

Attitudes to out of programme experiences, research and academic training of gastroenterology trainees between 2007 and 2016

Michael McFarlane¹, Neeraj Bhala², Louise China³, Laith Alrubaiy⁴, Fergus Chedgy⁵, Benjamin R Disney¹, Adam D Farmer⁶, Ed Fogden⁷, Gareth Sadler⁸, Mark A. Hull⁹, John McLaughlin¹⁰, Howard Ellison¹¹, Julie Solomon¹², Matthew J. Brookes¹³ on behalf of the BSG research committee

1. Department of Gastroenterology, University Hospitals Coventry and Warwickshire, Coventry.
2. Department of Gastroenterology, University Hospital Birmingham, Birmingham.
3. Division of Medicine, University College London, London.
4. School of Medicine, Swansea University, Swansea.
5. Department of Gastroenterology, Queen Alexandra Hospital, Portsmouth.
6. Department of Gastroenterology, University Hospitals of North Midlands NHS Trust, Stoke.
7. Department of Gastroenterology, Sandwell and West Birmingham Hospitals, Birmingham.
8. Department of Gastroenterology, St George's University Hospitals NHS Trust, London
9. Leeds Institute of Biomedical & Clinical Sciences, University of Leeds, Leeds.
10. School of Medical Sciences, The University of Manchester, Manchester.
11. Department of Medicine, The Kent and Canterbury Hospital, Canterbury.
12. British Society of Gastroenterology, London.
13. Department of Gastroenterology, Royal Wolverhampton NHS Trust, Wolverhampton.

Corresponding author:

Prof Matt Brookes

Department of Gastroenterology

Royal Wolverhampton NHS trust

Wolverhampton

Email: matthew.brookes@nhs.net

Word count: 2496 (2500)

Conflicts of Interest:

The authors have no conflicts of interest to declare

Acknowledgements:

The authors would like to acknowledge the gastroenterology trainees for their participation in the research questionnaires.

Abstract

Objective:

Academic medical training was overhauled in 2005 after the Walport report and Modernising Medical Careers to create a more attractive and transparent training pathway. In 2007 and 2016, national web-based surveys of gastroenterology trainees were undertaken to determine experiences, perceptions of, and perceived barriers to out-of-programme research experience (OOPR).

Design, Setting and Patients:

Prospective, national web-based surveys of UK gastroenterology trainees in 2007 and 2016.

Interventions:

N/A

Main Outcome Measure:

Attitudes to OOP-R of 2 cohorts of gastroenterology trainees

Results:

Response rates were lower in 2016 (25.8% vs 56.7%), $p < 0.0001$, although female trainees' response rates increased (28.8% to 37.6%), $p = 0.17$, along with higher numbers of academic trainees.

Over 80% of trainees planned to undertake OOP-R in both surveys, with >50% having already undertaken it. PhD/MD remained the most popular OOP-R in both cohorts. Successful fellowship applications increased in 2016, and evidence of gender inequality in 2007 was no longer evident in 2016.

In the 2016 cohort 91.1% (n=144) felt the development of trainee-led research networks was important, with 74.7% (n=118) keen to get involved.

Conclusions:

The majority of gastroenterology trainees who responded expressed a desire to undertake OOP-R and participation rates in research/OOPE remains high. Despite smaller absolute numbers responding than in 2007, 2016 trainees achieved higher successful fellowship application rates.

Reassuringly more trainees in 2016 felt that OOPE/research would be important in the future. Efforts are needed to tackle potential barriers to OOPE/research and support trainees pursue research active careers.

Abstract – 246 words (250)

Introduction

Academic medicine and research are a vital part of medicine, facilitating improvements in patient management, patient experience and quality improvement within NHS services. Prior to the Walport report in 2005 there was no structured career path for doctors wishing to pursue an academic medical career (1). They often faced criticism for becoming clinically deskilled and were frequently poorly paid relative to clinical colleagues. These factors, coupled with perceived job insecurity, meant a worrying decline in academic medicine in the early 2000s, particularly among female doctors. A 2004 report by the Council of Heads of Medical Schools (CHMS) showed a 23% reduction in junior academic staff over the preceding 3 years and 10% of clinical academic posts unfilled (2). This was in the context of 40% more medical students up to 2005 (1).

In 2004 the government created the UK Clinical Research Collaboration (UKCRC) to reignite and reinvigorate clinical research. After the Walport report, together with the Modernising Medical Careers academic careers sub-committee they implemented a new structured academic career pathway (1).

The Walport report aimed to resolve 3 key issues faced by academic trainees. Firstly, a lack of clear entry routes and transparent career structure. Secondly, inflexibility in the academic/clinical training balance and finally a paucity of structured, supported posts on training completion (1).

The newly created pathway allowed exposure to research within the foundation programme, allowing the pursuit of areas of interest, without the need for in-depth research. After completion of foundation training, the newly formed academic clinical fellowships allowed dedicated research time, whilst gaining core specialty competencies. The aim of this fellowship was to create a research proposal and secure funding for a medical doctorate (MD) or Doctor of Philosophy (PhD), to be undertaken after specialty training (ST) year 3. Once completed the trainee returned to clinical training at ST4, as a clinical lecturer, to provide them with the opportunity to pursue post-doctoral research and complete clinical training, *see Figure 1*. The overall aim of this pathway was to progress into senior academic roles. It also allowed flexibility to “side step” from academic into clinical training and multiple entry points for “late bloomers”, although this latter benefit has been questionable (3).

In the wake of these extensive changes a national survey of gastroenterology trainees was undertaken in 2007 to determine their attitudes towards, and experiences of, out of programme experiences/research (OOP-R) (4). This information was passed to the British Society of Gastroenterology (BSG) to allow development of initiatives to address any deficiencies. This survey was repeated in 2016, to assess for changes among subsequent gastroenterology trainees and also expanded to cover more recent developments in research, such as trainee-led networks and the Clinical Research Network (CRN).

Methods

All UK gastroenterology trainees were surveyed, using a dedicated web-based platform. The survey was conducted in a national web-based format in 2007 and again in 2016. Trainees were identified from the BSG database and an email invitation was sent to all trainees via the BSG mailing list and the BSG trainees section regional representatives. A follow up email was sent 4 weeks later and a final email reminder sent out via the regional training programme directors and trainee committee chairs.

The questionnaire was divided into 6 domains: 1) Demographics 2) General career intentions 3) Intention to pursue an OOP-R/OOP-R 4) Current or previous OOP-R/OOP-R 5) perceptions of OOP-R/OOP-R 6) future career benefits of OOP-R/OOP-R. A full list of questions can be found in the supplementary file.

Statistical Analysis

Answers from the questionnaire were collated and analysed. Results are presented as percentages and statistical comparisons between the cohorts were performed using Chi squared, Fisher's exact test and one-way analysis of variance testing (ANOVA) using SPSS. $P < 0.05$ was adopted as the statistical criterion.

Results

The BSG database reported 483 UK gastroenterology trainees in 2007, of which 274 responded (56.7%). In 2016, despite higher trainee numbers (690), only 178 responded, 25.8%, *see Table 1*.

In 2007, 28.7% (n=79) of respondents were female, compared to 37.6% (n=67) in 2016 ($p=0.06$). There was no significant difference in trainee distribution by year of training ($p=0.12$) and nor in distribution between national training number (NTN) posts (both in programme and undertaking OOP-R), and academic training programme clinical fellows and clinical lecturers.

Career intentions and structure

There was no significant difference between the 2007 and 2016 trainee cohorts in future career intentions ($p=0.39$). 62.2% (n=107) were planning a career in luminal gastroenterology in 2016, from 26.1% (n=71) in 2007. 11% (n=19) in 2016, planned to pursue hepatology, down from 20.2% (n=55) in 2007. 23.8% (n=41) of 2016 and 39.7% (n=108) of 2007 trainees planned to practice general gastroenterology and fewer 2016 trainees, 2.9% (n=5) remained unsure, compared to 14.0% (n=38) in 2007, *see Figure 2a*.

There was no significant difference between the two cohorts in planned career structure ($p=0.57$). 63.4% (n=109) in 2016 and 59.7% (n=163) in 2007 planned to practice as NHS consultants (luminal gastroenterology/ hepatology) with general internal medicine commitments. 7.6% (n=13) in 2016 and 8.8% (n=24) in 2007 planned to follow the academic pathway. The greatest changes were found in those planning to an NHS consultant career with an academic interest, with only 19.2% (n=33) in 2016, compared to 31.5% (n=86) in 2007. In 2007, no trainees had planned to pursue a shared university/NHS post, compared to 9.9% (n=17) in 2017, *see Figure 2b*.

Attitude to research degrees

Attitudes towards the role of higher research degrees remained consistent between the cohorts. 86.3% (n=234) in 2007 and 81.4% (n=140) in 2016, believed that a higher degree would help obtain non-academic NHS jobs and 94.1% (n=257) of 2007 and 93.6% (n=161) of 2016 respondents felt it would increase their competitiveness at consultant interview ($p=0.82$).

The majority of trainees intended to undertake or had already undertaken an OOP-R, 81.7% (n=223) of 2007 and 84.9% (n=146) of 2016 respondents ($p=0.12$). The most popular OOP activities remain research-based, with 50.7% (n=74) in 2016 and 47.1% (n=105) in 2007 planning to undertake a PhD, 41.8% (n=61) in 2016 and 49.8% (n=111) in 2007 planning an MD.

In the 2007 cohort, 54.4% (n=82) had completed their OOP-R and 47.3% (n=39) of these had received their degree. In 2016, 45.5% (n=46) had completed their OOP-R and 56% (n=26) of these had received their degree. Of those who had completed their OOP-R, 43.6% (n=61) and 40.7% (n=57) had been awarded a PhD or MD in 2007 compared to 52.5% (n=53) and 40.6% (n=41) in 2016.

There was no statistical difference between research type undertaken for OOP-R ($p=0.26$), with 69.9% (n=121) in 2007 and 41.9% (n=49) in 2016 undertaking basic science research, 5.8% (n=10) of 2007 and 7.7% (n=9) of 2016 trainees undertaking epidemiological research, and 5.2% (n=9) of 2007 and

4.3% (n=5) of 2016 respondents undertaking nutrition research. There was however, an increased proportion of endoscopy-based research from 4.6% (n=8) in 2007 to 13.7% (n=16) in 2016 ($p<0.05$).

Both cohorts believed OOP-R was best undertaken at ST5-6, with 77.8% (n=112) in 2016 and 71% (n=193) in 2007 responding thus. Only 5.6% (n=8) in 2016 and 2.9% (n=8) in 2007 believed ST7 or above was the best career point for OOP-R ($p=0.68$). This is reflected in 68.1% (n=98) of 2016, and 63.0% (n=170) of 2007 trainees being aware that deaneries discourage OOP-R for final year trainees ($p=0.30$). Most trainees were aware that OOP-R could count towards CCT; 81.3% (n=117) of 2016 and 91.1% (n=246) of 2007 trainees.

Fellowship applications

In 2007 there were 176 fellowship/ research funding applications from 274 trainees compared to 120 applications from 178 trainees in 2016. Much higher success rates were reported in 2016 (48.4% vs 29.6%), although this was not statistically significant ($p=0.13$). Sub-analysis of applications by gender revealed success rates of 41.8% (2007) and 41.9% (2016) for male applicants and 15.1% (2007) and 35.9% (2016) for females. The only statistically significant difference occurred between the male and female 2007 cohorts ($p=0.03$). By 2016 this gender difference had resolved ($p=0.63$), *see Figure 3*.

Factors affecting trainees' decisions about undertaking OOP-R

Motivations for undertaking an OOP-R were similar between cohorts, 83.5% (n=227) in 2007 and 79.1% (n=110) in 2016 wanted to pursue an academic interest, 56.3% (n=153) in 2007 and 89.2% (n=124) in 2016 wanted to enhance career prospects, 86% (n=234) in 2007 and 78.4% (n=103) in 2016 undertook for educational benefits, 51.8% (n=141) in 2007 and 69.8% (n=97) in 2016 wanted a break from acute medicine/ gastroenterology, whilst 58.1% (n=158) in 2007 and 31.7% (n=44) in 2016 undertook OOP-R after career advice from senior colleagues.

When asked about agreement with often stated reasons for not undertaking an OOP-R, more than 70% of 2016 and 2007 cohorts strongly agreed/ agreed that financial cost and personal choice were reasons for not undertaking OOP-R, whilst many agreed pre-existing debts was also a reason. More than 65% of both cohorts disagreed/ strongly disagreed that OOP-R had little perceived career benefit.

GCP, portfolio studies and trainee research networks

Further questions added to the 2016 questionnaire revealed 63% (n=104) of respondents held an active good clinical practice (GCP) certificate, which is a requirement of the Research Governance Framework for Health and Social Care 2005, for involvement in research. Whilst 47.3% (n=78) had recruited participants into a clinical research network (CRN) portfolio adopted research study (<https://www.nihr.ac.uk/research-and-impact/nihr-clinical-research-network-portfolio>). 64.2% (n=106) had at least one peer-reviewed publication within the preceding two years. 67.3% (n=111) were aware of academic training programmes. 89.4% (n=144) felt that a web-based BSG directory of OOP-R opportunities would be beneficial and 91.1% (n=144) felt that regional trainee research network development was important, with 74.7% (n=118) keen to get involved in such networks.

Finally, 80.9% (n=220) in 2007 and 88.9% (n=144) in 2016 believed that OOP-R/research would be important in the future. Table 2 shows the ranking of which type of OOP experience candidates felt would best help their future career prospects.

Discussion

Our analysis of the attitudes of two cohorts of gastroenterology trainees from 2007 and 2016 towards OOP-R shows research is clearly still considered relevant and an important part of gastroenterology training.

Most trainees expressed a desire to undertake OOP-R and participation rates remain high. Indeed, the proportion of trainees who felt that OOP-R was important, both for personal development and, for wider NHS benefits, increased. This is reassuring, and should be supported and promoted by the BSG. Some of these increases may reflect reporter bias, as there were fewer 2016 respondents, and a larger proportion of post-OOP-R trainees, leading to lower absolute numbers for 2016 responses.

Most 2016 respondents remained trainees with an NTN, or NTN OOP-R, although there were increases in academic pathway trainee numbers, as expected in the decade after the pathway introduction. Despite this, trainees planning to follow an academic pathway remained largely static, indeed the proportion of trainees planning to practice as full-time NHS consultants with academic interest also fell, although those planning to follow a part university/NHS career increased from 0 to 10%.

Interestingly, trainees appeared more decisive on their future careers, with a larger proportion choosing luminal gastroenterology compared to 2007 (62% vs 26%). This may reflect the higher proportion of post OOP-R trainees completing the 2016 survey, but again could owe to reporting error from the smaller 2016 sample size. Fewer trainees planned to pursue hepatology, or to practice in both disciplines and fewer were unsure. This again, could reflect reporter bias given the lower respondents in 2016 but warrants further investigation.

Both cohorts agreed that the optimum time to undertake an OOP-R during their training is at ST5-6 level. This belief is in opposition to the Walport report suggestion that academic trainees should undertake OOP-R at ST3-4 level. Numbers of academic trainee respondents were too small for a meaningful analysis, so it is unclear if this reflects differences in attitudes of NTN and academic trainees, or a belief across all trainees.

Successful fellowship application rates improved between 2007 and 2016, despite a lower number of applications overall. This is most likely reflective of the lower numbers of responses in 2016, with a higher number of post OOP-R responders. Significant differences in success at fellowship application were seen between male and female trainees in 2007. These are now reassuringly no longer present in the current trainee cohort. London based trainees experienced a higher success rate of fellowship applications in both 2007 and 2016, although these were not to statistically significant levels.

Nearly two thirds of 2016 trainees possessed an active GCP certificate (n=104) and had a peer reviewed publication within the last two years (n=106), showing current and ongoing research involvement. Of those with current GCP certificates, 42% (n=44) were NTN trainees in training posts and 45% (n=47) were NTN trainees undertaking OOP-R. Interestingly, 47% of trainees had recruited patients to a CRN adopted study, 48% of these being NTN trainees in training posts and 45% NTN trainees undertaking OOP-R. This highlights a potentially exploitable area to increase trainee

involvement in both research, and the CRN; that is involving trainees as sub-investigators on portfolio adopted studies, including commercial studies.

The 2016 cohort felt that the development of trainee-led research networks was important with over three quarters keen to get involved. There are, at present, three gastroenterology trainee-led networks in the UK; Gastroenterology Audit and Research Network (GARNET), West Midlands Research in Gastroenterology Group (WMRIG) and Gastroenterology Trainee Research and Improvement Network – North West (GasTRIN NoW). These have been set up in the wake of the surgical trainee network success (STARSURG), which has multiple publications and clinical trials (5-9).

Beyond gastroenterology, a wider survey of Clinical and Health Research Fellowships was conducted in 2017 by the medical research council (10). It highlighted that between 2009 and 2017 there was an increase in medically qualified research fellows at all academic career stages of 38% (1343 to 2149). However, this was front-loaded, with most increases found in the ACF (291 to 877), doctoral (444 to 578) and clinical lectureship stages (225 to 427). The number of established independent researcher fellowships decreased from 178 to 83, and senior academic appointments only increased by 47% (32 to 47) (10). These findings suggest that whilst the accessibility to the earlier stages of academic medical careers has increased, that progress is needed in latter stages to remove the current “bottle neck” effect (10). Though this may represent a lag phase between the ending of the Clinical Senior Lectureship Awards scheme from the 2009 survey and the relatively early career phases of most academic trainees.

Reassuringly for academic medicine’s future, interest remains high, with increased numbers of pre-doctoral, doctoral, and initial post-doctoral fellowship posts highlighted by the MRC survey (10). This was reflected in the gastroenterology survey, with an increased proportion of trainees who felt that OOP-R would be important in the future. Efforts are needed to tackle the reported barriers to OOP-R and research, such as financial impact. Efforts should also be made to provide the requisite support to allow trainees to pursue research active careers and strengthen the future of academic medicine, regardless of academic, or NHS career path.

Table 1. Full results of 2007 and 2016 gastroenterology trainee surveys. (Numbers in brackets are absolute numbers)

	2007	2016	p value
Response rate	56.7% (274/483)	25.8% (178/690)	<0.001
Trainee gender			0.06
• Male	71.2% (195)	62.4% (111)	
• Female	28.8% (79)	37.6% (67)	
Training Programme			0.68
• NTN	74.1% (203)	55.7% (98)	
• NTN (OOP-R)	20.4% (56)	34.1% (60)	
• LAT/LAS	4.7% (13)	1.7% (3)	
• NIHR Academic Clinical Fellow	0%	1.1% (2)	
• NIHR Clinical Lecturer	0%	3.4% (6)	
• Non-NIHR Academic Clinical Fellow	0%	0.6% (1)	
• Non-NIHR Clinical Lecturer	0%	1.7% (3)	
Training Level			0.12
• ST3	12.0% (33)	9.1% (16)	
• ST4	15.0% (41)	13.6% (24)	
• ST5	26.6% (73)	29.5% (52)	
• ST6	20.4% (56)	27.8% (49)	
• ST7	13.5% (37)	14.8% (26)	
• ST7+	12.4% (34)	5.1% (9)	
Organisation Membership			<0.01
• BSG	52.2% (143)	94.3% (166)	
• RCP	78.1% (214)	61.9% (109)	
• BASL	9.5% (26)	26.7% (47)	
• BAPEN	Not surveyed	6.3% (11)	
• AGA	Not surveyed	9.7% (17)	
• AASLD	Not surveyed	5.1% (9)	
• EASL	Not surveyed	19.3% (34)	
Career intentions: Specialisation			0.39
• Luminal Gastroenterology	26.31% (71)	62.2% (107)	
• Hepatology	20.2% (55)	11.0% (19)	
• Both	39.7% (108)	23.8% (41)	
• Unsure	14.0% (38)	2.9% (5)	
Career intentions: Career structure			0.58
• NHS consultant with GIM	59.7% (163)	63.4% (109)	
• NHS consultant with academic interest	31.5% (86)	19.2% (33)	
• Academic Pathway	8.8% (24)	7.6% (13)	
• Part NHS/Part University	0% (0)	9.9% (17)	
Feel that a higher degree will help get a non-academic NHS job?			0.16
• Yes	86.3% (234)	81.4% (140)	
• No	13.7% (37)	18.6% (32)	
Feel that a higher degree will make you more competitive at consultant interview?			0.82
• Yes	94.1% (257)	93.6% (161)	
• No	5.9% (16)	6.4% (11)	

Do you intend/have you undertaken an OOP-R/research? <ul style="list-style-type: none"> • Yes • No • Unsure 	81.7% (223) 14.7% (40) 3.7% (10)	84.9% (146) 15.1% (26) 0% (0)	0.12
What type of OOP-R/research you intend to undertake? (can select more than one) <ul style="list-style-type: none"> • PhD • MD • MSc • Mphil • Other 	47.1% (105) 49.8% (111) 13.0% (29) 1.3% (3) 15.7% (35)	50.7% (74) 41.8% (61) 16.4% (24) 2.7% (4) 6.2% (9)	0.42
When is the ideal time to undertake OOP-R/research? <ul style="list-style-type: none"> • medical student • core training years • St3-4 • ST5-6 • ST7+ 	0.7% (2) 2.9% (8) 21.3% (58) 71.0% (193) 2.9% (8)	0.7% (1) 1.4% (2) 14.6% (21) 77.8% (112) 5.6% (8)	0.68
Are you aware that OOP-R/research can count to CCT? <ul style="list-style-type: none"> • Yes • No 	91.1% (246) 8.9% (24)	81.3% (117) 18.8% (27)	<0.01
Are you aware that deaneries discourage OOP-R/research in the final training year? <ul style="list-style-type: none"> • Yes • No 	63.0% (170) 37.0% (100)	68.1% (98) 31.9% (46)	0.30
Are you currently, or have you completed, an OOP-R/research? <ul style="list-style-type: none"> • Yes • No 	50.2% (136) 49.8% (135)	69.4% (100) 30.6% (44)	<0.01
What field was research in: <ul style="list-style-type: none"> • Basic science • Epidemiology • Nutrition • Medical education • Endoscopy • Other (inc. translational and clinical) 	69.9% (121) 5.8% (10) 5.2% (9) 4.6% (8) 4.6% (8) 9.8% (17)	41.9% (49) 7.7% (9) 4.3% (5) 3.4% (4) 13.7% (16) 29.1% (34)	0.26
What further degree did you register for: <ul style="list-style-type: none"> • PhD • MD • MSc • Other 	43.6% (61) 40.7% (57) 11.4% (16) 4.3% (6)	52.5% (53) 40.6% (41) 3.0% (3) 4.0% (4)	0.63
If OOP-R/research completed, has your degree been awarded? <ul style="list-style-type: none"> • Yes • No 	47.3% (35) 52.7% (39)	56.5% (26) 43.5% (20)	0.16

Fellowship application success rates: <ul style="list-style-type: none"> • CRUK • WELLCOME • CORE • MRC • ACTION MEDICAL • Other • Pre-funded 	23.5% (4) 24% (12) 23.7% (14) 29.9% (23) 7.7% (1) 57.5% (69) 41.1% (39)		42.9% (3) 42.9% (12) 45.5% (5) 50% (8) 0% (0) 84% (21) 75% (27)		0.13
Would you be willing to move region for OOP-R/research? <ul style="list-style-type: none"> • Yes • No 	62.1% (169) 37.9% (103)		59.7% (83) 40.3% (56)		0.63
Which of the following would make you want to undertake an OOP-R/research? <ul style="list-style-type: none"> • Academic interest • Career prospects • Educational benefits • Travel • Break from GIM/Gastro • Career advice from senior 	83.5% (227) 56.3% (153) 86.0% (234) Not surveyed 51.8% (141) 58.1% (158)		79.1% (110) 89.2% (124) 78.4% (103) 24.5% (34) 69.8% (97) 31.7% (44)		0.11
Do you agree or disagree with the following reasons for not undertaking OOP-R? <ul style="list-style-type: none"> • Financial cost • Personal choice • Pre-existing debt • Little perceived career benefit 	Strongly agree/agree 72.1% (196) 75.8% (206) 42.6% (116) 9.5% (26)	Strongly disagree/disagree 21.3% (58) 11.7% (32) 33.3% (55) 73.6% (200)	Strongly agree/agree 69.7% (115) 81.8% (135) 52.7% (87) 23% (38)	Strongly disagree/disagree 21.2% (35) 10.3% (17) 33.3% (55) 64.9% (107)	0.48
Do you believe that OOP-R/research will be important in the future? <ul style="list-style-type: none"> • Yes • No 	80.9% (220) 19.1% (52)		88.9% (144) 11.1% (18)		0.03
Extra to 2016 Survey					
Do you currently hold a GCP certificate? <ul style="list-style-type: none"> • Yes • No 			63.0% (104) 37.0% (61)		
Have you recruited into a CRN portfolio research study? <ul style="list-style-type: none"> • Yes • No 			47.3% (78) 52.7% (87)		
Do you have a peer reviewed publication within the last 2 years? <ul style="list-style-type: none"> • Yes • No 			64.2% (106) 35.8% (59)		
Are you aware of the academic training programme? <ul style="list-style-type: none"> • Yes • No 			67.3% (111) 32.7% (54)		

<p>Do you feel a web based BSG directory of OOP-R/research opportunities would be beneficial?</p> <ul style="list-style-type: none"> • Yes • No 		<p>89.4% (144) 10.6% (17)</p>	
<p>Do you believe developing regional trainee-led networks is important?</p> <ul style="list-style-type: none"> • Yes • No 		<p>91.1% (144) 8.9% (14)</p>	
<p>Would you like to get involved in such networks?</p> <ul style="list-style-type: none"> • Yes • No • Unsure 		<p>74.7% (118) 8.9% (14) 16.5% (26)</p>	

Table 2. Ranking of type of OOP-R candidates felt would best help their future career prospects

	2007 Rank	2016 Rank
1 st	PhD/MD	PhD/MD
2 nd	Endoscopy fellowship	Therapeutic endoscopy course
3 rd	Therapeutic endoscopy course	Management training/MSc
4 th	Management training/MSc	Endoscopy fellowship
5 th	Teaching diploma/MSc	ERCP training
6 th	Nutrition training/MSc	Teaching diploma/MSc
7 th	MSc (Gastroenterology)	Nutrition training/MSc
8 th	ERCP training	MSc (Gastroenterology)
9 th	Capsule endoscopy	Capsule endoscopy

Figure 1. Flowchart of the academic pathway introduced after the Walport report

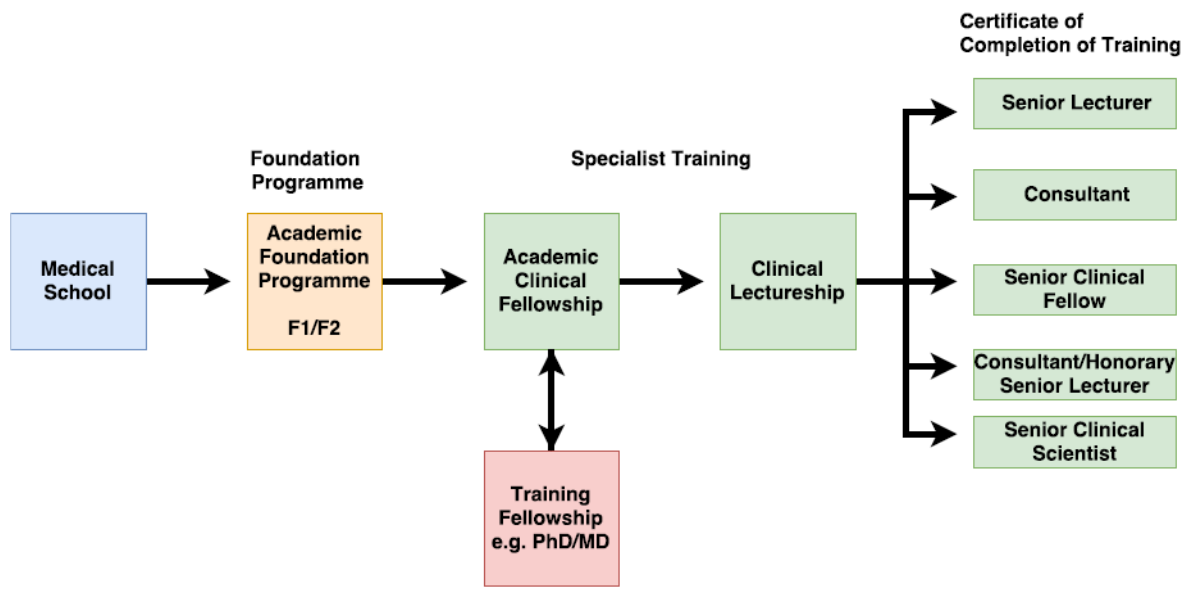


Figure 2a. Career intentions of 2007 and 2016 trainee cohorts in terms of Gastroenterology/Hepatology

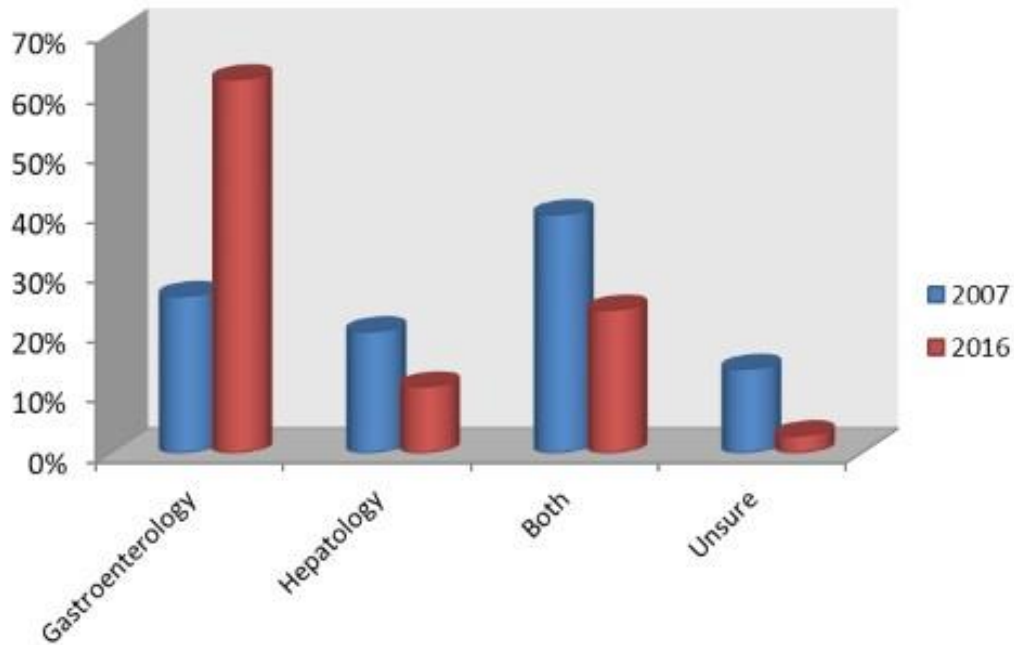


Figure 2b. Career intentions of 2007 and 2016 trainee cohorts in terms of planned career structure

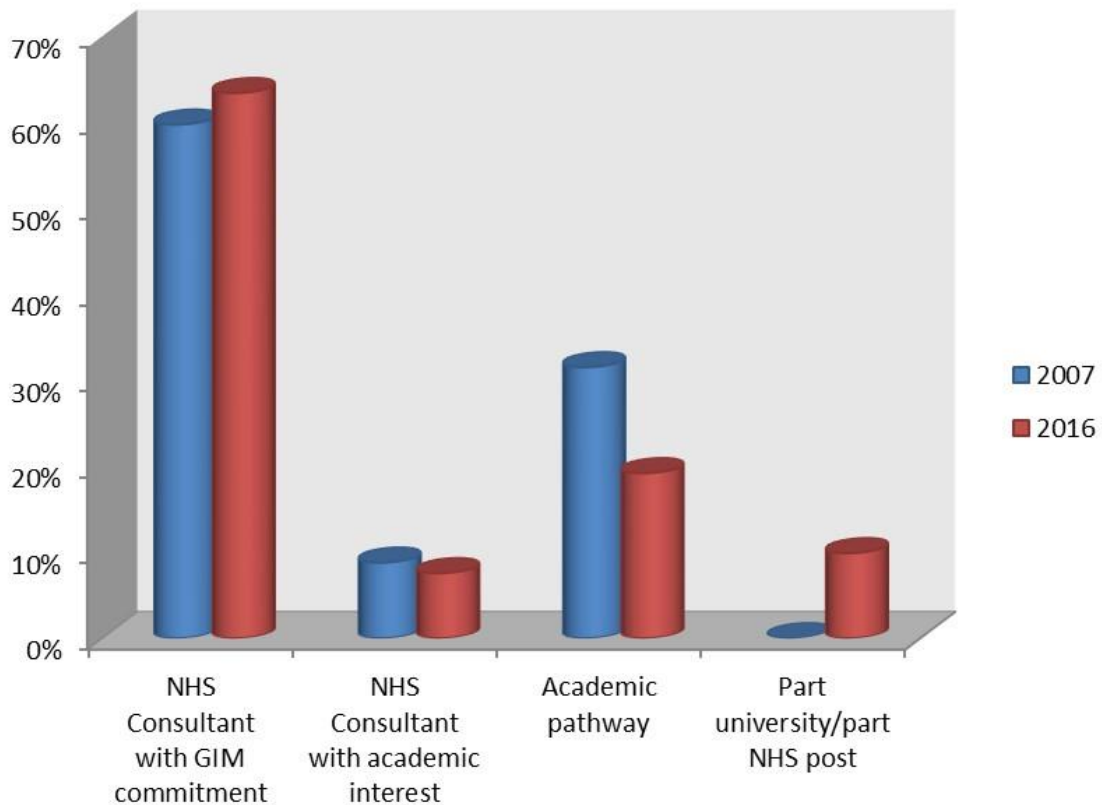
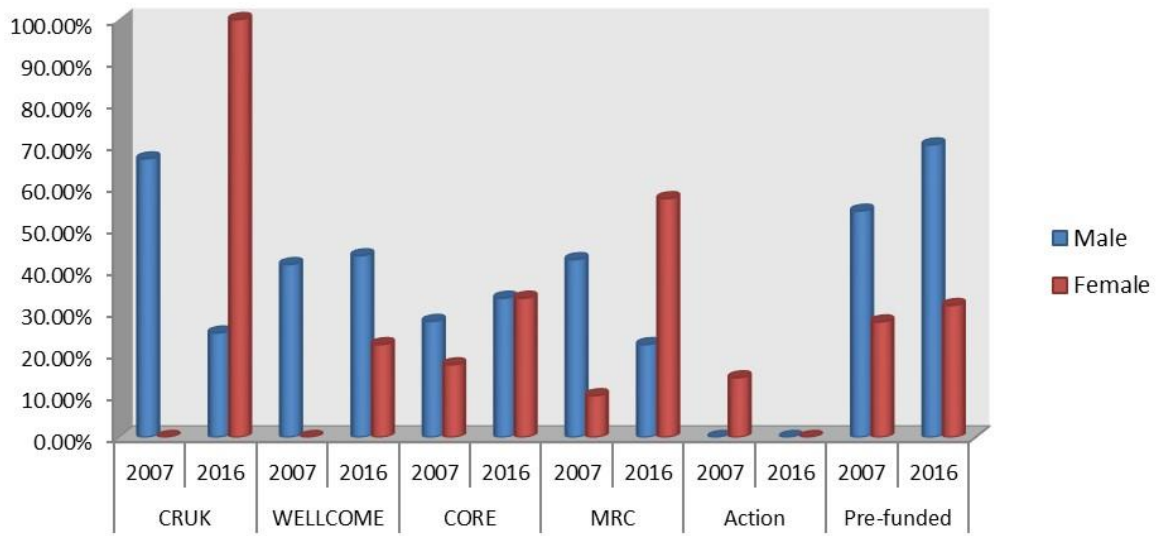


Figure 3. Graph of fellowship application success rates for male and female trainees in 2007 and 2016 trainee cohorts.



References

1. Modernising Medical Careers and the UK Clinical Research collaboration. *Medically- and dentally-qualified academic staff: Recommendations for training the researchers and educators of the future*. 30 March 2005
2. Clinical Academic Staffing Levels in UK Medical and Dental Schools: A survey by the Council of Heads of Medical Schools and the Council of Deans of Dental Schools. May 2004
3. Walport 10th Anniversary Symposium Goodenough College 22 October 2015 <https://www.bma.org.uk/-/media/files/pdfs/developing%20your%20career/finawalport-symposium-report.pdf>.
4. Attitudes of UK gastroenterology trainees to research and out of programme education. PW397.E.N.Fogden, A.Holt, H.Ellison et al. *Gut* 2009;58:A155
5. STARSurg Collaborative. Medical research and audit skills training for undergraduates: An international analysis and student-focused needs assessment. *Postgrad Med J*. 2017 Sep 2. pii: postgradmedj-2017-135035.
6. STARSurg Collaborative. Students' participation in collaborative research should be recognised. *Int J Surg*. 2017 Mar;39:234-237.
7. STARSurg Collaborative. Safety of Nonsteroidal Anti-inflammatory Drugs in Major Gastrointestinal Surgery: A Prospective, Multicenter Cohort Study. *World J Surg*. 2017 Jan;41(1):47-55.
8. STARSurg Collaborative. Multicentre prospective cohort study of body mass index and postoperative complications following gastrointestinal surgery. *Br J Surg*. 2016 Aug;103(9):1157-72.
9. STARSurg Collaborative. Outcomes After Kidney injury in Surgery (OAKS): protocol for a multicentre, observational cohort study of acute kidney injury following major gastrointestinal and liver surgery. *BMJ Open*. 2016 Jan 14;6(1):e009812.
10. Medical Research Council. 2017 UK-Wide survey of clinical and health research fellowships. November 2017.