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Effectiveness of short, personalised student assistantships: an evaluative study across eight London hospitals

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ABSTRACT

Objectives Student assistantships are recommended to prepare medical graduates for clinical practice. Traditionally, assistantships have consisted of longer placements, often up to 15 weeks. However, within the constraints of the final year, medical schools need to carefully balance the time required for specialty placements, assessments and the risk of student burnout. We set out to evaluate the effectiveness of shorter, personalised student assistantships.

Design An evaluative study on the changes in final year student confidence in preparedness for practice after a 3-week assistantship with defined learning objectives and learning needs assessment.

Setting Eight hospitals affiliated with Imperial College School of Medicine.

Outcomes Student confidence in 10 learning outcomes including organising ward rounds, documentation, communication with colleagues, communication with patients and relatives, patient handover, practical procedures, patient management, acute care, prioritisation and out-of-hours clinical work.

Results Two hundred and twenty final year medical students took part in the student assistantship, of whom 208 completed both the pre-assistantship and post-assistantship confidence rating questionnaires (95% completion rate). After the assistantship, 169 (81%) students expressed increased confidence levels in one or more learning objectives. For each individual learning objective, there was a significant change in the proportion of students who agreed or strongly agreed after the assistantship ($p<0.0001$).

Conclusion Overall, the focused 3-week, personalised student assistantships led to significant improvement across all learning objectives related to preparedness for practice. The use of the pre-assistantship confidence rating questionnaire allowed students to identify and target areas of learning needs during their assistantship.

STRENGTHS AND LIMITATIONS OF THIS STUDY

⇒ This study demonstrates the utility of confidence rating questionnaires as a learning needs assessment to create short, highly focused assistantships.
⇒ The use of confidence rating questionnaires, based on defined learning objectives, can be generalised to other undergraduate learning activities to support more focused, reflective learning, and provide rich data for learners and teachers.
⇒ Prior to full registration with the UK General Medical Council, some learning opportunities, such as prescribing, remain restricted to students, limiting their experience of clinical responsibility.
⇒ The assistantship placements were not aligned to students' future Foundation Year 1 posts, which may have provided even greater improvements in confidence for starting Foundation Training.

INTRODUCTION

The transition from being a medical student to becoming a doctor is known to be a challenging and critically intensive learning period.[1 2] Existing literature demonstrates that student anxieties during the transitional period between undergraduate and postgraduate learning centre around taking responsibility for patient care, non-technical and communication skills, clinical procedures and prescribing.[3–6] This transition can be particularly challenging as medical students attempt to balance their clinical participation in delivering patient care with managing the risk to patient safety, and grapple with the new physical, social and cultural aspects and activities of their new environment.[7 8] It has been repeatedly highlighted in the literature that medical student confidence and competence in managing this transition are best developed through an experiential and sociocultural learning process situated in the context of the relevant clinical setting.[8–10] Only through being embedded, gaining understanding, and learning in the new situational and contextual environments are students able to effectively and authentically build confidence in the transition to Foundation Training.[2 5 8 11]

In order to increase the preparedness of graduating medical students for practice in the clinical environment, the UK General Medical Council (GMC) introduced student assistantships into the medical school

curriculum.[12] The purpose of the student assistantship placement is primarily to provide final year medical students with the opportunity to prepare for the reality of working in the clinical environment and to support the transition between medical students and doctors.[12]

The benefits of student assistantships for preparing graduating medical students for clinical work are well documented.[13–16] Students who have undergone assistantships repeatedly report improved skills, knowledge and confidence relating to practical clinical working, communication skills and teamworking.[13–16] A supportive and reflective relationship between the student and clinical team empowers the student to 'act up' as an assistant. Thus, having the appropriate organisational practices in place is crucial in implementing assistantship models.[11] A successful assistantship is able to provide students with the opportunity to practise relevant skills for the delivery of care for real patients, creating a sense of clinical responsibility, which can be difficult to mimic elsewhere in the curriculum.[9 17–20]

Due to the key role the student assistantship has in preparing students for clinical work, the GMC recommends that these placements take place towards the end of medical school.[12] While the GMC does not stipulate the length or specialty of student assistantships, studies evaluating the benefits of the placement typically focus on longer assistantships lasting between 6 and 15 weeks.[13–16]

Providing long assistantships near the end of final year can be particularly challenging for medical schools as they need to be balanced with the provision of sufficient clinical placement time for knowledge consolidation and assessment preparation, as well as the delivery of high-stakes, summative assessments. Furthermore, the educational benefits of prolonged assistantships need to be carefully considered, with one study noting that students experienced a learning plateau after 10 weeks.[16] Student welfare is also a factor in designing student assistantships, with medical students being at the greatest risk of burnout at the end of a year of clinical placements.[21 22]

In 2020, the Imperial College School of Medicine introduced a short student assistantship designed to focus solely on practising the typical duties of a newly qualified doctor. In order to maximise the learning opportunities available to students, the assistantship was combined with a learning needs assessment to personalise the placement experience. The learning needs assessment aimed to focus on student learning and support them in recognising learning opportunities which can be missed on placements.[20 23 24]

The emphasis of the 3-week student assistantship was to provide opportunities for medical students to take on clinical responsibility in a supervised environment and manage clinical tasks such as clinical prioritisation, managing acutely unwell patients under supervision and recommending prescriptions; rather than furthering clinical or specialty knowledge.[12 17 19]

The aim of this study was to evaluate the effectiveness of a short, personalised student assistantship.

METHODS

The student assistantship

Final year medical students were allocated to a 3-week student assistantship which was scheduled after final examinations as the last clinical placement prior to graduation. The assistantships were based in general medicine, general surgery and emergency medicine firms at an Imperial-affiliated hospital. Each medical student was paired with a Foundation Year (first 2 years after graduation) doctor. They were directed to follow their work schedule, including their out-of-hours and on-call shifts, and to assist them with their daily clinical and administrative tasks. Students were to remain within the same firm throughout their assistantship under the supervision of the same firm lead.

The hospitals, firm leads and Foundation Year doctors involved in the student assistantship were provided with detailed guidance on the nature of the placement, the placement objectives and their role in its delivery. Hospitals were supported to provide the relevant resources necessary for students to fully participate in the assistantship, such as access passes, bleeps and rest areas. Firm leads were given protected time to supervise their allocated medical students and to conduct any required meetings. Foundation Year doctors were given an induction to the assistantship programme and were assigned a local clinical teaching fellow as a mentor for additional support.

Learning objectives and questionnaire

Ten learning objectives for the student assistantship were developed based on guidance from the GMC and existing literature (figure 1).

A 'confidence rating' questionnaire based on the learning objectives was developed to evaluate the difference in student confidence after completing the assistantship. Prior to starting the placement, students were asked to complete the pre-assistantship questionnaire by rating their confidence on the 10 learning objectives using a 5-point Likert scale which ranged from 'strongly agree' to 'strongly disagree' (online supplemental appendix 1).

1. **Organising ward rounds** (presenting patients and organising ward rounds)
2. **Documentation** (writing notes and discharge summaries)
3. **Communication with colleagues** (discussing patient care, including referrals, investigations, liaising with the multidisciplinary team)
4. **Communication with patients and relatives**
5. **Patient handover** (updating the team and handing over)
6. **Practical procedures** (independently carrying out core practical procedures)
7. **Patient management** (assessing and managing patients as the first clinician called)
8. **Acute care** (actively supporting the clinical management of acutely ill patients)
9. **Prioritisation** (prioritising tasks and managing requests)
10. **Out-of-hours clinical work** (working shifts and out-of-hours, e.g. on-calls)

Figure 1 Student assistantship learning objectives.

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This questionnaire was used to identify areas of learning need for the student to focus on during the assistantship. After completing the 3-week assistantship, students were asked to rate their confidence again on the same learning objectives using the same scale in the post-assistantship questionnaire (online supplemental appendix 2).

Assistantship induction and firm lead meetings

As part of the assistantship, each student received a hospital induction and an initial meeting with the firm lead on starting the placement. The assistantship concluded with a feedback meeting with the firm lead.

The hospital induction was a group session which provided students with orientation, understanding of local systems and protocols, and access to resources and facilities, in a way similar to a typical induction for new Foundation Year doctors.

The initial meeting with the firm leads was on a one-to-one basis. These were designed to guide students to use their self-ratings in the pre-assistantship questionnaire to identify their personal learning needs and particular areas of focus for the duration of their student assistantship.

At the end of the 3-week assistantship, students attended a feedback meeting with the same firm lead. This meeting was used to discuss their post-assistantship self-rating, reflect on their placement experience and receive feedback on their performance. Students were able to modify their self-rating after reflecting on their feedback from the firm lead if they wished.

Analysis

Data from each questionnaire were imported to Microsoft Power BI for quantitative analysis and confirmation of normal distribution on each item. Statistical analysis was performed using R (V.4.0.1). The 5-point Likert items were converted to dichotomous variables: of agree/strongly agree responses and neither agree nor disagree/disagree/strongly disagree responses. McNemar's χ^2 test for paired data was used to determine whether there was a significant change in the proportion of students who agreed/strongly agreed with each statement after assistantship.

Participant consent

In line with the ethical approval, this study used anonymised, routinely collected, placement evaluation data, owned by Imperial College School of Medicine.

RESULTS

A total of 220 final year medical students took part in the 3-week, personalised student assistantship. The student assistantships took place across eight hospitals affiliated to Imperial College School of Medicine, and were of varying size, location and demographic spread across North West London. The number of students who completed both the pre-assistantship and post-assistantship questionnaires was 208 (95% completion rate).

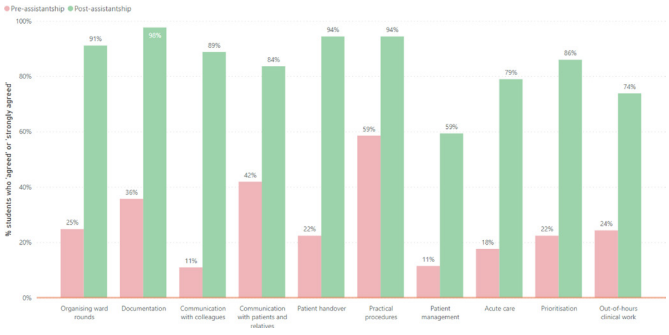

Figure 2 Proportion of students who agreed or strongly agreed to each statement before and after the assistantship (statistically significant improvement after the assistantship for all statements, p<0.0001).

Before the assistantship, responses approximated to normal distribution across most items, with the most common response being 'neither agree nor disagree'. For practical procedures and communication with patients and relatives, pre-assistantship results skewed towards 'agree' and 'strongly agree'.

After the assistantship, 169 (81%) students expressed increased confidence levels in one or more learning objectives. For each learning objective, students most commonly reported that their confidence improved by one interval on the Likert scale. For communication with colleagues, the most common outcome was improvement by two intervals, and for practical procedures, the most common outcome was no change.

For each individual learning objective, there was a significant increase in the proportion of students who agreed or strongly agreed that they felt confident after the assistantship (p<0.0001). After the assistantship, over 90% of students 'agreed' or 'strongly agreed' that they felt confident in documentation, patient handover, practical procedures and organising ward rounds. For patient management, 60% of students 'agreed' or 'strongly agreed' that they felt confident after the assistantship compared with 12% before the assistantship (figure 2).

Increased proportions of students who felt confident were most notable in communication with colleagues, patient handover and organising ward rounds. For communication with colleagues, the percentage of students agreeing or strongly agreeing with being confident in this learning outcome increased by 78 percentage points from 11% before the assistantship to 89% after the assistantship. For patient handover and organising ward rounds, the proportion of students who reported confidence after the assistantship increased by 72 and 66 percentage points, respectively.

DISCUSSION

Overall, the 3-week personalised student assistantship was associated with significant increases in student confidence across all individual learning objectives related to preparedness for practice.

The largest percentage point increases in confidence were in organising ward rounds, patient handover and communication with colleagues. These skills are all centred around the student taking clinical responsibility and using effective communication with the clinical team to support delivery of patient care. As students were embedded in the firm as a team member assisting the Foundation Year doctor, they were expected to perform these tasks regularly under supervision in an authentic clinical environment. Clinical placements prior to the assistantship were typically more focused on knowledge consolidation and practical skills in preparation for summative assessments. This is consistent with existing literature, where students are noted to have limited 'hands on' experience in final year placements.[25] In contrast, the assistantship allowed students to take on supervised clinical responsibility and to practise communication and teamworking, which have been highlighted as important skills for preparedness by existing literature.[17 24]

The smallest percentage point increase was regarding practical procedures. It is noted that a relatively high proportion of students identified as being confident in practical procedural skills prior to the assistantship. This correlates with final year student experience elsewhere and may be due to other opportunities in the medical school curriculum for students to practise these skills, such as in the clinical skills laboratory or in simulation sessions, leaving less room for improvement during the assistantship.[25] Despite the higher confidence levels in this area before the assistantship, the overall improved confidence in performing practical procedures remained significant, as with all other learning objectives.

For patient management, the baseline confidence in the pre-assistantship questionnaire was one of the lowest among all learning objectives. This is consistent with existing literature which notes that final year students had relatively limited opportunity to manage unwell patients compared with other activities, such as carrying out practical procedures.[25] Despite patient management having one of the smaller increases in confidence after the assistantship, the change remains significant. For students and Foundation Year doctors, assessing and managing patients as the first clinician called remains one of the most challenging aspects of clinical work.[1] The relatively smaller increase in confidence may be due to the challenging nature of this learning outcome, and the sense of clinical responsibility and perceived risk associated with delivery of patient care as the first clinician. As the students in this study did not have GMC registration or professional responsibility for any patients, it is possible that when a clinician was required, a registered doctor was contacted in the first instance rather than the medical student. A 2011 study of UK medical school curriculum leaders demonstrated a consistently conservative approach towards students carrying out activities associated with increased patient risk, advocating that the students perform activities only with stable patients.[26] Despite this, the 48 percentage point increase, as shown over the 3-week assistantship from a baseline of 12%, shows that even over a short period, students can gain significant confidence in this challenging task.

Timing the assistantship towards the end of the academic year allowed students to focus on preparing for practice without the stress and distraction of high-stakes final examinations.[11 27] Scheduling it just prior to graduation further gave students the opportunity to experience working as the Foundation Year doctor in a supported and familiar environment, as close as possible to when they would formally start the role.

The use of perceived confidence or competence in the evaluation of student preparedness is well established in literature and has even been adopted by the GMC in their National Training Survey.[28–32] Self-assessment is a critical aspect of performance appraisal. While self-rating of confidence does not equate to actual performance, student perception of preparedness is founded on self-efficacy, which itself is a predictor of competence.[33 34]

The use of the pre-assistantship questionnaire in the initial meeting with the firm lead allowed students to reflect and identify areas of focus for the 3-week placement. This enabled the assistantship to be personalised to each individual student, allowing them to target areas of learning needs and recognise learning opportunities which can otherwise be missed.[20 23 24] The highly focused approach to the student assistantship may have been a factor in the significantly improved confidence over a relatively short period.

The meeting with the firm lead at the end of the placement provided students with feedback and the opportunity to reflect on their assistantship experience. The feedback provided may have allowed students to better benchmark their performance against expected standards for a Foundation Year doctor. As self-assessment enhances learning and performance, this may have further improved student confidence and perceived readiness for commencing Foundation Training.[35]

This method of using confidence rating questionnaires before and after a learning activity can be generalised to any clinical learning opportunities with defined learning objectives. The process of self-assessment will support students to focus and reflect on the key learning objectives during any learning opportunity. It highlights areas of strengths and weaknesses to both the student and the teacher, providing individualised feedback which can be further used to support the students' learning needs. Furthermore, the pre-assistantship evaluation data can be used to provide insights into how earlier placement experience may be improved.

The data derived from this study have shown that short, personalised student assistantships of 3 weeks' duration can significantly improve student confidence in preparedness for practice. With substantial competing interests in the final year of medical school, including high-stakes summative examinations and high risk of student burnout, the use of short, personalised student assistantships prior to graduation may be an effective

model for preparing medical students for working in the clinical environment.

Limitations

As medical students are not registered with the GMC, there are a number of skills which they may not be able to experience in full.[18] Patient safety is of utmost importance when considering clinical placements and must be balanced carefully against student learning needs. Managing the risk of contacting the medical student as the first clinician remains challenging for clinical teams, which may limit students' experience of clinical responsibility.[18 26] Medical schools and their placement providers must ensure that adequate training and protocols are provided to the wider clinical team to indicate when it is safe and appropriate to contact the medical student as the first clinician.[36] Students attending patients as the first clinician must also have adequate supervision and support to do so safely.

Electronic prescribing and digital investigation requests also pose a challenge to medical students fully immersing themselves during assistantships. The inability to submit prescriptions and investigation requests due to digital transformation and clinical governance means that students are not able to fully perform all the same duties as the Foundation Year doctor. These limitations can impact medical students' perception of clinical responsibility and their exposure to these skills during the assistantship.[24 26] At Imperial, the medical school has provided alternative opportunities to support these learning needs, for example, through regular prescribing practice and simulation sessions.[37]

Due to the size of the local Foundation School, the majority of Imperial graduates will likely undertake Foundation Training outside this region. Students were therefore allocated to assistantship placements which may not be aligned to their future foundation posts. Aligned assistantships may have provided even greater improvements in confidence for starting Foundation Training.[38]

The study was conducted across eight different hospitals in North West London. Future work should include further qualitative exploration into the variation in critical contextual factors and organisational practices between the different hospitals, which could impact the delivery of assistantship placements and thus the learning experiences of the students.

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Patient consent for publication Not applicable.

Ethics approval This study involves human participants and was approved by the Imperial Education Ethics Review Process (EERP2021-052).

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