treat the breadth of common elective and emergency conditions as well as paediatric specialist surgeons for the less common and often complex conditions. The principles developed in these recommendations are entirely consistent with the requirements of the NHS and of both the Shape of Training report and the GMC standards for postgraduate curricula – *Excellence by Design*.

Appendix V – Anaesthesia

Provision of paediatric anaesthesia in the District General Hospital (DGH)

Due to a large geographical and demographic variation in the United Kingdom, fully resourced operational delivery networks should determine the delivery of elective and emergency general paediatric surgery in non-specialist centres such that children receive safe, high quality care in the most appropriate environment. However, at the present time there are few such established, funded networks. Paediatric perioperative care, including anaesthetic and paediatric services, are crucial in supporting the delivery of paediatric surgery in general in a safe and timely manner as part of a multi-disciplinary team and also to provide appropriate resuscitation expertise for critically ill children. Anaesthesia for children should be undertaken or supervised by anaesthetists who have undergone appropriate training. The current RCoA curriculum in paediatric anaesthesia stipulates a 4-week period of higher training for all anaesthetic trainees. It recognises that some trainees might achieve this at ST3-4 level and recommends repeating this at ST6-7 level. An advanced module is recommended for trainees intending to work in a tertiary centre or aspiring to be a lead or designated paediatric anaesthetist in a non-specialist centre (DGH).

In the UK at CCT or equivalent, all anaesthetists should be competent to provide perioperative care for common elective and emergency conditions in children aged 3 years or older. Consultant anaesthetists who do not perform regular, elective paediatric surgical lists for all specialties may still be required to provide on call cover for paediatric surgical emergencies in a non-specialist centre. It is expected that for all anaesthetists, whose scope of practice includes the care of children, that confidence and competence to manage children shall be maintained. This might be achieved through direct clinical care, continuing professional development activities (CPD), refresher courses or visits to tertiary centres. The latter might be assisted by use of the Certificate of Fitness for Honorary Practice⁴. All these development needs should be assured through annual appraisal and revalidation¹⁵.

The challenge of maintaining the anaesthetic caseload and case mix to enable the retention of competence and confidence is threatened by the steady drift of surgical work towards tertiary centres, with a consequent progressive de-skilling of DGH anaesthetists. The development of recommendations for surgical training and practice that will sustain elective and emergency general paediatric surgery in the non-specialist DGH is welcomed. We hope that the issues raised within this document are addressed with some urgency to avoid further loss of core general paediatric surgery from non-specialist hospitals in the UK.

Any promotion of general and other surgical services in the DGH should include recommendations of changes in training and practice, not only for surgeons but also for anaesthetists.

Appendix VI – Radiology

As with the provision of paediatric anaesthesia, the availability of high quality imaging will underpin many operative interventions in children, be they specialised surgery, specialist or general paediatric surgery. Paediatric imaging is a shortage area in radiology, but most acute hospitals will have at least one radiologist with a paediatric interest, and others may report children's examinations within their overall sphere of practice (e.g. neuroradiology, MSK). Trainees will have usually undertaken at least a 3month attachment in paediatric radiology during training. The RCR curriculum mandates that all should retain competencies in acute imaging (including those in children) at CCT, although these may be difficult to maintain for those whose day-to-day consultant practice primarily or exclusively involves imaging adults.

Networks between acute and specialist paediatric hospitals are used to support children's imaging in some cases, but tend to be most useful for assisting with the interpretation of radiographs, CT and MR. In both elective and emergency surgery, operator-dependent procedural work such as ultrasound and fluoroscopy may be crucial, particularly in the diagnosis and treatment of acute conditions such as intussusception and malrotation with volvulus. In such cases, particularly out of hours, children are likely to be investigated and treated in specialist centres, even if initial imaging was performed in an acute hospital. Paediatric interventional radiology is an expanding field often assisting (or even replacing) surgical management of children, but again, is likely to be found in specialist centres.

Networks in paediatric radiology have another function, in bringing together imagers from acute and specialist hospitals, in order to share learning and discuss cases at face to face meetings. This helps in the maintenance of both on call and elective competencies in paediatric radiology, supporting those in acute hospitals undertaking paediatric imaging. By means such as these, it is hoped that most elective and some acute imaging (and case management) may be undertaken outside specialist centres. An example of the latter is in cases of mild/moderate or localised trauma in children not requiring the full support of specialist imagers and surgeons in a paediatric hospital.

As with many postgraduate medical specialties, it is challenging to resist the drift of paediatric patients and the imaging they require to specialist centres. This results in specialist cases being imaged away from acute hospitals, and consequent reduction in caseload and experience for their paediatric radiologists. One might argue that the availability of good quality CT and MR in acute hospitals would mean that much imaging could be undertaken outside specialist centres and second read if required, although it is absolutely vital to have uniform imaging protocols and robust data transfer methods to ensure examinations do not have to be repeated.

The challenge in maintaining specialist paediatric imaging in acute hospitals in the UK was highlighted by Halliday et al²³ who found that 65% of examinations obtained in children were taken by practitioners with specific paediatric training, 60% were reported by those with training in interpreting children's imaging, and 62% of hospitals did not have access to a paediatric radiology opinion 24/7. Alongside surgical and anaesthetic factors, the latter likely contributes to the referral of many acute cases to specialist centres.

Although these figures are disappointing, they should not be seen as heralding an inevitable decline in paediatric imaging in acute hospitals. They support the need to increase numbers of both radiologists and radiographers trained in paediatric imaging in acute hospitals in order to continue delivering an important local service. There is also a need for appropriate CPD and the coverage provided by networks in order to support such colleagues and ensure standards are maintained.

References

1. Next Steps on the NHS Five Year forward Review March 2017 Available at: <https://www.england.nhs.uk/publication/next-steps-on-the-nhs-five-year-forward-view/>
2. Manual for Prescribes Services 2017/18 Available at: <https://www.england.nhs.uk/publication/manual-for-prescribed-specialised-services-201718/>
3. Excellence by design : Standards for postgraduate curricula GMC May 2017 www.gmc-uk.org/education/postgraduate/excellence_by_design.asp
4. NHS Employers - Certificate of fitness for Honorary Practice available at: <http://www.nhsemployers.org/your-workforce/recruit/employment-checks/resources/copy-of-certificate-of-fitness-for-honorary-practice>
5. https://www.iscp.ac.uk/curriculum/surgical/surgical_syllabus_list.aspx
6. Royal College of Paediatrics and Child Health. Bringing networks to life – An RCPCH guide to implementing clinical networks. RCOA: London; 2012 Available at: http://www.rcpch.ac.uk/system/files/protected/page/Bringing%20Networks%20to%20Life%20for%20web_0.pdf
7. National Steering Group for Specialist Children's Services. General Surgery of Childhood Report. National Steering Group for Specialist Children's Services: Glasgow; 2008. Available at: www.specialchildrensservices.scot.nhs.uk/Documents/org00005.pdf
8. Welsh Assembly Government. All Wales Universal Standards for Children and Young People's Specialised Healthcare Services. Welsh Assembly Government: Cardiff; 2008 Available at: www.wales.nhs.uk/sites3/docopen.cfm?orgid=355&ID=110154
9. Department of Health (Northern Ireland). Improving services for General Paediatric Surgery – Policy and Standards of care for General Paediatric Surgery in Northern Ireland 2010. DH (NI): Belfast; 2010. Available at: www.dhsspsni.gov.uk/standards_of_care_for_general_paediatric_surgery.pdf
10. NHS commissioners working across South and Mid Yorkshire, Bassetlaw and North Derbyshire, Children's Surgery and Anaesthesia Services 2017 Available at: <https://smybndccgs.nhs.uk/what-we-do/childrens-surgery>
11. Commissioning Guide Topics - www.rcseng.ac.uk/standards-and-research/nscg/commissioning-guides/topics/
12. Children's Surgical Forum. Standards for Children's Surgery. Children's Surgical Forum. London: The Royal College of Surgeons; 2013.
13. Children's Surgical Forum. Standards for the non - specialist emergency surgical care of children. London: The Royal College of Surgeons; 2015
14. Mason DG, Shotton H, Wilkinson KA, Gough MJ, Alleway R, Freeth H, Mason M. 2012. Children's surgery: a national survey of consultant clinical practice. *BMJ Open*. 2012;2:e001639
15. Guidelines for the Provision of Paediatric Anaesthesia Services, 2017. Royal College of Anaesthetists. <https://www.rcoa.ac.uk/system/files/GPAS-2017-10-PAEDIATRICALS.pdf>
16. Cochrane H, Tanner S. Trends in Children's Surgery: Evidence from Hospital Statistics Data. Department of Health: London; 2007
17. ISD Scotland <http://www.isdscotland.org/Health-Topics/Hospital-Care/Operations-and-Procedures/>
18. Healthcare Commission. Improving services for children in hospital. Commission for Healthcare Audit and Inspection: London; 2007
19. Children's Surgical Forum. General Paediatric Surgery – Survey of Provision in District General Hospitals in England. London: The Royal College of Surgeons; 2010
20. Sury, M. R. J., Arumainathan, R., Belhaj, A. M., MacG Palmer, J. H., Cook, T. M. and Pandit, J. J. (2015), The state of UK pediatric anesthesia: a survey of National Health Service activity. *Paediatr Anaesth*, 25: 1085–1092. doi:10.1111/pan.12753
21. Pye JK; Association of Surgeons of Great Britain and Ireland. Survey of general paediatric surgery provision in England, Wales and Northern Ireland *Ann R Coll Surg Engl*. 2008 Apr;90(3):193-7.
22. Children's Networks across the UK 2015, Children's Surgical Forum Available at: <https://www.rcseng.ac.uk/standards-and-research/standards-and-guidance/service-standards/childrens-surgery/networks/>
23. Halliday K, Drinkwater K, and Howlett D C. Evaluation of paediatric radiology services in hospitals in the UK. *Clinical Radiology* 2016; 71: 1263-1267.

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