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Original Research

Prospective cohort study of surgical trainee experience of access to gastrointestinal endoscopy training in the UK and Ireland

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ABSTRACT

Introduction: Surgical trainees are reporting barriers to training in gastrointestinal (GI) endoscopy. This snapshot survey aimed to gather data on variation in access to quality GI endoscopy training for Colorectal and Upper Gastrointestinal (GI) surgical trainees across the UK and Ireland.

Materials and methods: An online 20-point survey was designed and distributed nationally to surgical trainee members of the Association of Surgeons in Training (ASiT), Dukes and The Roux Group (formerly Association of Upper Gastrointestinal Surgeons of Great Britain and Ireland Trainees). The survey was designed in collaboration with The Roux Group for Upper GI trainees and the Dukes' Club for Colorectal trainees.

Results: 218 responses were received, most with a Colorectal or Upper GI sub-specialty interest (colorectal 56.0%; upper GI surgery 25.7%). Only 28.6% of trainees attended a dedicated training endoscopy list at least once a week with 28.1% not attending any at all. Less than half of trainees reported having endoscopy formally timetabled on rotas (36.9%). Most trainees (88.0%) encountered difficulties in gaining endoscopy training including lack of available lists (77.2%), conflicting operative commitments (59.4%), preferential allocation of lists to gastroenterology trainees (57.9%) and resistance from endoscopy departmental leads (38.6%). Regarding JAG accreditation, 77.1% respondents felt it should be mandatory prior to CCT with 80.3% believing this would lead to better access to dedicated endoscopy training equivalent to gastroenterology trainees. 93.1% trainees felt that attaining JAG accreditation by surgical trainees was important to patient care.

Discussion: This study demonstrates significant barriers in accessing GI endoscopy training for general surgical trainees which urgently needs to be improved. In order to meet JAG training requirements for surgical trainees, a multifaceted collaborative approach from surgical and gastroenterology training bodies, local JAG trainers and the General Surgery SAC and JCST is required. This is to ensure that endoscopy is promoted and a robust model of training is successfully designed and delivered to general surgery trainees.

1. Introduction

Training in endoscopy of the Gastrointestinal (GI) tract is essential for any general surgical trainee pursuing a career in colorectal or Upper GI surgery. Both the Association of Upper GI Surgeons (AUGIS) and the Association of Coloproctology of Great Britain and Ireland (ACPGBI) acknowledge the importance of such trainees receiving robust endoscopy training and recommend equitable access with medical trainees to dedicated supervised lists [1]. Despite this, numerous studies have demonstrated deficiencies in endoscopy training access for surgical trainees [2–4]. Lack of weekly timetabled training lists, preferential allocation of such lists to gastroenterology trainees and endoscopy nurses, substantial conflicting elective and emergency surgical commitments and increased service provision have all contributed [3–6]. Increasing pressures on endoscopy units to meet national waiting time targets has led to a reduction in training lists at a local level, with increasing volumes of endoscopy within the National Bowel Cancer Screening Programme (BCSP) in England, and similar bowel cancer screening in Ireland [3–7].

The Joint Advisory Group (JAG) on GI endoscopy set standards for training endoscopists, and provides accreditation to endoscopy units in the UK and Ireland. Procedures performed are entered onto the online

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JAG Endoscopy Training System (JETS) logbook. On achieving the accreditation criteria, a certificate of competency is awarded thus permitting independent endoscopic practice. For Colorectal and Upper GI trainees, there is currently a requirement to be competent to scope independently (OGD is a Level 4 competency for Upper GI, while Colonoscopy is a Level 4 competency for Colorectal) in order to attain CCT (Certificate of Completion of Training), however formal JAG accreditation is not required. Nevertheless many advertisements for Colorectal or Upper GI consultant surgeon posts mandate JAG accreditation in their job descriptions. Anecdotal evidence suggests surgical trainees are currently struggling to attain sufficient endoscopy exposure to meet the criteria for JAG accreditation.

This survey aimed to assess the quality of endoscopy training for general surgical trainees in the UK and Ireland. This included gathering data on access to dedicated supervised training endoscopy lists, barriers encountered in obtaining JAG accreditation and assessing the need for national curriculum changes to better incorporate endoscopy into surgical training.

2. Materials and methods

This cross sectional study was designed with reference to the STROCSS checklist and performed using a 20-question survey (Appendix 1) [8]. The survey was designed by council members of the Association of Surgeons in Training (ASiT) in collaboration with The Roux Group (formerly Association of Upper Gastrointestinal Surgeons of Great Britain and Ireland Trainees) and Dukes' Club representing UGI and colorectal surgical trainees in the UK and Ireland respectively. An electronic version was developed on Survey Monkey (Palo Alto, California, USA) with subsequent email distribution via ASiT, The Dukes' Club, Roux group and social media. Individual survey responses were collected in an anonymous fashion between September 2017 and April 2018. The study was registered with Open Science framework (registration https://osf.io/bc3f8/). Methodology similar to previous published ASiT surveys was used [9]. As the study was entirely voluntary and anonymous, ethical approval was not required, in keeping with previous ASiT surveys [9].

General surgical trainees of level ST3 or above (higher surgical trainee) were included. Data were analysed for individual questions and relevant sub-group comparisons. Statistical analysis was performed using Statistical Package for the Social Sciences (SPSS Windows Version 22.0, Chicago, IL, USA). All percentage values were rounded to one decimal place. Categorical data were analysed using the Chi-squared test with statistical significance set at p-values less than 0.05.

The primary outcome of interest was to establish what access to endoscopy training is currently. Secondary outcomes included ideas for ways to improve it.

3. Results

Overall, 218 responses were received from general surgical trainees nationwide. Of these, 29.3% were in their first two years as a higher surgical trainee/registrar (ST3 and ST4), 34.9% ST5 and ST6 and 35.8% ST7 and higher. Sub-specialty interest were predominantly colorectal surgery (56.0%) and UGI surgery (25.7%) with others including hepato-pancreato-biliary (HPB; 5.1%), breast (3.2%) and other or undecided (10.1%).

3.1. Access to endoscopy training and supervision

63.3% of higher surgical trainees had attended a JAG Basic Endoscopy course relevant to their chosen sub-specialty interest. The proportion was higher for UGI trainees compared to colorectal trainees (76.8% *vs.* 66.4% respectively). 73.4% (160/218) reported having a JAG accredited endoscopy unit within their hospital trust at time of survey response, however 13.3% (29/218) were uncertain if their unit had certification.

28.6% of higher surgical trainees attended a dedicated training endoscopy list at least once a week. 28.1% (61/217) attended no dedicated training lists. Comparing Colorectal to UGI trainees, 31.4% and 23.2% respectively had at least once weekly dedicated training lists ($p = 0.26$). 26.6% of all respondents attended non-training lists at least once weekly. Only 36.9% reported having endoscopy training sessions formally timetabled on work schedule rotas. Trainees of level ST7 and above were more likely to have endoscopy training timetabled on their rotas but this was not statistically significant compared to their junior ST3-6 counterparts (44.9% *vs.* 32.1%, $p = 0.06$).

Supervision was provided by a variety of endoscopy trainers, with some trainees reporting more than one type of tutor: Surgical consultants (75.1%), gastroenterology consultants (30.9%), endoscopy nurses (13.8%) and surgical associate specialists (5.1%).

3.2. Barriers to endoscopy training

88.0% of higher surgical trainees reported that they faced barriers in gaining dedicated endoscopy training at their current hospital. Common reasons included lack of available training lists (77%), operative clinical commitments (59.3%), on call commitments (58.4%), clinic commitments (50%) and prioritisation of endoscopy lists for gastroenterology trainees (57.8%) or prioritisation of endoscopy nurses (35.6%). 38.6% of respondents reported resistance from endoscopy departmental leads as a barrier to endoscopy training.

3.3. JAG endoscopy accreditation for higher surgical trainees

19.1% of those who answered the survey had achieved JAG accreditation in their chosen sub-specialty interest (35.6% of UGI trainees and 18% of colorectal trainees). For UGI and colorectal trainees at senior level (ST7 and ST8), only 24.5% achieved JAG accreditation in their respective sub-specialty endoscopic modality (21.1% Colorectal and 35.7% upper GI). 77.1% of respondents believed that sub-specialty appropriate JAG accreditation in endoscopy should be mandatory to achieve General Surgery CCT. UGI trainees particularly felt that this should be the case when compared to Colorectal trainees (89.3% *vs.* 76.2%, $p = 0.04$). 80.3% felt mandatory JAG accreditation requirements for GI General Surgery CCT would lead to better access to endoscopy training lists with more equal access with gastroenterology trainee counterparts.

Only 58.3% felt they had sufficient understanding of the requirements and process to attain full JAG accreditation. Only 43.6% believed their Training Programme Director (TPD) had a similar understanding. 59.6% reported that endoscopy training did not form part of their Annual Review of Competence Progression (ARCP). 93.1% of respondents agree or strongly agree that achieving JAG accreditation is just as important for surgical trainees as gastroenterology trainees for optimal patient care.

3.4. Endoscopy training enhancement

From respondents with a UGI or colorectal sub-specialty interest, 76.8% felt intensive endoscopy blocks (e.g. one month block of continuous endoscopy training at a junior training level (ST3-4)) would benefit and improve their overall endoscopy proficiency. Other educational proposals for enhancing endoscopy training as commented by respondents are in Table 1.

4. Discussion

This survey clearly demonstrates significant deficiencies and barriers in endoscopy training for higher surgical trainees in the UK and Ireland, which correlates well with previously published trainee survey findings [3–5]. In 2013, Hammond et al. reported 31% of UK surgical

Table 1
Proposals to improve endoscopy training as listed in free text responses.

- Set modular blocks of endoscopy training with both consultant surgeons and gastroenterologists
- Immersive endoscopy training access
- Intensive therapeutic endoscopy lists for trainees in their final years of training
- Update of JETS website with integration to ISCP portfolio for surgical trainees
- Joint endoscopy leads from surgical and gastroenterology departments to achieve equal access to training lists for both medical and surgical trainees
- Update of JETS website with integration to ISCP portfolio for surgical trainees
- Basic JAG courses to be funded by local deanery
- Protected mandatory training lists for GI trainees
- More access to ad hoc training and not only rigid to training lists

trainees managed to attend weekly dedicated training lists compared to 28.6% in our study [3]. They also reported that 64% of UK surgical trainees attended a non-training endoscopy list at least once a week compared to only 26.6% in our study [3]. This still remains significantly less than the 85% of gastroenterology trainees who have previously reported to attend at least one dedicated training list week [6]. This disparity extends to training endoscopy nurses who also perform more endoscopic procedures and have more consistent access to lists [10]. Given the reduced access to training for surgical trainees, it is not surprising that the quality of surgical endoscopic performance and proficiency has been reported as inferior compared to gastroenterology trainee peers [2,11,12]. Gastroenterology trainees also achieve JAG accreditation earlier in their training compared to their surgical counterparts, permitting independent non-training lists [4]. Interestingly in our study, less than a quarter of senior surgical trainees (ST7 +) had achieved JAG accreditation. Indeed, the numbers attaining full JAG accreditation are likely even lower as we did not separate provisional and full accreditation in the question. The low rate of JAG accreditation certainly reflects difficulties in attaining adequate endoscopy training prior to CCT, which would lead to surgeons applying for consultant posts without it. This has clear implications for service delivery, with 63% of endoscopy units in England recording significant difficulty recruiting endoscopists [7].

In the UK, The Joint Committee on Surgical Training (JCST) is the advisory body setting quality indicators for national surgical training in the UK and the Intercollegiate Surgical Curriculum Programme (ISCP) stipulates that progression in endoscopy should be assessed as with any other technical skill in surgical training and considered within the remit of the ARCP process [13,14]. It acknowledges that training should follow guidelines as stated by JAG, however does not explicitly state the need for JAG accreditation prior to CCT for Colorectal or Upper GI specialty interest. For endoscopy, JCST endorses GI trainees in their final two years of training (ST7 and ST8) having the opportunity to gain JAG accreditation, while assessment of endoscopic skill involves 3 Procedure-Based Assessments (PBAs) at level 4 in either diagnostic OGD for UGI trainees and colonoscopy for Colorectal trainees by the time of CCT [15,16]. The ACPGBI state most consultant posts advertised nationally require JAG accreditation on appointment thus highly recommending attainment prior to CCT [16]. AUGIS recommend assessment in endoscopy training should be competency-based determined by Direct Observation of Procedural Skills (DOPS) as opposed to volume of procedures performed [1]. Further recommendation and support for initiating endoscopic training at an early level in order to achieve the 'desirable' JAG accreditation prior to CCT is advocated [4,14]. Although JAG requirements and accreditation are recognised by GI surgical specialty associations, there is an evident deficiency in knowledge of the accreditation process. 58.3% of trainees reported an inadequate understanding of JAG requirements and process to achieve accreditation. This extended to formal surgical training assessment as only 40.4% reported consideration of endoscopy training during their ARCPs, with 43.6% also reporting uncertainty about JAG training requirements demonstrated from their TPD.

Local level stakeholder engagement is crucial for successful delivery of individual unit endoscopy training with key personnel including surgical and gastroenterology supervising endoscopists, endoscopy administrators, surgical rota managers and perhaps most importantly the endoscopy departmental lead, who often is a gastroenterologist. Worryingly, 38.6% of respondents in our study reported resistance to dedicated endoscopy training from endoscopy departmental leads. Increasing demands are being placed on endoscopy units throughout the country, a major contribution to which is the national BCSP and bowel scope screening. Screening endoscopists require full certification on the Screening Assessment and Accreditation System (SAAS) and therefore most involved in the BCSP are experienced consultants [15]. The increasing demands of BCSP results in loss of dedicated training lists in order for endoscopy units to meet the demands put on them. This issue is further exacerbated by staffing deficiencies and a quarter of endoscopy units in the UK are outsourcing or insourcing services to cope [7]. If each endoscopy unit were to have a surgical training co-lead, we feel this would help drive cultural and practical changes to improve the endoscopy training of surgical trainees.

Heavy rota clinical commitments within emergency on call and elective surgery have been a major barrier in accessing endoscopy training opportunities for surgical trainees as reported by a previous published survey [4]. Our study findings confirm this with only 36.9% of trainees (from all levels ST3-8) having incorporated endoscopy sessions in their weekly work schedule, and approximately 58% stating on call and elective commitments as barriers to endoscopy training. Surgical service managers, rota managers and surgical department leads must be accommodating to endoscopy training for surgical trainees to adhere to the ISCP syllabus and JCST quality indicators.

Immersive blocks of endoscopy training have shown to improve short and long term endoscopy competency [17–19]. In this survey, 76.8% agreed that blocks of endoscopy training could benefit surgical trainees. This educational model of intensive training could potentially accelerate the process of attaining JAG accreditation and also provide a strong basis for higher surgical trainees following attendance at a JAG basic endoscopy skills course. Immersive endoscopy is also an evolving field within simulation, however implementation is largely dependent on local/regional access to such expensive simulators. Virtual reality simulation has proven to accelerate early stage endoscopy training and should be incorporated into teaching programs where available [20].

Finally, 93.1% of our survey respondents believe that surgical trainees achieving JAG endoscopy accreditation is as important for patient care as gastroenterology trainees achieving such recognition of competence. Indeed surgeons may scope with a different "angle" on the procedure as they plan surgery. This survey is the first to examine such perceptions of surgical trainees on JAG accreditation and its impact on patient care. Future GI surgeons must retain the ability to scope in order to best assess and manage their patients' pathology thereafter. With less dedicated training lists and increasing obstacles as highlighted from the results of this survey, GI endoscopy training for surgical trainees in the current climate is in genuine risk of declining further if major changes are not introduced. There is an urgent need for national surgical training curriculum changes with alignment to JAG requirements, particular DOPS assessments, for evidence of competency.

Limitations include the small sample size, but given that only a proportion of trainees undertaking general surgical training become upper GI trainees, it is not surprising that the survey had a small number of respondents. It did have a good spread of abilities and grades, making it representative.

5. Conclusions

Surgeons are an integral part of the workforce to provide endoscopy services. Surgical trainees require equitable access to endoscopy training. This includes access to JAG training courses, and to on site endoscopy training in their units. Programme Directors should actively

promote surgical trainees attaining JAG accreditation and this process should involve trainees, their clinical supervisors/approved educational supervisor, the surgical tutor and JAG training lead. Endoscopy units should have a surgical endoscopy co-lead. It is essential that national Colorectal, Upper GI and Gastroenterology organisations work together to ensure the next generation of surgeons attain the endoscopy skills they need to provide excellent care to their patients. Enshrining endoscopy training in new versions of the surgical curriculum is essential for Upper GI and Colorectal trainees. We recommend that access to sufficient endoscopy training to achieve JAG accreditation pre-CCT is ensured for Upper GI and Colorectal trainees, and that early stage trainees receive exposure to basic endoscopy skills. Directions for future research include evaluating the impact of novel training environment's on endoscopy training with immersive endoscopy blocks.

Ethical approval

Not applicable.

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Nil.

Author contribution

Krashna Patel designed the survey, analysed the data and wrote the first draft of the manuscript.

Katherine Gash reviewed and edited the survey prior to distribution and contributed to writing of the manuscript.

Henry Ferguson contributed to data analysis, interpretation and writing of the manuscript.

Matt Mason reviewed and edited the survey prior to distribution and contributed to data collection.

Siobhan McKay reviewed the paper and helped write the paper from an upper GI perspective.

Bhaskar Kumar designed a previous similar survey and contributed to data interpretation and the final version of the manuscript.

Alexis Sudlow designed a previous similar survey and collaborated to contribute to the writing of the manuscript.

Paul Sutton helped in data analysis and writing.

Gemma Humm contributed to data analysis and writing and design of the survey.

Helen Mohan contributed to all aspects of the survey and co-ordinated responses from all the relevant contributors and wrote the final version of the manuscript.

Conflicts of interest

None.

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Provenance and peer review

Not commissioned, externally peer-reviewed.

Data statement

The individual responses are not available in order to preserve survey responder anonymity and confidentiality.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.ijsu.2019.01.002.

References

[1] Association of Upper Gastrointestinal Surgeons of Great Britain and Ireland (AUGIS) and Association of Coloproctology of Great Britain and Ireland (ACPGBI), Recommendations for Endoscopic Training for Gastrointestinal Surgeons, (2010) London.

[2] J.E. Leyden, G.A. Doherty, A. Hanley, D.A. McNamara, C. Shields, M. Leader, et al., Quality of colonoscopy performance among gastroenterology and surgical trainees: a need for common training standards for all trainees? Endoscopy 43 (2011) 935–940.

[3] J.S. Hammond, N.F. S Watson, J.N. Lund, J.R. Barton, Surgical endoscopy training: the Joint Advisory Group on gastrointestinal endoscopy national review, Frontline Gastroenterol. 4 (2013) 20–24.

[4] R.P. Jones, N.A. Stylianides, A.G. Robertson, V.S.K. Yip, G. Chadwick, National survey on endoscopy training in the UK, Ann. R. Coll. Surg. Engl. 97 (2015) 386–389.

[5] D. Nasralla, S. Khan, J. Ramus, B. Soin, Surgical endoscopy training in England, Ann. R. Coll. Surg. Engl. 92 (2010) 1–5.

[6] S. Biswas, L. Alrubaiy, L. China, et al., Trends in UK endoscopy training in the BSG trainees' national survey and strategic planning for the future, Frontline Gastroenterol. (2018), https://doi.org/10.1136/flgastro-2017-100848 Published online First: 23 September 2017.

[7] L. Shenbagaraj, S. Thomas-Gibson, J. Stebbing, et al., Endoscopy in 2017: a national survey of practice in the UK, Frontline Gastroenterol. (April 2018), https://doi.org/10.1136/flgastro-2018-100970 Published online First: 24.

[8] R.A. Agha, M.R. Borrelli, M. Vella-Baldacchino, R. Thavayogan, D.P. Orgill, D. Pagano, et al., The STROCSS statement: strengthening the reporting of cohort studies in surgery, Int. J. Surg. 46 (2017) 198–202.

[9] R.L. Harries, V.J. Gokani, P. Smitham, J.E. Fitzgerald, Councils of Association of Surgeons in Training and British Orthopaedic Trainees Association. Less than full-time training in surgery: a cross-sectional study evaluating the accessibility and experiences of flexible training in the surgical trainee workforce, BMJ Open 6 (4) (2016 Apr 18) e010136, , https://doi.org/10.1136/bmjopen-2015-010136.

[10] M. Taylor, J. Ovens, S. Bhatt, D. Messenger, Endoscopic training of surgeons, Int. J. Surg. 36 (2016) S35.

[11] A. Haycock, P. Flanagan, A. Ignjatovic, et al., Gastroenterology training in 2008: results from the TiG/BSG national training survey, Gut 58 (s1) (2009) A11.

[12] S. Asfaha, S. Alqahtani, R.J. Hilsden, et al., Assessment of endoscopic training of general surgery residents in a North American health region, Gastrointest. Endosc. 68 (1) (2008) 056–062.

[13] Intercollegiate Surgical Curriculum Programme, The Intercollegiate Surgical Curriculum: General Surgery, ISCP, London, 2016.

[14] The Dukes' club for colorectal surgical trainees, Endoscopy training, (2018) https://www.thedukesclub.org.uk/training-exams/endoscopy/ , Accessed date: 3 June 2018.

[15] Royal College of Physicians, Accreditation of Screening Colonoscopists: BCSP Guidelines, (2017) https://www.saas.nhs.uk/ , Accessed date: 3 June 2018.

[16] The Royal College of Surgeons of England, Improving Surgical Training. Proposal for a Pilot Surgical Training Programme, (2015) https://www.rcseng.ac.uk/careers-in-surgery/trainees/ist/ , Accessed date: 3 June 2018.

[17] M. Neumann, C. Hahn, T. Horbach, et al., Score card endoscopy: a multicentre study to evaluate learning curves in 1-week courses using the Elangen Endo-Trainer, Endoscopy 35 (2003) 515–520.

[18] N. Suzuki, S. Thomas-Gibson, M. Vance, et al., Efficacy of an accelerated colonoscopy training week: audit from one national colonoscopy training in the UK, Dig. Endosc. 18 (2006) 288–293.

[19] S. Thomas-Gibson, P. Bassett, N. Suzuki, et al., Intensive training over 5 days improves colonoscopy skills long-term, Endoscopy 39 (8) (2007) 818–824.

[20] V.E. Ekkelenkamp, A.D. Koch, R.A. de Man, et al., Training and competence assessment in GI endoscopy: a systematic review, Gut 65 (2016) 607–615.