

Development of Pharmacy Services in a Family Medicine Residency Program

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INTRODUCTION

Reports of pharmacists working in family medicine settings appeared in the literature as early as 1974¹ and have continued to the present day.²⁻²⁸ The role of the pharmacist in this setting has evolved over the past 30 years. In the 1970s most sites had dispensaries, and pharmacists were involved in traditional dispensing functions.^{1-3,6,7} Pharmacists were also involved in patient care activities (e.g., counselling and taking medication histories), liaising with pharmaceutical company representatives, and providing drug information and education to physicians.¹⁻¹⁰ The 1980s saw the expansion of patient care services (i.e., consultations, monitoring, home visits, and liaising with community pharmacists) and the enhancement of services to health care professionals (i.e., education for physicians, residents, and nurses; formulary product selection; and newsletters).^{11,12,14,15,17-19,21,22} This growth continued into the 1990s, with pharmacists becoming more involved in committee and administrative work as well as research and scholarly activities.^{23-27,29-33} These changes were especially evident in sites that served as training facilities for family physicians.^{23,25,27,28,30-33}

The first study of pharmacists' contributions in this setting was reported in 1975. It showed that pharmacists' consultations with patients regarding their medications and health care needs improved consumers' attitudes toward pharmacy.³ In a 1979 study, a peer review panel concluded that drug therapy recommendations made by pharmacists and implemented by physicians were appropriate and had favourable effects on patient care.¹⁰ Studies published since then have shown that patient-specific consultations and both formal and informal drug-related education provided by the clinical pharmacist improve physicians' prescribing practices.^{34,35} Other studies have reported that recommendations made by clinical pharmacists

contribute positively to patient care by resolving drug-related problems or improving the clinical status of the patient.^{30,36,37} Several studies have described patients', physicians', and family medicine residents' positive perception of clinical pharmacy services.^{9,12,33,37,38} Other research has demonstrated the positive cost-benefit ratio of clinical pharmacy services in family practice.³⁹⁻⁴² Most of the research appears to have been conducted at sites with residency training programs in family medicine.^{9,10,12,30,33-38}

There is, however, a paucity of information on the role or impact of clinical pharmacists in family medicine settings in Canada. The purpose of this paper is to describe the implementation and growth of pharmacy services in a family medicine residency training program in Halifax, Nova Scotia.

IMPLEMENTATION, 1990-1992

Various approaches to implementing and expanding pharmacy services in the ambulatory care setting have been described.⁴³⁻⁴⁵ In the family medicine residency training program described in this paper, the following steps were taken, based on the literature and the personal experience of the pharmacist providing the service.

Identification of Clinical Pharmacist and Practice Location

One of the authors (A.M.W.) was hired by the College of Pharmacy at Dalhousie University, Halifax, Nova Scotia, in 1990, where she expected to establish a clinical pharmacy practice. Because her specialty was family medicine, opportunities for working with the Dalhousie University Department of Family Medicine were explored. The department is an accredited training site for family medicine residents.



It is “devoted to exemplary patient care, teaching, and research”⁴⁶ and believes in partnerships and collaborative approaches with patients and colleagues. Formal discussions among the head of Family Medicine, the director of the College of Pharmacy, and the pharmacist led to a 20% cross-appointment, meaning that the pharmacist would work 8 hours per week in the family medicine clinics. In 1990, the department had 3 outpatient clinics in Halifax, staffed by a total of 6 teams, each team consisting of family physicians, residents, a nurse, and a receptionist. One of the clinics currently records approximately 10 000 patient visits per year, while the other two combined record approximately 15 000.⁴⁷ Patients represent all age groups and socioeconomic levels.

Identification and Piloting of Pharmacy Services

In developing the clinical pharmacy practice, the pharmacist had 3 primary goals:

- to initiate clinical pharmacy services
- to develop a practical experience site for training pharmacy students
- to engage in research in collaboration with family physicians.

The pharmacist first identified which services would best meet the needs of the clinics. She presented to the physicians an overview of the clinical pharmacy services provided at the family practice site where she had completed her specialty residency training. She met individually with physicians and nurses to discuss opportunities and suggestions for pharmacy services that they might find useful. The pharmacist also spent time observing how the teams functioned while patients were being seen and attending weekly rounds and presentations.

The pharmacist then piloted an informal drug information service. The head of Family Medicine announced to the teams that the pharmacist was available to answer their drug information requests. Because this resulted in few requests, the pharmacist looked for other ways to advertise the service. She made an announcement at weekly rounds and put a reminder sticker on all copies of the *Compendium of Pharmaceuticals and Specialties (CPS)* in the clinics. The number of questions increased slightly during 1992. The pharmacist recorded all questions and responses on a form devised for this purpose. Initially, the drug information requests were very general, but as team members became more familiar with the expertise of the pharmacist, more requests relating to specific patients

were made. The types of questions asked often required the pharmacist to review the patient’s chart or contact the physician, the patient, or the community pharmacist (for additional information or clarification), to conduct extensive literature searches, and to formulate a written response for the requester, as well as completing her own records.

The pharmacist also began giving presentations on new drugs at weekly rounds or to individual teams as requested. She served as a resource for residents’ weekly presentations on topics in obstetrics and gynecology and as a consultant for the residents’ required research projects.

These initial experiences suggested that some team members had had minimal exposure to primary care pharmacists outside the dispensary setting. To determine whether this minimal exposure was reflective of other family medicine programs across the country, the pharmacist teamed with one of the physicians to conduct a survey of pharmacy services in Canadian family medicine residency programs. Another project examined the types of drug information questions asked at the clinics. These research projects provided additional data to determine the best use of the pharmacist’s time at the clinics and enabled the pharmacist to begin establishing research collaborations in the department. Reports of these 2 projects were published,^{31,32} and the results presented at national pharmacy and family medicine conferences.

EXPANSION OF SERVICES

From 1993 to 1997

Clinical Pharmacy Services

After piloting these services, the pharmacist and the head of Family Medicine met to review the experience to date (Table 1). They agreed that the drug information service was valuable and should be continued and expanded. To enable the pharmacist to become more involved in patient care, an informal, consult-type service was initiated. A referral form was devised and the consult service advertised to team members. Over the next several years there were few requests for patient consults, but the number of drug information requests increased dramatically (Table 2). In 1995, the time to complete a drug information request was added to the documentation form. As Table 2 shows, the average time to complete a request was an hour or more, which indicates the complexity of the requests.



Table 1. Evolution of Pharmacist Activities at the Family Medicine Clinics of Dalhousie University

Activities	1991	1992	1993	1994	1995	1996	1997	1998	1999
% and type of appointment*	20% cross	20% cross	20% cross	20% cross	20% cross	20% cross	20% cross	20% joint	20% joint
Clinical pharmacy services									
Drug information	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Patient consults	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Patient counselling	No	No	No	No	No	No	No	Yes	Yes
Teaching and administration									
Consultant or preceptor for residents' research projects	Yes	Yes	Yes	Yes	No	No	No	Yes	Yes
Consultant for residents' presentations	Yes	Yes	Yes	Yes	No	No	No	No	No
Presentations to teams	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Preceptor for pharmacy clerkship students	No	No	No	No	Yes	Yes	Yes	Yes	Yes
Tutoring in medical school	No	No	No	No	No	Yes	Yes	Yes	Yes
Lectures to residents	No	No	No	No	No	No	No	Yes	Yes
Committee work	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Scholarly activities									
Research projects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Conference presentations	No	No	No	No	Yes	Yes	Yes	Yes	Yes
Publications	No	No	No	Yes	No	No	Yes	Yes	No

*Cross appointment = official appointment with Department of Family Medicine, with no monetary compensation from the department. Joint appointment = official appointment with Department of Family Medicine, with the department contributing a percentage of the pharmacist's salary.

Table 2. Evolution of Clinical Pharmacy Services at the Family Medicine Clinics of Dalhousie University

Year	Total No. of DI Requests	Average Time to Complete a DI Request (min)	Source of DI Request				No. of Patient Consults*	No. of Patient Counselling Sessions*
			Physicians	Nurses	Residents	Others		
1991	4	NA	0	1	2	1	0	0
1992	14	NA	5	5	3	1	0	0
1993	21	NA	3	12	2	4	0	0
1994	106	NA	23	65	5	6	4	0
1995	93	70	30	48	9	6	3	0
1996	87	102	29	49	2	7	3	0
1997	100	164	45	51	2	2	6	0
1998	82	146	29	26	25	2	22	3
1999	93	60	42	24	28	4	40	10

DI = drug information, NA = data not available.

*Patient consults often involved counselling. In these cases, counselling was not documented as a separate activity.

Teaching and Administration

During these years, the pharmacist's teaching responsibilities with the Department of Family Medicine expanded to include not only team members, but also medical students and pharmacy students. At the clinics, the pharmacist continued to serve as a consultant to the family medicine residents for their presentations and research projects and to provide ad hoc presentations to the teams. In 1995, the pharmacist realized one of her

original goals when the Department of Family Medicine became an official site for the Clinical Clerkship Program of the Dalhousie College of Pharmacy. That year, one student completed the 2-week program with one of the teams. Feedback from the student and the team members indicated that this was an excellent learning environment for the student and a pharmacy service valued by the team. The program was expanded to 4 weeks the next year, with the Department of Family Medicine agreeing to take 2



students each year. The pharmacy students had specific assignments, including drug information reports, case presentations, inservice presentations to team members, and provision of pharmaceutical care.

In 1996, one of the faculty members in the Department of Family Medicine undertook coordination of the Communications Skills Course for the medical school at Dalhousie University. As part of her teaching responsibilities in the Department of Family Medicine, the pharmacist participated as a tutor in this course.

Administration is a minor component of the pharmacist's commitments to the Department of Family Medicine. She has served as a member of the department's Patient Education Committee since 1991 and as a consultant to the department's Curriculum Committee as it reviewed and revised the therapeutics portions of the residents' curriculum.

Scholarly Activity

Additional collaborative research projects were undertaken with 3 physicians in the Department of Family Medicine in the areas of prescribing practices, optimal prescribing, and academic detailing.

From 1998 to the present

Clinical Pharmacy Services

In 1997 the head of Family Medicine and the pharmacist once again completed a critical review of the pharmacist's services. Both felt that, overall, the services were valuable and fulfilling a need. Consequently, a joint appointment was negotiated, with the Department of Family Medicine assuming 20% of the pharmacist's salary.

Further discussion revealed that the head of Family Medicine wished to increase the exposure of residents to the pharmacist's expertise, while the pharmacist wished to increase direct patient care. Consequently, a formal Family Medicine Consultant Pharmacist Service, which targeted direct patient care activities, was initiated in 1999. The pharmacist spent one half-day per month on each of 4 teams at the 2 clinics on a rotating basis (after a merger of 2 clinics in the mid-1990s, there were only 2 Halifax clinic sites for the Department of Family Medicine). Teams were encouraged to identify the patients they wished the pharmacist to see, for example, those receiving multiple medications or doses, those having adherence problems, and those requiring education about how to use their medications. The pharmacist was often asked to obtain a complete medication history, including nonprescription drugs

and alternative therapies, and to then check for any potential drug-related problems. Teams notified the pharmacist ahead of time of patients who had been booked for appointments and the reason for the consult. As this service was being planned and implemented, the number of consult requests increased, while the total number of drug information requests decreased (Table 2), although the number of such requests from residents increased.

Teaching and Administration

To increase residents' exposure to the pharmacist's expertise, the pharmacist began to teach in the residents' curriculum. In the first year of the curriculum the pharmacist presents a lecture titled "An introduction to therapeutics". This lecture is presented 4 times per year as the residents rotate through the 12-week family medicine block. In year 2, topics presented by the pharmacist include "New drugs critically evaluated", "An approach to lifelong learning using therapeutics as an example", and "Interaction with pharmaceutical representatives". Second-year residents complete 16 weeks in family medicine; therefore, these lectures are presented 3 times per year. All of these lectures are presented in collaboration with family medicine physicians, and one lecture is presented in collaboration with a representative from the pharmaceutical industry.

Administrative responsibilities have not changed. The pharmacist is still a member of the Patient Education Committee, bringing updates on any new patient-oriented drug information materials to the attention of the committee and participating in committee programs.

Scholarly Activity

Data collection and analysis for several projects were completed. Dissemination of the results became the pharmacist's primary focus, which led to the preparation of several conference abstracts and presentations and contributions to the writing of papers for publication.

DISCUSSION

The early years of the practice were dedicated to determining which pharmacy services were needed and how to implement them. Table 1 depicts the growth of the services over the past decade. Announcements at weekly rounds and reminder stickers on copies of the *CPS* did not seem to be effective methods of advertising the drug information service. The brief description and



referral form distributed to team members in 1994 seemed more effective, as the number of drug information requests increased dramatically in 1994 (Table 2).

In 1995/96, 2 of the clinics merged, which allowed the pharmacist to spend more time at the site of the merged clinic. Staff at the other clinic, located off campus, wanted the pharmacist to spend more time at that site. Team members felt that having the pharmacist physically present would increase use of her services and provide the residents more opportunity for interaction. Therefore, the pharmacist visited the site on an ad hoc basis. However, this approach did not work well, as team members were not prepared for the visits and felt that the pharmacist's expertise was not being appropriately used. The rotating schedule (described previously), with specific times for visiting each team, proved most effective for the off-campus clinic.

For the first 5 years, drug information requests and research accounted for most of the pharmacist's time with the department of Family Medicine. Since then, the pharmacist has been asked more often to meet with patients to complete comprehensive medication histories, assess drug therapy, and counsel as appropriate. Written documentation of these consults is always provided to the referring physician for insertion into the patient's chart. The initiation of teaching sessions with the residents in 1998 increased the pharmacist's visibility and aided in building rapport with the residents. This may partially explain the increase in drug information requests from the residents in 1998 (Table 2).

At the time of writing, the pharmacist was working 2 half-days each week at the clinics, with approximately 4 hours devoted to patient care and the remainder of the time to teaching, administration, and research. Upon arrival at the clinic the pharmacist checks her mail box and voice mail for any referrals. Team members often stop by her office to ask questions about patients whom they will see that day. However, the referral form is used for most consults. If patients are booked to see the pharmacist, she prepares by reviewing the patient's chart. Although there has been no formal evaluation of the pharmacist's services, the steady increase in use of those services and approval of a joint appointment in 1998 suggest that the team members have been satisfied with and value the work of the pharmacist.

There were many challenges in developing clinical pharmacy services at the Family Medicine clinics. Initially, the role of the pharmacist in this setting was unclear to some of the team members, although most

were open to the idea of pharmacist involvement at the clinics. Thus, time and experience with the pharmacist were needed to gain the teams' understanding and respect. Over the years, the pharmacist has found the nurses very receptive, and they often seek her out for drug information and consults. Residents have increasingly used the pharmacist's services and often comment on the value of encounters with clinical pharmacists during their hospital rotations. The response from staff physicians has been variable. There are approximately 15 physicians working in the 2 clinics, some of whom access the pharmacy services frequently and a few of whom do so rarely or never. Use of the services by all team members appears to increase during and immediately after a pharmacy clerkship student has been assigned to a team. Students join the team every afternoon for 4 weeks. This increased visibility and accessibility seem to positively influence the use of pharmacy services.

The pharmacist is an associate professor at the Dalhousie College of Pharmacy and spends a large proportion of her time at the College. The limited amount of time available for clinic work has been a deterrent to the use of pharmacy services. Over the years, this issue has been addressed through a variety of mechanisms designed to increase referrals and consults. A referral form was introduced in 1993, and in 1997 the pharmacist obtained voice mail, which is used by team members to leave consult requests. The referral form and voice mail are also used to inform team members of the pharmacist's hours at the clinic. In completing the referral form, team members are asked to indicate the date by which the consult is needed. This request reminds team members that the pharmacist is not available every day. An early agreement between the Department of Family Medicine and the College of Pharmacy established Tuesdays and Thursdays as the pharmacist's days at the clinics. This schedule has not changed over the years, and team members now know the routine.

Overall, the pharmacist is pleased with the services that have been implemented and with the positive response from most team members. However, there is a degree of frustration with time constraints, which have precluded a more extensive evaluation of current services (e.g., type and impact of recommendations on patient care, patients' and team members' satisfaction with services) and have made it challenging to provide service to 2 clinics and all team members. The latter situation has been exacerbated by an increase in the complexity of drug information requests and consults.



Expansion and evaluation of services would entail a greater time commitment for the pharmacist at the clinic. This in turn would require the Department of Family Medicine to increase its share of salary support and the College of Pharmacy to decrease its demands on the pharmacist. At the current level of appointment the pharmacist would like to limit the consult service (i.e., to only one clinic or to a single therapeutic area, such as women's health) and to initiate some of the aforementioned evaluation research. To date, the head of Family Medicine has preferred that all pharmacy services be made available to all clinics and team members. If the time commitment is to stay the same, priorities must be set so that common goals can be attained.

CONCLUSION

The initial goals of the pharmacist in developing a clinical pharmacy practice within a family medicine residency program have been achieved. Beginning in 1991, clinical pharmacy services, including drug information and patient consultation services, were implemented. Surveys completed in collaboration with a family physician initiated a research partnership and offered insights into which pharmacy services were needed and valued at the clinics. Other opportunities for research collaboration with family physicians were subsequently identified, and several projects have been completed. In the mid-1990s, Dalhousie Family Medicine became a clinical clerkship site for pharmacy. Two students complete their 4-week rotation at the site each year. Future goals of the pharmacist include formal evaluation of the service and further expansion of pharmacy services.

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