Royal College of Physicians | JAG Joint Advisory Group on GI Endoscopy

JAG accreditation programme

Guide to meeting the quality and safety standards in paediatric endoscopy

Effective from: 2024

Introduction

This guidance has been designed to assist paediatric endoscopy services and assessors in their preparation for a JAG accreditation assessment. It defines JAG's expectations for monitoring in the safety and quality domains (CQ2 and CQ4). The purpose is to ensure that high quality paediatric endoscopy is performed thus minimizing risks and complications. The standards are applicable to all paediatric endoscopy centres across healthcare settings and prioritise patient safety, whilst promoting quality of care and consistent training and revalidation of clinicians.

The development of these quality and safety standards aims to fulfil the needs as identified from the BSGPHAN national census 2021. It was a recommendation that BSPGHAN should work with the Joint advisory Group on GI endoscopy (JAG) to define clear standards for endoscopy in children [1]. Paediatric endoscopy is typically provided by specialists, who are trained in performing endoscopic procedures in infants, children, and adolescents in the right environment with provision of the appropriate facilities. These include:

- Paediatric Gastroenterologists. These are the primary professionals who perform paediatric endoscopy. They are doctors who have undergone specialist training in both gastroenterology and paediatric care
- Paediatric Surgeons. Paediatric surgeons may perform endoscopies including in cases involving surgical conditions
- General paediatricians with special interest. Some general paediatricians who have received advanced training and are accredited in paediatric endoscopy can also perform the procedure.

Adult gastroenterologists may assist paediatric endoscopists with complex interventional cases under specific circumstances, including the management of life-saving emergencies, such as gastrointestinal bleeding, where multidisciplinary collaboration is facilitated, and clinical care is overseen by a senior, experienced paediatrician. This approach is essential for several reasons. A paediatrician, with a deeper understanding of paediatric physiology, is better suited to evaluate the child undergoing endoscopy for co-morbidities, identify any associated risks, and address these concerns. Additionally, any child safety or safeguarding issues, if applicable, are managed by the paediatrician.

Where relevant, paediatricians are also better placed to assess the suitability of children and young people for oral bowel cleansing agents, such as in cases of children with complex congenital heart conditions, with prescriptions tailored to their age, size, weight, and any underlying medical conditions.

Paediatric endoscopy services are provided in a variety of hospital settings. The providers are typically paediatric gastroenterologists but may also include other specialists trained in paediatric endoscopic procedures. These different settings can generally be divided into four groups, which include:

a. Independent children's hospitals
b. Children's Hospitals co-located with Adult GI units
c. District General Hospitals providing paediatric endoscopy services
d. Paediatric livers units offering additional therapeutic banding for varices

The guidance is applicable to all fore-mentioned facilities, the NHS and the independent sector in the different nations of the UK.
Paediatric endoscopy services differ from adult endoscopy services in that paediatric endoscopy is not typically provided in standalone units. Standalone paediatric endoscopy suites, which are common in adult practice, are rare. All rules and regulations, including legislation of practice, child protection

policies, and standard operating procedures for all paediatric hospital admissions, apply to endoscopy undertaken in children. Addressing the full breadth of such policies observed in the operation of children's units is beyond the scope of this document, and it is expected that paediatric endoscopy services will follow local paediatric policies and procedures supporting the care of children in hospital settings. The RCPCH (Royal College of Paediatrics & Child Health) has developed several standards for acute paediatric care, paediatric assessment units, emergency care settings, emergency departments, high dependency care for children, and child protection service delivery standards [2–5].

The core part of this guidance must be followed to achieve JAG accreditation. It has been noted where guidance is aspirational but not required for accreditation.
This has been developed for several reasons:

- To reflect recent changes to new developed paediatric colonoscopy certification and the development of pGRS
- To provide greater clarity to JAG assessing paediatric services preparing for accreditation
- Encourage adoption of National Endoscopy Database (NED) in paediatrics [6].

At this point there is further work needed for all paediatric services in the UK to upload data to NED. This produces standard outputs for key performance indicator (KPI) data so that clinical leads can compare the performance of their individual operators against standards set by the British Society of Paediatric Gastroenterology (BSPGHAN) and benchmark against current UK performance data. NED reduces the burden of audits and allows for a wide range of KPIs to be assessed. It is expected with future iterations of NED that additional KPIs will be readily available and will be incorporated as part of JAG requirements.

2. Paediatric clinical audit requirements

There is an annual audit plan for the service with named leads and timescale [7].
JAG expects to see:

- The last 12 months of Key Performance Indicators (KPI) audit data for each procedure performed in the service. All KPIs should be assessed concurrently for every procedure e.g. paediatric colonoscopy. The 'Clinical lead review and action required' column must be filled in for each operator as stated.

- Individual paediatric endoscopists receive feedback on their KPIs and safety outcomes for procedures at least once a year, using local records and audit systems. This should occur more frequently if adverse events or potential issues are identified [8] (Refer to Standard 42).

- A timetable setting out the annual schedule for the audit of these KPIs (at the intervals described in this document) aligned to a responsible individual.

- The annual audit process should include a review of the indications for performing paediatric endoscopy. Paediatric endoscopic procedures should only be carried out for clearly documented, appropriate indications, consistent with current evidence-based guidelines where available [8] (Refer to standard 28). The goal is to progress towards green paediatric endoscopy by reducing unnecessary procedures, minimising resource wastage, and above all avoiding inconvenience to paediatric patients.

- The minutes from at least 2 meetings (over the last 12 months) e.g. endoscopy users' group (EUG) or governance to show that the audits have been carried out as per the timetable and reviewed. This should include detailed action planning.

- Evidence showing individual operators (including trainees) have been informed of their results with specific action plans drawn up where necessary after each period e.g. colonoscopy every 6 months. The action plans should be in line with the service's policy for supporting the practice of endoscopists and will range from peer review of practice to mentoring and focussed training, either locally or by attending an external course, through to the cessation of practice where there are significant and/or persistent concerns (please see JAG guidance managing underperformance in endoscopists [9]). In almost every audit it is expected that some operators will not reach the required standards.

Paediatric gastroenterology units offering paediatric endoscopy should aim to adopt NED (The National Endoscopy Database). NED makes it easier to obtain, the data for clinical audits by utilising the 'JAG audit' button on the NED website. Where KPIs are not available through NED, there is a mandatory template[9] that JAG expects to be completed and analysed by the service and signed off by the clinical lead. Data will usually be downloaded from the local Endoscopy Reporting System (ERS). Performing a large number of procedures does not guarantee competency and so it is important to look at the KPIs of all operators; this should include locums and endoscopists coming to work at the service via 'insourcing'. If the numbers of procedures are lower than the recommended threshold, then these operators should first include all their practice (i.e. including all NHS and independent sector practice).

Lower numbers than the minimums described in this document may be acceptable if the main KPIs e.g. colonoscopy completion rates / intubation rates at gastroscopy are satisfactory. It is also expected that some operators may have lower outcomes than the recognised standards but with good reasons e.g. those doing advanced therapeutic procedures who may not intend to reach the caecum at colonoscopy or the duodenum at OGD. The clinical lead is best placed to interpret their local dataset.

2.1 Paediatric Oeosphago-gastro-duodenoscopy (OGD)

To be audited every 12 months

The standards from the Paediatric Endoscopy Quality Improvement Network Quality Standards and Indicators for Paediatric Endoscopic Procedures, a joint NASPGHAN/ESPGHAN guideline, as well as the Quality Standards for Paediatric Gastroenterology, Hepatology, and Nutrition from the RCPCH, have been incorporated into this guidance.

The JAG auditable outcomes for paediatric OGD are:

Quality indicator (per operator)	Minimal standard (where exists)	Aspirational target (where applicable)
For individual operators		
Number of procedures	50	75

(including those directly supervising a trainee within the room)		
Success of intubation	95%	100%
D2 intubation	95%	97%
J manoeuvre rate	95%	97%

Paediatric gastroscopy procedures must be performed for an appropriate, clearly documented indication, consistent with current evidence-based guidelines where available [8] (Please refer to Standard 28). This should be audited annually.

Footnotes

- Adequate biopsies should be taken for each condition being investigated, with reference to individual paediatric guidelines [8] (Please refer to Standard 34). For example, biopsies for coeliac disease should include sampling from the duodenal bulb (D1), and biopsies for paediatric eosinophilic oesophagitis should involve oesophageal biopsies from three different levels. However, JAG does not require a specific audit for adequate biopsies. Clinicians are encouraged to conduct snap audits to assess biopsy quality and quantity, with results discussed in local endoscopy user groups.

- Most paediatric endoscopy is performed under general anaesthesia, generally provided by paediatric anaesthetists. Sedation is less commonly used ; however, when sedation is used, clinicians must follow NICE Guidelines on Sedation in Under 19s [10].

- Photographic evidence of relevant anatomical landmarks (upper oesophagus, gastroesophageal junction, gastric body, antrum, duodenal bulb, distal duodenum, incisura [retroflexion], and fundus [retroflexion]) as well as any detected abnormalities should be recorded for all patients. Although this cannot currently be assessed by NED, JAG encourages services to audit periodically to ensure all endoscopists are compliant.

Paediatric PEGs or therapeutic OGD procedures (e.g. dilatation, stent insertion, haemostasis) should have complications routinely assessed and discussed at endoscopy user or governance meetings. Services are encouraged to audit all therapeutic procedures, including assessments of appropriateness and aftercare, particularly where concerns arise after analysing complications. These procedures are likely to become auditable with future updates to NED.

2.2 Paediatric Colonoscopy

To be audited every 12 months

The standards from the Paediatric Endoscopy Quality Improvement Network Quality Standards and Indicators for Paediatric Endoscopic Procedures, a joint NASPGHAN/ESPGHAN guideline, as well as the Quality Standards for Paediatric Gastroenterology, Hepatology, and Nutrition from the RCPCH, have been incorporated into this guidance. The numbers and recommendations for the required annual colonoscopic procedures have been derived from the newly developed paediatric colonoscopy accreditation document. In light of the relatively low volume of paediatric colonoscopy there is consensus that a minimum number of procedures should be performed annually to maintain competency and ensure continued skills development.

Quality indicator	Minimal standard (where exists)	Aspirational target (where applicable)
For individual operators		
Number of procedures per year (Including those directly supervising a trainee within the room)	30	50
Unadjusted caecal intubation rate	90%	95%
Terminal ileal intubation rate in %	85%	90%
For the whole service		
Bowel preparation adequate or above for each different regime	90%	95%

Footnotes

- Photographic evidence of the appendiceal orifice, ileocaecal valve, terminal ileum or anastomosis (if applicable) should be recorded for all patients. At present this cannot be audited via NED and so JAG expects that every service has a policy of everyone in the room (operator and assistants) agreeing that one of these landmarks has been reached to record a complete procedure in addition to the photo-documentation of these 'landmarks'. If there are any concerns raised by KPI audit data, then a separate audit can be carried out to ensure these are being recorded correctly for specific operators.

- When used, NED audit output includes this for each operator which can be interpreted alongside other KPI results.

- Polypectomy procedures are relatively uncommon in paediatric practice. It is also important to note that not all paediatric gastroenterologists perform polypectomies, as this may vary according to individual preference and clinical practice. It is recommended to follow local trust guidelines, with agreement from senior clinicians experienced in paediatric polypectomy procedures, before undertaking independent practice.

- Therapeutic Paediatric colonoscopy procedures (e.g. polyps) should have complications routinely assessed and discussed at endoscopy user or governance meetings. Services are encouraged to audit all colonic therapeutic procedures, including assessments of appropriateness and aftercare, particularly where concerns arise after analysing complications. These procedures are likely to become auditable with future updates to NED.

2.3 Paediatric GI Bleeding

To be assessed and audited every 12 months

- Upper GI bleeding is rare in paediatric practice. In the EMERGENCi study [11], a recent UK prospective survey of severe GI bleeding (requiring upper GI endoscopy) and emergency endoscopy in children under 16, 34 children nationwide were identified with upper GI bleeding over a six-month period. Of these, 13 children (38%) required endoscopy, with varices found in 6/13 cases, followed by gastric ulcers in 4/13, and ulcers in the oesophagus and duodenum in the remaining cases.
- Every unit should have evidence of an agreed pathway of care for the management of paediatric upper gastrointestinal bleeding (Refer to Quality Standards RCPCH [7]), addressing the following key points:
    - At the point of acute emergency resuscitation, if required (or otherwise), a couple of key considerations should be made (Refer to BSPGHAN GI Bleeding Pathway [12]). For children with known liver disease and suspected variceal bleeding, refer to the BSPGHAN Varices Guideline v 2 [12]. Additionally, perform a chest X-ray unless a possible swallowed button battery is confidently excluded (Refer to your local button battery guidelines).
    - Evidence of agreed pathway of care for management of foreign body / battery retrieval control of the endoscopy service e.g. scoring with risk stratification tools at presentation.
    - Once the child is stable, key members of the paediatric upper GI bleeding team should be named in the local guidance (e.g. paediatric gastroenterologist, paediatric surgeon, general paediatrician and intensivist), which must be easily accessible to all staff in A&E and paediatrics. There should be a clear agreement on the triage point for such cases, which will typically be the Accident and Emergency department.
    - The triage team is responsible for assessing the child to determine the appropriate course of action regarding future medical management, the need for endoscopy, and, if required, arrangements for transport. The use of a paediatric upper GI bleeding score should be considered to guide management decisions.

No	Standard	Standard met (Y/N)	If no - action plan
1	Discussion with the 'named local paediatric bleeding team' is required to determine the need for endoscopy, if required, and further management including transport to specialist hospital. The use of a paediatric upper GI bleeding score should be considered to guide management decisions.		
2	Children with severe acute upper GI bleeding who are haemodynamically unstable are given an endoscopy within 4 hours of optimal resuscitation.		

3	Children admitted to hospital with acute upper GI bleeding who are haemodynamically stable but have been assessed as needing an urgent endoscopy should undergo the procedure within 24 hours of admission.		
4	Children with non-variceal acute upper GI bleeding who continue to bleed or re-bleed after endoscopic treatment and who are haemodynamically unstable are given interventional radiology treatment.		
6	Children with suspected or confirmed variceal acute upper GI bleeding, if not managed locally, are transferred to a centre of expertise, such as a paediatric liver centre, within 24 hours.		
7	Children with acute upper GI bleeding from oesophageal varices are given band ligation.		
8	Children with acute upper GI bleeding from gastric varices are given an endoscopic injection of N-butyl-2-cyanoacrylate (this will need early liaison with the local liver unit / tertiary centre if not available onsite).		
In addition, it is expected that all services will collect audit data of the number of paediatric patients with acute upper GI bleeds who are haemodynamically stable assessed to require endoscopy have an upper GI endoscopy within 24 hours		Target ≥75%	

2.4 Small bowel capsule endoscopy (SBCE)

To be audited every 12 months, not available from NED.

These indicators are taken from Performance measures for small bowel endoscopy: A European Society of Gastrointestinal Endoscopy (ESGE) Quality Improvement Initiative (2019) and also apply to paediatrics.

Quality indicator	Minimal standard (Where exists)	Aspirational target (where applicable)
Indication for SBCE	>95%	>95%
Caecal Visualization/Complete small Bowel examination	>80%	>95%
Capsule retention rate	<2%	
Number of cases per year		

There is no current standard for the number of cases that a paediatric SBCE endoscopy service should deliver but

this should still be recorded as it allows understanding of the numerators for the other standards.

3 Adverse event monitoring

Audit of adverse events every 3 months

Paediatric Endoscopy is an interventional practice with known adverse events that JAG anticipates will occur in all services. Endoscopy related adverse events are multifactorial and can arise as a result of the procedure, or poor decontamination of endoscopic equipment as examples. Adverse events may become apparent before, at the time or shortly after a procedure (ie can largely be documented on the appointment day as 'patient safety incidents'). They may also arise some days later and be much harder to capture by the endoscopy service and so will need additional systems to be in place to identify them.

JAG expects to see that:

- A system is in place to capture all suspected paediatric patient safety incidents close to the time where patients may have come to harm (including 'near misses'). It is preferable to capture via an electronic system
- Adverse events and key safety indicators are recorded, monitored and acted upon. Paediatric endoscopy services should aim to discuss adverse events and address them within the children's morbidity and mortality (M&M) meetings. It is advisable to extend these discussions beyond the paediatric endoscopy user group to the broader general paediatric M&M meetings, particularly in specialist centres. This integration into the wider paediatric unit's morbidity and mortality meeting practices is crucial for comprehensive care (RCPCH quality standards). Some cases may need a root cause analysis (based on their nature, severity and frequency). All 'lessons learnt' which are then minuted at meetings with action plans.

- The outcomes may need to be conveyed to relevant management to facilitate action eg staffing. There is also a duty of candour to the patient to inform them in a timely manner that a patient safety incident has been recorded and that an assessment has taken place.
- Each paediatric service should have a nominated safety lead. This can be the clinical or governance lead but should have an identified role to promote safe and share learning from both local and national safety lessons. They should work both within the paediatric endoscopy service and report to the local governance and safety team within the host organisation.

JAG does not ask for an annual audit of morbidity and mortality. JAG recognises that has a burden for services with a limited amount of benefit. Instead, JAG requests evidence in the minutes of meetings that adverse events are a standing agenda items with ongoing analysis to determine 'lessons learnt'.

Suggested categories for patient safety incidents (PSI) in endoscopy are detailed below and aligned to ISREE:

- Drug errors
- Sedation, IV access or and monitoring
- Technical skills
- Equipment
- Endoscopy non-technical skills (ENTS)
- Training
- Documentation or reporting
- Consent
- Histology or sampling

The table below provides some of the quoted morbidity and mortality rates associated with endoscopy (JAG does not expect specific audits against these but procedures should be in place to prospectively capture cases. If any concerns arise then a full audit of practice should be undertaken).

Outcome	Standard	Aspirational target (where applicable)
Perforation after endoscopic procedure	OGD Diagnostic <1 in 3,000 Dilation- Benign Stricture <1 in 100 Malignant Stricture <1 in 20 Achalasia <1 in 20 Gastric outlet obstruction <1 in 20 Colonoscopy	

	Overall rate <1 in 1000 Diagnostic rate <1 in 2000 After polypectomy <1 in 500 After dilatation <1 in 33 After stenting <1 in 10 Flexible sigmoidoscopy <1 in 5000 ERCP <1 in 50	<1 in 3000 <1 in 4000 <1 in 1500 <1 in 100 <1 in 20 <1 in 10000
Post polypectomy bleed rate (Intermediate or greater severity) *	Polypectomy bleed – <1 in 200	<1 in 1000
PEG insertion	Major complications (that result in further endoscopic or surgical intervention / threat to life / hospitalisation or prolonged stay) eg perforation / peritonitis / bleeding <1 in 33	
Mortality Rates (please note there is a wide variation in quoted mortality rates which will depend on case mix / co-morbidity)	Diagnostic OGD – 1 in 25000 Diagnostic colonoscopy 1 in 15000 Direct procedural related to PEG <1 in 100 (30 day rates vary as per case selection, no set standard) ERCP < 1 in 100	

Footnote

All adverse events as tabulated should be recorded [7]

Criteria
• Unplanned admission < 8 days • 30-day mortality • Duodenal haematoma • Perforation Rates

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