

JETS JAG Endoscopy
Training System

JAG training pathway and certification standards Paediatric colonoscopy

Part of the JAG programme at the RCP

JAG Joint Advisory Group
on GI Endoscopy



**Royal College
of Physicians**

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Introduction

Background and aim

A review of a prospective UK-wide paediatric study analysing formative colonoscopy DOPS (direct observation of procedural skills) shows better DOPS scores significantly correlate with trainee seniority and lifetime procedure count. Competency in the following domains, pre-procedure, post-procedure, endoscopic nontechnical skills, management, and procedure, as well as overall DOPS was achieved in 81% of the cohort after 125 to 149 paediatric colonoscopy procedures [1]. This trend is not dissimilar to a previous report assessing the use of DOPS for adult GI colonoscopy trainees. Analysis of 10,749 DOPS submitted for 1,199 adult GI trainees from 279 training units shows DOPS competency rates correlate well with unassisted caecal intubation rate [2]. In addition, high- versus low-frequency expert feedback by trainers, has a significant effect on clinical procedural skill acquisition in students in a prospective randomized study [3].

A combination of these principles, rather than just endoscopy numbers is key to achieving competence and capability in endoscopic certification.

The aim of the paediatric diagnostic colonoscopy training pathway is to have a safe, competent and capable paediatric trainee able to independently endoscope at the end of their training. The trainee should be able to successfully identify pathology and biopsy pathologic areas, whilst working and effectively communicating in a team setting.

Based on published evidence a total 'minimum number' of 150 paediatric colonoscopy procedures must be achieved to qualify [1]. As numbers alone are not enough to achieve competence and capability, trainees will progress along a 3-stage system with 'regular' DOPS, meeting endoscopy KPIs, and use of trainee reflective notes alongside meeting their supervisors.

Paediatric colonoscopy training can be broken down into various stages based on reaching particular destinations of the large bowel. Completing a colonoscopy procedure involves successfully encountering the sigmoid colon, passing the splenic bend, traversing the transverse colon, and finally passing the hepatic bend to reach ascending colon and caecum. This will also enable the trainee to learn the colonic landmarks which will be key to accurate photo-documentation of pathology. Compared to adult colonoscopy, where cancer surveillance is key, paediatric colonoscopy is usually used for diagnosing inflammatory conditions (such as Crohn's, ulcerative colitis (UC), etc), making ileoscopy a desirable skill for the trainee to learn. The PEnQuIN (international working group of the Pediatric Endoscopy Quality Improvement Network) have set minimum targets for defining high quality pediatric ileocolonoscopy for 2 key indicators: cecal intubation rate ($\geq 90\%$) and terminal ileal intubation rate ($\geq 85\%$). With 91.7% agreement amongst European and North American colleagues for this consensus statement [4] we have followed this recommendation for paediatric colonoscopy training in the UK.

We also considered available training opportunities for paediatric endoscopists. Due to lower number of procedures in paediatric gastroenterology compared to adult GI units and reduced working hours of paediatric trainees with additional commitments to cover general paediatric on calls, it may not be realistic to aim for completion of colonoscopy training/accreditation at certificate of completion of training (CCT) in paediatric gastroenterology. After discussions with the College Speciality Advisory Committee for Paediatric Gastroenterology on the same, and the agreed consensus is to focus on quality of training. The emphasis therefore should always remain on achieving competence and capability with accepting variability in training times needed by different trainees [3].

Paediatric certification criteria

Table 1: JAG paediatric colonoscopy eligibility criteria

Certification standard	Evidence required
Paediatric colonoscopy lifetime procedure count	≥150
Procedures in last 12 months	≥50
Unassisted cecal intubation rate	≥90%
Unassisted terminal ileal intubation rate	≥85%
Stage 1: competency to pass splenic flexure <ul style="list-style-type: none"> • Scopes • DOPS • Reflection 	≥50 5* 1
Stage 2: competency to pass hepatic flexure <ul style="list-style-type: none"> • Scopes • Formative DOPS • Reflection 	≥50 5** 1
Stage 3: competency testing to become an independent paediatric colonoscopist <ul style="list-style-type: none"> • Scopes 	≥30***
Final assessment [^] <ul style="list-style-type: none"> • Formative DOPS • Summative DOPS • Reflection 	5 5 1
Photo documentation	>90%
Basic skills course	Attended
E-learning for health modules	Completed

*100% successfully passing the splenic flexure and entering the transverse colon

**100% successfully passing the hepatic flexure and entering the descending colon, preferably intubating the caecum

***The trainee should achieve ileoscopy in 26 and caecal intubation in 27 in the last 30 consecutive colonoscopic procedures at this stage, to be eligible for final assessment

[^]9 out of the total 10 formative and summative DOPS should achieve caecal and ileal intubation

Recommended statements

Definition of competence

Competence in paediatric colonoscopy is defined as the ability to perform procedures effectively and safely. Whilst there is an absence of national paediatric endoscopy standards, the NASPGHAN/ESPGHAN (North American and European Society of Paediatric Gastroenterology and Hepatology) have recently published consensus based Quality Standards and Indicators for Paediatric Endoscopic Procedures [5]. Although this lays down the general principles, the evidence basis for most of the recommendations is poor, although it does encompass views of practices in a wide variety of units in Europe and North America. UK legislation, or principles, of practised child protection are not covered in this. The recommendations need careful adapting if applied for UK-based paediatric endoscopists use.

Training and competency development starts with a good understanding of pre-procedural ENTS. As paediatric endoscopy is generally carried out under general anaesthesia or deep sedation (eg Propofol), a paediatric anaesthetist will always be a key member of the paediatric endoscopy team. The pharynx of the patient will be shared by both the anaesthetist and the endoscopist with one using an endotracheal tube and the other an endoscope. This becomes pertinent in children with syndromic diagnoses, such as the Pierre Robin Sequence, and children with other chromosomal abnormalities. The depth of anaesthetic is also managed by the anaesthetists when endoscopists share information about procedure length. A good understanding of the sizes of paediatric/infant scopes is also essential; an endoscope which is too small is likely to excessively loop and result in an incomplete procedure, too big a scope may incur trauma, bleeding and other complications, resulting in an incomplete procedure.

The severity of patient illness prior to undertaking the procedure by use of ASA grade is recommended. Any co-morbidities likely to increase risk should be carefully considered. Higher ASA grades (more unwell) are linked with serious adverse outcome in adults [6]. ASA grades help to quantify the amount of physiological reserve that a patient possess at the time for a surgical procedure and grades III or IV should result in consideration of seeking airway and sedation/anaesthetic help from a senior anaesthetist. ASA grades generally serve as a guide and are not the sole predictor of patient outcome.

It is important to be clear about the indication for which the colonoscopy procedure is being carried out. The indication must be appropriate, clearly documented and in keeping with current guidance and evidence. Limited paediatric evidence shows paediatric colonoscopy procedures carried out for abdominal pain alone are unlikely to be positive for pathology. Presence of bleeding, weight loss or altered bowel habit alongside raised calprotectin are helpful in predicting positive colonoscopy findings [7]. The European Society of Gastrointestinal Endoscopy has published a guideline executive summary for paediatric endoscopy referring to indications for paediatric endoscopy [8].

Paediatric endoscopic procedures should be performed completely including inspection of all areas with acquisition of biopsies. A paediatric colonoscopy review from Australia view ileal intubation to be a quality indicator on the basis that main use of paediatric colonoscopy is to investigate inflammatory bowel disease (IBD) [9,10].

With regards to taking biopsies, in addition to doing a focused biopsy of areas likely to offer positive yield, it also helps to adopt a methodological approach to biopsy areas of colon at regular intervals as per guidance. Histology disease extent can be greater than the colonoscopy disease extent [11] and this may not only affect the ability to make a diagnosis but also longer term IBD management particularly where bowel removal surgery may be needed.

Paediatric colonoscopy should be completed in reasonable time however this will be determined by patient age, bowel preparation, experience and use of interventional colonoscopy [12]. The ultimate aim is to perform the procedure completely, safely, acquiring photo/video documentation of abnormal findings and obtaining relevant biopsies [5].

In addition to technical endoscopic competencies, all trainees should be competent in peri-procedural aspects of endoscopy. These may be pre-procedural (consent, speaking to anaesthetic team etc), procedural (eg team brief at the start, technical and cognitive elements), post procedural (eg report writing and conveying findings to the child and family in an easy to understand way). These aspects are measured and detailed within direct observation of procedural skills (DOPS) assessments which include the descriptors of the expected levels of competency.

Acquisition of competence

Paediatric colonoscopy training should take place in a unit accredited for training. Simulation training may be used to enhance earlier development of technical skills but is **not** a substitute for more traditional skills and decision-making training. Based on adult colonoscopy data, basic skills course appears to be more useful when attended early during training (between 20-70 cases overall) [13]. Paediatric colonoscopy training is not dissimilar and should be between 20-50 cases and preferably be undertaken once regular training at a base unit has been confirmed.

With limited 48 hours a week and much lesser number of paediatric procedures done annually in UK (compared to adult GI) trainees should use a wide range of resources to support their training. This includes use of e-learning portals. Currently JAG is developing e-learning for health modules focussed on paediatric colonoscopy. Although not mandatory we recommend where permissible to seek to attend relevant paediatric GI MDT meetings (particularly histology meetings), post endoscopy ward rounds and attend endoscopic sessions to enhance longer term vision of diagnosis and management. These learning opportunities will help enhance better understanding, improve communication alongside improving technical endoscopic and ENTS skills.

We also recommend completion of reflection tool after completion of each stage of colonoscopy (3 stages).

Assessment of competence

The overall paediatric colonoscopy training is divided into three stages.

1. Competency to pass splenic flexure

- 50 scopes (every 10th scope to be a DOPS).
- Reflective note to be completed by trainee on reaching 50 scopes.
- Meeting with supervisor to discuss if trainee ready for the 5 formative DOPS to successfully complete stage 1. It is accepted that some trainees may require more procedure numbers before attempting the 5 DOPS to successfully complete stage 1.
- The 5 DOPS should achieve a KPI of 5/5 procedures, successfully passing the splenic flexure and entering the transverse colon.

If unsuccessful, a second meeting with supervisor should take place to agree on number of training scopes needed prior to re-attempt the 5 DOPS with 5/5 KPI.

These criteria are mandatory to enter stage 2.

2. Competency to pass hepatic flexure

- 50 scopes (every 10th scope to be a DOPS).
- Reflective note to be completed by trainee on completing 50 scopes in stage 2.
- Meeting with supervisor to discuss if trainee ready for the 5 Formative DOPS to successfully complete stage 2. It is accepted that some trainees may require more procedure numbers before attempting the DOPS to successfully complete stage 2.
- The 5 formative DOPS should aim to achieve a KPI of 5/5 procedures, successfully passing the hepatic flexure and entering the descending colon, preferably intubating the caecum.

If unsuccessful, a second meeting with supervisor should take place to agree on number of training scopes needed prior to re-attempt the 5 DOPS with 5/5 KPI.

These criteria are mandatory to enter stage 3.

3. Competency testing to become an independent paediatric colonoscopist

- 30 scopes – At this stage trainee is expected to be independently scoping to achieve 27/30 caecal intubation and 26/30 ileal intubation.

Final assessment

- 5 formative DOPS.
- Reflective note by trainee at successful completion of final stage.
- 5 summative DOPS.
- Independent scoping by trainee to achieve KPI of 9/10 caecal intubation and 9/10 ileal intubation.
- Final meeting with supervisor.

Post certification mentorship

With due consideration to the number of procedures required to qualify it is likely that the trainee will be post CCT working as a locum or in a substantive post. Newly certified paediatric colonoscopists should have access to a named supervisor to discuss cases and review progress. The ongoing training requirements of individuals should be identified and practitioners should undertake additional training/upskilling as defined within their personal development. Due consideration should be given to their list sizes and caseload selection. There should be appropriate mechanisms in place for performance monitoring and review during the early post certification period. Significant adverse events should be discussed with the supervisor and reflected on their appraisal.

Therapeutic paediatric colonoscopy

Polypectomy procedures are relatively rare in paediatric practice. It is also important to note that not all paediatric gastroenterologists practice polypectomies due to personal preference and practice.

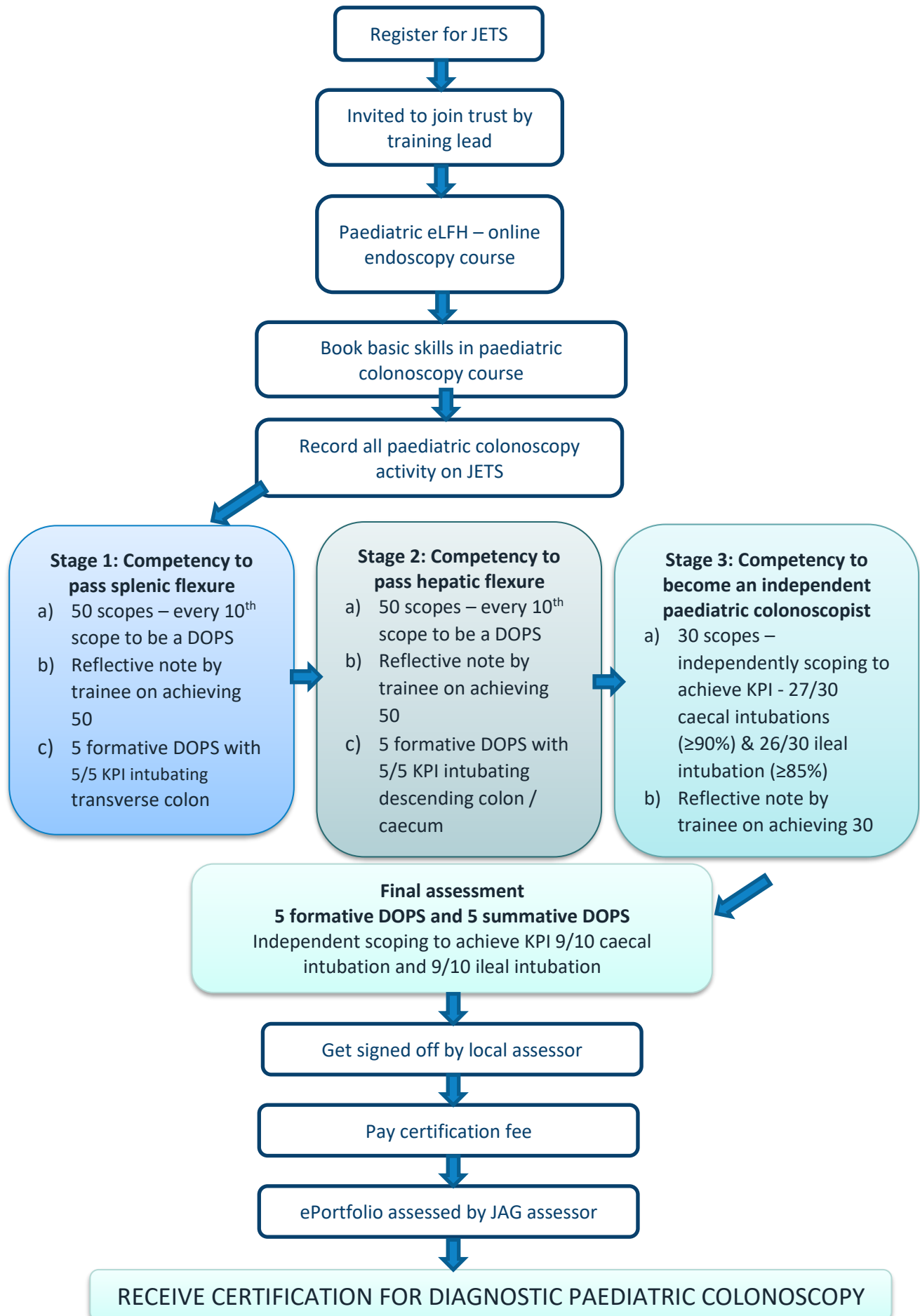
JAG no longer offers formal certification for therapeutic paediatric colonoscopy however recognises the importance of learning these skills with safe practice.

For trainees who are interested to learn and practice paediatric polypectomies, JAG makes these recommendations:

1. Attend a JAG approved polypectomy course. There are also tissue/tissue-like model endoscopy courses available with exposure to differing polyp resection techniques.
2. JAG has developed a paediatric specific DOPys form for trainees they may wish to use for developing skills.
3. It is important to acquire competence in managing post polypectomy bleeding and perforation with ENTS skills.
4. Use of post colonoscopy certification support to develop and enhance polypectomy skills.
5. Follow local trust rules with agreement with senior clinicians undertaking paediatric polypectomy procedures before independent practice.

Appendix 1: Paediatric certification process

Figure 1. JAG training pathway for paediatric colonoscopy certification in the UK and Ireland



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Acknowledgements:

My personal thanks to Geoff Smith and Keith Siau for their time, feedback and expertise to evolve this proposal. I would also like to thank Keith Lindley, president BSPGHAN for all his advice and support including members of the BSPGHAN Endoscopy Working Group, BSPGHAN Elect Council and the wider BSPGHAN membership.

Paediatric Endoscopy Working Group members, BSPGHAN contributing to position statement - Iaian Chalmers, Lucy Howarth, Dharamveer Basude, Krishna Soondrum, Subarinathan Loganathan, Shishu Sharma, Vinod Kolimarala & Naomi McMahan.

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BSPGHAN members and paediatric GI trainees for providing informal feedback

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