Introducing pharmacy students to the structure and function of general practice through undergraduate placements

Abstract

Background and purpose: The aim of this study was to design and evaluate the introduction of a sustainable and feasible structure of placements in general practice for third-year pharmacy students at the University of Sunderland. The national agenda in the UK calls for an increased presence of pharmacists within general practice, therefore development of placements in this is setting is aligned to the development of these new roles.

Educational activity and setting: The placements were located in general practice surgeries in the North East of England in the United Kingdom (UK). Students engaged in activities which introduced them to the structure and function of general practice and familiarise them with the role of pharmacists and other practice staff. Two cohorts undertook the education activity during the development process. The first cohort was comprised of 213 students, with 193 students the following year.

Findings: An action research approach was taken to evaluate and revise the design of the placement. The final design and delivery has been shown to have a positive impact on student learning experience, be feasible and sustainable. The placement was also successful at introducing students to potential future roles in general practice for pharmacists.

Summary: This model of general practice placement provision was found to be a feasible and sustainable delivery model, which was well received by undergraduate students.

Keywords: Education, pharmacy; Student placement; General practice; Clinical pharmacists; Action research.

Conflict of interest: None

Disclosure(s): Nothing to disclose.

Background and purpose

The United Kingdom (UK) National Health Service (NHS) is a publicly funded care delivery system that operates on a country-wide level. The initial point of contact for patients within this system is primary care, made up of community pharmacies, general practices, dentists and optometrists. General practices act as the first point of contact for NHS patients and vary in their professional mix, frequently employing practice nurses alongside general practitioners (GPs).1 There is also a potential range of support staff employed to support administrative functions including medical secretaries and prescription clerks. More recently, there has been an agenda within the UK to encourage pharmacists to provide a clinical role within this general practice setting including most recently with the publication of the NHS long term plan. 2

The General Practice Forward View 3 published in 2016, had an aim to double the rate of growth in the primary care clinical workforce. This included the employment of around 2,000 clinical pharmacists in general practice by 2020. The programme to fund the development of these emerging roles was launched by National Health Service (NHS) England in 2015.4 The evaluation from the first cohort of pharmacists found that the pilot pharmacists established numerous roles within the general practice setting. These included activities such as performing medication and chronic disease reviews, resolving prescription queries, processing discharge information and supporting implementation of medication guidelines and formularies.5 The current career pathway for clinical pharmacists in general practice starts after registration, with the concurrent commissioning of a professional development programme to support these new posts being delivered by the Centre for Postgraduate Pharmacy Education (CPPE). 6 There are also newly emerging models whereby early career pharmacists could have the opportunity to complete cross-boundary training between primary and secondary care.7 However, if these emerging roles are to become established career pathways for pharmacists it will be important that pharmacists in training are exposed to these roles early in their training.

NHS Health Education in Kent, Surrey and Sussex (HEKSS) developed and implemented a pilot training programme to place pre-registration community pharmacists in general practice.8 The aim was to promote complementary working between health care professions, increase multi-professional role awareness and interest in roles in general practice. During this pilot, the pharmacist trainees exhibited readiness for the new roles and required less training than anticipated. This was a testament to the clinical knowledge and skills that trainees are gaining from their undergraduate studies 8 in the UK. The option to apply for a cross-sector pre-registration training between community pharmacy and general practice is also now available to current pre-registration applicants.9

In other health professions, exposure to the primary care setting has been found to encourage aspiration to develop a career in this setting 10 and also perceptions of preparedness for practice.11 Therefore there is potential for placements to be used in order to support the increasing number of pharmacist roles being created within this sector.

Current pharmacy placement undergraduate provision

Current models of pharmacy undergraduate placement provision in primary care have included observation of pharmacists in general practice, public health screening, delivery of medication reviews for patients with diabetes, experiences of delivering care for children and inter-professional learning.

Dudley Clinical Commissioning Group (CCG) evaluated the impact of offering a one-day general practice placement to all pharmacy students in their final year of study, to develop students’ understanding of the role of a clinical pharmacist in primary care.9 Students used a workbook to guide activities to learn about clinical audit, consultations and repeat prescription management. Feedback from this scheme revealed that as a result of these placements, participants considered a role in general practice when reflecting on their future career options.

Mantzourani et al evaluated the experiences of pharmacy undergraduates in “Role-Emerging Placements” (REPs). Their examples included working with older adults 12 and young children 13 within the primary care setting. Results showed that REPs allowed students to develop professionally, understand their roles within a multidisciplinary team, and increased their confidence in engaging with members of the public.

Health fairs where pharmacy students conducted public health screening14 found that the scheme raised awareness amongst patients about the role of the pharmacist. A feasibility study involving the delivery of medication reviews for patients with type 2 diabetes by final year pharmacy students also found that participating patients showed greater satisfaction with their education and knowledge of how to manage their condition compared to control groups.15 These examples show that placements for pharmacy undergraduates in primary care may have value to patients and the wider profession beyond the individual students.

Other studies have attempted to use general practice as a setting for inter-professional learning. An initial pilot study was conducted to design the learning activity and conducted without medical students.16 It was found that pharmacy undergraduates participating learned about the structures and functions of other health care professions, but not necessarily about pharmacy in primary care.16 When the inter-professional learning session was delivered with pre-registration pharmacists and General Practitioner (GP) registrars, the authors found that the general practice setting posed barriers to student learning due to the “power-play” between the professions.17 This seemed to stem from the perception that a general practice was the preserve of doctors rather than of pharmacists.17

Research to date has shown that pharmacy undergraduate placements in primary care benefits the development of pharmacy students from both a clinical knowledge and professional perspective. They can also promote the role of GPPs as a potential future role that may have benefits to patient and the public. Here, we aimed to develop a structured placement for undergraduate pharmacy students within the general practice setting, which would develop both clinical and professional knowledge as well as raise awareness of general practice roles for pharmacists.

Educational activity and setting

The aim was to develop and evaluate a new structured placement for pharmacy undergraduate students within general practice. This included:

* Designing a feasible and sustainable placement which would introduce students to the structure and function of general practice and its role as part of the delivery of patient care in the UK NHS
* Assessing students’ feedback in order to evaluate the design of the placement and influence further development

Approach

This study was conducted using action research; a cyclical and dynamic approach useful in developing and implementing new programmes in education.13 This method allows for the key issues identified from the first cycle of delivery to determine revisions for application in the second cycle. Action research has been used elsewhere as a method for developing and evaluating placements within pharmacy undergraduate education.12,13 This included the look-think-act cycle that is described by Stringer 18 which involved designing, collecting data, analysing data, communicating outcomes and taking action as part of a continuous process.

Setting

In October 2013, an academic practitioner post was created between the University of Sunderland and Sunderland CCG (GD). Within the NHS, CCGs are responsible for planning and commissioning local healthcare services.19 As part of their wider role, the post-holder was able to create a collaboration between the University, the CCG and their contracted pharmacist provider to develop a new structured pharmacy undergraduate placement. The University of Sunderland has an established programme of placements which are delivered throughout the four years of the Master of Pharmacy (MPharm) programme.20 These include experiences of community pharmacy and hospital pharmacy practice. Students are prepared for work-based learning through lectures and workshops at the start of the term where issues such as professionalism, confidentiality and reflective learning are explored. Following placements, students are required to complete a reflective log about placement experiences which is an assessed component as part of their studies. These activities have been designed to reflect Kolb’s Experiential Learning Cycle21 by providing students with opportunities for concrete experience, reflective observation and active experimentation, as well as supporting abstract conceptualisation.

General practices to host placements were recruited through an open call for expressions of interest to sites that were currently served by the contracted pharmacist provider. Sites were mostly located in Sunderland in the first instance, and subsequently opened up to those in the South Tyneside CCG and former Gateshead CCG areas. Both general practices and the pharmacist providers were remunerated for the delivery of the placement.

Sample

The placement was delivered to two full cohorts of pharmacy undergraduate students in their third year of study at the University of Sunderland. The first cycle of delivery took place in the academic year 2014-2015 (n=213) and the second cycle was conducted in the 2015-2016 academic year (n=193).

Procedures for evaluation

To evaluate each cycle of placement delivery, a questionnaire was designed which was completed by students at the end of each placement. It consisted of the same questions across both cycles and was based on the intended learning outcomes and satisfaction with the placement experience. A mixture of a 5-point Likert scale from ‘strongly disagree’ to ‘strongly agree’ and rating system from 1 (very poor) to 10 (excellent) were used to answer each question. Seven was used as the minimum target which would aim to be achieved for all students. Additionally, students were also asked to list three things they learned during the placement, three things they enjoyed about the placement and three things they did not enjoy.

The results from the 2014/2015 placements were used to influence revisions for 2015/2016 placements. A copy of the student questionnaire can be found in the supplementary materials. For feedback on operational placement delivery, meetings were held between the University and the GPP provider.

Ethics

Student participation in the questionnaire was voluntary. Ethical approval was provided by the University of Sunderland Research Ethics Committee.

Cycle 1

Design

The design team consisted of the academic practitioner (GD), two GPPs (AB and CA) and another academic pharmacist with experience of primary care (JH). Previous success in using a rotational model of placement delivery, where students move between ‘stations’ with specified tasks had been successful for other placement experiences on the MPharm programme at the University of Sunderland and so a similar model was adopted for the general practice placements.

The third year of study was chosen for delivery of the placement. This was selected based on the likely transferability of clinical knowledge taught in this year of the programme into the general practice setting (diabetes, endocrine) and because students will also have experience placements in other settings (community pharmacy, hospital pharmacy) from earlier years which would support understanding of the general practice context.

Learning outcomes were identified by the design team based on the taught clinical content within the level of study and the emerging roles of pharmacists within the general practice setting. These included introduction to the roles of different members of the general practice team, how prescriptions are generated and sent to community pharmacy and application of clinical knowledge to general practice based patient scenarios. To contribute to spiral learning,22 new (diabetes) and previously covered (respiratory) topics were incorporated. The result was the formation of four ‘stations’ (see Figure 1) including:

* Exploration of the role of a general practice administrator
* Observation of a practice nurse clinic for chronic conditions
* A diabetes case study utilising a general practice clinical system (EMIS Web)
* An introduction to the Quality and Outcomes Framework (QOF) using Chronic Obstructive Pulmonary Disorder (COPD)

Students’ engagement in each of these stations had the potential to support one or more elements of the experiential learning cycle dependant on their current understanding of the topics covered. For example, the practice nurse clinic may have provided an opportunity for reflective observation for clinical examination, building on previous concrete experience from clinical skills classes taught elsewhere as part of the curriculum. Interaction with the diabetes case study may have provided an opportunity for active experimentation, building on learning about the theory of diabetes from other taught elements on the programme. There was an assumption that most students would not have previously been exposed to the role of a general practice administrator, and therefore this may have been new learning through concrete experience.

Delivery

The GPP provider facilitated the set-up of each placement through liaison with the host general practice. Workbooks were created which guided students through the clinical case study and introduction to QOF. A mock patient record was created for the clinical case study and an automated protocol was created to allow the record to be duplicated quickly in each of the host general practices. The case study and introduction to the QOF activities required access to the general practice clinical system for which the University does not have a license. The student cohort was divided into groups of 8 students, which were each sent to one of the host general practices. The students were then split into pairs to rotate around each ‘station’.

Each placement was facilitated on the day by a currently practicing GPP who acted as the ‘Pharmacist Mentor’. Each placement lasted 4 hours in duration. Prior to their general practice placements, students were given guidance which outlined the structure of the placement and what was required of them during the placement.

Evaluation results

There was a questionnaire response rate of 90% (n=191) for the 2014/2015 cohort. Table 1 shows the percentage of students who answered questions with ‘agree’ or ‘strongly agree’ to the statements in the evaluation questionnaire.

In the responses around what the students had learned during the placement, students reported use of the clinical system in general practice, the role of a primary care pharmacist, the generation and processing of different types of prescriptions, and the different roles and responsibilities of each member of the health professional and administration team within general practice. One student stated that the activities allowed them to know how it feels to work in primary care:

“Having an opportunity to use [the clinical system] and observe a consultation, great experience to know how it feels like when working in a primary care unit.”

Aspects of the placement that students enjoyed included observing consultations, having patient interaction, engaging with the staff in the practice, mentoring provided by the pharmacist, completing the case studies, and becoming familiar with the use of the clinical system.

In the ‘Did not enjoy’ section students stated that they still did not know about the role of a primary care pharmacist, they felt the case studies were not relevant to the placement, that the placement could have been more interactive, and that there was not enough opportunity for patient interaction. A common theme throughout these comments involved the station led by the administration staff, who were sometimes reported to be too busy to engage with the students:

“The administration team was too busy so we didn't get much information from them.”

Students reporting scores of more than seven for their satisfaction with the feedback they received on the placement and the professional environment was high (See Figure 2). For their overall experience (including the pre-placement reading and assessment) students’ rating their experience as equal as or higher than seven (out of 10) was 90%.

Feedback from the practice pharmacist provider meeting also identified several operational issues identified from placement delivery. It was found that the timing and duration of the practice nurse clinics made it difficult to accommodate four rotations; meaning that students in the pair which went through this rotation last often did not have the opportunity to observe a patient appointment. On a practice level, it was found that accommodating two students within a consultation room was sometimes difficult due to space restrictions in the rooms within the general practice. For the case studies, it was observed that students were often more proficient than anticipated at working through the learning material and finished earlier that the allocated station time, leaving them with nothing to do until the next rotation.

Analysing data

Overall, students’ perception of the general practice placement was positive. Free-text comments given on the questionnaires were used to determine which aspects of the placement design were useful in meeting the learning outcomes, and which aspects should undergo revision. Key learning points identified in the evaluation of Cycle 1 included:

* Students valuing the opportunity to see patients in practice nurse clinics
* Using the general practice clinical system being noted by the students as a useful exercise
* Spending time with general practice administration staff as providing useful insight into repeat prescription processes and appointments, which they could reconcile with their community pharmacy placement experiences

Cycle 2

Design

Based on the intelligence gathered from the first cycle, revisions were made to the structure of placements for the second cycle (see Table 2). The revised structure can be seen in Figure 3. There was also a decision made to select host general practice sites in Cycle 2 who had more readily engaged with students in Cycle 1. There were also additional general practice hosts in Cycle 2 that had not participated in Cycle 1.

Delivery

In order to better facilitate students’ observations of the clinical and practice administration staff, a more detailed pre-placement guide was created for students. It provided the aims of the placement, contained recommended pre-reading, outlined the placement structure and prompted students to consider aspects of general practice they may experience during the placement based on their previous experiences.

Evaluation results

There was a questionnaire response rate of 91% (n=176) for the 2015/2016 cohort. Table 1 again shows the percentage of students who answered questions with ‘agree’ or ‘strongly agree’.

In the open comments, students again reported learning about the roles of a pharmacist and other members of staff within a general practice, how to use the clinical system and how different types of prescriptions are generated. However, there were also new comments on learning about how to use National Institute of Health and Care Excellence (NICE) guidelines in conjunction with the British National Formulary (BNF) to check therapy, and general practice job opportunities for pharmacists.

Students also noted that the placements were well-organised, interactive, and allowed for them to spend time with different members of staff. Most comments regarding what students did not enjoy were associated again with the administration station and lack of engagement from practice staff as a result of staff being busy, although the frequency of these comments was less.

For overall placement experience, as expected there was no change to the ratings around feedback or professional environment, but there was an increase in student rating their overall experience as 7 out of 10 or higher (see Figure 2) from 90% to 96%.

Feedback from the design team found that the new placement structure worked well. Through the course of both cycles a total of six different pharmacists were involved in delivering sessions for students. To evaluate whether this seemed to impact on quality of delivery, student responses to the statement “My pharmacist mentor was well prepared and engaged with supervising me” was compared across pharmacists (Figure 4). It was found that the average scores were comparable across the six different pharmacists (range 4.2 to 5.0). Thirteen different general practice sites were also used for delivery of this placement. To compare these, the results to the statement “The placement helped me understand how the roles of other healthcare professionals contribute to patient care" was compared across the host general practice sites (Figure 5). Again, the average scores were comparable across the sites with high scores (range 4.6 to 5.0). These two results demonstrate that the placement design and delivery has replicability across multiple individual pharmacists and host general practice sites preventing the placement from being contingent on a small number of people or sites which could jeopardise future placement delivery in a sustainable way.

Findings and discussion

This study aimed to develop a new general practice placement for pharmacy undergraduates. Through a process of action research, we were able to iteratively develop a design which was successful in meeting the desired learning outcomes and optimising student experience. We also developed a model which has proven to continue to be feasible and sustainable in its delivery, evidenced by its ongoing incorporation into the MPharm programme at the University of Sunderland.

Place in undergraduate study

This study was delivered in the third year of the MPharm programme, with a focus on more observational activities linked to learning within the taught elements of the programme. Another study used more experienced students in their fourth year to deliver medication reviews.15 The authors found that this experience was beneficial to patients and could be a future development for this placement programme, building on the learning outcomes from the placement described here. Applications for the pre-registration year are currently timed between years three and four of study in the UK and it has been suggested that exposing third-year pharmacy students to pharmacist roles in primary care could highlight opportunities for undertaking pre-registration positions which incorporate general practice.9

The intention of integrating this placement into the third year of the MPharm programme was that previous experience in community and hospital pharmacy placements would support students’ understanding of the general practice context. However, it might be argued that increased exposure to placements in general practice could be warranted as these roles further develop.

Evaluation of student experience

When asked to state three things learned from the general practice placements, students’ responses across both cohorts have shown that students gained an insight into the structure and function of a general practice and the pharmacist’s role within primary care. These learning outcomes reflect several of the student-generated learning objectives which were identified from Layzell and Chahal16 including the value that students placed on the opportunity to observe the consultation process with other healthcare professionals.

The evaluation of these placements did not measure students’ perceptions of their competencies; however students expressed feeling more competent in their professional role by learning about the process of clinical medication review and how to use reference sources to manage patients’ drug therapies. Rosenthal et al23 and Braniff11 et al also found that placement of students in potential future roles in primary care a positive effect on their perceived competencies.

One of the learning experiences which seemed to be particularly valuable to students was the opportunity to experience the use of a general practice clinical system. Other studies have incorporated the use of ‘dummy’ medical practice records15 in preparation for students to use the medical records to document their own medication reviews. Here, the general practices used the clinical system EMIS Web, but other studies have used different clinical systems15 and so this type of activity is likely to be transferable to other general practice clinical systems.

Students also valued observing clinic appointments. There was no attempt to incorporate inter-professional learning within this placement, yet students reported benefitting from seeing consultations performed and discussing professional decision making. Layzell17 highlighted that for inter-professional learning, using general practice environment which ‘belonged’ to a doctor further reinforced potential “power-play” between medical and pharmacy students. Comments about being placed in this context was not observed in these placements, and may be due to the increased presence of clinical pharmacists within general practice in recent years, as well as the structured nature of the placement. Facilitation of general practice placements by a primary care pharmacist has also been found to be important in other studies of placements in this setting.15

Use of a clinical case study to allow students to apply their clinical knowledge from the taught elements of the programme was also well received. Using a topic that was concurrently taught (diabetes) seems to provide context to the learning experience. Encouraging students to critically evaluate therapeutic choices in the context of national guidance has also been incorporated in other models of pharmacy placement experience.15

This placement has also been successful in expanding pharmacy student awareness of career options for future practice. Feedback from students has shown that they have an increased awareness of pharmacy roles in primary care, and this exposure has influenced their career options. This development in awareness and the resulting encouragement to enter roles in primary care is similar to the findings of Campbell10 and Mantzourani et al.13 Like the 2010 study conducted by Layzell and Chahal16, the placements in general practice gave pharmacy students a greater knowledge of the roles of other members of staff within this setting.

Feasibility of placement design and sustainability of placement delivery

Concurring with work done elsewhere, we found that ensuring that students were prepared for the placement through the provision of information was important for successful delivery of the placement.15 Here, there was a 6% increase observed in students scoring the overall placement, including the pre-reading, as a 7 or above following changes made to Cycle 2 of the placement delivery. This increase was also accompanied by student comments that they felt better prepared for the placements as a result of the pre-placement guide, and they considered the placement to be well-organised.

Responses to the question “Were there specific aspects of the placement that you did not enjoy?” fell by 18% between Cycles 1 and 2. This decrease indicates an overall rise in students’ enjoyment of their placement experiences. However, students continued to report issues involving the engagement of the administration staff. Other studies have not incorporated this specifically as a learning outcome for placements. Although this placement structure continues to be delivered, careful consideration needs to be given when selecting general practice hosts for delivery to ensure that consideration is given to how practice staff will be able to both provide education to students and ensure that operational activity can continue.

Using a rotational student pairing structure was able to facilitate the delivery of the placement to a large number of students, and has also been used by other studies to further encourage shared learning and support.15

It is unclear if other studies have used more than one pharmacist to deliver similar pharmacy placements in general practice.15 In this study we used six pharmacist facilitators to deliver the placement and have used 14 different general practice hosts to date. The common denominating factor has been the use of the same clinical information system (EMIS Web) and a relationship with the medicines optimisation provider (CBC Health Ltd). This, combined with remuneration has been found to be able to deliver a sustainable model of general practice placement delivery for pharmacy undergraduates.

Here, we have attempted to prepare our graduates for newly emerging pharmacist roles in new practice settings. Educators in all countries should be vigilant to such emerging roles and look to incorporate learning activities as part of their programmes to prepare graduates for these opportunities. We feel that this is particularly relevant where the environment is complex or significantly different to other mainstream practice settings. In order to create such opportunities, we have used some tools which others may find helpful to their own countries of practice. This includes creating links to organisations currently delivering the new role within the healthcare system to both design the learning activity and to support its delivery. Consideration should also be given to engaging partners with the new activities, in this case the general practices. Finally, remuneration may be a key facilitator to the delivery of new learning opportunities in real healthcare settings which require input of time, facilities or resources from external providers.

Strengths and limitations

This study represents the largest sample to date evaluating the delivery of undergraduate pharmacy placements within the general practice setting. The placement was also compulsory for all third-year pharmacy students at the University of Sunderland in both cohorts, requiring them to write a portfolio submission as a summative assessment of their experiences. Other studies have used a self-selecting sample of students which may affect the subsequent evaluation of placements due to those who are more academically capable ultimately participating in the experience.15 Here, there was no such self-selection and therefore the findings reflect the experience of a range of academic abilities within the cohort.

The pharmacist facilitators involved varied between the two cycles, as did the general practice sites. There is variance in the extent to which practices chose or were able to engage with the students. The practices who received more positive feedback during Cycle 1 were given preference for involvement in Cycle 2. In the future, fixing practices and pharmacist facilitators across two cycles would allow for a more reliable attribution of changes in feedback to changes in placement design.

Whilst there has been a degree of transferability demonstrated here across different pharmacist facilitators and general practices, there has been commonality of academic institution and provider. It would remain to be seen whether our findings could be replicated in a different academic institution and with different primary care provider organisations. It should also be acknowledged that replicating this placement is likely to be difficult if using external partners in the absence of remuneration.

We focused on the immediate experiences of pharmacy students following completion of their learning within the general practice setting to further support the design and delivery of the placement. In order to fully assess whether such an experience supports better multi-professional learning or future uptake into general practice roles, a longitudinal study would be required.

Summary

This study adds to the evidence that pharmacy undergraduate placements in general practice can have an educational benefit to students. Placements in general practice within the MPharm programme at the University of Sunderland for third year pharmacy students have now been incorporated into the curriculum. The design and delivery described here has proven to be feasible, sustainable and valued by students. This introduction to working in the general practice environment is hoped to support future multidisciplinary and cross-boundary working, regardless of future setting. The placement may also increase the number of students applying for preregistration training taking place in general practice and the number of pharmacists entering these roles following registration.

Acknowledgements

We would like to thank the general practices and practice pharmacists for supporting delivery of these placements and the students who participated by completing the questionnaire. We would also like to thank Suzanne Hall for supporting data entry for this evaluation.

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