Education in Practice

The Sheffield Clinical Research Fellowship programme: A transferable model for UK Gastroenterology

Kurien M[1,2], Hopper AD[2], Lobo AJ[1,2], McAlindon ME[1,2], Sidhu R[2], Gleeson DC[1,2], Hebden JM[2], Basu K[2], Panter S[3], Lockett M[4], Sanders DS[1,2]

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

[2] Department of Gastroenterology & Hepatology, Sheffield Teaching Hospitals NHS Foundation Trust, Sheffield, UK

[3] Department of Gastroenterology, South Tyneside NHS Foundation Trust, South Tyneside District Hospital, Harton Lane, South Shields, UK.

[4] Department of Gastroenterology, North Bristol NHS Trust, Southmead Rd, Bristol, UK

Corresponding author:

Dr Matthew Kurien

Senior Clinical Lecturer and Honorary Consultant Gastroenterologist

Academic Unit of Gastroenterology, Department of Infection, Immunity and Cardiovascular Sciences, University of Sheffield, Sheffield, S10 2RX

Phone: +44 114 226 1179 Email: matthew.kurien@sth.nhs.uk

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INTRODUCTION

A period out of programme (OOP) remains popular amongst 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 remains high amongst trainees (63% in the 2014 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 more than 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), Out of Programme for approved Clinical Training (OOPT), Out of Programme for Clinical Experience (OOPE) and Out of Programme for Career breaks (OOPC). 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 training programme directors 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 NHS service demands and staffing problems in many parts of the country.[4]

This concern is emphasized by the most recent BSG gastroenterology workforce report, indicating that 48% of consultant gastroenterology and hepatology posts advertised between Sept 1st 2015 and Aug 31st 2016 (n=172) were unfilled.[5] In addition, the numbers of F2 doctors applying for Core Medical Training (CMT) 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 & 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 (e.g. South Yorkshire – 13 National Training Number 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 NIHR doctoral research fellowships being significantly higher in those undertaking academic clinical fellowships (ACF) compared to 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 a national training number (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 training (ST4+).

To date, 15 trainees have gone through the fellowship programme (5 from outside our deanery) undertaking research in diverse areas including: inflammatory bowel disease, autoimmune hepatitis, small bowel endoscopy, coeliac disease, pancreatic exocrine insufficiency, percutaneous endoscopic gastrostomy (PEG) 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 5 sessions per week after exclusion of permitted leave. These sessions can involve a mix of endoscopy and

clinics, devised based on a trainee's endoscopic competency, the nature of their research projects and also on NHS service demand. The delivery of 5 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 (SAC), when applying to count time in fellowship posts towards overall training.

The research PAs in the fellow's job plan provides protected time to undertake research and work towards a doctoral research degree at the University of Sheffield. Although research is the primary focus of these 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 amongst 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 are exceeded by the tariff generated from endoscopy and clinic work, we have found that 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 (SPA) time is afforded to consultants, providing research and clinical supervision to clinical Fellows. Time demands on these supervisors is significant, and requires ongoing, personal commitment to research. These supervisory roles do however

offer an opportunity to enhance an individual's curriculum vitae 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 (LAT), or locum appointments for service (LAS). 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 out of programme (i.e. employment of an additional 2 specialty registrars). 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 2016/17 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. 12 (80%) have been appointed subsequently to consultant posts in University hospitals, with 7 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 2nd H-index (the 'Professional' Happiness index).

The median number of 1st 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 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 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 to 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 OGDs and 502 lower GI endoscopic procedures. 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 5-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 Table 1.

Variations of the model: International, Pre-NTN & 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-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.

Sheffield was also part of the first wave of JRCPTB post-CCT fellowships that were awarded in 2014. These fellowships provide enhanced sub-speciality 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 each week.

Comparators such as consultant workloads (based on Royal College Data), financial models using HRG codes and service line reporting (SLR) information were utilised 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 (Deanery, Training Programme Director support etc). 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 specialty registrar (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 trainee's 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, transferrable and a potential win-win for both trainees and NHS Trusts. Although pathways to OOP may be facilitated using this model, the success of fellowships is ultimately dependent upon 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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Table 1: 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 OOP 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