

BMJ Open COVID-19 pandemic interim Foundation Year 1 post and confidence in core skills and competencies: a longitudinal survey

Cristina Angela Gatti ^{1,2}, Kathryn Parker-Conway ^{1,3}, Michael Okorie^{1,4}

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¹Department of Medical Education, Brighton and Sussex University Hospitals NHS Trust, Brighton, UK

²General Internal Medicine, Royal Devon and Exeter NHS Foundation Trust, Exeter, UK

³Otolaryngology, Imperial College Healthcare NHS Trust, London, UK

⁴Department of Medicine, University Hospitals Sussex NHS Foundation Trust, Worthing, UK

Correspondence to

Dr Kathryn Parker-Conway; kathryn.parker-conway@nhs.net

ABSTRACT

Objectives The interim Foundation Year 1 (FY1) post was created in response to the COVID-19 pandemic to help bolster the workforce and manage increased clinical pressures. This study aimed to assess the impact of the FY1 post on medical graduates' self-reported confidence in common tasks, core skills, competencies and procedures prior to starting FY1, as a measure of increasing preparedness for practice.

Setting A longitudinal survey was performed at a tertiary teaching hospital in the South East of England. FY1 posts ran from June to July 2020.

Participants Questionnaires were sent to 122 medical graduates from a single medical school (recipients included FY1s and non-FY1s) and to 69 FY1s at a single Teaching Hospital NHS Trust, irrespective of medical school attended. Initial and follow-up questionnaires had 86 and 62 respondents, respectively. Of these, 39 graduates were matched; 26 were FY1s and 13 non-FY1s. The 39 matched results were analysed.

Primary outcome measures Confidence levels in common FY1 tasks, core procedures and competencies were gathered before and after the FY1 post through online questionnaires. Change in confidence comparing FY1s and non-FY1s was measured and analysed using linear regression.

Results On a 5-point scale, the FY1 post increased overall confidence in starting FY1 by 0.62 (95% CI 0.072 to 1.167, $p=0.028$). The FY1 post increased confidence in performing venepuncture by 0.32 (95% CI 0.011 to 0.920, $p=0.045$), performing intravenous cannulation by 0.48 (95% CI 0.030 to 1.294, $p=0.041$) and recognising, assessing and initiating the management of the acutely ill patient by 0.32 (95% CI 0.030 to 1.301, $p=0.041$).

Conclusions The COVID-19 pandemic FY1 post improved confidence in core skills and competencies. These findings may help guide future educational interventions in conjunction with further larger scale studies, ultimately aiding to bridge the transition gap between being a medical student and a doctor.

INTRODUCTION

The COVID-19 pandemic caused widespread disruption to hospital services, clinical guidance and medical education. Medical graduates embarking on life as junior doctors

STRENGTHS AND LIMITATIONS OF THIS STUDY

- ⇒ This study assessed the interim Foundation Year 1 (FY1) post's impact on graduates' self-reported confidence in common FY1 tasks, core skills, competencies and procedures, prior to starting FY1.
- ⇒ The study benefited from prospective data collection longitudinally, involving questionnaires before and after the interim post.
- ⇒ Due to the small sample size as many participants could not be matched, and this being a single-centre study, our findings are less transferable.
- ⇒ The study relies on self-assessment of confidence which may present inaccuracies.
- ⇒ Further research to determine the effectiveness of a similar post may inform future planning of undergraduate medical curricula.

were faced with this new challenge in addition to the notoriously difficult transition to working life. The interim Foundation Year 1 (FY1) post intended for medical graduates was designed as a direct consequence of the pandemic to help bolster the workforce, and it changed the transition process from medical student to junior doctor nationwide.

Prior to the pandemic, UK medical graduates directly entered the 2-year Foundation Programme (FP), comprising FY1 and FY2, on completion of their studies.¹ The FP aims to support educational and professional development, and to assist junior doctors in achieving the skills and competencies required to manage patients in acute and community environments.¹ Evidence of competencies is logged within an ePortfolio and reviewed by supervisors.² Progression from FY1 to FY2 requires all expected competencies, skills and procedures to have been achieved.² A number of large-scale reviews have evaluated the FP following its initiation in 2005; the strengths include trainees' exposure to various clinical settings and specialties, and the standardisation of clinical



requirements among trainees, allowing for quality assurance.^{3 4} Notably, recommendations for development include improving the transition for doctors entering foundation training, suggesting the implementation of more supported and supervised environments.⁴

The pandemic presented a new opportunity with the creation of the FiY1 post. This post offered medical graduates the option of starting work early in a salaried, supernumerary position for up to 2 months between June and July 2020,⁵ prior to FY1.

Starting work as a junior doctor following graduation is difficult. Medical graduates find the uncertainty, increased responsibility and the pressure associated with their new role can often lead to feelings of inadequacy and anxiety.^{6 7} This issue is reflected in hospital inpatient mortality rates which rise by 6% on the first day new junior doctors start in August; so-called 'Black Wednesday'.⁸ Thus, scrutiny turned to improving medical students' transition to junior doctors, focusing on improving their preparedness for clinical practice (PFP).^{9 10} PFP has been defined as when students gain the knowledge, skills and behaviours expected of doctors to allow them to practise safely and gain patient trust.¹¹ PFP improves patient safety and reduces long-term risk of burnout.¹² Preparedness is helped when graduates' confidence in themselves improves but is often difficult to conceptualise.¹¹ Although graduates tend to be well prepared in history taking, clinical examination and some practical procedures, they are less prepared in clinical reasoning, managing acutely unwell patients, prescribing and complex communication scenarios such as breaking bad news. Moreover, they are less comfortable working within a multidisciplinary team and lack familiarity with ward environments.¹³

In a bid to ensure PFP among medical graduates, the General Medical Council (GMC) previously outlined various educational interventions within medical school curricula including clinical placements, assistantships, shadowing and an induction.^{9 12 14 15} Assistantships are clinical placements where the student's role, as described by the GMC, is to 'assist' junior doctors, partake in out-of-hours on-call work, perform practical skills, manage unwell patients and prescribe under supervision.¹⁵ Assistantships have been positively received as an intervention in preparing students for practice, with students feeling increased confidence in managing acute situations, gaining responsibility, on-call work, integrating into a team, in therapeutics, administrative skills and in the duties of an FY1.^{16–20} This is consistent with the growing body of evidence which suggests that greater time spent in clinical practice encourages experiential learning and therefore better PFP.⁶ Illing *et al.*, expressed that 'opportunities for learning on the job' and having 'a role that enables engagement in supervised clinical practice' are essential to improving PFP.²¹ Although assistantships are an established approach to PFP, there is no consensus on the assistantship's optimal length, setting or structure, and this lack of guidance may limit its impact.²² Assistantships vary widely between medical schools and do

Box 1 The UK Foundation Programme Curriculum's outline of the Foundation Year 1 (FY1) core skills and competencies and procedures

Clinical care: core skills and competencies

- ⇒ Recognises, assesses and initiates management of the acutely ill patient.
- ⇒ Recognises, assesses and manages patients with long-term conditions.
- ⇒ Obtains history, performs clinical examination and formulates differential diagnosis and management plan.
- ⇒ Requests relevant investigations and acts on results.
- ⇒ Prescribes safely.
- ⇒ Performs procedures safely.
- ⇒ Is trained and manages cardiac and respiratory arrest.
- ⇒ Demonstrates understanding of the principles of health promotion and illness prevention.
- ⇒ Manages palliative and end-of-life care.

not fulfil all of their aims.¹⁴ For example, Burford *et al.*, found over half of students had limited hands-on experience in acute care.²³ In addition, the GMC 2019 National Training Survey found that 34% of medical graduates continue to feel unprepared for practice, an increase of 5% in the last 5 years.¹² Thus, the optimal approach to preparing medical students for clinical practice requires ongoing review.

The COVID-19 pandemic caused significant disruption to UK medical school curricula but also provided a unique opportunity to introduce the FiY1 posts. These posts increased exposure to the clinical environment. However, the impact of these posts on graduates' preparedness is unknown. This study aimed to assess the impact of the FiY1 post on medical graduates' self-reported confidence in common tasks, core skills, competencies and procedures prior to starting FY1, as a measure of increasing PFP.

Box 2 The UK Foundation Programme Curriculum's outline of the Foundation Year 1 (FY1) core procedures

- ⇒ Venepuncture.
- ⇒ Intravenous cannulation.
- ⇒ Prepare and administer intravenous medications and injections.
- ⇒ Arterial puncture in an adult.
- ⇒ Blood culture from peripheral sites.
- ⇒ Intravenous infusion including the prescription of fluids.
- ⇒ Intravenous infusion of blood and blood products.
- ⇒ Injection of local anaesthetic to skin.
- ⇒ Injection—subcutaneous (eg, insulin or low molecular weight (LMW) heparin).
- ⇒ Injection—intramuscular.
- ⇒ Perform and interpret an ECG.
- ⇒ Perform and interpret peak flow.
- ⇒ Urethral catheterisation (male).
- ⇒ Urethral catheterisation (female).
- ⇒ Airway care including simple adjuncts (eg, Guedel airway or laryngeal masks).

METHODS

Cohort

This was a prospective longitudinal study of medical graduates from the class of 2020. Medical graduates were invited to participate from Brighton and Sussex Medical School (BSMS) and those offered FiY1 posts at Brighton and Sussex University Hospitals (BSUH, now part of University Hospitals Sussex NHS Foundation Trust). The 2-month FiY1 post ran from June to July 2020. The cohort of respondents was divided into two groups: those who completed the interim FY1 post (FiY1) and those who did not (non-FiY1). The non-FiY1s (control group) finished the medical school programme at BSMS and did not complete FiY1 posts.

Patient and public involvement

As this study elicited self-assessed confidence in core skills and competencies of FiY1s, patients and the public were not involved in the design, conduct, reporting or dissemination.

Data collection

An initial and a follow-up questionnaire were sent to medical graduates before and after the interim post period. The questionnaires were created on Google Forms and sent via email and social media (see online supplemental appendices 1 and 2). This was incentivised with a £40 voucher prize draw. All participants gave informed consent before proceeding with the study questionnaires.

The questionnaires were formulated by authors CAG, KP-C and MO, and piloted among nine UK-trained doctors who were undertaking the Postgraduate Certificate in Medical Education. The pilot group was familiar with the topic and was representative of the larger survey group in terms of age, gender and background. They responded to the questionnaire as if they were FiY1s or non-FiY1s, and fed back their suggestions for change in written format. A systematic error and minor usability issues were identified and subsequently corrected.

The online questionnaire was created to measure medical graduates' overall self-reported confidence in starting FY1, in common FY1 tasks, core procedures and competencies. Confidence was selected as the outcome measure to reduce ambiguity associated with the term 'prepared'. Each outcome had a 5-point confidence scale (see online supplemental appendices 1 and 2). The core procedures and competencies are as outlined by the Horus ePortfolio (boxes 1 and 2). These are set by the UK FP in conjunction with the GMC, and need to be achieved by all FY1 trainees to progress to FY2. Common FY1 tasks are jobs FY1s are frequently expected to complete, formulated by foundation doctors CAG and KP-C, and agreed by consultant MO who is experienced in medical education research (box 3). Data were collected on demographics, medical school attended and the NHS Trust and specialty of both the interim and upcoming FY1 posts. A brief evaluation of the FiY1 post was included in the follow-up questionnaire (online supplemental appendix 2), which

Box 3 Common Foundation Year 1 (FY1) tasks included in initial and follow-up questionnaires

Please rate your confidence on a scale of 1–5. 1=Not confident, 2=Slightly confident, 3=Somewhat confident, 4=Moderately confident, 5=Very confident.

- ⇒ In using information technology (IT) systems at Brighton and Sussex University Hospitals, for example, Medway, Bamboo/Panda, ICE, PACS.
- ⇒ In writing discharge summaries (TTOs i.e. 'to take out').
- ⇒ In making referrals (such as to other specialties, or for investigations).
- ⇒ In requesting imaging (including CT scans which require discussion with radiologists).
- ⇒ In speaking to relatives of patients.

included open and closed questions to assess the advantages and disadvantages of the post, as well as its structure.

Data analysis

Data were analysed using IBM SPSS Statistics V.25.0. The curriculum outcomes most relevant to the FY1 role were selected for analysis, along with all the common FY1 tasks. The 5-point confidence scale for each outcome was converted to a numerical scale of 1–5 (ie, a score of 1 equated to 'not confident', 2 to 'slightly confident', 3 to 'somewhat confident', 4 to 'moderately confident' and 5 to 'very confident'). The change in confidence was calculated as a numeric difference between responses for each question in the initial and follow-up questionnaires for each individual. Linear regression was performed to analyse the impact of the FiY1 post on change in confidence, adjusting for age, gender and university attended (BSMS or other).

Descriptive statistics were completed for closed questions evaluating the FiY1 post. The open questions describing advantages, disadvantages and improvements were analysed by CAG and KP-C using an inductive approach to identify the most common themes.

RESULTS

Descriptive data

The online questionnaires were sent to 122 BSMS medical graduates (89 completed the FiY1 post, 33 did not), in addition to 69 FiY1s at the BSUH Trust, which included graduates from both BSMS and other UK universities. It was not possible to identify overlap in the two groups due to incomplete demographic information. The initial questionnaire was open on 5–12 June 2020 (8 days) and had 86 respondents. The follow-up questionnaire was open on 20–30 July 2020 (11 days) with 62 respondents. Of these, 39 graduates could be matched using recorded email addresses (figure 1).

The matched cohort consisted of 26 FiY1s and 13 non-FiY1s. One participant was excluded as he did not work in a clinical post (table 1). Over two-thirds (71.1%) of graduates were from white backgrounds, other graduates identified as black (7.9%), mixed (10.5%) or Asian (10.5%).

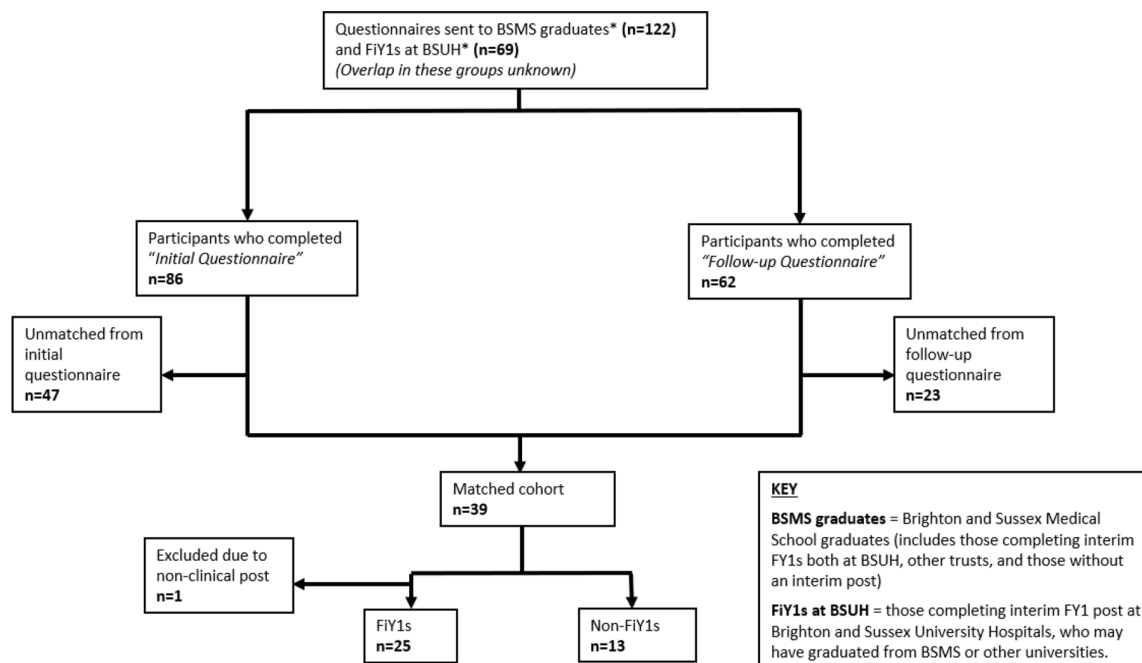


Figure 1 Participant flow diagram.

Overall evaluation of the FiY1 post

The FiY1 post ranged from 5 to 9 weeks (average 7.7 weeks). Over a quarter of graduates (28%) said they would not do the FiY1 post unpaid, half (48%) would 'maybe' consider it. Nearly all graduates (23/25=92%)

recommended the FiY1 post for the next year. Advantages of the FiY1 were described as gaining practical hands-on clinical experience within the role of an FY1 and managing acutely unwell patients, familiarisation with the ward environment and being supernumerary, which was frequently linked with being well supported. Disadvantages raised were lack of clarity of FiY1 responsibilities (5/25=20%), less rest before starting FY1 (6/25=24%) and a minority (3/25=12%) felt unsupported. Suggested improvements included having a better induction, more on call experience and having a clearer role defined.

Table 1 Descriptive data of participants in the matched cohort

	Matched FiY1s (n=26)		Matched non-FiY1s (n=13)	
	n	%	n	%
Gender				
Female	15	57.7	8	61.5
Male	11	42.3	5	38.5
Age (years)				
18–24	15	57.7	11	84.6
25 and over	11	42.3	2	15.4
Ethnicity				
Asian/Black/Mixed/Other	5	19.2	6	46.2
White	21	80.8	7	53.8
Medical school				
BSMS	12	46.2	9	69.2
Other	14	53.8	4	30.8
FiY1 hospital trust				
BSUH	19	73.1	6	46.2
Other	7	26.9	7	53.8
FiY1 specialty				
Medicine	19	73.1	8	61.5
Other	7	26.9	5	38.5

BSMS, Brighton and Sussex Medical School; BSUH, Brighton and Sussex University Hospitals; FiY1, interim Foundation Year 1.

Impact of FiY1 post on confidence

Linear regression modelling indicated that the FiY1 post increased overall confidence in starting FY1 by 0.62 (95% CI 0.072 to 1.167, $p=0.028$). In addition, the FiY1 post increased confidence in performing venepuncture by 0.32 (95% CI 0.011 to 0.920, $p=0.045$), performing intravenous cannulation by 0.48 (95% CI 0.030 to 1.294, $p=0.041$) and recognising, assessing and initiating the management of the acutely ill patient by 0.32 (95% CI 0.030 to 1.301, $p=0.041$). There was weak evidence to suggest that the FiY1 post improved confidence in using information technology (IT) systems at BSUH by 0.92 (95% CI -0.052 to 1.621, $p=0.065$) and in requesting relevant investigations and acting on results by 0.48 (95% CI -0.057 to 1.288, $p=0.072$) (table 2).

This study found no evidence to suggest the FiY1 post increased confidence in writing discharge summaries, making referrals, speaking to patients' relatives, performing an arterial blood gas, prescribing blood products, history taking, performing clinical examination, formulating differential diagnoses and management plans or in managing palliative and end-of-life care patients (table 2). However, an overall positive trend was noted in all these outcomes.

Table 2 Change in confidence per outcome for matched cohort (n=38)

Outcome	Mean change in confidence FiY1s (n=25)	Mean change in confidence non-FiY1s (n=13)	Difference in mean change in confidence (unadjusted)	Beta coefficient	95% CI	P value
Confidence in starting FY1	0.48	-0.23	0.71	0.620	0.072 to 1.167	0.028
In using IT systems at BSUH	0.92	-0.08	1.00	0.785	-0.052 to 1.621	0.065
In writing discharge summaries (TTOs i.e. 'to take out')	0.96	0.38	0.58	0.524	-0.237 to 1.286	0.171
In making referrals	1.16	0.46	0.70	0.596	-0.154 to 1.347	0.116
In requesting imaging	0.80	0.69	0.11	-0.011	-0.849 to 0.827	0.979
In speaking to relatives of patients	0.64	0.15	0.49	0.439	-0.325 to 1.204	0.251
Performing venepuncture	0.36	-0.08	0.44	0.466	0.011 to 0.920	0.045
Performing intravenous cannulation	0.48	-0.15	0.63	0.662	0.030 to 1.294	0.041
Performing an arterial puncture (an ABG)	0.48	-0.08	0.56	0.598	-0.273 to 1.469	0.172
Administering intravenous infusions and fluid prescriptions	0.20	0.08	0.12	0.106	-0.619 to 0.832	0.768
Prescribing blood and blood products	0.52	0.23	0.29	0.243	-0.343 to 0.828	0.405
Urethral catheterisation (male)	0.00	-0.31	0.31	0.224	-0.443 to 0.891	0.500
Recognises, assesses and initiates management of the acutely ill patient	0.32	-0.38	0.70	0.666	0.030 to 1.301	0.041
Obtains history, performs clinical examination and formulates differential diagnosis and management plan	0.32	0.08	0.24	0.155	-0.412 to 0.723	0.582
Requests relevant investigations and acts on results	0.48	-0.08	0.56	0.615	-0.057 to 1.288	0.072
Prescribes safely	0.20	0.15	0.05	-0.029	-0.460 to 0.402	0.891
Is trained and manages cardiac and respiratory arrest	0.24	0.31	-0.07	-0.105	-0.726 to 0.515	0.732
Manages palliative and end-of-life care	0.60	-0.08	0.68	0.562	-0.132 to 1.255	0.109

ABG, arterial blood gas; BSUH, Brighton and Sussex University Hospitals; FY1, Foundation Year 1; IT, information technology.

Furthermore, there was no evidence to suggest the FiY1 post increased confidence in requesting imaging investigations, in safe prescribing and in being trained in managing cardiac and respiratory arrest. When adjusting for age, gender and university, a positive trend was not observed, with beta coefficients of approximately 0. There was generally no effect seen for the variables adjusted for, except in

the outcome of being 'trained and managing cardiac and respiratory arrest', in which females were less confident than males by 0.80 (95% CI -1.374 to -0.218, $p=0.008$).

DISCUSSION

The FiY1 post was an intervention initiated in response to the COVID-19 pandemic to support potential increased



workforce demands. It changed the way medical graduates transition to the role of junior doctors. This prospective longitudinal cohort study assessed whether the FiYI post was able to impact graduates' PFP in terms of self-reported confidence in common FYI tasks, core skills, competencies and procedures, prior to starting FYI. To our knowledge, this is the first study of its kind.

Improved confidence in core skills, competencies and FYI tasks

Graduates who completed the FiYI post showed an increase in overall confidence in starting FYI compared with non-FiYIs. They also had an increased confidence in performing FYI core skills (venepuncture, intravenous cannulation), in competencies including management of acutely unwell patients, in requesting investigations, and in common FYI tasks, including use of IT systems. Interestingly, this improved confidence occurred within a brief and relatively unplanned intervention (average post length was 7.7 weeks).

This increased confidence is likely to be related to the FiYI post allowing for increased clinical exposure, as clinical experience improves competence and reduces the stress of transition from student to doctor.^{7 24} This relationship has previously been documented following assistantships and shadowing periods, where hands-on experience increased student's understanding of FYI duties, including how to request investigations, write in notes, prescribe and use IT systems.^{16–18 23 25 26} This study showed the FiYI's additional benefit of improving confidence in managing acutely unwell patients, a competency which showed little or no improvement following assistantships/shadowing periods.²³ The FiYI post also provided an opportunity for familiarisation within the clinical environment, which likely contributed to improved confidence in using IT systems, particularly for the 50% of FiYIs who continued to work in the same NHS Trust as their FiYI post. At the time of writing, there is a dearth of articles published on the FiYI post. However, a GMC commissioned study report reviewing the FiYI post concluded that among its benefits it eased transition to starting FYI and it increased preparedness to practice, with this finding being sustained 2 months later.²⁷ Three reflective articles have also noted the positive benefit of FiYI roles in providing opportunities to put theory into practice, increase clinical experience and improve confidence, though there was no formal measurement of change in confidence outlined.^{28–30}

Though the remaining common FYI tasks, core skills and competencies did not show a significant increase in self-reported confidence, most showed an overall positive trend. Given the relatively small sample size, a significant increase may be observed in these outcomes in a larger powered study, as noted in the GMC report.²⁷ However, it may also indicate that graduates were already confident in some aptitudes prior to commencing FiYI, particularly in history taking and performing clinical examinations.¹³ Another explanation may be that graduates did

not gain significant experience in these areas during FiYI. For example, in formulating management plans, as ward rounds are often led by senior doctors. The opportunity for managing cardiac arrest is limited for all foundation doctors, which likely reflects the lack of exposure within the FiYI post. It is disappointing that there was no observed increase in confidence in prescribing. However, an initial lack of clarity as to whether FiYIs were allowed to prescribe might have confounded results.

A further advantage of the FiYI post over previous interventions is the ability to experience the role of an FYI as a doctor rather than as a student, and developing an increased sense of responsibility. The increased responsibility noted when starting as a doctor is particularly daunting.⁷ As such emulating this increased obligation while still being supervised is helpful to reduce the shock of transition to FYI.⁶ Assistantships have previously been documented as creating an increased sense of responsibility, but how students experience assistantships is varied and dependent on student engagement, meaning not all students benefit from these outcomes equally.^{19 22 23} The standardised nature of the FiYI may minimise the disparity in student experiences. Moreover, during the FiYI posts, graduates were expected to work as doctors to support the workforce during the pandemic, and were being paid as such for this role. Consequently, they may have felt duty bound to take on more responsibility compared with during assistantships, and likewise staff may have had greater expectations of them to step up as doctors.³¹ FiYIs wanted to be remunerated for this increased responsibility, with 28% of graduates advising they would not do the FiYI post unpaid, and 48% who would only 'maybe' consider it. As per the GMC report on the FiYI post, the 'paid role of the FiYI post adds something beyond undergraduate placements and assistantships'.²⁷

Though the FiYI post may have been demanding on graduates, the majority felt well supported, and some associated this with having been supernumerary. A supportive environment is essential in negotiating this challenging transition and its associated stress, particularly as new doctors can be reluctant to seek help.^{7 32} The supportive environment may be why Durand-Hill *et al.*, found that the FiYI post led to graduates feeling less stressed and depressed.³³ Another approach to creating a supportive environment was used in Northern Ireland—termed the 'compassionate leadership model', where students were provided with a 'buddy system' and encouraged to highlight their educational needs for the FiYI post. This approach helped students feel valued and supported.³⁴ Over the 2-month period, the observed trends suggested non-FiYIs had decreased confidence in some outcomes. This may be due to time spent with reduced exposure to the clinical setting, and increasing anxiety as they missed the benefits of this period of supported learning.³³

Disadvantages of FiYI

Only two graduates (8%) who completed the FiYI post did not recommend it next year, correlating with the

minority who felt unsupervised. Themes raised included lack of clarity of FiYI responsibilities and their role. This is an issue that transcends previous educational interventions, as students want more guidance as to what is expected of them.^{26 35} Cotton *et al.*, noted that benefits can be lost if roles are ill-defined.²⁶

Graduates were able to select an FiYI post at either their university hospital, a hospital in their home region or the hospital where they were due to start FYI. Therefore, only 52% of FiYIs worked in the same trust as their future FYI role, and only 36% worked in the same specialty. Analysis to compare the outcomes of graduates that did or did not have an 'aligned' placement was not possible due to sample size. However, there is evidence that suggests that benefits are reduced if the placement is not relevant to them or relates less closely to where they will start work.^{19 26} Instead, alignment with a student's first FYI post enhances their experience, though this benefit is not sustained to the second FYI post.^{19 20 36}

Study limitations

As the statistical analysis was exploratory, and sample size was small due to fewer matched participants, interpretation of results is limited. This increases the risk that real differences in confidence could have been missed. Due to this being a single-centre study, our findings are potentially less transferable and reproducible. A majority of the FiYIs worked at BSUH, and all the non-FiYIs were BSMS graduates, so the experiences of the interim FYI may be different elsewhere in the UK. BSMS benefits from an integrated curriculum design with early clinical exposure, so graduates from more traditional courses may find additional benefit to an FiYI post. Conversely, medical schools with well-established assistantship programmes may find their graduates have less to gain. The majority of participants had interim posts in medical specialties, so benefits of posts particularly in psychiatry or surgery are unknown.

The outcomes of this study relied on self-reported confidence. Though there was an increase in self-reported confidence, it is unclear how this confidence impacts on junior doctor outcomes and on patient care. This is something that has been highlighted previously with regard to assistantships; there are no peer-reviewed data available evaluating the impact of assistantships on outcomes including efficiency, patient safety, prescribing errors, stress and sickness.²² In addition, there was no external assessment of participants' change in confidence which subjects the findings to bias. Self-assessments are not always aligned with reality. Tallentire *et al.*, found that participants had misplaced confidence when it came to practical procedures with supervisors rating graduates' ability lower than graduates did themselves.³⁷ Conversely, it is possible that graduates may have improved their skills in an outcome but still remained unconfident.

The loss of participants to follow-up presented another limitation. We tried to minimise this limitation by extending the response period of the questionnaire and providing a recall incentive. Despite the small numbers of matched participants, we did observe differences between FiYIs and non-FiYIs. However, with larger participant numbers, we could have continued to follow-up participants to measure change in confidence after starting FYI.

Future of FiYI roles

Despite the limitations of this study, the initial findings are promising. Further studies assessing the role of the FiYI as a trial intervention in multiple centres across the UK may provide more robust evidence of the FiYI's future role in undergraduate medical curricula. A study protocol for the 'COVIDReady2' survey has outlined its aim to fulfil the above by exploring nationwide experiences of medical students who underwent the FiYI compared with those who did not, with a view to offering practical advice as to how these roles may be incorporated into future medical education.³⁸ Assessing the impact of the FiYI post on long-term outcomes including patient safety, prescribing errors, efficiency at work and levels of stress and sickness would also determine the objective impact of this study. In addition, rates of mortality following junior doctors starting should be calculated since the initiation of educational interventions such as the assistantship and potentially future FiYI posts, given the last study was in 2009.⁸

Recommendations for future trials of FiYI posts are as follows:

- ▶ A financial incentive should be maintained to help encourage engagement and an environment where increased responsibility is expected and supervised.
- ▶ A supernumerary position should be preserved to ensure good supervision is maintained.
- ▶ A unified and clear outline of roles and responsibilities should be created, including provision of supervised prescribing, so as to assist improved confidence in this domain.

CONCLUSION

In summary, the FiYI post, implemented in response to the COVID-19 pandemic, has inadvertently created an opportunity to improve clinical exposure for medical graduates. This study showed that the FiYI post improves overall confidence prior to starting FYI and in specific core skills and competencies required by the GMC. The post is similar to an assistantship in its aims to improve student's preparedness and ease the transition to work life. However, there are key differences in that the FiYI post is paid, graduates are expected to work as doctors and not students and its standardised nature means all graduates should gain a more unified experience. Moreover, the FiYI has resulted in greater hands-on experience and improved confidence in managing acutely unwell patients.

The FiY1 post has the potential to provide new-found structure and streamline final year placements across medical schools. It could standardise educational opportunities nationwide, and ease the unsettling transition from student to doctor in a way that medical curricula have not facilitated before. This could revolutionise curriculum design.

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ORCID iDs

Cristina Angela Gatti <http://orcid.org/0000-0002-3620-0018>

Kathryn Parker-Conway <http://orcid.org/0000-0002-6020-0149>

REFERENCES

- UK Foundation Programme. Curriculum, c2022. Available: <https://foundationprogramme.nhs.uk/curriculum/> [Accessed 24 Aug 2022].
- Health Education England. E-portfolio guidance for Foundation year 1 doctors, c2016. Available: https://www.rftmedicaleducation.com/uploads/4/1/3/2/41322767/2016_07_25_2016-17_f1_hee_yh_eportfolio_guidance.pdf [Accessed 24 Aug 2022].
- Collins J. *Foundation for excellence: an evaluation of the foundation programme*. London: Medical Education England, 2010.
- Health Education England [Internet]. Supported from the start; ready for the future; the Postgraduate medical Foundation programme review, c2019. Available: <https://www.hee.nhs.uk/sites/default/files/documents/FoundationReview%20FINAL%20for%20web.pdf> [Accessed 24 Aug 2022].
- General Medical Council. Joint statement: early provisional registration for final year medical students, c2020. Available: <https://www.gmc-uk.org/news/news-archive/early-provisional-registration-for-final-year-medical-students> [Accessed 26 Mar 2021].
- Coakley N, O'Leary P, Bennett D. 'Waiting in the wings'; lived experience at the threshold of clinical practice. *Med Educ* 2019;53:698–709.
- Brennan N, Corrigan O, Allard J, et al. The transition from medical student to junior doctor: today's experiences of tomorrow's doctors. *Med Educ* 2010;44:449–58.
- Jen MH, Bottle A, Majeed A, et al. Early in-hospital mortality following trainee doctors' first day at work. *PLoS One* 2009;4:e7103.
- Gaskell N, Hinton R, Page T, et al. Putting an end to black Wednesday: improving patient safety by achieving comprehensive trust induction and mandatory training by day 1. *Clin Med* 2016;16:124–8.
- Teagle AR, George M, Gainsborough N, et al. Preparing medical students for clinical practice: easing the transition. *Perspect Med Educ* 2017;6:277–80.
- Monrouxe LV, Bullock A, Gormley G, et al. New graduate doctors' preparedness for practice: a multistakeholder, multicentre narrative study. *BMJ Open* 2018;8:e023146.
- General Medical Council. The state of medical education and practice in the UK, c 2019. Available: https://www.gmc-uk.org/-/media/documents/somep-2019-full-report_pdf-81131156.pdf [Accessed 13 Feb 2021].
- Monrouxe LV, Grundy L, Mann M, et al. How prepared are UK medical graduates for practice? A rapid review of the literature 2009–2014. *BMJ Open* 2017;7:e013656.
- General Medical Council. Clinical placements for medical students: Advice supplementary to Tomorrow's Doctors (2009), c2011. Available: https://www.gmc-uk.org/-/media/documents/clinical-placements-for-medical-students-guidance-0815_pdf-56437824.pdf [Accessed 29 Mar 2021].
- General Medical Council. Good medical practice, c2019. Available: <https://www.gmc-uk.org/ethical-guidance/ethical-guidance-for-doctors/good-medical-practice> [Accessed 29 Mar 2021].
- Braniff C, Spence RA, Stevenson M, et al. Assistantship improves medical students' perception of their preparedness for starting work. *Med Teach* 2016;38:51–8.
- Ryan PSJ, Gormley GJ, Hart ND. Preparation for practice: a novel role for general practice in pre-foundation assistantships. *Educ Prim Care* 2017;28:210–5.
- Morrison JJ, McGlynn M, Pringle J. The university of Glasgow: "Preparation for Practice"- implementation and evaluation of a new student assistantship. *Med Educ Supplement* 2010;44:18. doi:10.1111/j.1365-2923.2010.03797.x
- Fullbrook A, Ross M, Mellanby E, et al. Initial experiences of a student assistantship. *Clin Teach* 2015;12:310–4.
- Jones OM, Okeke C, Bullock A, et al. 'He's going to be a doctor in August': a narrative interview study of medical students' and their educators' experiences of aligned and misaligned assistantships. *BMJ Open* 2016;6:e011817.
- Illing JC, Morrow GM, Rothwell nee Kergon CR, et al. Perceptions of UK medical graduates' preparedness for practice: a multi-centre qualitative study reflecting the importance of learning on the job. *BMC Med Educ* 2013;13:34.
- Crossley JG, Vivekananda-Schmidt P. Student assistantships: bridging the gap between student and doctor. *Adv Med Educ Pract* 2015;6:447–57.
- Burford B, Whittle V, Vance GHS. The relationship between medical student learning opportunities and preparedness for practice: a questionnaire study. *BMC Med Educ* 2014;14:223.
- Draper CE, Louw GJ. Competence for internship: perceptions of final-year medical students. *Educ Health* 2012;25:16–23.
- Bindal T, Goodyear H. Newly qualified doctors' views of their job shadowing experiences. *Br J Hosp Med* 2014;75:528–32.
- Cotton P, Scott H, Morrison J. Evaluation of preparation for practice block by Foundation year 1 doctors: a qualitative study. *Med Educ Supplement* 2010;44:219. doi:10.1111/j.1365-2923.2010.03797.x
- General Medical Council. 2020 medical graduates: the work and wellbeing of interim Foundation year 1 doctors during COVID-19, c2021. Available: <https://www.gmc-uk.org/about/what-we-do-and-why/data-and-research/research-and-insight-archive/2020-medical-graduates-the-work-and-wellbeing-of-interim-foundation-year-1-doctors-during-covid-19> [Accessed 18 Aug 2021].
- Jones I, Neal-Smith G. FiY1: a reflective account of the foundation interim year 1 post. *Clin Med* 2021;21:e269–71.
- Youssef S, Zaidi S, Shrestha S, et al. First impressions of the foundation interim year 1 postings: positives, pitfalls, and perils. *Med Educ Online* 2020;25:1785116.

- 30 Kaminskaite V. Covid-19: looking back at the experiences of graduates and educators during the interim Foundation year 1. *BMJ* 2021;374:n1265.
- 31 Reid A-M, Ledger A, Kilminster S, *et al.* Can the tools of activity theory help us in advancing understanding and organisational change in undergraduate medical education? *Adv Health Sci Educ Theory Pract* 2015;20:655–68.
- 32 Sturman N, Tan Z, Turner J. "A steep learning curve": junior doctor perspectives on the transition from medical student to the health-care workplace. *BMC Med Educ* 2017;17:92.
- 33 Durand-Hill M, Ike DI, Nijhawan AN, *et al.* 841 The psychological impact of foundation Interim Year 1 placements on final year UK medical students transitioning to foundation year one during the COVID era. *Br J Surg* 2021;108.
- 34 Dougan C, Phillips S-A, Hughes D. Compassionate leadership during COVID-19: an ABC approach to the introduction of new medical graduates as Foundation interim year 1S (FiY1s). *BMJ Leader* 2020:leader-2020-000323.
- 35 Prince KJAH, Boshuizen HPA, van der Vleuten CPM, *et al.* Students' opinions about their preparation for clinical practice. *Med Educ* 2005;39:704–12.
- 36 Wells SE, Bullock A, Monrouxe LV. Newly qualified doctors' perceived effects of assistantship alignment with first post: a longitudinal questionnaire study. *BMJ Open* 2019;9:e023992.
- 37 Tallentire VR, Smith SE, Wylde K, *et al.* Are medical graduates ready to face the challenges of foundation training? *Postgrad Med J* 2011;87:590–5.
- 38 Byrne MHV, Ashcroft J, Alexander L, *et al.* COVIDReady2 study protocol: cross-sectional survey of medical student volunteering and education during the COVID-19 pandemic in the United Kingdom. *BMC Med Educ* 2021;21:211.