

EDUCATION IN PRACTICE

Sheffield Clinical Research Fellowship programme: a transferable model for UK gastroenterology

Matthew Kurien,^{1,2} Andrew Hopper,² Alan J Lobo,^{1,2} Mark E McAlindon,^{1,2} Reena Sidhu,² Dermot C Gleeson,^{1,2} John M Hebden,² Kumar Basu,² Simon Panter,³ Melanie Lockett,⁴ David S Sanders^{1,2}

¹Academic Unit of Gastroenterology, Department of Infection, Immunity and Cardiovascular Sciences, University of Sheffield, Sheffield, UK

²Department of Gastroenterology and Hepatology, Sheffield Teaching Hospitals NHS Foundation Trust, Sheffield, UK

³Department of Gastroenterology, South Tyneside NHS Foundation Trust, South Tyneside District Hospital, Sheffield, UK

⁴Department of Gastroenterology, North Bristol NHS Trust, Bristol, UK

Correspondence to

Dr Matthew Kurien, Academic Unit of Gastroenterology, Department of Infection, Immunity and Cardiovascular Sciences, University of Sheffield, Sheffield S10 2RX, UK; matthew.kurien@sth.nhs.uk

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ABSTRACT

Out of programme (OOP) opportunities are to be encouraged. This article gives an insightful view of the Sheffield Clinical Research Fellowship Programme. Unique trainee feedback is provided. The take home message is clear - trainees should grab OOP experiences with both hands! For consultants the logistics described are potentially transferrable to their own regions.

INTRODUCTION

A period out of programme (OOP) remains popular among UK gastroenterology trainees, allowing training opportunities and experiences beyond the mandated 4-year gastroenterology training programme (5 years when combined with General Internal Medicine).¹ The advantages and disadvantages of these different OOP activities have been discussed previously as a means of supporting both professional and personal development.^{2,3} Although aspirations of going OOP remain high among trainees (63% in the 2014 British Society of Gastroenterology (BSG) Trainee survey), a disparity currently exists between those that actually manage to take up OOP activities.^{2,3}

Being unaware of opportunities and uncertainty on how to organise are reported barriers.¹ Other factors that are increasingly pertinent relate to trainees not being afforded time to go OOP and also not having financial support to sustain the planned activity. In this article, we discuss the current challenges that exist in undertaking OOP activities and also provide insights into the Sheffield Clinical Research Fellowship programme,

which has supported OOP research activity in South Yorkshire for >13 years. This is a model which we believe is transferable and has attracted applicants (who have been appointed) from outside of South Yorkshire. Practical information is included in this article about how the Sheffield programme was established, its funding methods, alongside trainee feedback and outputs. The hope is that by sharing our model for supporting OOP research activity we provide an alternative and sustainable way of meeting trainees' aspirations to go OOP, which can hopefully be used and replicated by trainees and local training programme directors (TPDs) in other areas of the country.

Barriers to going OOP

There are currently four different types of OOP activity that a specialty trainee may undertake: out of programme research (OOPR), OOP for approved clinical training, OOP for clinical experience and OOP for career breaks. Of these, OOPR remains the most popular.¹ Determining if a trainee may undertake an OOP activity is influenced by the stability of local training programmes and by acquiring relevant permissions from TPDs and deaneries. Overcoming these hurdles has always necessitated a degree of organisation and negotiation by trainees; however, over recent years this challenge has heightened due to unprecedented National Health Service (NHS) service demands and staffing problems in many parts of the country.⁴

This concern is emphasised by the most recent BSG gastroenterology workforce

report, indicating that 48% of consultant gastroenterology and hepatology posts advertised between 1 September 2015 and 31 August 2016 (n=172) were unfilled.⁵ In addition, the number of F2 doctors applying for Core Medical Training has declined.⁵ In the context of service pressures including increasing endoscopy demand, increased hepatology requirements and the requirement for 7-day consultant presence, it is easy to appreciate how a tension exists between a trainee's aspiration to go OOP and ensuring satisfactory manpower to provide a safe clinical service. These service pressures are not evenly distributed throughout the country, with South East Coast/South Central England, East Midlands and Yorkshire and Humber having the least consultant gastroenterologists per population in the UK.⁵ There is also a regional disparity in gastroenterology trainee numbers per population.⁶ In deaneries where registrar numbers are small (eg, South Yorkshire—13 national training number (NTN) registrars), these service pressures and the inability to backfill trainee's post can adversely impact on registrars being permitted to go OOP. Releasing gastroenterology trainees to OOP activity may also adversely impact the training of trainees in other medical specialties. If general medical on-call rota gaps develop as a consequence of gastroenterology trainees being released to OOP activity, then this could hinder the training of those individuals required to fill rota gaps (either voluntarily or not).

Funding can be another significant barrier to going OOP, with OOPR activities usually funded through 'hard' or 'soft' money. Hard money denotes funds acquired from grant awarding bodies including medical charities, NHS research and developmental schemes or regional trust funds, whereas soft money describes funds from pharmaceutical companies or from an individual consultant's personal research funds. Although hard money is regarded as more prestigious, it does attract significant competition, with success rates for National Institute for Health Research (NIHR) doctoral research fellowships being significantly higher in those undertaking academic clinical fellowships (ACFs) compared with non-ACF clinical applicants (28% vs 19%).⁷ Similar outcomes in fellowship applications have also been observed from the Wellcome Trust and the Medical Research Council.⁷ These findings provide evidence that funding for non-academic trainees to go OOP and undertake doctoral research degrees is becoming increasingly challenging.

The Sheffield Clinical Research Fellowship programme

Background

The research fellowship programme was established in Sheffield in 2004 to address some of these barriers. It provides trainees with an opportunity to learn research skills, alongside undertaking a doctoral research degree. The University of Sheffield, Sheffield Teaching Hospitals NHS Foundation Trust and

the Yorkshire and Humber Deanery were all involved at the outset in creating posts and have continued to support over future years. Historically, entry into the fellowship programme was prior to obtaining an NTN in gastroenterology. This changed however following implementation of Modernising Medical Careers programme in 2005, when trainees began entering the programme as part of permitted OOP activity during specialty registrar (StR) training (ST4+).

To date, 15 trainees have gone through the fellowship programme (five from outside our deanery) undertaking research in diverse areas including inflammatory bowel disease (IBD), autoimmune hepatitis, small bowel endoscopy, coeliac disease, pancreatic exocrine insufficiency, percutaneous endoscopic gastrostomy feeding, irritable bowel syndrome and gastrointestinal bleeding. The outputs have predominantly been in clinical research, although collaborations with basic and translational scientists have occurred dependent on specific research projects undertaken. Determining which area was to be researched during fellowships posts was informed by individual trainees, with projects closely aligned, where possible, to areas of personal clinical interest.

Job plans and funding of Sheffield Clinical Research fellows

All Sheffield fellows are appointed on fixed-term contracts at Sheffield Teaching Hospitals NHS Foundation Trust. Their salaries are paid in accordance with the current national agreed salary scale for specialty registrars (£30 605-48 123 per annum), with starting salaries determined by their previous NHS service. The job plan (like newly appointed consultants) is devised around 10 programmed activities (PAs), with 5 PAs granted to undertake academic activity and 5 PAs for clinical sessions. All fellows are required to deliver 210 clinical sessions per annum as part of their clinical commitments, equating to five sessions per week after exclusion of permitted leave. These sessions can involve a mix of endoscopy and clinics, based on a trainee's endoscopic competency, the nature of their research projects and also on NHS service demand. The delivery of five clinical sessions per week has helped trainees holding NTNs gain the necessary approvals from the Joint Royal Colleges of Physicians Training Board (JRCPTB) and Specialist Advisory Committees, when applying to count time in fellowship posts towards overall training.

The research PAs in the fellow's job plan provide protected time to undertake research and work towards a doctoral research degree at the University of Sheffield. The university recognises and endorses the 50:50 split of clinical and academic working as clinical fellows have helped contribute to previous research and teaching excellence framework assessments, alongside attracting markers of esteem for the university (five National and two International Research Awards as well as nine National Clinical Service Awards).

The fellows are all registered as staff candidates for their duration of study (MD students=2 years, PhD students=3 years), with the payment of university tuition fees waived for these staff candidates.

Although research is the primary focus of the fellowship posts, trainees are also encouraged to engage in other academic activities, including the delivery of undergraduate and postgraduate gastrointestinal teaching within the university and the local gastroenterology department. Fellows are also supported to attend external meetings as part of their fellowship programme and are encouraged to present at the Bardhan Fellowship, a regional meeting devised to support research among local trainees.⁸

The delivery of regular, high-volume clinical activity by research fellows has helped offset some of the local pressures on clinical services, which are occurring due to the loss of clinical activity by consultants and registrars during periods of on-call and leave. As employment costs for fellows (£30 605–48 123 per annum) are exceeded by the income generated from five weekly direct clinical care sessions (approximately £300 000 per annum based on Healthcare Resource Groups (HRG) codes), we have found their employment to be unequivocally cost effective. Importantly, this model gives flexibility for NHS management, with number of fellows employed determined by clinical need and also allowing clinical activity to be directed where demand is greatest.

A potential limitation of the fellowship programme is that no additional supporting professional activity time is afforded to consultants, providing research and clinical supervision to clinical fellows. Time demands on these supervisors are significant and require ongoing, personal commitment to research. These supervisory roles do however offer an opportunity to enhance an individual's curriculum vitae (CVs) for grant applications and may also help build a department's reputation as being research active, which may enhance clinical outcomes.^{9 10}

Another drawback to the fellowship programme relates to salary allowance, with fellows paid less than in-programme registrars who receive supplemental banding for on-call provision. Although this may be a potential deterrent to going OOP and taking up a fellowship post, Sheffield fellows are permitted to undertake additional clinical sessions for payment on the proviso that it does not compromise fellowship objectives. Over recent years some clinical fellows have supplemented income by being involved in the Bowel Scope programme.

Balancing the number of registrars in and out of programme

As discussed previously, TPDs are under immense pressure to maintain the stability of local training programmes. Releasing individuals to OOP activity may have a deleterious effect on clinical services, staffing ratios and may influence other trainees' opportunities

to go OOP. Historically, releasing trainees to OOP activity could be supported by backfilling posts with locum appointments for training or locum appointments for service. However, the withdrawal of these posts in England in January 2016 has made this more difficult.

To address this concern, South Yorkshire adopted a policy of over-recruiting NTN posts according to the number of trainees OOP (ie, employment of an additional two StRs). This strategy (guided by key members from the BSG Training Committee) helped support the stability of the local training programme and allowed ongoing OOP activity. In the absence of new NTNs in gastroenterology and hepatology in 2016/2017, this strategy is now being advocated by Health Education England, with recommendations that recruitment should occur at approximately 1.36 times the number of clinical training posts, to help ensure clinical posts remain filled.⁵

Outputs from the fellowship programme

Of the 15 fellows who have completed the Sheffield Fellowship programme, 11 have been awarded an MD, 1 awarded a PhD, 2 await vivas and 1 did not complete. Four MD fellows completed their doctoral degrees within their period OOP, while all others completed within 12 months. Twelve (80%) have been appointed subsequently to consultant posts in university hospitals, with seven of these being in Sheffield. In a time of difficulty in recruiting gastroenterology and hepatology consultants, the appointment of previous fellows to local consultant posts illustrates how fellowships may be used to help 'grow your own' future local consultant workforce. This outcome could also reflect happiness of fellows in wanting to remain in the area beyond their fellowships—a measure that we locally term the second H-index (the 'Professional' Happiness index).

The median number of first author PubMed-referenced publications achieved by these 15 individuals through doing a fellowship was 6.5 (range 0–25), with total number of publications equating to 15 (median, range 0–40). Abstract presentations were excluded in the publication calculation, which commenced from the start of fellowships to 2 years beyond fellowship completion. These outputs are significantly higher than the median publication outputs achieved by South Yorkshire trainees not undertaking OOPR activity ($n=20$, $P<0.0001$, Mann-Whitney U test) and significantly higher than the median number of publications achieved by gastrointestinal (GI) trainees nationally prior to their consultant appointments (median number of publications=2, $P<0.0001$).¹¹

Enhanced endoscopic experience and competency is another benefit derived from the fellowship programme. Although these posts were devised to support research activity and trainees going OOP, trainees acquire endoscopic experience that is often

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not achieved through in-programme activity alone. Supporting this assertion is a recent survey evaluating endoscopic training in the UK.¹² Findings from this study suggest that although gastroenterology trainees had favourable experiences compared with surgical trainees, only 91.3%, 68.6% and 73.0% were expected to achieve the Joint Advisory Group certification requirements of 200 procedures in gastroscopy, flexible sigmoidoscopy and colonoscopy (provisional) at the time of completion of training (CCT). Through participation in the Sheffield Fellowship programme, fellows undertook a median number of 1055 (IQR 567–1457) OGDs and 502 (IQR 155–536) lower GI endoscopic procedures per fellowship. When considered alongside their in-programme endoscopic experience, this cumulative experience helped ensure proficiency in endoscopy at the time of consultant appointment.

Trainees' perspectives on fellowships

All fellows who had previously completed the Sheffield Fellowship programme (n=15) were invited to give feedback in July 2017. Feedback was requested using an electronic survey that included a combination of five-point Likert scale questions (1=strongly disagree, 5=strongly agree) and qualitative responses. All 15 fellows (100%) completed the survey, with all agreeing that fellowship posts had met personal learning objectives and had helped acquire new skills, pertinent to future practice (mean score of 5). The mean score for supervision and fellowship enjoyment was 4.8 and 4.9, respectively. Qualitative responses to the best and worst aspects are provided in [box](#).

Variations of the model: international, pre-NTN and post-CCT fellows

The initial model was so successful both from a trainee perspective and the Trust's economic expectations that this was expanded according to opportunity. Following the establishment of a link with the Hellenic Institute of Gastroenterology, three international fellows from Greece were recruited over a period of 7 years. Unfortunately, this link became difficult to support following the economic collapse in Greece.

This model was also used to establish 1-year stand-alone posts for trainees yet to gain NTN gastroenterology posts. Targeted at post-Membership of the Royal Colleges of Physicians (MRCP) core medical trainees wishing to pursue a career in gastroenterology but who may have had limited experience or academic outputs, these posts allowed a unique opportunity to enhance CVs before future NTN applications. Clinical sessions were directed towards outpatient clinic activity as individuals frequently lacked endoscopic experience or competence. As trainees were at early stages within their gastroenterology training, frequently they necessitated a greater degree of supervision from supporting consultants.

Box Selected comments about the best and worst aspects of a Sheffield Fellowship

Best aspects

- ▶ The fellowship permitted me time to develop core gastroenterology skills without on-call commitments (both GI and General Medicine).
- ▶ My period out of programme allowed me to work with like-minded colleagues, make new friends and catch up with old ones.
- ▶ I had excellent support from both the research department and supervisors.
- ▶ Sheffield is a lovely place to work, train and live. I was surrounded by the friendliest/nicest colleagues and friends
- ▶ Working with a fabulous and friendly team in a great environment to learn research skills.
- ▶ Overwhelming support, mentorship and individual tailored development for each fellow which is bespoke. Constant motivation by mentor and colleagues within the department.
- ▶ Opportunity to present research, grow as a researcher and achieve a number of publications.
- ▶ Great team to work with. Good learning and friendly environment.
- ▶ Improved endoscopic experience.
- ▶ Great combination of clinical research with clinical work and managed to get signed off for endoscopy/ colonoscopy. It is virtually guaranteed that if you put the work in you will obtain superb experience, tangible publications and a higher degree. All of this gave me options for my future and put me in control.
- ▶ The unit is great to work in and with there being several fellows you all help each other out, further adding to your portfolio.

Worst aspects

- ▶ Reduced financial income
- ▶ Going back into the training rotation after the fellowship
- ▶ Doing a fellowship part time was challenging
- ▶ It rains a lot in Sheffield (mean rainfall per month in Sheffield=56 mm ☹)

Sheffield was also part of the first wave of JRCPTB post-CCT fellowships that were awarded in 2014. These fellowships provide enhanced subspecialty training in areas where the unit is recognised (small bowel endoscopy or IBD). These post-CCT fellowships were created using the same model described previously and permitted research exposure, alongside clinical training without undertaking a formal degree.

Difficulties encountered

There were initial reservations about the fellowship model from local NHS management, including discussion of the number of clinical sessions to be provided

Table 1 What is in it for me?

	Advantages	Disadvantages
A potential fellow	Professional <ul style="list-style-type: none"> ▶ Qualification (MD, PhD) ▶ Curriculum vitae enhancement (publications, presentations, grant awards) ▶ New clinical or relevant laboratory skills ▶ Data management and statistical skills ▶ Time organisation and management skills ▶ Peer group recognition of expertise ▶ Critical appraisal skills ▶ Computing/internet skills 	<ul style="list-style-type: none"> ▶ Reduced pay ▶ No remuneration for extra hours ▶ Time spent learning irrelevant skills ▶ Interruption in clinical training ▶ Isolation from clinical colleagues ▶ Lack of immediate rewards ▶ Lengthening of training
	Personal development <ul style="list-style-type: none"> ▶ Improved communication skills (written and oral) ▶ Enhanced confidence ▶ Financial management skills ▶ Organisational skills 	<ul style="list-style-type: none"> ▶ Unsatisfactory experience having negative effect on career prospects ▶ Negative attitude to academic activity
Hospital management	Advantages <ul style="list-style-type: none"> ▶ Income generation from clinical care provided by fellows ▶ Helps support the service demand and backfill absences by other healthcare professionals 	Disadvantages <ul style="list-style-type: none"> ▶ Employment restricted to certain times of the year ▶ Regular rotation of fellows
University	<ul style="list-style-type: none"> ▶ Support undergraduate teaching ▶ Outputs from MD/PhD students can be submitted for research and teaching assessments 	<ul style="list-style-type: none"> ▶ Employment restricted to certain times of the year

each week. Comparators such as consultant workloads (based on Royal College Data), financial models using HRG codes and service line reporting information were used to help inform the discussions and reach agreement. Once established the Trust recognised the financial merits of fellows, and this resulted in subsequent expansion of fellow posts. Other local directorates have now adopted our model, and business cases for these posts shared with other gastroenterology consultants in the UK by personal request.

Negotiating and maintaining these posts with the local NHS Trust has repeatedly involved discussions about overall service provision and on-call commitments of appointed fellows. The initial model did not have on-call commitments included. Future models may do so, reflecting the increasing difficulty in staffing the acute take. Inevitable changes in personnel reinforces the need to maintain the engagement of clinical and non-clinical managers in the process to ensure a sustainable programme.

Another barrier encountered to trainees going OOP and undertaking fellowship posts concerns timing and completion of the necessary paperwork (eg, deanery, TPD support). To help overcome these hurdles, Sheffield fellowship posts are advertised and appointed before round 1 of national recruitment, allowing TPDs to put any unfilled posts into round 1 of national recruitment. Fellowship posts are also orientated to start and finish in line with StR changeover dates in August/September. This helps ensure that trainees do not leave other gastroenterology units across the UK with rota gaps or service deficiencies, which could cause negative relations with our GI colleagues nationally.

Perseverance and grit are essential if trainees want to go OOP.¹³ Having discussed the barriers that exist to securing OOP activity, reflection should be made on the old training model where trainees frequently moved from one geographical location to another to gain registrar, research fellow and senior registrar posts. In the context of providing 25–30 years of future continuous consultant service, we believe that trainees should be resolute in their determination to go OOP as there are limited opportunities to achieve such a development in their career as is provided in a fellowship post.

Summary

The landscape of UK gastroenterology has changed over recent years with consultant expansion, job vacancies and unprecedented demands on clinical services. These changes, alongside financial pressures, are influencing trainees' opportunities to go OOP. In this article, we have shared our Sheffield OOP model, which we believe is sustainable, transferable and a potential win-win for both trainees and NHS Trusts (table 1). Although pathways to OOP may be facilitated using this model, the success of fellowships is ultimately dependent on the trainees themselves. Hard work, determination and planning are all key attributes required for success, with benefits highlighted by a recent Sheffield trainee, who said, 'My fellowship changed my perspective of medicine forever. It provided me with opportunities that I never thought I would have.'

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and also gave final approval before submission. MK is the guarantor.

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