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What is the role of out of programme clinical fellowships in the era of Shape of Training? A single-centre cohort study

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ABSTRACT

Background The updated Shape of Training curriculum has shortened the duration of specialty training. We present the potential role of out of programme clinical fellowships.

Method An electronic online survey was sent to all current fellows to understand their experiences, training opportunities and motivations.

Data were collected on fellows' endoscopic experiences and publications using PubMed for all previous doctors who have completed the Sheffield Fellowship Programme.

Results Since 2004, 39 doctors have completed the Sheffield Fellowship.

Endoscopic experience: current fellows completed a median average of 350 (IQR 150–500) gastroscopies and 150 (IQR 106–251) colonoscopies per year. Fellows with special interests completed either 428 hepato-pancreato-biliary procedures or 70 endoscopic mucosal resections per year.

Medline publications: Median average 9 publications (IQR 4–17). They have also received multiple national or international awards and 91% achieved a doctoral degree. The seven current fellows in the new Shape of Training era (57% male, 29% Caucasian, aged 31–40 years) report high levels of enjoyment due to their research projects, supervisory teams and social aspects. The most cited reasons for undertaking the fellowship were to develop a subspecialty interest, take time off the on-call rota and develop endoscopic skills. The most reported drawback was a reduced income.

All current fellows feel that the fellowship has enhanced their clinical confidence and prepared them to become consultants.

Conclusion Out of programme clinical fellowships offer the opportunity to develop the required training competencies, subspecialty expertise and research skills in a supportive environment.

INTRODUCTION

Physician training has been reformed in recent years to prepare clinicians for an increasingly comorbid and ageing population.¹ As a result, the new Shape of Training

WHAT IS ALREADY KNOWN ON THIS TOPIC

- ⇒ Only 10% of trainees feel confident to be gastroenterology and hepatology consultants at the end of their training under the new Shape of Training curriculum.
- ⇒ In the previous curriculum, out of programme fellowships provided an opportunity to build general clinical experience, develop a subspecialty interest, for example, inflammatory bowel disease or advanced endoscopy, undertake research or take time out of general medical training.
- ⇒ Trainees used to go out of programme to enhance their curriculum vitae, but now there are concerns about achieving basic competencies.
- ⇒ There is no published out of programme fellowship data since the introduction of the new curriculum.

WHAT THIS STUDY ADDS

- ⇒ The out of programme fellowship in Sheffield provides significant opportunities to develop endoscopic skills with trainees completing on average 350 (IQR 150–500) gastroscopies and 150 (IQR 106–251) colonoscopies per year.
- ⇒ Both achieving competencies and advanced endoscopic skills are delivered through a fellowship.
- ⇒ An out of programme research activity can help individuals learn about research (median 9 peer-reviewed publications) and develop a subspecialty interest while not on the on-call rota.
- ⇒ The main drawback is the reduced income when compared with those still on the on-call rota, however, trainees still enjoy their time during the fellowship.
- ⇒ The main consultant limitation is that clinical and research supervision is done outside their job plans.

programme uses a 4-year specialty curriculum as opposed to the previous 5 years.² This brings new opportunities for general internal medicine training but there are concerns about the way in which this impacts gastroenterology and hepatology training.³



HOW THIS STUDY MIGHT AFFECT RESEARCH, PRACTICE OR POLICY

- ⇒ The Sheffield out of programme fellowship offers a model that can be replicated in other centres to increase the experiences and learning opportunities for trainees.
- ⇒ Providing out of programme fellowship opportunities can help Trusts to deliver clinical targets in a flexible cost-effective manner.
- ⇒ Fellowship programmes both recruit and retain trainees which increases the consultant workforce in the hosting Trust and the surrounding region.

The British Society of Gastroenterology (BSG) Trainees Survey found that only 10% of respondents felt they would be ready to be consultants in the 4-year curriculum. Furthermore, completion of full colonoscopy training, a prerequisite for a certificate of completion of training (CCT), was only achieved by 22.2% of trainees.^{4,5} As well as these objective measures, the confidence of trainees is low with more than half (55.6%) reporting feeling unconfident in developing their subspecialist interests. Concerns are, therefore, growing that training will not be adequate to produce the future consultant workforce, able to manage patients with gastroenterology and hepatology conditions. Furthermore, there is a decline in the confidence of trainees in developing the required expertise in their subspecialist interest (42.3% in 2022 vs 55.6% in 2020).⁵

With the introduction of endoscopy academies, it is hoped that some of the deficit can be resolved within the training programme, but despite this, over half of trainees (53.6%) are considering other methods to make up for missed training opportunities. There is, therefore, a need for alternative ways to improve the training offered within the UK. There are several ways for trainees to achieve this including out of programme (OOP) fellowships, post-CCT fellowships or extending their training.⁵

Implementing clinical fellowship programmes

The Sheffield Clinical Fellowship Programme was established in 2004 to provide opportunities for developing research skills and achieve a doctoral degree while continuing to develop a specialist interest through clinical exposure.⁶ It was designed as a collaborative project between The University of Sheffield, Sheffield Teaching Hospitals National Health Service (NHS) Foundation Trust and the Yorkshire and Humber Deanery. Trainees undertaking the programme were appointed as fellows on fixed-term contracts at Sheffield Teaching Hospitals NHS Foundation Trust and their salaries at nodal point 4 (£55 328 per annum in the 2023/2024 year) on the junior doctors 2016 contract.⁷

Since the Modernising Medical Careers programme, trainees entered the programme as specialty registrars in a formal training programme. The job plan, made of 10 programmed activities (PAs), grants up to 5 PAs for clinical sessions and the remainder for academic activity. Clinical sessions can include endoscopy and clinics depending on

their competency, NHS service demand, their research interests and training requests. In the programme, there are no on-call commitments. Through these clinical activities, trainees can count up to 1 year in their fellowship post towards their overall training, when approved by the Joint Royal Colleges of Physicians Training Board. During the fellowship, trainees can enrol into a doctoral programme (doctorate of philosophy (PhD) or doctorate in medicine (MD)) at the University of Sheffield. A further element of the programme is that there are different subspecialty options; inflammatory bowel disease, hepatology, hepatobiliary endoscopy, advanced endoscopy and small bowel disease/nutrition. Trainees are also encouraged and funded to attend and present at regional meetings such as the Bardhan Fellowship and national meetings such as the BSG annual conference. Our experience prior to Shape of Training was that trainees undertake these fellowships for three reasons; to gain experience prior to securing a substantive post, to undertake a formal period of research or as a post-CCT Fellow to have immersive subspecialty exposure.

NHS management perspectives

As clinical fellows are required to deliver up to 210 clinical sessions per year, the workforce available to provide outpatient clinic and endoscopy services is increased. Based on the national tariff system this regular, high-volume clinical activity can generate between £172 200 and £402 570 depending on the activities completed.⁸ Their employment is, therefore, clearly cost-effective. However, it should be considered that there is currently no dedicated time allotted to consultants to provide research supervision.

Fellows undertaking the programme are on fixed-term, salaried contracts, therefore, the number of fellows employed can be increased and decreased based on need. When the need drops, such as with the end of the NHS 2-week wait appointment system, the workforce can reflect this.⁹ Conversely, when the need arises, the number of fellows can also increase. The fellows' job plans are also more flexible than consultant job plans benefiting both the fellow and the Trust, as fellows can more easily fill rota gaps when registrars or consultants are on-call (if they wish to participate, but this is not mandated) or to back fill consultant clinical sessions left empty due to annual leave, ward based cover and other commitments. Appropriate notice for changes is still required for this to happen and discussion between the fellow and management is crucial in assuring this happens without acrimony. Furthermore, as fellows work in the hospital, they may be available to answer clinical questions from junior doctors in the neighbouring gastroenterology ward.

No data have been published in the UK since the Shape of Training curriculum was implemented in 2022. We present the results of trainees who have completed or are completing the Sheffield Clinical Fellowship as either an OOP activity or post-CCT fellowship.

METHODS

An electronic online survey via Google Forms was distributed to all individuals undertaking the Sheffield Clinical Fellowship who have completed more than 6 months in post to understand their experiences, training opportunities and motivations. Data were compared with the BSG Trainees Survey comparing the number of trainees who achieved full certification in gastroscopy by specialty training year 5 and colonoscopy by the end of training.

Data on all trainees who have completed the Sheffield Clinical Fellowship were collected using PubMed and Scopus to identify the number of publications excluding abstract presentations and where they were senior authors. Publications were only counted when within 5 years of the start of their fellowship to allow for time taken to publish. Their areas of interest were identified from their dissertations and a further Google online search was conducted to determine their current roles. Dichotomous data on whether a doctoral degree was achieved was compared with the National Institute of Health and Care Research (NIHR) national academic clinical fellowship programme using a χ^2 test.¹⁰

RESULTS

Previous fellows

To date, there have been 39 physicians who have completed the Sheffield Fellowship Programme. Of these, 35% were local trainees (resulting in 14 out of 30 consultants employed after completing the fellowship programme), 38% trainees from other regions and 26% international trainees. Former fellows subsequently specialised in all areas of gastroenterology and achieved multiple awards of recognition including the BSG Endoscopy research award, BSG President's Medal, UEG Gastroenterology Rising Star Award, BSG Young Gastroenterologist of the year, Julie Wallace Award from Nutrition Society, NHS Fair and Diverse Champion Individual Award and Coeliac UK Young Investigators Award. All fellows have published during or since their fellowship (median 9 publications, IQR:4–17). The current median average H-index of former fellows is 5 (IQR 8–12).

More trainees achieved a doctoral degree by completing the Clinical Research Fellowship than the NIHR Academic Clinical Fellowship (91% vs 28%, $p < 0.001$).¹⁰ Following completion of their fellowships, 41% achieved consultant jobs in Sheffield Teaching Hospitals, 18% within the local area, 18% in other UK hospitals and 22% at hospitals in other countries.

Seven fellows completed the Sheffield Fellowship Programme with a view to advancing their endoscopic expertise only. These fellows developed skills in endoscopic ultrasound (EUS), endoscopic submucosal dissection, endoscopic retrograde cholangiopancreatography (ERCP), therapeutic colonoscopy, capsule endoscopy and complex polypectomy.

Due to the growing interest and recognition of the programme and strong collaborations with Universities

in Italy, Malta and Greece, six further international fellows attended as part of their doctoral degree for 1–2 years. These fellows enrolled with their own funding from their home institutes and learnt primarily research and endoscopic skills. These fellows would also offer additional clinical sessions at no cost to Sheffield Teaching Hospitals.

Fellows during the Shape of Training curriculum

Of the seven current fellows (57% (4/7) male, all aged between 31 and 40 years, 29% (2/7) Caucasian), 57% (4/7) attended medical school in the UK. Five fellows are completing OOP research and two endoscopy focused fellowships. Fellows reported high levels of enjoyment from the fellowship (median: 8 out of 10 on a Likert scale, IQR 7–10 out of 10) due to enjoying their research project, supervision and social aspects of working with other fellows locally, nationally and internationally. Respondents' gender identity and ethnicity were reported as well represented among their supervisors and the broader research and clinical team by five out of seven fellows. In both cases, the other two reported no positive or negative feelings on this.

The most cited reasons for enrolling in the fellowship were to develop a subspecialty interest, take time out of the on-call rota, develop endoscopy skills and enhance their curriculum vitae (reported by 100% (7/7), 86% (6/7), 86% (6/7) and 86% (6/7), respectively). All trainees reported the lower income as the most significant drawback when both enrolling and reporting on the programme (figures 1 and 2).

The strongest benefits reported by fellows were in developing a subspecialty interest, enhancing their curriculum vitae, taking time OOP and taking time out of the on-call rota (figure 2).

Current fellows interested in endoscopy complete a median average of 350 (IQR 150–500) gastroscopies, 45 (IQR 30–50) flexible sigmoidoscopies and 150 (IQR 106–251) colonoscopies per year in the programme. When compared with the BSG Trainees survey data, a 2-year fellowship would enable more trainees to complete the required number of colonoscopies to achieve full certification compared with those in the

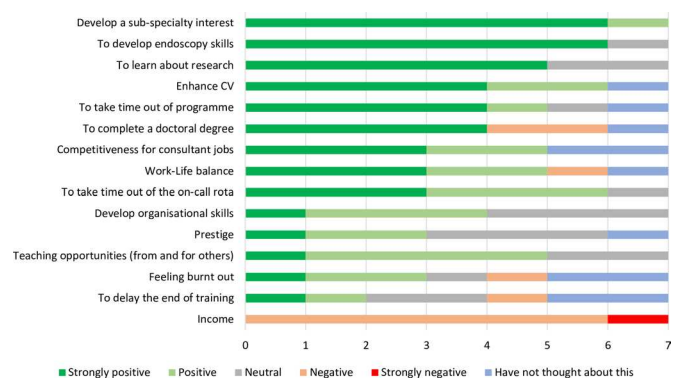


Figure 1 Factors reported as affecting the decision to undergo a fellowship. CV, curriculum vitae.

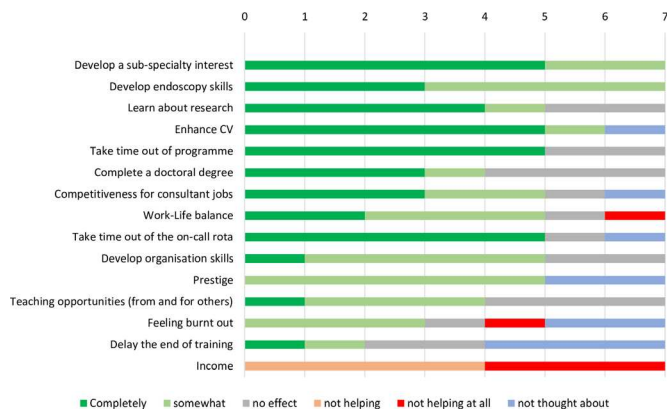


Figure 2 The reported role the fellowship has in helping trainees with different factors. CV, curriculum vitae.

standard training programme (100% vs 22.2%, $p < 0.001$). There would be no statistical difference in gastroscopy completion between those undertaking a fellowship and those not undertaking a fellowship in training (100% vs 72.8%, $p = 0.154$). Fellows with special interests completed either 428 hepato-pancreato-biliary (HPB) procedures (including 345 ECRPs and 83 EUSs) or 70 endoscopic mucosal resections per year in addition to the above endoscopic procedures.

All current fellows who have completed 1 year of training have published at least 1 first author, peer-reviewed publication and presented their work at a national or international conference. All current fellows reported feeling more confident to become consultants in gastroenterology and hepatology.

DISCUSSION

These data suggest OOP research could be one solution in a 4-year programme for those who want to develop a subspecialty interest, develop endoscopic skills, learn about research and/or take time out of the on-call rota. Such fellowships are also likely to develop more confident gastroenterology and hepatology consultants. The main drawback is the reduced income when compared with those still on the on-call rota. Completing a fellowship has improved fellows curriculum vitae and thus made them more competitive when applying for consultant posts. Nationally, 48% of advertised consultant gastroenterology and hepatology posts were unfilled so there is a need to attract trainees.¹¹ Despite only 35% of trainees being recruited locally, after completing the fellowship, 41% of trainees chose to stay in Sheffield and a further 18% in the local area, so there is an added longer-term benefit to the hosting Trust and surrounding hospitals within the region. This supports previous surveys that have reported the Sheffield Teaching Hospitals workplace to be positive and that fellows enjoy their time in Sheffield and wish to subsequently stay.¹² Sheffield Teaching Hospitals NHS Foundation Trust also has a higher number of female consultants than the national average and it is encouraging to see this reflected in the

number of fellows.¹² Similarly, the ethnic diversity within the cohort is positive. Furthermore, this approach is financially very cost-effective for the Trust.

Gastroenterology and hepatology physicians have reported the tenth highest levels of burn-out among medical specialties in the UK and over half (62%) have reported this affecting their personal relationships negatively.¹¹ One key factor contributing to burnout is too many hours at work.¹³ Therefore, as the fellowship demands no on-call commitments, it provides a way to continue to learn and provide a service while reducing the overall number of hours at work. Despite the well-defined work hours, the nature of research roles means that there is a greater potential for work to be taken home and continued compared with purely clinical roles. This can negatively impact on work-life balance, although reassuringly most trainees nevertheless reported an improved work-life balance overall, as a result of the fellowship. Despite the standard 8 hour day, trainees were able to complete high numbers of endoscopic procedures during the fellowship. The recent BSG Trainees survey demonstrated that only 22% of trainees achieved full certification in colonoscopy and so the fellowship provides a valuable opportunity to gain the required experience.⁵ Most fellowships are of a minimum of 2 years, and therefore, within this period alone, full certification in colonoscopy could be achieved freeing time up during in-programme training for other teaching opportunities. The wide range of numbers of procedures completed reflects the different objectives of trainees with some wanting a greater focus on endoscopy compared with others. Recent UK guidance recommends that trainees should have a minimum of 300 hands-on ERCP cases and 250 hands-on EUS cases prior to certification.^{14 15} The Sheffield clinical research fellowship offers up to six HPB endoscopy PAs to fellows with a HPB interest. Depending on their needs, they can focus on ERCP or EUS procedures, resulting in weighting towards their training needs. The flexibility and number of sessions available allows for certification as per the UK Joint Advisory Group consensus statement to be achieved in both modalities over a standard 2-year fellowship with time for a research degree alongside this, should they wish.

The greatest drawback to the fellowship programme is the reduced income when compared with in-programme registrars who receive a supplement for providing on-call services. It should, however, be noted that fellows are permitted to supplement their pay through offering additional clinical services providing it does not compromise their fellowship objectives. This most commonly has been through providing additional endoscopy lists or working extra on-call shifts.⁶ An important drawback to consider is when undertaking a fellowship is the potential necessity to relocate. The biggest factor influencing trainees when applying for a hepatology training post was the option to remain within their current deanery.¹⁶ While there are options to work part time, full time in fewer days and partly virtually, significant time is still needed on

site and should be considered by trainees when considering a fellowship.

Interestingly, the number of fellows who achieved substantive consultant posts in Sheffield is higher than the number of fellows who were trainees in the region. This supports previous surveys that have reported the Sheffield Teaching Hospitals workplace to be positive and that fellows enjoy their time in Sheffield and wish to subsequently stay.¹² Sheffield Teaching Hospitals also has a higher number of female consultants than the national average and it is encouraging to see this reflected in the number of fellows.¹² Similarly, the ethnic diversity within the cohort is positive.

The number of publications from previous fellows should be interpreted with caution as some of these may be achieved alongside as opposed to directly due to their fellowship. However, the skills acquired and time available during the fellowship will likely have helped fellows to publish research findings. This is supported by more than half the current fellows reporting an improvement in their understanding of research and the high level of publications among them.

The data show that endoscopic training opportunities for trainees undertaking a fellowship are greater than those in training. However, the data for trainees in training were collected during a time when COVID-19 impacted training opportunities. Irrespective of COVID-19, trainees in training feel a need to attend training opportunities on their own time, such as after a night shift.³ The fellowship programme offers a solution to this, allowing trainees to gain confidence and competence while achieving a better work–life balance. Furthermore, under the previous 5-year programme, data from 2018 show only 51% of final year trainees achieved full competence in colonoscopy training.¹⁷ Therefore, there is a clear need for alternative methods of training.

While there is a clear benefit to the trainee, it must be recognised that their supervision places a further demand on consultants who are already under time pressures and report high levels of burn-out.¹¹ However, the process of supervising trainees may be rewarding to consultants as they watch their junior colleagues grow providing a sense of satisfaction and fulfilment in this role.^{18, 19} Furthermore, there is a long-term benefit of the fellowship programme (now running since 2004) in that it has resulted in the recruitment and retention of the consultant body. Of the 30 consultants in Sheffield, 14 have come from the fellowship programme at a time when nationally 48% of new appointments are unfilled. This has not occurred in Sheffield. From the perspective of any consultant in Sheffield, an immediate tangible benefit is the reduction in the number of on-calls and rotational ward work. When developing this programme, other gastroenterology and hepatology departments considering this model would have to either negotiate with management in advance for recognition of the time involved in supervision within the job plan or accept as we did that this is additional ex-gratia activity.

We believe this OOP fellowship that provides training opportunities with no on-call commitments increases the interest among trainees. By remaining financially beneficial to the Trust it is also supported by management which together has led to the success of this programme. In describing this, we hope other Trusts will see the potential benefits and explore potential ways to provide similar programmes in their regions.

A limitation of this study is the small number of fellows currently undertaking the programme. Despite this, significant trends have still been able to be identified. In limiting the follow-up period to 5 years, it may be that some publications that resulted from the fellowship are not captured, however, it was felt on balance to be a reasonable length of time to prevent other publications also being included.

In conclusion, the Sheffield Clinical fellowship offers the opportunity to develop the required competencies of training with a particular focus on endoscopy, developing subspecialty interests and learning research skills. Trainees report enjoying their fellowship and because of the opportunities feel more confident in becoming consultants. The benefit of no on-call commitments results in a reduced income but allows for a better work–life balance. The programme also benefits an undersubscribed consultant workforce by providing extra clinical services while increasing the likelihood of recruitment in the future.

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