National Comparative
Audit of Blood Transfusion

BRITISH SOCIETY OF GASTROENTEROLOGY

NHS Blood and Transplant

# UK 2022 Comparative Audit of Acute Upper Gastrointestinal Bleeding (AUGIB) and the use of Blood

## Trainees and Trainers' Survey

This report is to be read in conjunction with the main findings from the UK 2022 Comparative Audit of Acute Upper Gastrointestinal Bleeding (AUGIB) and the use of Blood

January 2025

Royal College of Physicians

AUGIS
ASSOCIATION OF UPPER GASTROINTESTINAL SURGERY OF GREAT BRITAIN AND IRELAND

BSIR British Society of Interventional Radiology

BASL British Association for the Study of the Liver

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We wish to acknowledge the diligent efforts of the project group for the UK Comparative Audit of Acute Upper Gastrointestinal Bleeding and the Use of Blood, whose expertise and dedication have been integral to the successful execution of this audit.

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## Contents

## Executive Summary

This report presents findings from a UK-wide survey conducted among upper GI endoscopy trainees and trainers, aligned with the 2022 UK Acute Upper GI Bleed (AUGIB) audit. The survey aimed to assess current AUGIB endoscopy training, identify barriers, and suggest improvements to enhance competence and readiness among gastroenterology trainees.

### Key Findings

**Response and Demographics**
The survey received responses from 137 trainees (23% response rate) and 115 trainers (76% response rate), with representation from all UK regions. Most trainees were in gastroenterology, covering a range of training grades (ST3-ST7).

**Procedure Counts and Training Exposure**
A substantial disparity was noted between diagnostic endoscopy (median lifetime count of 300) and AUGIB-specific procedures (median lifetime count of 15). Regional and grade-based variations in AUGIB exposure were observed, with some areas providing higher exposure than others, indicating inequities in training opportunities across regions.

**Competence in Haemostasis Procedures**
Trainees reported low exposure to essential haemostasis procedures, with the highest experience in variceal band ligation and injection therapy but very limited exposure to complex procedures (e.g. Danis stents, OTSC clips). Despite seniority, only 41% or fewer ST6-7 trainees felt confident performing haemostatic procedures independently, indicating a gap in competence across grades.

**Barriers to Training**
Major barriers included a lack of structured training opportunities (94% of trainees), not being part of the AUGIB on-call rota (78% trainees, 72% trainers), and intensive acute-take commitments (75% trainees, 85% trainers). Some trainers also cited organisational limitations and insufficient resources, which restricted structured training provision and training engagement.

**Suggestions from trainees/trainers for Improvement**
Both trainees and trainers supported key suggestions to enhance AUGIB training:
Mandatory participation in AUGIB on-call rotas for senior trainees; Increased access to JAG-approved haemostasis courses and simulation-based training; Formal certification in AUGIB management and reduction of acute medical responsibilities for senior trainees.
These proposed improvements aim to create a structured and equitable training pathway for developing competence in AUGIB procedures.

**Conclusion**
The survey highlights significant gaps in AUGIB training across the UK, with low exposure to haemostasis procedures and disparities in training based on region and trainee grade. Addressing these gaps through the recommended changes could improve AUGIB training, ensuring more consistent and comprehensive skill development for future gastroenterology consultants. Enhanced AUGIB training pathways would support a well-prepared, competent workforce ready to manage complex gastrointestinal emergencies across all regions.

## Introduction

Upper GI endoscopy, including the endoscopic management of Acute Upper GI Bleed (AUGIB) is an essential skill for gastroenterologists. However, trainees have reported inadequate exposure to AUGIB endoscopic management and barriers to training and gaining experience. [1] The current gastroenterology curriculum outlines an expectation for trainees to be competent in performing endoscopic management of UGIB independently by the end of training: [2] however, gastroenterology trainees report concern that this level of competence may not be obtained with the current training models. [3]

AUGIB training is highly variable between regions, often taking the form of ad-hoc teaching and opportunistic access to inpatient lists. [4,5] Unlike diagnostic endoscopy, which has moved towards more structured training with objective assessment and certification, there is currently no formal certification system or training pathway for AUGIB endoscopy and haemostasis procedures. [6,7] This inconsistency challenges delivery of a comprehensive and standardised training in AUGIB management.

Assessment of current AUGIB endoscopy training from both a trainer and trainee perspective is essential to guide further improvements in delivering training. This survey, conducted along with the 2022 UK AUGIB audit, aims to evaluate experiences of both UK trainees and trainers in AUGIB endoscopy training and to identify barriers and potential areas for improvement.

## Methods

This prospective questionnaire survey was conducted among UK upper GI endoscopy trainees and trainers at hospitals participating in the 2022 UK AUGIB audit. The objective was to evaluate experiences and training in AUGIB endoscopy, identifying barriers and areas for improvement. The survey included trainees at ST3 level and above across gastroenterology, surgical, and acute medicine specialties, as well as a single trainer per hospital, who served as the named training lead for gastroenterology/endoscopy.

Two separate questionnaires were developed. The Trainee Questionnaire (Appendix 1) consisted of 20 questions divided into four sections: (1) Demographics and Training Information, gathering specialty, grade, and details on additional acute take commitments; (2) Procedural Experience, with data on lifetime and last-post diagnostic oesophagogastroduodenoscopy (OGD) and therapeutic AUGIB procedure counts, obtained from the Joint Advisory Group (JAG) endoscopy training system (JETS) e-portfolio; (3) Perceived Competence, allowing trainees to self-assess competence in individual AUGIB procedures; and (4) Barriers and Improvements, using a Likert-scale format to gather information on barriers to training and suggested improvements. The Trainer Questionnaire (Appendix 2) contained six questions in three sections: (1) Demographics and Training Environment, assessing the number of trainees, AUGIB training exposure, and training provisions; and (2) Barriers and Improvements, using a Likert-scale format to capture training barriers and potential improvements from the trainers' perspective.

The questionnaires were developed based on previously published literature and inputs from the UK AUGIB audit steering committee and were piloted at five eligible sites in the UK between November and December 2021. Each site was asked to review the questionnaires and record the feasibility of data collection for each question using a standardized grading system. All mandatory questions were deemed feasible and the information accessible.

The remaining questions were reviewed and clarified. No questions were excluded, but wording and phrasing were amended for those deemed ambiguous based on the pilot exercise. Answers were also reviewed to ensure the data were interpretable and reproducible.

The final questionnaire was rolled out over a four-month period from September to December 2022. Trainer questionnaires were emailed to the named clinical leads and were completed and returned electronically. For the trainee questionnaire, paper versions were posted to the clinical audit leads for the UK AUGIB audit at involved hospitals, asking them to request all local trainees to complete and return the questionnaires.

Due to limited responses from the printed version, an electronic version was also made available, which received more responses. Duplicates were avoided by providing detailed information to the participants and by reviewing the grade, specialty, and procedure count numbers from the final dataset.

The primary outcome was the variation in exposure to diagnostic and therapeutic AUGIB OGDs across regions and trainee grades. Secondary outcomes included comparisons of procedure counts, perceived competence in haemostatic procedures, and opinions on training barriers and improvements.

Descriptive statistics, including medians and interquartile ranges (IQRs), summarised the data. Additionally, analysis will be reported as separate publication in Frontline Gastroenterology.

The survey was conducted as part of the UK AUGIB 2022 audit and registered locally at participating hospitals. Participation was voluntary, with responses anonymised.

## Results

*General:* The survey received 137 trainee and 115 trainer responses. Trainers reported 589 trainees performing endoscopy, with a median of 4 trainees per site (IQR 2-7). The response rate was 76% (115/152) for trainers and 23% (137/589) for trainees. The denominator for calculating trainee response rates was based on the number of trainees reported by the trainers.

Among the trainees, 90% (123) were gastroenterology trainees, 4% (5) were surgical trainees, 1% (2) were acute medicine trainees, and 5% (7) were from other specialties. Training grades included: 55% (75) ST3-5, 28% (39) ST6-7 and 16% (22) were currently out of the program. Additionally, 12% (17) were training less than full-time.

All training regions in the UK were represented as shown in Table 1 overleaf.

**Table 1: Distribution of trainees as per training regions**

| Region | Trainees n (%) |
|---|---|
| East Midlands | 10 (7%) |
| East of England | 7 (5%) |
| Kent, Surrey and Sussex | 5 (4%) |
| London:<br>• North Central & East<br>• North West<br>• South | <br>7 (5%)<br>7 (5%)<br>9 (7%) |
| North East | 13 (9%) |
| North West:<br>• North West (East)<br>• North West (Mersey) | <br>10 (7%)<br>3 (2%) |
| Northern Ireland | 3 (2%) |
| Peninsula | 3 (2%) |
| Scotland | 13 (9%) |
| Severn | 12 (9%) |
| Thames Valley | 5 (4%) |
| Wales | 6 (4%) |
| Wessex | 5 (4%) |
| West Midlands | 9 (7%) |
| Yorkshire and Humber | 10 (7%) |

73% (100) of trainees were JAG certified for carrying out diagnostic gastroscopy and 32% (44) trainees had attended a JAG approved haemostasis course.

*Procedures:* The median number of total lifetime diagnostic endoscopy procedures performed was 300 (IQR 203-441) across all trainees, compared to a of median 15 (IQR 2.5-35.5) for lifetime AUGIB related endoscopy procedures. Reported endoscopy numbers in the trainee's last post showed similar trends, with a median of 96 (IQR 34-150) for diagnostic endoscopy procedures, compared to a median of 5 (IQR 0-15) for AUGIB related endoscopy procedures. There were variations noted in the experience of trainees across different training regions, with varying median numbers of diagnostic and AUGIB lifetime/last-post procedure counts. (Table 2)

**Table 2: Median procedure counts by region**

| Region | Lifetime diagnostic procedures (Median, IQR) | Lifetime AUGIB procedures (Median, IQR) | Last post diagnostic procedures (Median, IQR) | Last post AUGIB procedures (Median, IQR) |
|---|---|---|---|---|
| East Midlands | **300** (IQR 236.5-379) | **25** (IQR 8-48) | **55** (IQR 27.5-161.5) | **10** (IQR 1.5-32.5) |
| East of England | **56.5** (IQR 0-243) | **0** (IQR 0-10) | **0.5** (IQR 0-101) | **0** (IQR 0) |
| KSS | **301** (IQR 260-673) | **27** (IQR 2.5-70.5) | **66** (IQR 56-120) | **5** (IQR 2-10.5) |
| North Central & East London | **385** (IQR 300-694) | **28.5** (IQR 20-50) | **150** (IQR 61-152) | **14** (IQR 7-17.5) |
| North-West London | **413** (IQR 364-480) | **24** (IQR 3-25) | **153.5** (IQR 73.5-200) | **10** (IQR 1-12) |
| South London | **872** (IQR 352-1144.5) | **67** (IQR 52-91) | **102** (IQR 84.5-725) | **20** (IQR 5-32) |
| North-East | **283** (IQR 217-278) | **15** (1.4-43.5) | **96** (IQR 18-150) | **3** (0-22) |
| North-West (East & Mersey) | **275** (IQR 205.5-300) | **13.5** (IQR 2-30.5) | **60** (IQR 23-228) | **3.5** (IQR 0-13) |
| Northern Ireland | **495.4** (IQR 427-564) | **53.5** (IQR 35-72) | **60** (IQR 0-287) | **10** (IQR 0-54) |
| Thames Valley | **330** (IQR 262.5-481.5) | **33** (IQR 12.5-34.5) | **105** (IQR 95.5-115.5) | **14** (IQR 7.5-18.5) |
| Peninsula | **105** (IQR 0-110) | **0** (IQR 0-3) | **50** (IQR 0-105) | **0** (IQR 0-3) |
| Scotland | **120** (IQR 100-400) | **10** (IQR 3-23) | **77** (IQR 50-120) | **10** (IQR 4-10) |
| Severn | **314** (IQR 231.5-640) | **15.5** (IQR 6-55) | **180** (IQR 150-210) | **5** (IQR 0.5-15) |
| Wales | **270** (IQR 0-338.5) | **0** (IQR 0-23) | **70** (IQR 0-155) | **0** (IQR 0-2) |
| Wessex | **132** (IQR 0-389.5) | **2** (IQR 0-24) | **27** (IQR 10-67) | **1** (IQR 0-3) |
| West Midlands | **301** (IQR 227.5-546.5) | **10** (IQR 0-22) | **49** (IQR 39-59) | **2** (IQR 0-10) |
| Yorkshire and Humber | **306** (IQR 240-441) | **30** (IQR 6.5-56.6) | **130** (IQR 109-150) | **3** (IQR 0-20) |

Variations in the lifetime/last-post diagnostic and AUGIB procedures among trainees of different grades in shown in Table 3. ST3 trainees had a median of 81 diagnostic procedures (IQR 0-200), increasing progressively across grades to 538 (IQR 371-1000) for ST7 trainees. For lifetime AUGIB procedures, the median count ranged from 0 (IQR 0-6) in ST3 to 40 (IQR 25.5-83) in ST7. Similarly, the number of diagnostic procedures performed in the last post varied. Lastly, the median number of AUGIB procedures in the last post ranged from 0 (IQR 0-5) in ST3 to 16 (IQR 5-22) in ST7.

Additional analysis from this data demonstrated a strong correlation between lifetime diagnostic OGDs and AUGIB procedures (Spearman r=0.88, p<0.0001) and a moderate correlation between recent post-diagnostic OGDs and AUGIB procedures (Spearman r=0.58, p=0.015).[8]

**Table 3: Median procedures by grade**

| Grade | Lifetime diagnostic procedures (Median, IQR) | Lifetime AUGIB procedures (Median, IQR) | Last post diagnostic procedures (Median, IQR) | Last post AUGIB procedures (Median, IQR) |
|---|---|---|---|---|
| **ST3** | 81 (IQR 0-200) | 0 (IQR 0-6) | 0 (IQR 0-150) | 0 (IQR 0-5) |
| **ST4** | 230 (IQR 136.5-301) | 5.5 (IQR 0-17.5) | 101 (IQR 29-130) | 3 (IQR 0-10) |
| **ST5** | 293 (IQR 238.5-336.5) | 11 (IQR 2.5-26) | 120 (IQR 63.5-178) | 6 (IQR 1-20) |
| **ST6** | 413.5 (IQR 300-480) | 34 (IQR 20-54.5) | 65.5 (IQR 55-100) | 10 (IQR 3-15) |
| **ST7** | 538 (IQR 371-1000) | 40 (IQR 25.5-83) | 113.5 (IQR 55-150) | 16 (IQR 5-22) |

**Table 4: Overall exposure to haemostasis procedures**

| Procedure | Procedure counts | |
|---|---|---|
| | Lifetime procedures (Median, IQR) | Last post procedures (Median, IQR) |
| Variceal Band Ligation | 6 (IQR 0.5-20) | 1 (IQR 0-5) |
| Injection therapy | 4 (IQR 0-10) | 1 (IQR 0-4) |
| Thermal device | 2 (IQR 0-5) | 0 (IQR 0-2) |
| Clip placement | 2 (IQR 0-10) | 1 (IQR 0-3) |
| Glue | 0 (IQR 0) | 0 (IQR 0) |
| Hemospray | 1 (IQR 0-4) | 0 (IQR 0-1) |
| Argon plasma coagulation | 1.5 (IQR 0-5) | 0 (IQR 0-2) |
| Over-the-scope clip | 0 (IQR 0) | 0 (IQR 0) |
| Danis stent | 0 (IQR 0) | 0 (IQR 0) |
| Sengstaken tube | 0 (IQR 0-1) | 0 (IQR 0) |

The table illustrates a generally low procedure count across all haemostasis procedures. Exposure to haemostasis procedures varied widely by therapy type. Less common procedures like Danis stent, OTSC, glue injection, and Sengstaken tube had a median of 0, while more frequent procedures showed greater variability: VBL (median 6, IQR 1-20), injection therapy (median 4, IQR 0-10), and haemostatic clipping (median 2, IQR 0-10).

**Table 5: Haemostasis procedures count by grade:**

| Procedure | Lifetime procedures ST3-5 (Median, IQR) | Lifetime procedures ST6-7 (Median, IQR) | Last post procedures ST3-5 (Median, IQR) | Last post procedures ST6-7 (Median, IQR) |
|---|---|---|---|---|
| Variceal Band Ligation | 2 (IQR 0-7) | 20 (IQR 8.5-39) | 0.5 (QR (0-4) | 2 (IQR 0.5-5) |
| Injection therapy | 1 (IQR 0-5) | 10 (IQR 6.5-29.5) | 0.5 (IQR 0-2) | 2 (IQR 1-5) |
| Thermal device | 0 (IQR 0-3) | 4 (IQR 2-10) | 0 (IQR 0-2) | 1 (IQR 0-2) |
| Clip placement | 1 (IQR 0-3) | 12 (IQR 5-23) | 0.5 (IQR 0-2) | 2 (IQR 0-5) |
| Glue | 0 (IQR 0) | 0 (IQR 0-1) | 0 (IQR 0) | 0 (IQR 0) |
| Hemospray | 0 (IQR 0-1) | 4 (IQR 1-10) | 0 (IQR 0-1) | 1 (IQR 0-2) |
| Argon plasma coagulation | 0 (IQR 0-3) | 5 (IQR 2-10) | 0 (IQR 0-2) | 1 (IQR 0-2) |
| Over-the-scope clip | 0 (IQR 0) | 0 (IQR 0) | 0 (IQR 0) | 0 (IQR 0) |
| Danis stent | 0 (IQR 0) | 0 (IQR 0) | 0 (IQR 0) | 0 (IQR 0) |
| Sengstaken tube | 0 (IQR 0) | 1 (IQR 0-2) | 0 (IQR 0) | 0 (IQR 0-1) |

Procedure exposure increased with training level. ST3-5 trainees had lower medians: VBL (2, IQR 0-7), injection therapy (1, IQR 0-5), and clipping (1, IQR 0-3). ST6-7 trainees showed higher medians: VBL (20, IQR 8.5-39), injection therapy (10, IQR 6.5-29.5), and clipping (12, IQR 5-23). Procedures like Danis stent, OTSC, glue injection, and Sengstaken tube consistently showed low medians across both groups.

**Table 6: Perceived competence in AUGIB procedures for all trainees**

| Procedure | Perceived competence (as per trainees) (n=137) | | | |
|---|---|---|---|---|
| | Independent n (%) | Training n (%) | No experience n (%) | Not reported n (%) |
| Variceal Band Ligation | 24 (18%) | 53 (39%) | 27(20%) | 32 (23%) |
| Injection therapy | 25 (18%) | 52 (38%) | 27 (20%) | 33 (24% |
| Thermal device | 15 (11%) | 52 (38%) | 27 (20%) | 42 (31%) |
| Clip placement | 25 (18%) | 49 (36%) | 27(20%) | 36 (26%) |
| Glue | 3 (2%) | 27 (20%) | 75 (55%) | 32 (23%) |
| Hemospray | 19 (14%) | 45 (33%) | 42 (31%) | 30 (22%) |
| Argon plasma coagulation | 22 (16%) | 44 (32%) | 41 (30%) | 30 (22%) |
| Over-the-scope clip | 1 (1%) | 11 (8%) | 92 (67%) | 33 (24%) |
| Danis stent | 0 (0%) | 12 (9%) | 84 (61%) | 41 (30%) |
| Sengstaken tube | 15 (11%) | 25 (18%) | 62 (45%) | 36 (26%) |

This perceived competence in performing AUGIB procedures among trainees, was categorised into four groups: Independent, Training, Nil Experience, and Not Reported. The procedures with the highest perceived independence were variceal band ligation, adrenaline injection therapy, and haemostatic clipping, each with 18% of trainees reporting independence. In contrast, glue Injection, over-the-scope clips, and Danis stents had the lowest perceived independence, with only 2%, 1%, and 0% of trainees reporting independence, respectively.

Notably, a good proportion of trainees reported either being in training or having no experience with most procedures. The percentage of trainees with no experience was particularly high for OTSC (67%), Danis stents (61%) and glue injection (55%).

**Table 7: Perceived competence in AUGIB procedures by grade (ST3-5 and ST6-7)**

| Procedure | Perceived competence (as per trainees): ST3-5 (n=75) | | | | Perceived competence (as per trainees): ST6-7 (n=39) | | | |
|---|---|---|---|---|---|---|---|---|
| | Independent n (%) | Training n (%) | No experience n (%) | Not reported n (%) | Independent n (%) | Training n (%) | No experience n (%) | Not reported n (%) |
| Variceal Band Ligation | 4 (5%) | 24 (32%) | 29 (39%) | 17 (23%) | 15 (39%) | 14 (37%) | 4 (9%) | 6 (15%) |
| Injection therapy | 4 (5%) | 28 (38%) | 24 (32%) | 19 (25%) | 16 (41%) | 14 (37%) | 3 (7%) | 6 (15%) |
| Thermal device | 3 (4%) | 24 (32%) | 32 (42%) | 17 (23%) | 11 (28%) | 19 (48%) | 4 (9%) | 6 (15%) |
| Clip placement | 6 (8%) | 28 (37%) | 22 (30%) | 19 (25%) | 14 (37%) | 15 (39%) | 3 (7%) | 7 (17%) |
| Glue | 2 (2%) | 8 (11%) | 49 (65%) | 17 (23%) | 2 (4%) | 14 (37%) | 17 (43%) | 6 (16%) |
| Hemospray | 4 (5%) | 20 (27%) | 33 (44%) | 18 (24%) | 13 (33%) | 15 (39%) | 6 (15%) | 5 (13%) |
| Argon plasma coagulation | 6 (8%) | 22 (29%) | 29 (39%) | 18 (24%) | 12 (30%) | 17 (43%) | 5 (13%) | 5 (13%) |
| Over-the-scope clip | 4 (5%) | 4 (5%) | 52 (69%) | 19 (25%) | 1 (2%) | 5 (13%) | 27 (70%) | 6 (15%) |
| Danis stent | 0 (0%) | 5 (7%) | 50 (67%) | 20 (26%) | 0 (0%) | 5 (13%) | 27 (70%) | 7 (17%) |
| Sengstaken tube | 4 (5%) | 11 (14%) | 40 (54%) | 20 (27%) | 9 (23%) | 9 (23%) | 15 (39%) | 6 (15%) |

For 23 trainees the training grades were not reported consistently. Among ST3-5 trainees, independence was low for most procedures, with VBL (6%) and clipping (8%) being the highest. ST6-7 trainees reported greater independence: VBL (39%), injection therapy (41%), and clipping (37%), but low competence for glue injection (4%), OTSC (2%), and Danis stents (0%)

*AUGIB Rota Participation:* 20% (27) of trainees reported participation on the Upper GI bleed rota – of these, 33% (9) participated weekly, 37% (10) fortnightly, 15% (4) monthly and 15% (4) less than once a month. Of trainees on the AUGIB rota, 26 were gastroenterology trainees and 1 was surgical. The distribution across training levels showed that 22% (6) were out of program, 22% (6) were ST3-4, 33% (9) were ST5-6, and 19% (5) were ST7 or above. Trainees from 12 out of 17 training regions reported being part of the AUGIB on-call rota. 77% (105) of trainees had additional on-call commitments, with 88% (91) participating in regular acute GIM on call.

*Difficulties:* 68% (93) of trainees reported previously or currently having difficulty in gaining training experience for management of AUGIB. Of those reporting difficulties – 82% (76) of these had JAG certification, and 34% (32) had attended a JAG-approved haemostasis course.

Trainees who reported difficulty in obtaining training experience for endoscopic management of AUGIB ranked the following as the barriers in acquiring the necessary skills:

1. *Lack of structured training opportunities*:
    - 87 (94%) strongly agreed or somewhat agreed
    - 3 (3%) neither agreed nor disagreed
    - 2 (2%) somewhat disagreed or strongly disagreed
    - 1 (1%) no answer.

2. *Not being part of the AUGIB on-call rota*:
    - 73 (78%) strongly agreed or somewhat agreed
    - 8 (9%) neither agreed nor disagreed
    - 8 (9%) somewhat disagreed or strongly disagreed
    - 4 (4%) no answer.

3. *Performed by consultant colleagues only*:
    - 56 (60%) strongly agreed or somewhat agreed
    - 20 (22%) neither agreed nor disagreed
    - 14 (15%) somewhat disagreed or strongly disagreed
    - 3 (3%) no answer.

4. *Intensive acute take commitments*:
    - 70 (75%) strongly agreed or somewhat agreed
    - 12 (13%) neither agreed nor disagreed
    - 8 (9%) somewhat disagreed or strongly disagreed
    - 3 (3%) no answer.

5. *I have no interest in learning to manage AUGIB independently*:
    - 1 (1%) strongly agreed or somewhat agreed
    - 2 (2%) neither agreed nor disagreed
    - 87 (94%) ) somewhat disagreed or strongly disagreed
    - 3 (3%) no answer.

6. *Lack of courses/e-learning*:
    - 34 (37%) strongly agreed or somewhat agreed
    - 28 (30%) neither agreed nor disagreed
    - 27 (29%) somewhat disagreed or strongly disagreed
    - 4 (4%) no answer.

7. *Lack of formal certification in AUGIB*:
    - 61 (66%) strongly agreed or somewhat agreed
    - 13 (14%) neither agreed nor disagreed
    - 15 (16%) somewhat disagreed or strongly disagreed
    - 4 (4%) no answer.

8. *Personal inexperience/lack of confidence in management of AUGIB*:
    - 37 (40%) strongly agreed or somewhat agreed
    - 16 (17%) neither agreed nor disagreed
    - 37 (40%) somewhat disagreed or strongly disagreed
    - 3 (3%) no answer.

*Suggestions:*
All trainees ranked suggestions for improvement in delivering training for AUGIB endoscopic management as follows:

1. *Mandatory requirement for participation in AUGIB*:
   - 122 (89%) strongly agreed or somewhat agreed
   - 7 (5%) neither agreed nor disagreed
   - 3 (2%) somewhat disagreed or strongly disagreed
   - 5 (4%) no answer.

2. *Access and availability of JAG approved haemostasis courses*:
   - 117 (85%) strongly agreed or somewhat agreed
   - 8 (6%) neither agreed nor disagreed
   - 4 (3%) somewhat disagreed or strongly disagreed
   - 8 (6%) no answer.

3. *Access and availability to simulation-based training in the region*:
   - 113 (83%) strongly agreed or somewhat agreed
   - 13 (9%) neither agreed nor disagreed
   - 4 (3%) somewhat disagreed or strongly disagreed
   - 7 (5%) no answer.

4. *Mandatory JAG certification in management of AUGIB*:
   - 91 (66%) strongly agreed or somewhat agreed
   - 23 (17%) neither agreed nor disagreed
   - 16 (12%) somewhat disagreed or strongly disagreed
   - 7 (5%) no answer.

5. *Reduction in acute take commitments for senior trainees*:
   - 109 (80%) strongly agreed or somewhat agreed
   - 13 (9%) neither agreed nor disagreed
   - 6 (4%) somewhat disagreed or strongly disagreed
   - 9 (7%) no answer.

6. *Pre-defined minimum procedure requirement for JETS portfolio similar to diagnostic gastroscopy and colonoscopy certification*:
   - 81 (59%) strongly agreed or somewhat agreed
   - 29 (21%) neither agreed nor disagreed
   - 20 (15%) somewhat disagreed or strongly disagreed
   - 7 (5%) no answer.

## TRAINER DATA

*General:* There were 115 trainer responses, representing a total of 589 trainees performing endoscopy across various sites. The number of trainees per site ranged from 0 to 22, with a median of 4 trainees per site (IQR 2-7).

*Exposure to AUGIB Management:* Trainers reported on the methods used to provide training in the endoscopic management of AUGIB at their sites, with key findings as follows:

- Semi-elective Inpatient Lists: 54% (59) of training programs relied exclusively on access to semi-elective inpatient lists for AUGIB training. Of these, 93% were restricted to weekday lists, while only 7% included weekend lists.
- Ad-hoc Training: 28% (31) of sites reported training occurring on an ad-hoc basis, without a structured schedule.
- No Formal AUGIB Training: 4% (4) of sites indicated they did not have a specific training regimen for AUGIB.
- Inclusion in AUGIB Rota: 15% (16) of sites had trainees included in the AUGIB on-call rota, with 94% of these trainees having daily access to inpatient lists.
- Consultant Supervision: All 16 sites with trainees on the AUGIB rota provided some level of consultant supervision.
    - During regular hours, 81% (13) of these sites reported that a supervising consultant was always present in the room, while 44% (7) had a consultant on-site but not necessarily in the room.
    - Out-of-hours, 69% (11) of sites indicated that a supervising consultant was always present in the room.

*Difficulties:* 64% (72) of trainers reported encountering difficulties or barriers in providing training for management of AUGIB at their hospital/trust. Trainers rated various barriers to delivering training as follows:

1. *Lack of resources to provide structured training opportunities*:
    - 40 (55%) strongly agreed or somewhat agreed
    - 15 (21%) neither agreed nor disagreed
    - 17 (24%) somewhat disagreed or strongly disagreed.

2. *Organisational barriers to implementation of an AUGIB rota for consultants at my Trust/Hospital (may be related to competing interests for other acute medical/surgical rotas):*
    - 27 (38%) strongly agreed or somewhat agreed
    - 10 (14%) neither agreed nor disagreed
    - 34 (47%) somewhat disagreed or strongly disagreed
    - 1 (1%) no answer.

3. *Trainees not being part of the AUGIB on-call rota*:
    - 52 (72%) strongly agreed or somewhat agreed
    - 6 (8%) neither agreed nor disagreed
    - 14 (20%) somewhat disagreed or strongly disagreed.

4. *Lack of support from other consultant colleagues*:
    - 13 (18%) strongly agreed or somewhat agreed
    - 10 (14%) neither agreed nor disagreed
    - 49 (68%) somewhat disagreed or strongly disagreed.

5. *Less time spent by trainees in their parent specialty due to intensive acute take commitments*:
   - 61 (85%) strongly agreed or somewhat agreed
   - 6 (8%) neither agreed nor disagreed
   - 4 (6%) somewhat disagreed or strongly disagreed
   - 1 (1%) no answer.

6. *Lack of interest from trainees in learning to manage AUGIB independently*:
   - 12 (17%) strongly agreed or somewhat agreed
   - 7 (9%) neither agreed nor disagreed
   - 53 (74%) somewhat disagreed or strongly disagreed.

7. *Lack of additional resources such as courses/e-Learning to help trainees achieve desired confidence and competencies*:
   - 28 (39%) strongly agreed or somewhat agreed
   - 18 (25%) neither agreed nor disagreed
   - 26 (36%) somewhat disagreed or strongly disagreed.

8. *Lack of clear guidance on formal certification in management of AUGIB*:
   - 49 (68%) strongly agreed or somewhat agreed
   - 9 (13%) neither agreed nor disagreed
   - 13 (18%) somewhat disagreed or strongly disagreed
   - 1 (1%) no answer.

*Suggestions:* All trainers provided ratings for suggested improvements to deliver training for endoscopic management of AUGIB:

1. *Mandatory requirement for participation in AUGIB on call rota for senior trainees*:
   - 98 (85%) strongly agreed or somewhat agreed
   - 7 (6%) neither agreed nor disagreed
   - 6 (5%) somewhat disagreed or strongly disagreed
   - 4 (4%) no answer

2. *Access and availability of JAG approved haemostasis courses*:
   - 97 (84%) strongly agreed or somewhat agreed
   - 6 (5%) neither agreed nor disagreed
   - 8 (7%) somewhat disagreed or strongly disagreed
   - 4 (4%) no answer

3. *Access and availability to simulation-based training in the region*:
   - 83 (72%) strongly agreed or somewhat agreed
   - 16 (14%) neither agreed nor disagreed
   - 12 (10%) somewhat disagreed or strongly disagreed.
   - 4 (4%) no answer

4. *Reduction in acute take commitments for senior trainees*:
   - 92 (80%) strongly agreed or somewhat agreed
   - 14 (12%) neither agreed nor disagreed
   - 5 (4%) somewhat disagreed or strongly disagreed.
   - 4 (4%) no answer

5. *Pre-defined minimum procedure requirements for JETS portfolio similar to diagnostic gastroscopy and colonoscopy certification*:
   - 87 (76%) strongly agreed or somewhat agreed
   - 11 (10%) neither agreed nor disagreed
   - 13 (10%) somewhat disagreed or strongly disagreed
   - 4 (4%) no answer.

6. *Mandatory JAG certification in management of AUGIB*:
   - 82 (71%) strongly agreed or somewhat agreed
   - 10 (9%) neither agreed nor disagreed
   - 19 (16%) somewhat disagreed or strongly disagreed
   - 4 (4%) ) no answer.

## Discussion

This survey highlights a substantial disparity between trainee exposure to diagnostic OGDs and AUGIB endoscopy, with consistently lower procedural counts for AUGIB across training regions and grades, reflecting systemic limitations in current training models. Less than 20% of trainees—and only 41% of senior trainees (ST6-7)—reported competence in independently performing haemostatic procedures. This suggests that existing AUGIB training pathways provide inadequate exposure to essential therapeutic skills, despite a majority of trainees being certified in diagnostic OGDs. The absence of a formal certification pathway for AUGIB may contribute to this gap, as AUGIB procedures are less consistently integrated into training programs.

### Key Training Barriers and Proposed Solutions

The survey identified significant barriers to AUGIB training, including a lack of structured training, limited exposure to AUGIB on-call rotas, intensive acute take commitments, and the absence of formal certification in AUGIB management. These barriers prevent trainees from gaining sufficient experience in AUGIB endoscopy, particularly for advanced haemostatic procedures such as over-the-scope clip placement, Danis stent insertion, and glue injection, which are essential in managing complex cases. Senior trainees reported higher exposure to common procedures, such as variceal band ligation and injection therapy; however, substantial variability in experience levels highlights a need for consistent, structured training across all haemostatic techniques.

Both trainees and trainers endorsed several improvements, including mandatory AUGIB on-call participation, expanded access to JAG-approved haemostasis courses, simulation-based training, and reduced acute take commitments for senior trainees. Implementing a mandatory JAG certification in AUGIB and establishing minimum procedure requirements within the JETS portfolio were also highly supported. The structured training pathways developed by JAG for diagnostic endoscopy provide a successful model of quality standards, which could be adapted to create a robust framework for AUGIB training.[9]

### Implications of Procedural Variability and Training Gaps

This survey's findings align with previous studies reporting a decrease in trainee-performed AUGIB procedures over recent decades, suggesting a need for a curriculum that includes both common and advanced haemostatic techniques. [4] Evidence suggests that trainees require a minimum of 20 supervised haemostatic procedures to achieve competence in basic techniques, with greater experience needed for advanced procedures.[10]

Current AUGIB training opportunities may not meet these requirements, particularly given the reduced overall training time under the Shape of Training reforms in the UK. [11] Without intervention, these gaps in training could impact on trainees' preparedness for independent practice, potentially affecting patient outcomes as they transition to consultant roles.

### Recommendations for Structured Training and Certification

Structured AUGIB training, including access to hands-on workshops and simulation-based learning, is essential to ensure that all trainees achieve baseline competence across haemostatic techniques. Expanding training in less commonly performed but critical procedures, such as Danis stent and over-the-scope clip placement, is particularly important for developing a comprehensive skill set. A previous study from Yorkshire including 22 delegates, indicated that JAG-approved haemostasis courses significantly improved trainee confidence and competence in managing AUGIB. [12] Further research is needed to confirm these effects across training grades.

Additionally, introducing key performance indicators (KPIs) with set milestones and development plans for AUGIB skills could help standardise training and hold program directors accountable for ensuring adequate exposure. Integrating immersive therapeutic endoscopy opportunities, including AUGIB on-call duties for senior trainees, would provide critical exposure. Currently, only 1 in 5 trainees participate in an AUGIB rota, limiting supervised experience in real-time decision-making and haemostatic techniques. Expanding this exposure, while balancing other commitments, would enhance both skill development and confidence.

### Survey Strengths and Limitations

This survey captures perspectives from trainees and trainers across various UK regions, offering valuable insight into AUGIB training disparities. However, a relatively low trainee response rate could introduce response bias, potentially due to survey fatigue or the level of detail required. Moreover, junior trainee responses in certain regions may emphasise the need for more graduated training across all grades. Future studies could use National Endoscopy Database data to verify self-reported counts and improve accuracy.

## Conclusion

This survey highlights critical gaps in AUGIB endoscopy training in the UK, with low procedural exposure and perceived competence among trainees. Addressing these challenges presents an opportunity for targeted improvements, including structured training, certification pathways, and reduced non-specialist commitments. Implementing these changes would enhance AUGIB training, preparing trainees for their consultant roles and ultimately improving patient outcomes. Given the crucial role of endoscopy in advancing AUGIB patient outcomes, as demonstrated in the main audit, it is essential to equip the next generation of gastroenterologists to sustain these gains and drive further advancements in AUGIB care across the UK.

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