# DISCUSSION DOCUMENT: GUIDELINES FOR TRAINING IN PAEDIATRIC ENDOSCOPY AND COLONOSCOPY IN THE UNITED KINGDOM

**ENDOSCOPY STEERING GROUP OF BSPGHN**

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## 1. Introduction

Subsequent to publication of training minimums to ensure competence in endoscopy and colonoscopy in paediatrics in North America (Hassel et al, Journal of Paediatric Gastroenterology and Nutrition 1997;24:345-7, Fox V Journal of Paediatric Gastroenterology and Nutrition 1998; 26:200-4)(Enclosures 1 & 2) and Australia (Conjoint Committee for Recognition of Training in Gastrointestinal Endoscopy in Australia)(Enclosure 3), and the recent publication of recommendations for training in gastrointestinal endoscopy by the Joint Advisory Group on Gastrointestinal Endoscopy (JAG) concerning recommendations for training of UK adult endoscopy, it has become apparent that United Kingdom guidelines for endoscopy training in paediatric gastroenterology are urgently needed.

In order to facilitate this a subcommittee of a BSPGHN was set up in 1998 (Endoscopy Steering Group), and among other issues one of its remits was to suggest training guidelines for paediatric endoscopy and colonoscopy. Clearly the eventual aim being to improve standards of endoscopic training and practice in turn in order to enhance care of patients. Our adult colleagues in the BSG via JAG are intending that registration for such skills be a requirement for training by the year 2001.

The following document represents consensus to deliberation by the Endoscopy Steering Group in consultation with the BSPGHN CSAC sub-committee and draws on information gathered from a number of sources. Whilst thresholds for assessing competency for any trainee depend on a number of factors, e.g. native talents such as hand eye co-ordination and manual dexterity, quality of instruction and extent of experience, it is only really the latter that can be objectively assessed in a quantitative manner. This was the basis for the NASPGN position paper of 1997 and it is not altogether clear on what the basis the Australian endoscopy community base their minimum guidelines for endoscopic training. There is little data to allow recommendation of minimum requirements of numbers of endoscopies and colonoscopies (both diagnostic and therapeutic) on which to base the NASPGN and the Australian position papers in paediatrics (as demonstrated in Table 1). A small number of trainees from Boston Children's Hospital were retrospectively assessed for the number of procedures undertaken in a 3 year programme and adequate numbers as per the NASPGN guidelines were only just attained, and this is in a very busy teaching hospital environment. However no attempt was made to assess competency.

Hence a short pilot study was undertaken in order to quantify the velocity of skill acquisition and lesion recognition in a small number of British paediatric endoscopists in training (see section 3). Hence the recommendations herein for British Paediatric Endoscopy training requirements rely partly on NASPGN and Australian guidelines, the former being largely based on data gained from ASGE competency studies in adult trainees in North America, partly on our own pilot data, and partly taking into account the number of colonoscopies and endoscopies available for training purposes in training centres given that current practitioners will require to maintain skills. The latter numbers are based on a confidential survey voluntarily filled out by members of the BSPGHN at the Spring Meeting in York 1999.

It is hoped that the information presented within this document and the proposals for minimum training requirements in endoscopy in the UK based on this information, will form a platform from which to begin formalising endoscopic training in the U.K.

## 2. General Recommendations for Training in Paediatric Endoscopy and Colonoscopy

The information from NASPGN and the Conjoint Committee for Recognition of Training in Gastrointestinal Endoscopy in Australia, together with the American Society of Gastrointestinal Endoscopy and the British Society of Gastroenterology (via the Joint Advisory Group on Gastrointestinal Endoscopy which also represents British surgeons' views) are all included in Table 1. Competence of adult gastroenterology trainees in the USA assessed is presented in Table 2 and this forms the basis for the training requirements for NASPGN – which, it is admitted, are a compromise between what is desirable and what is felt to be achievable in most North American training programmes. More detailed analysis of this data can been seen in the appended paper by Victor Fox (Enclosure 2). Significant differences exist between the performance of adult and paediatric endoscopy and their interpretation, and it is a reasonable criticism of the North American position that the guidelines of NASPGN have been put together on the basis of what is thought to be practicably achievable in a paediatric programme rather than necessarily what might be desirable for training competence. The Conjoint Committee for Recognition of Training in Gastrointestinal Endoscopy in Australia emphasise cognitive and interpretative skills combined with a clear understanding of the role of endoscopy in patient management – including, where appropriate, training in radiological and histological aspects of endoscopy, cleaning, disinfection and fluoroscopy. In what can be seen to be an improvement on acquisition of mere numbers in different procedures, they place a greater emphasise on assessing competence by documenting procedural success rates rather than just numbers of procedures performed. Their trainees are required to record prospectively in a log book each procedure attempted together with details of indications, time taken, complications occurring and success, and will be initialled by a trainer. Both this group and the American Society for Gastrointestinal Endoscopy suggest the following guidelines:

1. The ability to recommend endoscopic procedures based on the findings of a personal consultation and in consideration of a specific indications, contra-indications and diagnostic/therapeutic alternatives.

2. The ability to perform a specific procedure safely completely and expeditiously.

3. The ability to interpret endoscopic findings correctly.

4. The ability to integrate endoscopic findings or therapy into the patient management plan.

5. The ability to understand the risk factors attendant to endoscopic procedures and to be able to recognise and manage complications.

6. The ability to recognise personal and procedural limits and to know when to request help.

These certainly seem to be sensible, achievable guidelines which move the trainee into the realm of continuing assessment rather than just notching up a pre-ordained number of procedures. As can be seen from Enclosure 3 the paediatric endoscopic trainee in Australia is therefore expected to keep a log book and they take the approach that at least 200 complete examinations should be performed independently, but with supervision, in paediatric upper GI endoscopy, with the caveat that 100 may be on adult patients to acquire technical skills. With

regard to paediatric colonoscopy they suggest that trainees should perform at least 100 unassisted and complete total colonoscopies under supervision to at least the caecum and preferably into the ileum, at least 75 procedures under paediatric supervision with some polypectomy experience. A success rate of at least 85% for intubation of caecum brings in a qualitative approach and they suggest that ileal intubation is preferable - and this rate should be consistently achieved on completion of training. Furthermore they require a minimum of 15 instruments to be cleaned under supervision by an experienced endoscopy nurse. A supervisor should be a senior person in an active unit and be experienced in the form of endoscopy for which application is being made. The trainer is required to be recognised by their committee in the particular type of endoscopy.

In view of the need to produce training guidelines with minimum requirements which will be at least partially dependent on actual numbers completed as well as competence by trainer assessment, it was felt that an idea of the approximate numbers of endoscopies and colonoscopies performed in paediatrics in the United Kingdom was required. In order to achieve this a cross-sectional anonymous survey was carried out by participants at the York meeting in Spring 1999, and the results of this are presented in Table 3 as a function of population served.

It can be seen that there is quite a wide variation in endoscopies and colonoscopies performed/million population, but that the interquartile ranges were reasonable. In terms of upper endoscopies the mean is approximately 200 procedures/million total population, which, based on an approximate U.K. population of 60 million, would mean 12,000 procedures/year. It is difficult to estimate the number performed in training/referral centres and if one took this at a conservative 50% then approximately 6,000 endoscopies would be available for training purposes each year in paediatrics. If one was even more conservative and suggested that only 25% of endoscopies were performed in training/referral centres then 3,000 endoscopies would be performed in this situation.

The figures for colonoscopy equate to 64/million total population/annum, which equals 3,840 colonoscopies in children/annum in the U.K. and if one presumes 80% of these are in training/referral centres then 3,000 colonoscopies approximately are performed in this situation If one is conservative and presumes that only 50% of colonoscopies are performed in training/referral centres then this leaves 1,720 in this situation.

These are of course approximate figures but they are based on self reporting and of activity and they afford the best guess scenario at this time for endoscopic activity in paediatrics in the U.K.

## 3. Pilot study on numbers required in Paediatric Endoscopy and Colonoscopy

Enclosure 4 is the form proposed for use for initial information gathering for trainee endoscopy performance. This form takes less than 1 minute to complete and has been useful in assessing a number of trainees in endoscopy at the Royal Free Hospital. It is clear from the small number of trainees that the learning curve is very steep for technical skills over the first 20 endoscopies and colonoscopies and it is also clear that the rate at which skills are acquired varies between individuals. A mix of trainers was employed and hence no conclusions can be drawn on teaching ability of the trainer although this may and probably does have a part to play in the rate of skill acquisition and lesion recognition. Technical competence acquiring third/fourth part duodenal intubation in 90% and terminal ileal intubation in more than 75% was acquired by one trainee after 35 endoscopies and 45 colonoscopies respectively. However another trainee was considerably slower than this. Indications were correctly identified in all patients by 30 of each procedure, and competence was achieved regarding identification of lesions and findings in more than 90% after a further approximately 50-55 endoscopies and 50-55 colonoscopies. One other trainee was somewhat slower than this and it has to be admitted that to get any meaningful data from this pilot study the endoscopy performance sheets require multi-unit application in a meaningful number of trainees (e.g. 30-40). This is not going to be possible given the time constraints of requirement for BSPGN-led guidelines for paediatric endoscopy and it may be that if endoscopy training is assessed with regard to competence on a continuous basis that guidelines for numbers of endoscopies could be revised dependent on our experience of trainee development over the next 5-10 years.

## 4. Proposals for numbers of procedures for continuation of skills

This is addressed at this point in order to make assumptions for numbers available for trainees once the requirement for an ongoing commitment to trainers' maintenance of skills has been addressed. It is suggested by many of the respondents to the anonymous survey that to maintain competence, consultants should be performing at least 5 endoscopies and 5 colonoscopies/month in paediatrics. This is clearly subjective and dependent on the respondents' position but is at least a starting point from which to assess the numbers of endoscopies and colonoscopies required for continuing training in training/referral centres. If one proposes 5 endoscopies/month and there are approximately 30-35 paediatric gastroenterologists in a position to teach endoscopy and colonoscopy in training centres, then a requirement for continuing skill maintenance in this group is 1,800- 2,100 endoscopies/year. The equivalent number for colonoscopies is 1,800-2,100/year also.

It may be reasonable to suggest at this point that continuing medical education in endoscopy in the light of recent clinical governance directives may be an important part in a consultant's maintenance of skills, and one way to facilitate is to encourage attendance at endoscopy courses. Nevertheless it would seem sensible to have some guidelines with regard to ongoing training commitment.

## 5. Proposal for numbers of procedures for training

The first way to look at this is I think to decide how many endoscopies and colonoscopies are available for training based on the figures given above. The worst case scenario for upper endoscopies involves training centres with 3,000 endoscopies occurring and 2,100 endoscopies required for continuance of consultants skills. This would leave 900 endoscopies/annum for training trainees. The best case scenario for endoscopies is 6,000 endoscopies available and 1,800 required for continuing training i.e. 4,200 available for training purposes for trainees.

For colonoscopy the equivalent worse case scenario would be that there would be no colonoscopies available for training trainees as 2,100 would be required for continuing training requirements for consultants and only 1,720 would be occurring. The best case scenario for colonoscopy is that 3,000 were taking place in training centres and 1,800 were required for continuing training which would leave 1,200/annum in the U.K.

Each trainee would have, with the current Calman framework, a 3 year "apprenticeship" as part of the 5 year Specialist Registrar rotation in which to pursue specialist gastroenterology and hepatology. Clearly if one were to be training potential consultant paediatric gastroenterologists and hepatologists then a 3 year training programme would be required. Hence if one takes the training guidelines from NASPGN and divide these by 3 for/annum training requirement, then for endoscopy/trainee, 33/annum would be required and for colonoscopy 17/annum would be required. If one took the Australian paediatric endoscopy guidelines then purely for paediatric procedures the equivalent numbers for endoscopy would be 33 and for colonoscopy 25.

For endoscopy this would allow training of in the worse case 30 trainees/year and in the best case, 126 trainees/year. For colonoscopy this would allow training in the worse case scenario of none and in the best case scenario of 36 trainees/year.

In other words the potential for training based on the figures that are available is easily achievable given the number of endoscopies available for training purposes in the U.K. for between 27 and 126 trainees/annum in endoscopy and 0-36 trainees in colonoscopy.

Given that the proposals enclosed herein suggest that ongoing assessment is as important as actual numbers, it would therefore be sustainable to recommend that trainees would be required to perform procedures during their 3 year training in line with the American and Australian guidelines, but that Australian guidelines would be preferable.

This would therefore entail a suggestion for training guidelines as follows for the BSPGHN:

| | |
|---|---|
| **Diagnostic OGD** | **100** |
| **Therapeutic endoscopy** | **25 (includes non-variceal and variceal haemastasis, oesophageal dilatation, PEG insertion)** |
| **Total colonoscopy including ileoscopy** | **75** |
| **Snare polypectomy** | **15** |

No recommendations are made for ERCP's as this is considered an advanced procedure and only required in very specialist centres.

## 6. Proposal for prospective appraisal and documentation of endoscopy performance

Enclosure 3 shows the Australian example which is already in service and it is proposed that a very similar document is produced by the BSPGHN for continuing and prospective assessment of trainees technical ability, assessment of indications, recognition of macroscopic lesions, recognition of histological lesions, and if deemed necessary, technical know how of equipment and disinfection procedures.

## 7. Proposal Register of Specialists completing appropriate endoscopy and colonoscopy training

It is further proposed that a register be set-up in order to define the number of specialists trained and that as with the JAG Group for adult endoscopy, that registration would become a pre-requisite for inclusion on the register as a paediatric gastroenterologist/hepatologist. This will become important in the near future once paediatric gastroenterology is recognised as a separate subspeciality in Europe.

## 8. Proposal for suggested guidelines for recognition of trainer/training centre

This is already happening with the Joint Advisory Group and gastrointestinal endoscopy for adults in the United Kingdom and also as part of the Conjoint Committee for Recognition of Training in Gastrointestinal Endoscopy in Australia. Both groups recognise the importance of effective training as a major co-factor in acquisition of skills for trainees, and it may be appropriate for the CSAC subcommittee of the BSPGN to include adequacy for endoscopic and colonoscopic training as part of the unit assessment. It certainly would seem reasonable that if we are to expect trainees to improve accountability regarding training then the training centres should be similarly aligned. Table 4 gives an anonymous assessment of annual self-reported activity in training centres.

## 9. Suggestions of BSPGHN Members regarding factors contributing to suitability of centres (training/referral v DGH type) for performing colonoscopies and endoscopies

Tables 5 and 6 indicate results from the anonymous survey regarding opinions of consultants in DGH or equivalent hospitals and consultants in training/referral centres. There was a diversity of views on these issues of where endoscopies and colonoscopies could be performed or should be performed. Undoubtedly some of the views were coloured by the respondents' incumbent situation, but a lot of interesting and useful points were highlighted and are noted as annotations to each table. Whilst this is not strictly a training issue it was felt appropriate to include this data in this document as it has some importance regarding training of endoscopists in paediatrics. In addition it may be of use in future if training recommendations are to be made in view of the intended eventual consultant post which a trainee might take up. In other words, do we want to create a system whereby simple diagnostic endoscopies are performed at DGH level by trained paediatrics endoscopists rather than a combination of a paediatrician and adult endoscopist/surgeon or should all endoscopies and colonoscopies be centralised? It seems more clear cut that colonoscopies would be ideally situated in training/referral centres. It is clear that adult surgeons and adult gastroenterologists see different pathology in their patient population, and have different ideologies regarding, for instance, the taking of biopsies and the use of sedation/general anaesthetic. It may be important for the BSPGHN to consider issuing position guidelines regarding where a specific procedure should take place as a function of the child's age.

## 10. Summary

As the assessment of competence is subjective it is however an improvement to assess competence on a continual assessment basis rather than regarding the attainment of merely a specific number of procedures as evidence of satisfactory training in paediatric endoscopy and colonoscopy. We would propose it reasonable to endorse the American Society of Gastrointestinal Endoscopists suggestions which have also been taken up the Australian Conjoint Committee for Recognition of Training in Gastrointestinal Endoscopy, that at the completion of training the trainee should have achieved the following:

1. The ability to recommend endoscopic procedures based on the findings of personal consultation and in consideration of specific indications, contra-indications and diagnostic/therapeutic alternatives.

2. The ability to perform a specific procedure safely, completely and expeditiously.

3. The ability to interpret most endoscopic findings correctly.

4. The ability to integrate endoscopic findings or therapy into the patient management plan.

5. The ability to understand the risk factors attendant to endoscopy procedures and to be able to recognise and manage complications.

6. The ability to recognise personal and procedural limits and know when to request help.

It is clearly difficult to assess the exact possibilities for training in the United Kingdom but given the information which is our best guess at present it would seem reasonable to assume that the numbers of procedures performed in training centres, given the proposed requirement for maintenance of skills by consultants already trained, can support the training of sufficient numbers of paediatric gastroenterologists and hepatologists if the numbers of procedures required for adequate training, proposed in this document, are adopted.

In summary, the numbers would be as follows over a 3 year period:

**Diagnostic OGD** **100**
**Therapeutic endoscopy (non-variceal and variceal homeostasis, oesophageal dilation, PEG insertion)** **25**
**Total colonoscopy with ileoscopy** **75**
**Snare polypectomy** **10-15**
**No recommendations are made for advanced procedures such as ERCP's.**

In recognition of the importance of training and the trainees likely variation in ability, it is also proposed that a log book and continual assessment documentation be kept contemporaneously

for a trainees assessment. Duodenal intubation to the 3rd or 4th part in 95% and ileoscopy in colonoscopy in at least 85% would be reasonable standards to aim for by the end of the training programme it is proposed.

Clearly there will be room for alteration of these guidelines as experience is gathered regarding the speed of skill acquisition of trainees consequent on such a training programme analysis. Proposals for minimum ongoing skill maintenance in terms of numbers of procedures performed have also been made at 5 endoscopies and 5 colonoscopies/month. Again these are figures which may need to be altered in the light of experience.

Clinical governance and importance of protocols and guidelines for indications for endoscopy and colonoscopy with competence have required the BSPGN via the Endoscopy Steering Group to produce this document and these are proposals rather than definitive guidelines, but represent the first step towards formalising our commitment to excellence of care in paediatric endoscopy and colonoscopy.

**TABLE 1**

**PROPOSED MINIMUM TRAINEE REQUIREMENTS/TRHESHOLDS**

| | ASGE | NASPGHN | Trainees at Boston Children's Hospital after 3 years | Australian Paeds | BSG |
|---|---|---|---|---|---|
| Diagnostic OGD | 100 | 100 | 116 | 100(200) | 300 |
| Total colonoscopy | 100 | 50* | 47 | 75(100) | 100 |
| Snare polypectomy | 20 | 5 | 6 | 15(30) | 30 |
| Non-variceal haemostasis (upper & lower including 10 active bleeders) | 20 | Advanced procedure | 1 | # | |
| Variceal haemostasis (includes 5 active bleeders) | 15 | 5 | 6 | # | |
| Oesophageal dilatation with guidewire | 15 | 10 | 5 | # | |
| Flexible sigmoidoscopy | 10 | - | 26 | | 100 |
| PEG | 10 | 5 | 22 | # | |

* Only 50 dictated by the fact that programmes of training were not felt to enable support of larger numbers. It was pointed out by those present on 29th October 1998 that for technical competence to be achieved paediatric colonoscopy would require more not less procedures than adult equivalents.

# Together these therapeutic procedures are 25 minimum.

Figures in brackets indicate the numbers required in total and the corresponding figures outside the brackets are the numbers required in the paediatric age group.

Where no figures exist there are no specific recommendations made.

**TABLE 2**

**COMPETENCE OF ADULT GASTROENTEROLOGY TRAINEES IN U.S.A. (ASGE DATA)**

| No of procedures | Mean % reaching oesophagus | Mean % reaching pylorus (if intubated oesophagus) | Mean % reaching splenic flexure | Mean % reaching caecum |
|---|---|---|---|---|
| 25 | 80 | 82 | 82 | 60 |
| 50 | 90 | 93 | 93 | 85 |
| 75 | 95 | 95 | 95 | 85 |
| 100 | 97 | 96 | 96 | 86 |

**TABLE 3**

**ANONYMOUS SURVEY : NUMBERS OF PAEDIATRIC PROCEDURES PER MILLION TOTAL POPULATION**

| size of total population served (millions) | ogd | col | ogd/million | col/million |
|---|---|---|---|---|
| 3.5 | 220 | 100 | 62.8 | 28.5 |
| 0.6 | 192 | 95 | 320 | 158.3 |
| 2.5 | 200 | 70 | 80 | 28 |
| 0.23 | 45 | 20 | 195.6 | 86.9 |
| 0.4 | 70 | 22 | 175 | 55 |
| 0.15 | 100 | 45 | 666.6 | 300 |
| 0.35 | 70 | 6 | 200 | 17.1 |
| 0.3 | 60 | 10 | 200 | 33.3 |
| 1.3 | 75 | 25 | 57.6 | 19.2 |
| 1.1 | 110 | 45 | 100 | 40.9 |
| 0.2 | 45 | 10 | 225 | 50 |
| 0.15 | 45 | 0 | 300 | 0 |
| 3.5 | 96 | 20 | 27.4 | 5.7 |
| 1.2 | 260 | 90 | 216.6 | 75 |
| | | mean | 201.9 | 64.1 |
| | | std 1 | 108.7 | 32.9 |
| | | min | 27 | 0 |
| | | max | 666 | 158 |
| | | 25th quartile | 85 | 21.4 |
| | | 75th quartile | 222.9 | 70 |

**TABLE 4**

**ANONYMOUS TRAINING/REFERRAL CENTRE ACTIVITY PER ANNUM IN PAEDIATRIC PROCEDURES, SELF-REPORTED. (Not complete as a small number of centres provided no figures).**

| ogd(via survey) | col(via survey) |
|---|---|
| 110 | 45 |
| 200 | 180 |
| 400 | 120 |
| 260 | 90 |
| 200 | 70 |
| 400 | 210 |
| 220 | 100 |
| 96 | 20 |
| 220 | 170 |

**TABLE 5**

**ANONYMOUS SURVEY: OPINIONS REGARDING ENDOSCOPY AND COLONOSCOPY WRT SITE (DGH or equivalent, all consultant opinions on place of preference)**

| | DGH | DGH with qualifying statement | Training or Referral Centre |
|---|---|---|---|
| OGD | 2[a] | 5 [b,c,d] | 1[e] |
| COLON | 1 | 2 | 3[f] |

a: “if adequate expertise”
b: “if >5 years or if performing >10 per month”
c: “if >10 years”
d: “except if complex cases or if young”
e: “if acceptable waiting lists”
f: “unless fully-trained paediatric gastroenterologist and doing sufficient numbers”

**TABLE 6**

**ANONYMOUS SURVEY: OPINIONS REGARDING ENDOSCOPY AND COLONOSCOPY WRT SITE (Training/Referral Centre consultant opinions on place of preference)**

| | DGH | DGH with qualifying statement | Training or Referral Centre |
|---|---|---|---|
| OGD | 1[d] | 3[a,b,c] | 4[f] |
| COLON | 1[d] | 1[e] | 6[f] |

a: "in DGH if appropriate size of endoscope and enough numbers to keep up skills"
b: "if no proper training, protocols, trained endoscopy staff"
c: "the person doing the procedure is more important than the site"
d: "OK if keep up skills but not acceptable for therapeutic procedures or if not able to enter terminal ileum in at least 75% of cases"
e: "not acceptable for adult gastroenterologists or surgeons to be performing colonoscopies on under 10 year olds"
f: "it is no longer acceptable to do procedures with non-paediatric anaesthetists, and I am sold on the idea of GA procedures in children, however referral centres should be offering an endoscopy and one-off visit service"