

Improving UK endoscopy: The British Society of Gastroenterology Endoscopy Quality Improvement Programme (EQIP).

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Abstract

High quality gastrointestinal endoscopy improves patient care. Raising standards in endoscopy improves diagnostic accuracy, management of pathology and ultimately improves outcomes. Historical identification of significant variation in colonoscopy quality led to the development of the Joint Advisory Group on GI Endoscopy, the Global Rating Scale, JETS training and certification. These measures led to major improvements in UK endoscopy but significant variation in practice still exists.

To improve quality further the British Society of Gastroenterology (BSG) Endoscopy Quality Improvement (EQIP) has been established with the aim of raising quality and reducing variation in the quality of UK endoscopy. A multi-faceted approach to Quality Improvement (QI) will be undertaken and is described in this manuscript. Upper GI EQIP will support adoption of standards alongside regional upskilling courses. Lower GI EQIP will focus on supporting endoscopists to achieve current standards alongside approaches to reducing post colonoscopy colorectal cancer rates. ERCP EQIP will adopt a regional approach of using local data to support network-based QI. Newer areas of endoscopy practice such as small bowel endoscopy and Endoscopic Ultrasound (EUS) will focus on identifying key performance indicators as well as standardising training and accreditation pathways. EQIP will also support QI in management of GI bleeding as well as standardising the approach to new techniques and technologies. Where evidence is lacking approaches to gather new evidence and support the translation into clinical practice will be supported.

Key points:

1. Variation in quality of endoscopy translates into poorer patient outcomes.
2. Defining standards within endoscopy will help identify areas for Quality Improvement (QI)
3. BSG Endoscopy Quality Improvement Programme (EQIP) will support improvements in quality across endoscopic procedures.
4. Network-based QI and local upskilling courses will be developed.
5. Regional EQIP leads will disseminate good practice locally and pilot EQIP interventions.

Introduction

High quality endoscopy is essential to ensure that patients are optimally managed. Endoscopy must ensure that pathology is detected, managed correctly and that patients have as good an experience as possible. In the United Kingdom (UK), as in much of the world, endoscopy demand continues to rise because of an ageing population, symptom awareness campaigns, reduced thresholds for referral and the development of regional and national screening programmes.

The UK has made strides forward in endoscopy services over the last two decades. Measures such as the national endoscopy modernisation programme; Joint Advisory Group on GI Endoscopy; the Global Rating Scale; the JETS training and certification programme and the Bowel Cancer Screening programme¹⁻³ have led to significant improvements in UK endoscopy training and service provision. The NHS Bowel Cancer Screening Programme (BCSP) provides an exemplar of how a formalised and highly quality assured national endoscopy programme can be delivered.^{4,5}

Variation in the quality of endoscopy, however, still exists with significant impact upon patient outcomes.^{6,7} Where performance is poor, it should be improved and variation in quality should be

reduced. There is evidence that high quality procedures reduce the need for repeat tests and encourage patient compliance with screening and surveillance programmes.⁸ In addition, there is evidence that quality correlates with better patient experience.⁹ Much of the progress in UK endoscopy has focused on training and service delivery with less emphasis on how to improve the quality or improve the skills of established practicing endoscopists.

The British Society of Gastroenterology Endoscopy committee (BSGE) has identified improving the quality of endoscopy as a major priority and aims to improve the quality of Gastrointestinal (GI) Endoscopy throughout the UK. The BCSP is widely acknowledged to deliver an outstanding service and is seen as a gold standard for endoscopy service delivery. The aspiration of BSG Endoscopy is to deliver a BCSP level of service in all areas of UK endoscopy practice.

The British Society of Gastroenterology (BSG) has therefore established an Endoscopy Quality Improvement Programme (EQIP) with the aim of improving endoscopy performance and reducing variation in quality.

In this article we give an overview of the BSG Endoscopy Quality Improvement Programme.

Evidence based Quality Improvement

It is important as we seek to improve endoscopy quality to develop an evidence base for quality measures.⁴ Colonoscopy has led the way in this with examples being the clear correlation between adenoma detection rate (ADR)¹⁰ as a surrogate marker for thorough colonic examination, with higher ADR being associated with lower incidences of post colonoscopy colorectal cancer (PCCRC).¹¹ A number of measures to improve ADR have been demonstrated including the use of minimum withdrawal time in colonoscopy as it is associated with a greater ADR.^{12,13} Upper GI endoscopy research has also focused on reducing post endoscopy cancers.^{6,14} Evidence based quality measures in ERCP include the use of rectal NSAIDs to reduce post procedure pancreatitis¹⁵ and wire guided cannulation.¹⁶

As it is a relatively new field of practice, measures to improve quality in small bowel endoscopy are less well developed. Systematic reviews suggest that pre-procedural use of purgatives improve visualisation of the small bowel mucosa but this does not always translate to improved diagnostic yield.¹⁷ However, capsule endoscopy performed as close to the bleeding episode as possible appears to improve diagnostic yield in patients with overt bleeding.^{18,19} The European Society of Gastrointestinal Endoscopy (ESGE) Quality Improvement Initiative will include adequate or good bowel preparation and timing of performance of capsule endoscopy in patients with overt bleeding as quality measures.

In many areas of endoscopy practice the evidence is not strong and often expert opinion or consensus must be relied upon to define best practice. It is important that where evidence is poor an evidence base is generated in order to improve practice.

Introducing quality improvement into clinical practice

Endoscopy quality improvement may take a number of forms including: defining Key Performance Indicators (KPI) and Quality Assurance (QA) standards, auditing and supporting achievement of performance standards by endoscopists, management of endoscopy units and services, improvement of patient experience and enhancing endoscopy training. Different approaches to these areas have been pursued. For example a 1999 BSG audit of colonoscopy involving over 9000 procedures in multiple centres revealed poor caecal intubation rates highlighting the need for improvement of technique and practice in colonoscopy.²⁰ As a consequence a wide ranging programme to improve UK colonoscopy, including development of training centres, the JAG and GRS, was implemented.^{1,2} Similar approaches are being developed for other areas of endoscopy practice^{21,22} These efforts have translated into improvement in endoscopy standards across the UK as evidenced by a repeat audit demonstrating improved performance.²³

Two key elements of improving quality are defining best practice standards and then review and audit to assess performance against those standards. The British Society of Gastroenterology (BSG) has established standards for upper GI endoscopy, colonoscopy and Endoscopic Retrograde Cholangiopancreatography (ERCP).^{10,21,22} These defined KPIs are evidence based or developed through expert consensus with mandatory and aspirational targets. Defining standards allows targeting of minimal standards of practice across endoscopists and endoscopy units. BSG EQIP is about providing supportive measures to improve quality and is not primarily focused on significant underperformance. Strategies to manage underperformance are covered in a recent paper published in Gastrointestinal Endoscopy Journal.²⁴

The JAG accreditation scheme was introduced in 2005 alongside Global Rating Scale (GRS) to help improve quality in endoscopy and its services. It focuses on a framework of quality standards to improve the quality of endoscopy, maintain best practice, improve patient experience and also support endoscopy training. A feature of accreditation is that local units audit performance of endoscopists against defined standards and where required they develop systems to improve performance. JAG accreditation is an ongoing process which emphasises continued improvement in endoscopy service provision, with annual review and 5-yearly site visits.

A recent development to support measurement of endoscopy units is the UK National Endoscopy Database (NED). This is a joint BSG and JAG development which will warehouse all UK endoscopy data and provide continuous upload of data for audit and additionally for research purposes.

The BSG Endoscopy Quality Improvement Programme (EQIP)

BSG EQIP aims to support endoscopists and endoscopy teams to improve GI endoscopy by:

1. Developing and introducing endoscopy quality standards and KPIs where they are lacking
2. Reducing variation in endoscopy practice
3. Improving the quality of endoscopy carried out
4. Reducing the number of inadequate initial tests
5. Enhancing endoscopy training for established endoscopists
6. Supporting endoscopy quality assurance

7. Improving patient endoscopy outcomes (of note preventing cancer and diagnosing it earlier)
8. Improving patient experience of endoscopy
9. Improving the management of GI bleeding
10. Developing a consistent approach to new endoscopy techniques and technologies

EQIP adopts a multi-faceted approach to quality improvement including: setting standards where they do not exist or updating existing standards; linking to the National Endoscopy Database to support benchmarking and performance reporting; developing accreditation and credentialing; promotion of established, evidence-based quality improvement measures; training e.g. skills improvement programmes for established practitioners; mentoring for established practitioners; supporting implementation of evidence based bundles; sharing of expert skills and knowledge including collaborative networks; development of patient reported experience measures of endoscopy.

EQIP structure comprises national leads for each area of endoscopy practice supported by regional leads using the BSG's regional structure to support local implementation of EQIP. The national leads develop the strategic direction of EQIP and drive ideas and projects within each domain of endoscopy. For the more widely performed procedures pilot projects are then undertaken in selected regions. For the less widely performed procedures such as enteroscopy or EUS a more national approach is taken. Regional leads help disseminate ideas from EQIP and also help undertake selected projects to be piloted in their regions. In addition to leads for each type of endoscopy procedure there are additionally leads for GI bleeding, new technologies and new techniques and a lead for live endoscopy.

The current national endoscopy leads are Professor Colin Rees (EQIP lead), Dr Andy Veitch (Upper GI lead), Dr John Anderson (Lower GI lead), Dr Kofi Oppong (ERCP lead), Professor Mark McAlindon (Small bowel lead), Dr Ian Penman (EUS lead), Dr John Morris (EQIP for GI bleeding), Professor James East (New technology lead), Professor Pradeep Bhandari (New technique lead), and Dr George Webster (EQIP Live Endoscopy lead).

The current EQIP regional leads are Adam Bailey (South Central), Umesh Basavaraju (Scotland), Pradeep Bhandari (South Coast), Trevor Brooklyn (South West), Gareth Corbett (East of Anglia), Stephen Foley (East Midlands), John Greenaway (North East), Neil Hawkes (Wales), Mayur Kumar (South London), Michael Mitchell (Northern Ireland), Aravinth Muruganathan (West Midlands), Sanchoy Sarkar (North West), Edward Seward (North London) and Mo Thouefeeq (Yorkshire).

Upper GI endoscopy

The BSG position statement on upper GI endoscopy quality standards was published in 2017.²² Since its publication, these standards have been accepted into JAG quality standards and will be reflected in NED. Furthermore, the new KPIs have been incorporated into the JAG Basic skills course in Upper GI Endoscopy. The value of the quality standards has also been recognised by NHS England, with incorporation of them into the Timed Oesophago-gastric Cancer Pathway 2018.

Dedicated Barrett's surveillance lists are now increasingly being implemented, and this is likely to further improve on the quality of surveillance procedures, increasing diagnostic yield.

EQIP educational days have been delivered at University College Hospital London and for the South-West region, in Exeter with large audiences. Further regional educational events are planned throughout the UK. Remote learning via e-learning modules are also planned to complement regional or national educational events.

Lower GI endoscopy

BSG colonoscopy EQIP acknowledges that there has already been a significant focus on improving colonoscopy training and the quality of the colonoscopy service provided. There are now well-established quality indicators for colonoscopy, which predominantly focus on the endoscopist (personal key performance indicators), which are monitored on a regular basis.¹⁰ Many of the strategies for improving the quality in colonoscopy have an evidence base to support them.⁴ Interventional 'bundles' have already been used to try to increase quality markers such as adenoma detection rate (ADR).²⁵ Introduction with feedback of a "bundle" (withdrawal time >6mins, use of buscopan, rectal retroflexion and dynamic position changes) improved detection, especially amongst poor performers, with benefits maintained for three years post-intervention.²⁶ Interventions like this can potentially reduce variations in care for minimal cost compared to new endoscopes or devices. Despite these measures, there remains significant variation in performance against markers of quality, such as ADR and in colorectal cancer mortality across the bowel cancer screening programme.²⁷ Quality indicators or individual key performance may be enhanced by combining measures (Performance indicator of colonic intubation, PICI).²⁸ Unit level data are now available which provide PCCRC rates. PCCRC is potentially a single benchmark standard for units to assess the colonoscopy service they provide.²⁹ Despite this being a JAG standard (units should record PCCRC as adverse events and have a mechanism to capture these data), at present it is unclear how most units manage this. The factors which contribute to PCCRC involve all areas of the endoscopy service and may include many of the more recognised quality indicators.

Lower GI EQIP regional meetings will focus on an approach to understanding and reducing PCCRC rates, by helping units and individuals review their own service and analyse areas for potential quality improvement, using case-based review. Regional meetings have been held with management and endoscopy leads with attendees encouraged to review their own PCCRC data and share motivations or barriers to learning from this exercise. It is envisaged that common themes will evolve from this, which in turn will provide a focus for developing an interventional bundle, which can support intrinsic unit improvement activity. This approach offers the benefit of a bespoke intervention for each unit based on their own data analysis and review. Regional performance data will be reviewed as part of the initial process, to explore what has or hasn't worked, or led to quality improvement. It is hoped this will lead to other units learning and adapting to the feedback from other centres to make their own quality improvement programme more efficient and effective.

Endoscopic Retrograde Cholangio Pancreatography

ERCP EQIP has focused on promoting and implementing the quality standards from the BSG standards framework²¹ including cannulation rate in excess of 85% in first ever procedure and common bile duct stone clearance at first ERCP in > 75% of cases. The approach has been to foster the development of pilot regional networks and supporting existing networks. Region-specific ERCP results from the 2016 GRS census have so far been presented and discussed at inaugural (NE England, Northern Ireland) and

established network (West Midlands) meetings. As well as at live case meetings (St Thomas' annual ERCP course), hands on best practice courses in Gloucester and Stoke and a regional EQIP endoscopy unit leads meeting in Exeter. In addition, the creation of a new network in Wales has been supported. The development of new and support of existing upskilling courses are other key aims. In the West Midlands provision of an upskilling course for existing practitioners was identified by the regional interest group as important. To date two successful courses have been held in Stoke for West Midlands consultants. The Stoke upskilling course and the ERCP skills day at Gloucester involved hands on cases for existing practitioners as well as discussion of cannulation technique and the prevention and management of complications. An inaugural North West England network meeting is planned.

Small bowel endoscopy

A capsule endoscopy training and accreditation programme has now been developed and is anticipated to go live in 2019. Only a small number of UK centres offer device-assisted enteroscopy, therefore the training requirements are being addressed in collaboration with an ESGE curriculum development group, publication of which will be followed by a UK implementation strategy. Training will require attendance at an accredited course run on the basis of a common curriculum. Several of these courses now run throughout the UK. Additional support networks have been established including the UK Capsule Endoscopy Users' Group which meets regularly.

BSG EQIP is also working closely with the ESGE Quality Improvement Initiative which has established performance measures for small bowel endoscopy. These standards will be adopted in the UK and provide a framework to further support quality improvement.

Endoscopic Ultrasound (EUS)

Evidence based guidance for EUS as well as KPIs are limited. At present, the focus is on identifying and defining best practice. This will be undertaken by visiting units that perform EUS to understand their approaches, techniques, results and outcomes and comparing to current published data. Where techniques or approaches are agreed upon, these will be implemented in selected units with wider audit of change in practice. EUS workshops are to be organised in Scotland as South-Central region in 2018 to aid further work in improving standards in EUS.

Acute upper GI Bleeding (AUGIB)

AUGIB is associated with a high mortality rate despite recent advances in endoscopic techniques. Training in endoscopic haemostasis has been largely opportunistic without formal curriculum or requirement to demonstrate competence. Additionally, the clinical approach to the initial management of patients with GI bleeding varies widely. Measures to improve the quality of GI bleeding care in the UK are therefore urgently required. BSG AUGIB EQIP has taken a national multisociety approach, with AUGIS and The Society for Acute Medicine to deliver two complimentary strategies aiming to improve the management of patients with AUGIB.

Firstly, an AUGIB skills training course has been developed, piloted, refined and implemented. These courses aim to ensure optimal hands on training in the use of available haemostatic techniques within the context of evidenced based patient care and are targeted at trainees and established endoscopists to ensure consistency of approach. Secondly an evidenced based AUGIB care bundle has been developed using Delphi methodology to improve quality of non-endoscopic care for patients. This bundle is aimed at acute medical care in the first 24 hours of presentation to ensure that available evidence and standards are implemented in a strategic fashion. The bundle involves emphasis on basics of recognition of GI bleeding, adequate resuscitation, risk assessment of severity of GI bleed, timely initiation of treatment, timely referral to endoscopy, transfer to the appropriate ward and resumption of antithrombotic therapy where appropriate.

The GI bleeding training and care bundle will be rolled out nationally in 2019 with the anticipation that a requirement to demonstrate competence in management and care of patients with AUGIB will be included in the new national GI Curriculum.

New techniques and technologies

BSG EQIP has developed a strategy for how new techniques and technologies should be evaluated and then translated into clinical care. Led by Professors James East and Pradeep Bhandari these areas are covered in a further manuscript within this edition of Frontline Gastroenterology.

Live Endoscopy

Continued learning is vital for all endoscopists. Opportunities for this lie in regional or national educational events supported by EQIP events. Additionally, a recent introduction to UK endoscopy learning is BSG national live endoscopy. These provide a superb opportunity for endoscopists to observe and learn improved endoscopy techniques from leading practitioners. BSG Live Endoscopy (2015,2017,2019) is supported by live endoscopy days during the BSG annual meeting.

Conclusion

Gastrointestinal endoscopy has evolved significantly over the last two decades. Endoscopy diagnoses more and treats more. It is essential that endoscopy is of the highest possible quality and BSG EQIP seeks to improve this.

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CJR and SK drafted the manuscript. JA, MM, AV, JM, PB, JE, GW, KO and IP reviewed and edited the manuscript. CJR completed the final article revision.

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