**An innovative long final year assistantship in general practice: description and evaluation.**

McKinley RK, Bartlett M, Gay SP, Gibson S, Panesar A, Webb M.

**Address:** Keele University School of Medicine  
 University Drive  
 Keele University  
 ST5 5BG

**Corresponding author:** RK McKinley  
**Email:** [r.k.mckinley@keele.ac.u**k**](mailto:r.k.mckinley@keele.ac.uk) **ORCiD** orcid.org/0000-0002-3684-3435

**Authors** M Bartlett, m.h.bartlett@keele.ac.uk

SP Gay s.gay@keele.ac.uk

S Gibson sheena@drgibson.co.uk

A Panesar a.panesar@keele.ac.uk

M Webb m.webb@keele.ac.uk

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**Abstract:**

We describe and evaluate an innovative immersive 15 week final year assistantship in general practice. Evaluation data was taken from five years of routinely collected School data and available national comparative data.

The assistantship aims to enable students to consolidate knowledge and hone their skills through central participation in the care of large numbers of patients with acute and long term conditions.

We estimate that most students consulted with over 450 patients during the assistantship. Students report that they became useful to their practice teams, had multiple episodes of feedback on their performance which they found useful and, in the school exit survey, reported that they were highly prepared for practice. 9.4% of students reported that the assistantship was ‘too long’ and, especially those who completed the assistantship in the second semester, they were out of hospital for too long before F1. Some described a learning ‘plateau’ after the 10th week which was addressed by modifications to the assistantship. Nevertheless, in national surveys, our graduates’ self-reported preparedness for practice is high, a perception shared by their F1 supervisors.

General practice can make a valuable contribution to the education of senior medical students and contribute to their preparedness for practice.

**What is already known**

In undergraduate medical education, general practice/primary medical care:

* Provides a supportive learning environment in which students develop good educational relationships with their clinical teachers
* Provides exposure to continuity of care for patients in their own communities
* Internationally, in remote and rural communities a rich integrated learning environment enhances learning and future performance

**What this work adds**

In the UK, a long final year assistantship in either an urban or rural general practice can:

* Provide extensive exposure to patient care
* Multiple opportunities for feedback on and support to develop clinical skills and clinical care
* Make a major contribution to students’ preparedness for practice in their first hospital jobs

**Suggestions for future work or research**

* Can this model be extended so that the usual ratio of hospital to general practice placement time is reversed and the majority of clinical placement time is in general practice?

**Introduction**

Keele School of Medicine was founded in 2002 teaching Manchester Medical School’s curriculum. From 2007, Keele delivered its own curriculum; the first cohort of students following this graduated in 2012.

*Tomorrow’s Doctors*[1] included the requirement that UK medical schools should ‘provide enough structured clinical placements to enable students to demonstrate the ‘outcomes for graduates across a range of clinical specialties, including at least one Student Assistantship period’. A student assistantship was defined as ‘a period during which a student acts as assistant to a junior doctor with defined duties under appropriate supervision’ which would ‘include making recommendations for the prescription of drugs and managing acutely ill patients under the supervision of a qualified doctor’[1]. While this definition suggests a hospital based experience, we considered that most of the ‘outcomes for graduates’ (Box 1) could be achieved, and some best achieved, in general practice, where students could work with a broad range of presentations albeit with fewer acutely ill people and assisting ‘senior’ rather than junior doctors. Therefore, the final year was designed to include two fifteen-week immersive assistantships; one in hospital settings including acute and critical care, medicine and surgery, and one in general practice. The assistantships are followed by the final clinical examination (the formal written knowledge test takes place at the end of year 4) and an eight-week elective period. Students return for a ‘final preparation for professional practice’ week before graduating. Although the design of our final year was founded in educational theory and research (for example: apprenticeship and situated learning,[2][3] longitudinal placements and continuity of educational supervision,[4][5]the role of deliberate practice in skills acquisition[6]), and informed by the longitudinal integrated clerkship literature,[7] it was controversial at the time.

**Context:** Keele School of Medicine currently has an entry of 129 students a year, the majority of whom are school leavers. The five-year programme is spiral and integrated, and includes early clinical experience (box 2). Teaching takes place at Keele University, its partner teaching hospitals in Staffordshire and Shropshire, and in a large group of community partners including general practices[8]. In each academic year between 2011 and 2016, 91 to 98 (of 126 general practices) have contributed clinical placements for third, fourth or fifth year students. A small rural campus in south Shropshire provides accommodation and placements for 22 final year students per year[9,10]. Students have seven half days in years 1 and 2, 4 weeks in each of years 3 and 4 and 15 weeks in year 5 in general practice placements.

This paper describes the 15 week GP assistantship, and its evaluation and evolution over the first five years of its existence. Our particular focus is on whether our students are adequately prepared for their foundation posts after spending half of their final year in general practice.

**The GP assistantship**

The aim of the general practice based learning within the curriculum is not that students learn ‘general practice’, but that they learn generic clinical skills in a general practice setting[11]. The specific aim of the GP assistantship is that students consolidate their knowledge and practice and hone their consultation and procedural skills. It includes the development of understanding of the longitudinal nature of care in general practice, knowledge and appreciation of patient care pathways both within primary care and across the interface between primary and secondary care, and has a special focus on handover, discharge planning and referral skills (box 3). Our intention is that students are legitimate and valued contributors to the work of the practices’ inter-professional teams and an informal goal is that when they leave they will be missed. The longitudinal relationships students develop and benefit from within communities of practice[3] are an important part of their learning. Other elements of the assistantships were designed to mirror continuous professional development activities required of qualified doctors[12], in order to prepare them for post-graduate life.

Our teaching practices offer places to one or two students at a time. Practices are geographically clustered into groups of three or four so that some small group learning can take place; part of the purpose of this is to address concerns about the potential for students to feel isolated during a long placement[2.5].

There are eight elements to the assistantship:

1. Consultations

The target set for practices and students is that students conduct a minimum of 375 consultations during their placement; an average of 25 per week. Most students take focused histories and perform necessary non-intimate examinations on their own before presenting their findings and management plan to their supervisor and being involved in its implementation by the 4th week of the assistantship. Students are encouraged to develop a small ‘list’ of patients so that they can be involved in their continuing care.

2. Long term conditions

In 2011-12, the students were asked to identify a group of ten patients with poorly controlled long term conditions and work with them over the fifteen weeks, auditing the clinical outcomes against the Quality and Outcomes Framework criteria[13]. It became clear that fifteen weeks is not long enough for meaningful audits and in the academic year 2016-7 this requirement was removed and replaced with a reflection on the students’ own involvement with the continuing care of a small number of patients.

3. Multi-disciplinary team working

An immersive assistantship inevitably leads to experience of multi-disciplinary team working. As well as working with a range of health professionals in the practice, there is a whole day session on ‘care pathways’, in which issues involved in discharge planning and the primary/secondary care interface are explored. Students are required to identify a patient with a complex care package on discharge from hospital and reflect on its effectiveness.

4. End of Life care

Students attend a whole day session on end of life care which aims to consolidate their experiences over the earlier years of the programme. They are required to identify one patient in their practice who is receiving end of life care and, with the patient’s consent, contribute to their care and reflect on the care provided by the whole primary care team and their own experiences.

5. ‘Cluster learning’

In order to reduce isolation and to broaden the educational experience, students spend half a day per week learning with students from adjacent practices[2,5]. Content is student led and facilitated by a GP tutor. Students must co-operate with each other in the negotiation of the sessions’ content and communicate effectively with GP facilitators. These sessions are opportunities for students to educate each other by means of preparing learning sessions on topics they have chosen and receive feedback on their teaching skills.

6. Community Leadership projects

As part of the assistantship, both leadership and community engagement were considered to be important[1,2,5,10]. Students are involved in projects which may address health or social care need which has arisen within the local community. These are based on a “service learning” model[14]; most hosts are third sector organisations, but some are schools or statutory organisations. Students spend half a day a week on their projects.

7. Formative workplace based assessment and educational supervision

All assessment is formative and it and the educational supervision reflects post graduate assessment methods. These are summarised in boxes 4 and 5:

**Evaluation methods**

All teaching is evaluated centrally by the School’s Quality Assurance and Enhancement Manager. The assistantships are evaluated using week 4 and end-of-placement web-based surveys sent to all students, focus groups, regular staff-student liaison committee meetings, our annual ‘Students Away-day’ and the School’s quality assurance review visits. National comparison data on preparedness for practice and outcomes of foundation training are taken from the GMC website[17]. Preparedness for practice data are from the 2013 to 2015 surveys (Keele’s graduation cohorts 2012 to 2014), foundation programme outcomes are cumulative from 2013 to 2015 for F1 (3 cohorts) and 2014 to 2015 for F2 (2 cohorts). Data on speciality training destination from the UK Foundation Office website (FP Careers Destination Survey 2014[18], 2015[19] and 2016[20]) on graduation cohorts 2012 to 2014. We have had access to follow up unpublished data (Van Hamel, personal communication 2013) from a published national survey[21].

**Results**

A total of 630 students completed the assistantship between 2011 and 2016. We have evaluation data from 350 (56%) students. A total of 80 practices contributed final year placements, a range of 58 to 70 in each academic year.

**Evaluation data collected by the School**

Since 2011/12, response rates have fallen year on year from 77% to 53% in 2015-6. The reasons for this trend are unknown. There was a change in questions asked between academic years 2011-12 and 2012-13, so for some items data is not available for 2011-12.

***Consultation numbers:*** Numbers of consultations per week reported by students varied from a minimum of 10 to over 30, with a trend towards higher numbers with time (in 2012-3, 33% of responding students reported more than 30, compared with 73% in 2015-6). More than 30 per week was the most frequently occurring category in 2015-6: assuming this reflects a weekly average, most students consult with more than 450 patients during the assistantship, well in excess of the target of 375 consultations.

***Number of observed consultations per week:*** This has fallen over time, from 14% of responding students reporting being observed more than 10 times per week in 2012-3, to 6% in 2015-6, with a corresponding increase from 86% reporting being observed 0-10 times per week in 2012-13 to 94% in 2015-6.

***Feeling useful in the practice:*** The percentage of responding students reporting that they felt useful in the practice has been consistently high since 2011-12, with a range of 89 – 96%.

***Informal feedback:*** There has been a dramatic increase in the numbers of students reporting informal feedback on more than 10 occasions per week, from 23% in 2011-12 to 63% in 2015-6. The percentage of responders who found the feedback useful or very useful ranged from 84 to 99%.

***Preparation for practice:*** Students who responded to the surveys perceive themselves to be well prepared for clinical practice in the School’s exit surveys (table 1).

***Community Leadership projects:*** These were generally perceived by those who responded to the surveys to be an enjoyable opportunity to work in teams with interesting community groups. Many saw a value in the work both for themselves and for the organisations, but some questioned the relevance to themselves as final year students, perceiving that their time should instead be spent on activities that directly prepared them for their foundation posts.

**Nationally collected data:**

Keele graduates’ overall self-reported preparedness for practice as F1 doctors was the highest of any UK medical school in 2013 (the first year that Keele data was included) and 3rd and 5th highest in subsequent years. In 2015, the first year that the data was reported, Keele graduates’ self-reported preparedness for 'procedural skills, prescribing and early management of the acutely ill patient were 2nd, 5th and 3rd highest respectively nationally[17]. Unpublished data from the 2013 trainers study shows that F1 trainers rated a higher proportion of Keele graduates as being well prepared for practice on 6 of 19 clinical tasks than graduates of other UK schools (Van Hamell, personal communication, 2013).

With respect to success in F1, five Keele graduates (1.4%, national rank 25) had extra time in training but no schools were statistical outliers. Keele was one of 18 schools which had no graduates released from training. One graduate (0.44%, national rank 7th) required extra time in F2 but Keele was one of 13 schools which had no graduates released from F2 training in the reporting period. In 2014, 2015 and 2016, 72.1%, 59.8% and 48.7% of Keele graduates were appointed to speciality training (national rank 3rd, 7th and 10th) respectively with 28.8%, 29.5% and 26.10% (ranked 6th, 2nd and1st) respectively appointed to GP training[18–20].

**Qualitative evaluation data and evolution of the assistantships.**

Students have consistently reported high levels of satisfaction with their clinical experience in the practices and the support and teaching provided by their GP teachers. Through the focus groups, staff-student liaison meetings and student away days some students, have reported a ‘plateau’ in their learning, commonly around the 10-week point. This was shared with GP tutors during tutor development activities in 2012-3 and they were asked to make specific efforts to identify students for whom this was an issue, and then to introduce ‘extension activities’ such as involving them in ‘duty doctor’ sessions, primary care out of hours work, care of patients with multimorbidity, management of hospital letters and results of investigations, and more challenging discussions about patient care.

A prominent theme has been students’ concern about the length of time away from secondary care. This was mentioned by 9.4% of respondents but also occurred in meetings with students. This is most marked for those students who had their GP assistantship in the second half of the year (January to March), as they have a gap of eight months between their secondary care assistantship and starting work as a Foundation doctor (excluding their elective periods). The concern is augmented by a widespread perception that there is insufficient time spent in acute and critical care during final year. To address this, changes were made over two academic years (2012-4), which consisted of three additions to the timetable:

1. Three ‘GP away days’, during which students met as a group for learning sessions on topics identified by students (death certification, intravenous fluid prescribing and dermatology). This was reduced to two days in 2015-6 to maintain students’ presence in the practices.
2. Four sessions of secondary care out of hours work in Emergency Departments or acute assessment units. Feedback has been mixed and this is currently under review.
3. A certificated one-day Acute Illness Management course[22].

In response to concerns in the School about opportunities for learning about prescribing and therapeutics, a spiral curriculum for community prescribing and therapeutics was added in 2013-14. For final year students, this meant identifying a patient with more than eight regular medications, considering the indications, interactions, potential adverse effects and monitoring requirements, then critiquing the regimen from a pharmacological perspective with the aim of rationalising it to improve its acceptability to patients, safety and cost-effectiveness.

**DISCUSSION**

We have described an innovative long GP assistantship which constitutes half of the clinical placement time in the final year. We have reported the evaluation of the GP assistantship, which is generally positive in terms of students’ perceptions of the learning opportunities and their preparation for clinical practice. However, there are expressions of concern from a minority (9.4% of students responding to surveys) that the GP element is too long, augmented by co-existing perceptions that there is not enough time spent in acute and critical care environments during the year. Nevertheless, our graduates believe that they are well prepared for practice, a belief which has been endorsed by their F1 supervisors.

We consider that general practice at Keele makes an important contribution to our students’ attainment of programme objectives and preparation for practice. They consistently report that their consultation skills, including clinical reasoning, decision making and management planning for acute and long term conditions have been improved. We attribute this to:

* Students consulting with large numbers of patients and having many opportunities to rehearse handover skills with regular observation of practice and frequent tailored and structured verbal feedback from supervisors[12] facilitating repeated deliberate practice[6].
* The longitudinality of the assistantships leading to continuity of relationships with their GP tutors and with patients[4,21] and their legitimate participation[2] in the provision of healthcare[23] within communities of practice[3].

The assistantship is part of an educationally coherent three-year spiral curriculum in general practice with clear aims for each year and it addresses key national outcomes for medical students[1].

Our students are considered well prepared for practice by Foundation Programme directors [Van Hamel, personal communication, 2013] and a high proportion of them are in speciality training generally and for GP in particular[18–20]. This is congruent with current national strategy priorities for medical education and the GP workforce in the United Kingdom[24,25].

**Strengths and limitations of the evaluation**

A strength of the evaluation is that it was conducted by a group outside of the team which designs and delivers the assistantship. It includes multisource data since its inception and includes data from national bodies[15-18].

A limitation is that this assistantship is set within one school, with a small cohort size and in the context of medical education in the United Kingdom’s health service. It may therefore be of limited relevance to other contexts. We have used data from routine evaluation which, although not tailored exclusively to the assistantship was initially clearly focused on it. However, the response rate is falling and the evaluation is consequently limited. We cannot directly refute the hypothesis that, had our students spent less time in general practice and more time in hospital that they would have felt better prepared for practice. However, given their very high levels of self-perceived preparation reflected by their F1 supervisors, this is unlikely.

**Lessons for others**

Perceptions are powerful. Our students perceive that they are well prepared for practice, a perception endorsed by their F1 supervisors. They are however naturally concerned about their preparedness for clinical practice which, initially, will be for all and for over 50% will always be in secondary care[26]. The minority rhetoric that the placement was too long resonated powerfully and to an extent overwhelmed the objective evidence to the contrary. Great efforts are required to ensure that students and faculty understand the complimentary contributions of primary and secondary care to ensuring graduate preparedness for practice. This data, collected over five years of evaluation, has demonstrated that general practice can make a major contribution to the education of final year students. We consider that this is a result of engagement with a huge number of patient consultations, frequent opportunities to practice handover, close supervision and frequent feedback within a supportive educational environment which also provides continuity of clinical, educational and professional relationships and in which students are supported to learn and to participate in the healthcare of patients and populations.

**Conclusion**

Keele’s fifteen-week immersive assistantship in primary care enables students to be useful to their practices, learn though central participation in the care of patients and to develop the sophisticated skills required for clinical reasoning, clinical, management and handover. Students report high levels of satisfaction. While some are concerned about the length of the placements and time away from secondary care environments, they are consistently well prepared for practice.

**Contributorship**

RKM led the team which developed the GP course at Keele and conceived the GP assistantship. SG led development and the implementation of the GP assistantship and led it for the first year. SPG took over its leadership for the following three years when MW assumed the role. AP assumed leadership of the cluster projects in 2015. RKM conceived the study, wrote the first draft of the paper incorporating the national evaluation data. MB incorporated the local evaluation data and extensively revised the first draft. After RKM and MB, authors are listed in alphabetical order. All authors contributed to subsequent drafts and have approved the final version of the paper. RKM is guarantor for the paper.

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**Disclosure**

None of the authors have any business or financial or business conflict of interest associated with the publication of this paper

**Author biographies**

RK (Bob) McKinley is professor of education in general practice at Keele University School of medicine and a practicing GP in Stoke on Trent

Maggie Bartlett is a clinical senior lecturer in medical education at Keele University School of medicine with a portfolio career working as a freelance GP Staffordshire and Shropshire

Simon Gay was a clinical senior lecturer in medical education at Keele University School of medicine and now a Clinical Associate Professor in medical education at Nottingham and a freelance GP in Leicestershire and Northamptonshire

Sheena Gibson was a clinical lecturer in medical education at Keele University School of medicine and is now a GP principal in Staffordshire

Anu Panesar is a clinical teaching fellow at Keele University School of medicine and salaried GP in Stoke on Trent

Matt Webb is a clinical lecturer in medical education at Keele University School of medicine and a GP principal in Staffordshire

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Box 1

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| **Outcomes 1 − The doctor as a scholar and a scientist** |
| 1 The graduate will be able to apply to medical practice biomedical scientific principles, method and knowledge relating to: anatomy, biochemistry, cell biology, genetics, immunology, microbiology, molecular biology, nutrition, pathology, pharmacology and physiology.  2 Apply psychological principles, method and knowledge to medical practice.  3 Apply social science principles, method and knowledge to medical practice.  4 Apply to medical practice the principles, method and knowledge of population health and the improvement of health and healthcare.  5 Apply scientific method and approaches to medical research. |
| **Outcomes 2 − The doctor as a practitioner** |
| 6 The graduate will be able to carry out a consultation with a patient:  7 Diagnose and manage clinical presentations.  8 Communicate effectively with patients and colleagues in a medical context.  9 Provide immediate care in medical emergencies.  10 Prescribe drugs safely, effectively and economically.  11 Carry out practical procedures safely and effectively.  12 Use information effectively in a medical context. |
| **Outcomes 3 − The doctor as a professional** |
| 13 The graduate will be able to behave according to ethical and legal principles.  14 Reflect, learn and teach others.  15 Learn and work effectively within a multi-professional team.  16 Protect patients and improve care. |

Box 2

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| * Year 1   + Challenges to health, 90% non-clinical, 10% clinical     - An overview year of all aspects of medicine with clinical placements     - Emphasis on normal structure and function     - Communication skills * Year 2   + Integrated Clinical pathology 1, 80% non-clinical, 20% clinical     - A second cycle through several aspects of medicine with clinical placements     - Emphasis on abnormal structure and function     - History and examination skills predominately in the skills lab * Year 3   + Integrated Clinical pathology 2, 50% non-clinical, 50% clinical     - A second cycle through several aspects of medicine.     - Emphasis on abnormal structure and function     - History and examination skills predominately in the clinical environment * Year 4   + Advanced Clinical Experience, 20% non-clinical, 80% clinical     - Mainly hospital-based     - Emphasis on clinical learning     - Final knowledge examination * Year 5   + Preparation for Professional Practice, 10% non-clinical, 90% clinical     - Workplace-immersed FY1 preparation     - Focus on application of knowledge & to refine skills     - Final clinical examination |

Box 3 Aims of the assistantship

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| **Consolidation of higher consultation skills:** |
| At the end of the assistantship, students will be competent to:   * Formulate a diagnosis by gathering and synthesising relevant information through focused history taking, physical examination and investigation * Formulate a management plan in collaboration with patients * Give complex information to patients * Employ motivational interviewing for health promotion * Handle/negotiate ethical challenges |
| **Development of previously acquired skills** |
| At the end of the assistantship, students will be competent to:   * Break bad news * Contribute to the care of patients and their families at the end of life, including management of symptoms, practical issues of law and certification, and effective communication and team working. * Provide immediate care in medical emergencies.   + Assess and recognise the severity of a clinical presentation and a need for immediate emergency care.   + Diagnose and manage acute medical emergencies   + Advocate, teacher, manager or improvement leader.     - Work in multi-professional teams |

*Box 4: Formative assessment elements*

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| * Assessment of clinical skills: Three assessments of students’ consultation skills and three of procedural skills are required. Feedback is structured using the GeCoS[27] and LCAT[15] tools. * Multisource feedback: students select six assessors from their practice (two GPs, two other health professionals, the practice manager and a member of administrative staff) approximately halfway through the assistantship. * Patient feedback: A patient survey of at least 5 patients is required using the Doctors Interpersonal Skills Questionnaire[16]; * Reflection: Students are encouraged to reflect on their experiences and learning. In 2011-12 written reflections were required on end of life care, multi-disciplinary team working, peer teaching, the community leadership projects, the audit and one other topic of the student’s choice. This placed a large burden on students, tutors and administrators, and it was subsequently reduced to two compulsory written reflections (end of life care and multi-disciplinary working) which form part of a portfolio which is assessed in an appraisal meeting with the educational supervisor. |

*Box 5: Objectives of educational supervision*

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| To:   * Act as an anchor point for monitoring an individual student’s learning against their own goals * Provide support and be a point of initial contact for the student and their educators involved in the rotation through blocks * Help in the completion of the ‘transfer of information form’ between medical school and deanery * Assist the student in looking at their own personal development programme (PDP) and managing the transition between lifelong learning from the undergraduate to the postgraduate setting. * Provide educational continuity between the GP and hospital assistantships |

Table 1: students' reported preparation for clinical practice in year 5 exit surveys, 2011-12 to 2015-6

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **My experience at medical school has prepared me well…** | **% Strongly agree & agree** | | | | |
|  | **2011-12** | **2012-13** | **2013-14** | **2014-15** | **2015-16** |
| **… with the clinical knowledge I will need as a foundation doctor** | **86** | **94** | **97** | **95** | **90** |
| **… with the clinical skills I will need as a foundation doctor** | **99** | **100** | **99** | **98** | **96** |
| **… with the skills to perform the administrative tasks I will need as a foundation doctor** | **90** | **90** | **84** | **82** | **69** |
| **… with the interpersonal skills I will need as a foundation doctor** | **100** | **97** | **96** | **100** | **96** |
| **… for the physical and emotional demands that will be placed on me as a foundation doctor** | **89** | **82** | **76** | **76** | **73** |