

Lessons Learned: A Pilot Program to Cultivate a Clinical Role for Pharmacy Students

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INTRODUCTION

For many years, first-, second-, and third-year pharmacy students were hired into technical roles for summer employment within the pharmacy department at Capital Health in Edmonton, Alberta. A pilot program to cultivate a clinical role for summer pharmacy students as members of the pharmacy patient care team was undertaken in 2004 by the clinical coordinators (including MLA) at Capital Health. This pilot program was designed to develop a rewarding professional development experience for pharmacy students, to offer meaningful contributions to the pharmacy clinical teams, to positively affect pharmacy students' views of hospital practice, and to encourage careers in hospital pharmacy. In addition, integrating patient care and professional activities into student positions held promise to initiate change within the department's culture with respect to students.

The role developed for the pilot program was based on clinical pharmacy technician models from the literature, in which the clinical technician provided clinical services support, such as collecting laboratory data, screening patients, taking medication histories, and tracking outcomes, so as to redirect clerical workload and focus pharmacists' time on direct patient care activities.¹⁻⁴ These models involved extensive training for specific roles according to established protocols and other clinical tools, as well as assessment of decision-making competence for screening tasks.^{2,4} These previously reported experiences inspired development of a targeted clinical training program at our own institution. In addition, it was felt that a clearly defined role and expectations, supported by targeted training in clinical patient care activities, would promote acceptance of students on the pharmacy clinical team.

Capital Health is a regional health authority serving a population of approximately one million. It consists of 13 facilities with a total of more than 2500 beds, in addition to outpatient clinics and public health services. Capital Health provides academic training for the health care professional programs of the University of Alberta. Regional Pharmacy Services, through its nearly 100 pharmacists and more than 65 technicians, provides clinical and distribution services for the health region.

In this report we describe our experiences with this pilot program and outline the lessons learned.

DEVELOPMENT OF THE PILOT PROGRAM

A potential clinical role for summer students was presented to pharmacists and senior pharmacy management to obtain their support for the pilot program. With input from the pharmacists, role expectations and responsibilities were developed for both the students and the supervising pharmacists. A list of potential activities appropriate for students was developed (Table 1). Requirements for internship with the Alberta College of Pharmacists in 2004 were followed.

A general posting for summer employment for pharmacy students was disseminated at the Faculty of Pharmacy and Pharmaceutical Sciences, University of Alberta. Applicants were required to submit an application for employment and a curriculum vitae. During the interviews, the possibility of participating in the pilot program was offered to students between the third and fourth years of the pharmacy program.

A 5-day structured training program was developed to teach specific clinical tasks in a small-group environment (Table 2). The training included an explanation of each clinical program and the student's expected role. The focus of the training was on practical application of



Table 1. Clinical Tasks Identified for Students

Allergy assessment
Nursing in-services
Medication histories
Patient counselling for specific medications or groups of medications
Drug information questions
Individual patient information
Chart review or patient interview to obtain specific information required by the pharmacist
Chart review to obtain specific information needed by the pharmacist for therapeutic drug monitoring
Chart review for parenteral-to-enteral step-down programs
Chart review for restricted medications to determine if criteria have been met
Obtaining culture and sensitivity results
Clarification of availability of patient's own medications
Order entry and related activities for total parenteral nutrition

theoretical knowledge to direct patient care and use of clinical tools or algorithms, from either Regional Pharmacy Services programs or the Faculty of Pharmacy and Pharmaceutical Sciences. Sessions were taught and/or facilitated by the clinical coordinators and by clinical pharmacists who had experience with undergraduate students. However, the preceptors of individual students were not necessarily involved in this training.

Following the structured training, students were assigned to pharmacy teams for orientation and to begin experiential training and patient care responsibilities. Each team of pharmacists selected the specific clinical

tasks that its student would perform. Within each team, a pharmacist demonstrated the activity and served as a role model. The student was required to conduct the activity under supervision and received constructive feedback concerning the completeness of the information obtained and the process of synthesis and recommendation. Once the pharmacist was satisfied that the student could perform the activity under indirect supervision, the student was assigned to perform that activity on a scheduled basis with the clinical pharmacist team. The pharmacist was required to document student achievement and assessment of competence for the activity.

For example, one component of the training program was warfarin patient counselling. First, the students attended a skill development session related to counselling patients about warfarin; this session was taught by a pharmacist from the Anticoagulation Management Service. Next, the student observed a pharmacist counselling patients about warfarin both individually and in a group setting. Finally, the student provided counselling, with feedback and coaching from the pharmacist, until it was established that the student was able to conduct the activity with indirect supervision.

The pilot program included structured training during week 1 (Table 2) and experiential training during weeks 2 and 3. The students then began their patient care activities with the clinical pharmacy team. Data for program evaluation were collected from pharmacists and students at the midpoint of the summer (week 8) and

Table 2. Topic Outline for Structured Training Program

Day	Topics
1	Organization and management of Capital Health Drugs and Therapeutic Committee, formulary, and drug assessment Drug information resources
2	Review of student's roles, expectations, and evaluation plan for pilot program Allergy assessments and medication histories Principles of documentation Hospital charts Therapeutic drug monitoring
3	Drug information
4	Discharge counselling Cardiac teaching Adult and pediatric inhaler teaching Total parenteral nutrition: clinical assessment and order entry
5	Development of and regional standards for patient information sheets Warfarin patient education Review of Regional Pharmacy Services infectious disease reference Culture and sensitivity results Parenteral-to-enteral step-down

during the final week (week 16) using survey questionnaires; in addition, interviews were conducted at the conclusion of the pilot. A set of core evaluation questions asked of students and pharmacists is outlined in Table 3. These questions were asked for representative activities that the majority of the students performed.

IMPLEMENTATION AND EVALUATION OF THE PILOT PROGRAM

The pilot program began during the first week of May 2004 with 6 students. One student was soon reassigned to technical duties because of a shortage of technical support at one site. Of the 5 students who completed the pilot project, 3 worked at a large academic teaching centre, each assigned to a different team of pharmacists. The other 2 students were placed at smaller acute care institutions and worked with all of the pharmacists within the department. Each student had a primary preceptor but was also supervised by all pharmacists on the team or in the department, which meant that nearly 40 pharmacists were involved in the pilot program. All students completed the midpoint and final evaluation surveys, as did the primary preceptor for each student. All pharmacists who interacted with students were asked to complete a survey and were encouraged to provide feedback. About half of the pharmacists responded at the midpoint, and about two-thirds completed the final survey. Highlights of the evaluation comments are outlined below with respect to knowledge, students' experience, clinical role, and preceptors' experience.

Knowledge

The students indicated that, for activities that had been taught in the undergraduate curriculum (for example, drug information activities and patient counselling), they had adequate baseline knowledge and skills before beginning the pilot program. Despite prior exposure to these activities in the academic setting, however, the students felt that the structured training provided in the program was helpful and that experience and support from working pharmacists helped them to successfully perform these tasks.

For activities to which the students had had no prior exposure in the undergraduate curriculum (such as total parenteral nutrition), both the pharmacists and the students indicated a need for additional training and support for the students.

For some of the activities to which students were exposed (such as those related to drug information), students rated their knowledge as high at the midpoint but lower on the final survey.

Students' Experience

According to the responses from both pharmacists and students, activities related to drug information represented a skill development and practice area where experience and additional training were required to complete the assigned tasks. By the time of the final survey, the students recognized that the knowledge they had gained from their academic program was a foundation upon which to build their drug information

Table 3. Questions* for Pharmacists in Evaluation Survey†

Questions for each clinical task

The student had adequate baseline knowledge and skills from the university academic program to successfully complete this task.

The student required additional training and support to successfully complete this task.

The structured training provided allowed the student to successfully complete this task.

The preceptor and other pharmacists provided the student with adequate support to successfully complete this task.

Experience during the summer allowed the student to successfully complete this task.

The student was confident in his or her ability to successfully complete this task.

General questions

The expectations of the student were clearly outlined at the beginning of the program.

The expectations of the student were reasonable.

The role of the student should be expanded to include other clinical tasks.

Overall, I feel comfortable with the role of the student on our team.

Overall, I feel the student was competent in his or her role on our team.

I feel that the student made a meaningful contribution to direct patient care.

I feel that the student gained clinical skills and experience that will be valuable professionally.

*Pharmacists responded on a 5-point Likert scale from "strongly disagree" to "strongly agree".

†The same questions were posed to students, with appropriate changes in wording (specifically, "the student" changed to "I" or "me").



skills and that a straightforward answer is not always available in the “real world”.

For patient counselling, the pharmacists indicated a greater need for training and support than the students indicated through self-assessment. This difference may reflect students’ lack of experience with a wide range of patients with varying needs. During interviews, the pharmacists noted that, following the structured training program, students required a role model and mentor whom they could observe, with whom they could practise the skill, and who would provide feedback.

The final survey included a question regarding the impact of experience during the summer on success in performing a task. The majority of students and pharmacists agreed or strongly agreed that the experiential learning component was very important. In particular, the pharmacists indicated that experience during the summer had a substantial impact on students’ ability to successfully perform patient counselling.

Clinical Role

In preparation for the pilot program, the role of the student and the preceptors’ expectations were discussed extensively with the pharmacists. The pharmacists felt that their expectations for the students were clearly outlined at the beginning of the program and that those expectations were reasonable. At the conclusion of the pilot program, the majority of the pharmacists and the students were comfortable with the students’ ability to perform assigned patient care activities and professional tasks.

One pharmacist conveyed support for the training program by noting that overall he “saw great improvement over the summer in terms of familiarity [with] the pharmacist’s role in [hospital pharmacy practice]”.

Overall, the pharmacists were neutral on the subject of expanding the students’ role, with only half agreeing or strongly agreeing that the students could conduct a broader range of activities; however, there was a great deal of variability depending on the individual student involved.

Preceptors’ Experience

The pharmacists were asked about the most challenging and rewarding aspects of the pilot program. One challenge was that of “getting into the mindset of utilizing [student] skills”. The pharmacists had to adjust to changes in their own role when the student was trained to perform a specific patient care activity. One pharmacist noted that another challenge lay in learning to assess and trust the student’s abilities. Other

challenges encountered by the preceptors were related to the time required to train and work with the students. This factor is relevant given the importance of the preceptor’s role for the students. Interestingly, however, most preceptors perceived that their overall workload was reduced during the course of the pilot. Therefore, the concept that “investing time” in training the students would result in a better functioning team over the course of the summer was reasonable.

Pharmacists reported that it was rewarding to see the students grow professionally and to observe their success over the summer. One pharmacist commented, “It was pleasing to see that the tasks were performed well, with little supervision” and it was beneficial “seeing how enthusiastic the student was and how independent she became”. Most of the pharmacists were also positive about the students’ contribution to patient care and the development of their clinical skills during the course of the summer.

In the final evaluation surveys, both pharmacists and students supported continuation of the program. This clinical summer student pilot was the foundation for another student training program developed through a partnership among Capital Health, the Faculty of Pharmacy and Pharmaceutical Sciences at the University of Alberta, the Alberta College of Pharmacists, and Shoppers Drug Mart. Funding was provided by Alberta Health and Wellness through an Enhancing Clinical Capacity Project grant to train pharmacy students before clinical placements in community pharmacies and hospitals in regional and rural settings. This program was designed to improve the clinical experience of both students and pharmacists.

LESSONS LEARNED

This pilot program was deemed successful, and the clinical summer student program has been expanded to include additional positions at Capital Health. In addition, this model and the lessons learned from the pilot have been incorporated into both second- and fourth-year experiential rotations in the undergraduate program at the University of Alberta. Pharmacists’ appreciation of the student’s role on the pharmacy clinical team and integration of the student into the team are important components of the success of the program. We feel that we have achieved these goals and have taken steps toward a cultural change regarding the role of students in hospital pharmacy practice and how pharmacists view students. At the conclusion of this pilot program, we felt it was important to consider what had been learned in an effort to improve future programs.

“I Have the Coolest Summer Job”

The students clearly benefited from the program. One of the students reported that he had “the coolest summer job”. The students also indicated that the summer experience left them better prepared for their academic rotations. The positive experience of these students has increased interest in summer employment with Capital Health, and in 2007, there were 130 applications for 27 summer student positions.

Anecdotal reports from the students indicated that the pilot program increased their interest in pharmacy residencies and careers in institutional practice. Of the 5 students who participated in the pilot program, 1 went on to complete a residency and 2 are currently employed in hospital practice. Capital Health has received an increasing number of applications from new graduates, despite significant competition from community practice.

From the students’ perspective, the value of working in direct patient care, alongside pharmacists engaged in professional activities, was of paramount importance. The students’ confidence appeared to increase over the duration of the work experience through repeated exposure to patients and patient care activities and through feedback from the pharmacist. We feel that it is important that this student feedback be shared with the pharmacists to help them understand the importance to the student of being integrated into the team. One of the most rewarding aspects of the pilot for the students was making a meaningful contribution to patient care and understanding the professional role of a hospital pharmacist.

Four months after completion of the pilot program, one student had this to say about her experiences:

Reflecting back on my summer experience, it was probably the most rewarding of my undergraduate career. The preceptors were wonderful and supportive and always willing to share their wealth of knowledge. The formal training at the beginning of the summer set me on the “fast track” and enabled me to dive into the role of the clinical intern. It helped to re-emphasize key points from school and introduced me to aspects of the hospital that school does not allow you to experience.

“We All Have to Be on the Same Page”

It was disappointing that one student originally selected for the pilot program was reassigned to work in a technical role. However, this reinforced the importance of obtaining strong support for the program from the pharmacists, other staff, and management. One of the changes made after the pilot program was to increase the

preceptors’ involvement with the training process and to clarify the preceptors’ role. Given concerns about the time spent with the students early in their training, it is important that pharmacists be supported in the preceptor role. For example, scheduling changes may be needed to accommodate the preceptor activities. The teams that reported the most rewarding experiences had preceptors who provided clear direction both to the other pharmacists and to the student. The pharmacists also felt that they needed more details about the information that the students received during the structured training sessions. Modifications to address this concern have included providing preceptors with copies of the written information that the students receive and having the preceptors participate in the training program. Improved communication among the students, the preceptors, and the rest of the pharmacy team is critical, and frequent meetings are of particular importance early in the program.

Allow Time for Learning

A system of offering a training program for a limited number of clinical tasks, scheduling time to master these tasks in the patient care setting, and then providing a second training session for additional clinical tasks has been implemented. The instructional method of observing demonstration of the skill by the preceptor, rehearsing the skill, and applying the new skill forms the foundation for learning from experience. Combining structured learning with experiential learning activities for a limited number of tasks has been used to implement structured patient interventions to be performed by students.⁵ This educational model is applicable to other training scenarios, including orientation of pharmacists, technicians, and students on academic rotations.

CONCLUSIONS

A pilot program involving structured training and participation in patient care and professional activities provided pharmacy students and preceptors with a rewarding work experience that contributed to their respective professional development. This program cultivated a clinical role for students and appreciation of that role on the clinical pharmacy team.

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