Survey of general paediatric surgery provision in England, Wales and Northern Ireland

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On behalf of the Association of Surgeons of Great Britain and Ireland

ABSTRACT

INTRODUCTION A survey was carried out to ascertain the current provision of general paediatric surgery (GPS) in all hospitals in England, Wales and Northern Ireland with 100% return rate. The provision of GPS is at a crossroads with a drift of these cases to the overstretched, tertiary referral hospitals.

METHODS The regional representatives on the council of the Association of Surgeons of Great Britain and Ireland (ASGBI) obtained data from their regions. Any gaps in the data were completed by the author telephoning the remaining hospitals to ascertain their current provision.

RESULTS A total of 325 acute hospitals are potentially available to admit elective and/or emergency paediatric patients, of which 25 hospitals provide a tertiary paediatric surgical service. Of the remaining 'non-tertiary' hospitals, 138 provide elective GPS and 147 provide emergency GPS. The ages at which GPS is carried out varies considerably, but 76% of non-tertiary hospitals provide elective GPS to those over the age of 2 years. The ages of emergency cases are 24% over the age of 2 years and 51.5% over the age of 5 years. The age at which surgery is carried out is dependent on the anaesthetic provision.

Subspecialisation within each hospital has taken place with a limited number of surgeons providing the elective surgery. 'Hub-and-spoke' provision of GPS to a district general hospital (DGH) from a tertiary centre is embryonic with only 11 surgeons currently in post. An estimate of the annual elective case load of GPS based on the average number of cases done on an operation list works out at 23,000 cases done outwith the tertiary centres.

DISCUSSION Almost 10 years ago, a change in the training of young surgeons took place. An increase in training posts in Tertiary centres was made available following advice from the British Association of Paediatric Surgeons (BAPS) but these posts were often not taken up. Many DGH surgeons became uncertain whether they should continue GPS training. A subtle change in the wording of the general guidance by the Royal College of Anaesthetists altered the emphasis on the age at which it was appropriate to anaesthetise children. Change in clinical practice, reducing need, and a drift towards tertiary centres has reduced DGH operations by 30% over a decade. Young surgeons are now seldom exposed to this surgery, and are not being trained in it. The large volume of these low-risk operations in well children cannot be absorbed into the current tertiary centres due to pressure on beds. The future provision of this surgery is at risk unless action is taken now. This survey was carried out to inform the debate, and to make recommendations for the future. The principal recommendations are that: (i) GPS should continue to be provided as at present in those DGHs equipped to do so; (ii) GPS training should be carried out in the DGHs where a high volume of cases is carried out; (iii) management of these cases should use a network approach in each region; (iv) hospital trusts should actively advertise for an interest in GPS as a second subspecialty; and (v) the SAC in general surgery develop a strategy to make GPS relevant to trainee surgeons.

KEYWORDS

Child – Surgical procedures – Elective – Hospitals – General

CORRESPONDENCE TO

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General paediatric surgery (GPS) provision in the UK is at a crossroads. Cochrane and Tanner¹ identified a reduction of GPS operations done in district general hospitals (DGHs) secondary to a change in clinical practice and an increase in the proportion of those cases done in tertiary centres. This resulted in a change of about 30% over a decade.¹

Many of the general surgeons that currently provide the majority of GPS are of an age where retirement is approaching. The training of general surgical SpRs rarely includes GPS at present as it is not a separate subspecialty and, although included, is not clearly demarcated in the surgical curriculum. There is a crisis in the current ability of the tertiary

paediatric centres in terms of physical space as well as manpower to cope with a further swing away from the DGH as the main providers of GPS. The future provision of GPS is, therefore, in doubt.

This survey was undertaken under the umbrella of the Association of Surgeons of Great Britain and Ireland (ASGBI) to establish the detail of GPS provision hospital by hospital, so that suggestions for the future can be made. Scotland has not been included in this survey as the Scottish health service is substantially different from the rest of the UK.

The worry from a national perspective is that a domino effect may come into play. When the current GPS surgeons retire, then GPS in the DGH could wither on the vine. The domino effect is that if one specialty stops doing GPS, this will impact on the anaesthetists who may not have enough cases to maintain their skills. This might mean that other specialties may have to stop doing paediatric cases. If there are no surgeons, or no anaesthetists capable (or willing) to give children's anaesthetics, this will impact on the ability of a DGH paediatric department to accept emergencies safely with no surgical backup. This, in turn, could undermine the status of such a hospital as a fully functioning DGH. Clearly this is not a tenable situation for the NHS.

Methods

The ASGBI regional representatives enquired via their link surgeons as to the status of GPS to provide a report on the current provision, the number of surgeons appropriately trained in GPS, and a view of the future local provision of GPS. This gave a response that was supplemented by the remaining hospitals being telephoned by the author to enquire of the arrangements for that hospital. This has allowed 100% data acquisition for the hospitals in England, Wales and Northern Ireland.

Results

Elective GPS

In England, Wales and Northern Ireland, there is a total of 235 acute NHS hospitals potentially available for the admission of elective and/or emergency paediatric patients. This survey has firm data on 100% of the hospitals relating to the provision of GPS.

Of the 235 hospitals, 25 (10.5%) have 'tertiary' status with a full-time specialist paediatric surgical unit able to manage the full range of paediatric and neonatal surgical conditions. A further 72 (30.5%) do not provide elective GPS and 63 (27%) do not provide emergency GPS. This leaves 138 (59%) 'non-tertiary' hospitals that provide elective GPS and 147 (62.5%) 'non-tertiary' hospitals that provide emergency GPS.

Elective GPS consists of herniotomy for hernia or hydrocele, orchidopexy for palpable undescended testis, circumcision,

Table 1 Data on elective GPS by age band in non-tertiary hospitals

Age band	Number	Percentage
Total	138	100
< 1 year	15	11
> 1 year	18	13
> 2 years	98	71
> 3 years	7	5

removal of minor soft tissue abnormalities and repair of umbilical hernia,² with most conditions presenting under the age of 5 years. The age at which anaesthetists are happy to give an anaesthetic is, therefore, crucial. The data in Table 1 give the age bands of the lower age limit at which the surgery is carried out in each hospital.

Hub-and-spoke

In some regions there is a functioning 'hub-and-spoke' arrangement with either a paediatric surgeon travelling to a DGH or a joint appointment between the tertiary centre and a DGH. This is, however, a fledgling system with only 11 individuals identified.

Future intent

Of those currently providing a non-tertiary GPS service, 86% made a firm statement that, as a consultant body in each of those hospitals, they would wish to continue to provide GPS. It was seen as a good service to their population, and that a long journey for parents and child for either a consultation or a day-case procedure was often difficult for families in deprived areas.

Emergency GPS

A greater number of 'non-tertiary' hospitals (147; 62.5%) provide emergency GPS. This consists of the management of the causes of the 'acute abdomen' such as appendicitis, minor trauma including lacerations, incision and drainage of a superficial abscess, management of the acute scrotum and, where the anaesthetic cover allows, obstructed hernias.² Very few hospitals have the anaesthetic, radiological and paediatric support that allows provision of a service that includes pyloromyotomy or the treatment of intussusception, with the majority being referred to a tertiary centre. Table 2 gives the data by age band for emergency GPS. The lower age limit for emergency surgery is mostly dictated by anaesthetists, and varies quite widely. As there is rarely a specific rota, either surgical or anaesthetic just for paediatric emergencies, the age limits are rather higher with the majority being at > 5 years. There

Table 2 Data on emergency GPS by age band in non-tertiary hospitals

Age band	Number	Percentage
Total	147	100
< 6–12 months	11	7.5
< 1 year	1	0.5
> 1 year	9	6
> 2 years	35	24
> 3 years	14	9.5
> 5 years	77	52.5

was wide-spread feeling that the surgery itself is often not complicated, but anaesthetic confidence is frequently the deciding factor. On talking to the surgeons, there was a strong sense of awareness of individual limitations by the surgeons, with all hospitals making it very clear that any case outside their expertise would be transferred without hesitation.

Subspecialisation

In all hospitals, apart from 3, subspecialisation has taken place in that the elective GPS is carried out by a limited number of individuals all of whom have had training in paediatric surgery to the level required for GPS in the DGH. In 12 non-tertiary hospitals, the emergency anaesthetic/surgical support is able to deal with neonates at and around term. The emergency operations done in these hospitals include pyloromyotomy, intussusception and strangulated hernias with appropriate training and case volume to allow safe practice.

Case volume

Of the non-tertiary hospitals carrying out GPS, 101 (74%) have a list of approximately 5 cases per fortnight. The remaining 36 (26%) hospitals have a weekly list. This gives a total workload of 22,490 cases per year, which represents a conservative estimate of the elective case load. This survey is not able to estimate the number of emergency cases done in the non-tertiary hospitals, but as many hospitals only operate on the over 5-year-olds, it is likely that the biggest swing towards the tertiary centres has already happened with the emergencies. There is anecdotal evidence that the tertiary centres have problems accommodating emergencies because of pressure on beds.

Discussion

This is the first survey to establish the hospital-by-hospital detail of the provision of GPS in the UK. The stimulus for

this is the looming difficulties for the provision of GPS in the future coupled with a diminution in the training of future surgeons able to do GPS in the districts. There has been a change in provision already as evidenced by the 73 hospitals that do not provide GPS. There has also been change in that in almost every hospital subspecialisation has taken place with only a limited number of appropriately trained surgeons in each hospital providing the surgery.

The volume of cases done outside the tertiary centres is such that it is not possible to accommodate all GPS in the tertiary centres even if there was a desire to do so.

There is anecdotal evidence that anaesthetists have a major influence on the age at which GPS both elective and emergency is done. The Royal College of Anaesthetists (RCoA) clearly states that all their members should be able to deal with infants and neonates in the emergency setting if only for stabilisation,⁵ but the same guidance also states that anaesthetists should 'normally be able to anaesthetise children who have reached their 5th birthday'. RCoA guidance in 1999 stated that 'children under the age of 5 years will normally be anaesthetised by consultants or under the direct supervision of a consultant'.⁴ It is clear from comments received that this change of wording resulted in a change in practice, with some anaesthetists being uncertain whether, according to this guidance, they should anaesthetise those under 5 years of age. A number of other factors are evident and these include confidence by the individual anaesthetist, support by a paediatric department, and other surgical specialties also operating on children providing a sufficient volume of operating to allow anaesthetic skills to be maintained.

The main issue to come from this survey is that of surgical training. Of those hospitals that provide non-tertiary GPS (137), 86% state that their surgical consultant body has expressed a desire to continue to provide GPS. A recent survey done in Wales by Gomez *et al.*⁵ has shown that at least one-third of hospital managements also wish for their hospital to provide GPS (presented at ASGBI meeting on 20 April 2007). Evidence exists from the SAC in general surgery (personal communication, J Black) that, although posts are provided for paediatric training, there is little enthusiasm by the trainees to take up these offers. One of the reasons given by general surgical trainees for their lack of interest is that as many cases in a tertiary centre are of a superspecialist nature, preference is naturally given to the paediatric surgical trainees.

In 1998, Arul and Spicer⁶ questioned where paediatric surgery should be performed. This appeared to lead to a change in emphasis by the British Association of Paediatric Surgeons (BAPS) as to where the training of surgeons able to carry out GPS should be done. Although a statement was made by BAPS in a paper in 2002⁷ that training in GPS could be a combination of DGH and tertiary centre, this message

did not become widely disseminated resulting in surgeons that used to train their registrars in GPS no longer doing so. GPS remains within the General Surgical curriculum; however, as this lack of exposure has persisted for a generation of trainees, there is little perception of the need for GPS training by the trainees. Surgical subspecialisation is now firmly entrenched in the minds of trainees and trainers alike. There is insufficient volume of cases for GPS to be a subspecialty in its own right so the need for it has dropped off the training radar. Trainees no longer see the attraction of GPS as a neat, delicate area of clinical practice that is so important to the local population. It is perceived by the surgeons currently carrying out GPS to be a valuable service to the local population who may otherwise need to travel up to 70 or 80 miles for either a consultation or a day-case procedure. The volume of cases effectively precludes centralisation quite apart from the question of the distances to travel. A 'hub-and-spoke' practice is a potential way forward but there are only 11 surgeons doing this across the UK.

The future

The future must lie in the training of GPS. General surgery can easily incorporate this training without the need for expanding the overall training numbers. It would seem appropriate that the majority of the training takes place in those hospitals where GPS is carried out on a regular basis by those with a high case volume. It is also appropriate that there could be a 6-month period in a tertiary paediatric surgical unit so that modern practices can be learned and applied to the trainee's future practice. There are several committed GPS surgeons who should be training every SpR (ST) that comes to them for their main subspecialty training. Those SpRs (STs) that show aptitude and/or a desire to add these skills to their repertoire should then spend 6 months in a paediatric surgical unit focusing on the out-patient and operative work. This could be either in a DGH or a tertiary centre. The advantage of this approach would be that those units interested in GPS will feel that they have a useful function in providing for the future, and their expertise will be recognised. The training provided in a DGH will be focused on GPS alone. The pressure will be taken off the tertiary paediatric surgical units who will not have to train reluctant trainees and will only encounter those interested, who already have appropriate skills. It would be an advantage if the trainees are exposed to GPS when they are in years 3, 4 or 5 as they will have been able to develop their tissue-handling abilities. A further benefit is that paediatric tertiary centres can concentrate on training their own trainees in the complex specialist surgery that they should rightly teach.

A sensible way to provide GPS would be through networks. In each region, the solution may be different, but an overall theme could be that a high-volume DGH might be

able to gear up to accept the transfers that would otherwise have gone to the tertiary centre. This would need to be based on a fully functioning paediatric department with accompanying anaesthetic and radiology skills. These hospitals exist already and it would take only a small change to effect this working arrangement which would benefit all parties and preserve the ability for the DGH to continue to provide the local service as at present.

Not all trainees will go on to provide a GPS service in their consultant practice, but effective training would allow a cadre of individuals to be produced that are capable of continuing to provide this important service for their local populations. If SpRs (STs) trained in GPS are available, this will have a dual benefit for both the individual and the employing trust. The individual will have variety in their clinical practice and will be able to bring an additional benefit to the trust. The trust will be able to continue to provide a service for their population. There is evidence that this would be attractive to some hospital trust managements.⁵

It is important that a 'domino' effect does not destabilise DGHs. In order for a sufficient volume of cases to be available for maintenance of anaesthetic expertise, this requires several surgical disciplines to operate on children with the support of a paediatric department.

GPS is currently carried out by surgeons who may be looking at retirement in the foreseeable future. This survey has established that the majority of hospitals currently providing GPS can continue for 5–10 years (68%) but many are worried about the future. The most recent publication by the Children's Surgical Forum⁸ recognises many of these issues and gives support for the concept of local provision of surgical care and for DGH training, where appropriate. It is vital that action is taken now in order to have enough trainees to fill the posts that become available in the next 10 years and beyond.

Recommendations

1. Regional networks should be developed, with tertiary centres, to allow the majority of general paediatric surgery (GPS) to be provided locally in the DGHs, where it is safe to do so.
2. The bedrock of GPS training should be by those general surgical consultants who carry out a high volume of GPS in a DGH, and are acknowledged trainers within their region.
3. Trainees wishing to pursue GPS should spend a further 6 months refining their paediatric surgical technique either in an appropriate DGH or a tertiary centre.
4. Strategic Health Authorities and acute hospital trusts should agree regional plans for the provision of GPS to match the above recommendations.

5. Acute hospital trusts should be encouraged to advertise actively for trained surgeons with an interest in GPS.
6. The SAC in General Surgery needs a strategy to make the provision of GPS to be seen as a relevant part of a general surgical trainee's career pathway.

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