Activities performed by pharmacists integrated in family health teams: Results from a web-based survey

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In this article, we have tried to describe the complex practices of Ontarian pharmacists working integrated in family health teams. We report the findings of a web-based survey, where participants quantified their main activities and described what impact they think they have on patient outcomes.

Dans cet article, nous avons tenté de décrire les pratiques complexes des pharmaciens ontariens faisant partie d'équipes de santé familiale. Nous faisons état des résultats d'un sondage Web dans le cadre duquel les participants devaient quantifier leurs activités principales et décrire l'influence qu'ils croyaient exercer sur les résultats observés chez les patients.

ABSTRACT

Objectives: Family health teams (FHTs), an inter-professional primary care practice model, were established in Ontario in 2005. As of October 2014, 191 FHT organizations were in operation, and 111 (58%) included one or several pharmacists. The objective of this study was to document the focus of pharmacist activities in FHTs.

Approach: We invited all 155 known FHT pharmacists to a web-based survey. The survey was constructed using information obtained from previously done semi-structured telephone interviews with pharmacists working in FHTs. The survey consisted of a list of activities, grouped into 5 main categories, and participants were asked to estimate time spent on each category. Free-text response questions allowed participants to identify activities not listed. Survey results were

analyzed using descriptive statistics and content analysis for open-ended responses.

Results: Seventy (45%) pharmacists completed the survey. The mean respondent age was 43 years, and the average length of time working in an FHT was 4 years. All pharmacists reported being engaged in some form of direct patient care, including managing single therapeutic issues (96%), conducting general medication reviews (70%) and medication reconciliation after hospitalization (63%). Most reported providing education and drug information (83%). Pharmacists felt their work would increase patient medication adherence (94%) and physician adherence to recommended guidelines (86%), as well as reduce inappropriate prescribing (93%), polypharmacy (90%), emergency room and hospital utilization (70%-81%).

Conclusion: Pharmacists in FHTs are strongly focused on direct patient care activities, managing specific medication issues and unstructured drug information to physicians. The majority of pharmacists reported that their activities had a substantial impact on patient medication use and health. The findings from this survey can assist pharmacists new to FHT practice, health policy planning and health research to assess associations between pharmacist activities and measures of health and health care system performance. *Can Pharm J (Ott)* 2017;150:407-416.

Introduction

Background

The increasing complexity of care for an aging population has led to high demands for primary health care services.¹ One approach to increasing capacity for care is by introducing additional

health professionals into family practices. Several Canadian provinces, including Alberta, Quebec and Ontario, have restructured primary care to foster interdisciplinary team-based care. Since 2006, the Ontario Ministry of Health and Long-Term Care (MOHLTC) has funded around 200 interprofessional primary care organizations

KNOWLEDGE INTO PRACTICE

- Previous work has focused on role development and barriers to integration. There has been little formalized assessment attempting to describe and quantify pharmacists' activities in Ontario family health teams (FHTs).
- This study primarily adds to the understanding of Ontario FHT pharmacists' scope of practice and what activities they most frequently engage in.
- The data from this study can be used to develop pharmacist practice within Ontario FHTs and inform analyses of pharmacist contribution to patient outcomes.

in communities across the province called family health teams (FHTs).²⁻⁵ Some Ontario FHT organizations operate from more than one practice site. Today over 3 million Ontarians are enrolled with an FHT.

Prior to the Ontario FHT initiative, family practices were composed primarily of family physicians, nursing staff and administrative support. In 2003, members of our team established the Integrating Family Medicine and Pharmacy to Advance Primary Care Therapeutics (IMPACT) program, a large-scale Ontario-based demonstration project that included the integration of 7 pharmacists from different backgrounds (hospital or community pharmacy) with different levels of education into family practices across Ontario.⁶ When the FHT model was developed in 2006, the IMPACT project,⁷ the Ontario Pharmacists Association⁸ and the Ministry of Health and Long-Term Care^{9,10} worked together to provide tools and resources to assist the pharmacist integration within FHTs. In the initial years of pharmacist integration into family practices, we observed wide variation in pharmacists' experience, ranging from feeling underused and out of place to feeling highly valued and accepted. Over time, each primary care practice established the role of the pharmacist within their practice independently. The activities that pharmacists undertook spanned patient care, education, practice system enhancements and team integration.¹¹

An ethnographic study conducted in 6 Ontario FHT organizations approximately 3 years after they were established revealed 2 broad typologies of pharmacist practice working in this interprofessional context: a pharmacist who oriented care toward the physician within

the practice (responding to physician requests for drug information and other projects) and, in contrast, a pharmacist who worked at multiple levels of interaction (providing patient-centred care and provider and patient education/information, as well as initiating system-level interventions to improve drug therapy).¹² Several studies have reported a clinical benefit for practices having integrated a pharmacist, but the role of the pharmacist in these practices is poorly understood.¹³⁻¹⁸ In Ontario, the FHT model is a 10-year-old natural experiment that provides a unique opportunity to evaluate the contribution of pharmacists' integration within a primary care team in a pragmatic environment and inform policy. While there has been some guidance and opportunity for more recent pharmacist networking and education through the volunteer-run Ontario FHT pharmacist network and, more recently, the Association of Family Health Teams of Ontario (AFHTO), there has been little formalized assessment of pharmacist integration, activities or outcomes in more recent Ontario FHT practice.

The objectives of this article are to report the findings of a survey of all FHT pharmacists to 1) quantify the main activities for pharmacists in FHTs across Ontario and 2) capture the pharmacists' perception of the impact of their activities on patient outcomes. The data from this study can be used to develop pharmacist practice within Ontario FHTs and inform analyses of pharmacist contribution to patient outcomes.

Methodology

Recruitment

All pharmacists practising in an Ontarian FHT were eligible for the survey. An updated list of all FHTs and their web pages was accessed from AFHTO, and the researcher contacted each of the FHTs to find out whether or not they had a pharmacist employed and to get the contact information of those pharmacists. Another source of information was the listserv of the Ontario FHT Pharmacist Network that contained email addresses for many of the pharmacists.

A recruitment letter was sent by email, in September 2014, to all known FHT pharmacists ($n = 155$) working in 106 Ontario FHT organizations. The participants had 2 weeks to complete the survey. A reminder email was sent out twice to the entire group, reminding invitees to

participate. We assigned a unique participant identifying code to each survey and deleted any identifiable information. The study received ethical approval from the Bruyère Continuing Care Research Ethics Board and Ottawa Health Science Network Research Ethics Board Design.

The survey was web based and constructed using the program FluidSurveys. The first section of the survey captured demographic information (sex, age, hours/week, educational level, years since graduation and years of experience as FHT pharmacist). The second section captured pharmacist activities. The content of that section was based on information from a set of qualitative semi-structured interviews conducted with 10 Ontario FHT pharmacists. The interviewees were purposefully selected to maximize variation in interview responses. The recruitment process was based on existing knowledge of factors that may influence the roles and responsibilities of pharmacists working in FHTs. Examples of these factors are practice size and level of experience of the pharmacist. Based on that study, we established 5 categories and 20 subcategories of activities. Respondents were asked to state the extent to which each activity was performed on a weekly basis within their FHT responsibilities. To guide their responses, we suggested that *never* = 0%, *occasionally* = 1% to 10%, *frequently* = 11% to 50% and *very frequently* = >50% of their time worked at the FHT. Participants were also asked to report on activities that they did not currently perform but thought they ought to perform.

The last section of the survey captured the respondents' belief about the impact of their current activities on the 6 outcomes and process measures using a 4-point Likert-type rating scale with the options "Yes, to a high degree," "Yes, to a certain degree," "Perhaps to a small degree," "No, not to any measurable degree" and "Don't know." Finally, participants could record additional activities or outcomes and process measures not captured in the survey and describe these in a free-text response box. It was estimated that completing the survey would take the participants 20 to 30 minutes.

Analyses

The answers to the closed-ended questions were analyzed using descriptive statistics (proportions, means [SD] calculated). Comments and free-text segments were analyzed using content analysis. A descriptive comparison between

MISE EN PRATIQUE DES CONNAISSANCES

- Des études précédentes ont porté sur l'élargissement du rôle des pharmaciens et les obstacles à leur intégration. Peu d'évaluations officielles ont tenté de décrire et de quantifier les activités des pharmaciens au sein des équipes de santé familiale (ESF) de l'Ontario.
- La présente étude nous permet principalement de mieux comprendre le champ de pratique des pharmaciens au sein des ESF de l'Ontario et de préciser les activités qu'ils mènent le plus souvent.
- Les données de cette étude pourront servir à étendre la pratique de la pharmacie au sein des ESF de l'Ontario ainsi qu'à étayer les analyses sur la contribution des pharmaciens aux résultats observés chez les patients.

those working full-time (≥ 37.5 hours/week) and part-time (< 37.5 hours/week) was conducted.

Results

Seventy (45%) of the 155 pharmacists invited completed the survey (Table 1). The median age of respondents was 43 years. The majority were female (73%), had a bachelor's degree in pharmacy as their highest level of education (80%), were more than 10 years postgraduation (72%) and listed additional training relating to their work (87%), such as Training Enhancement in Applied Cessation Counselling and Health, Certified Diabetes Educator, Certified Geriatric Pharmacist, Management of Anticoagulation Therapy, Alcohol Drug and Gambling Assessment Prevention, Treatment Certificate in patient care skills and Accredited Canadian Pharmacy Residency. Virtually all (94%) had fewer than 10 years of experience within an FHT. More than half (54%) reported working at more than one FHT practice site. For all but 4 pharmacists, the practice sites were part of the same FHT organization. Thirty-six percent of respondents worked full-time (i.e., 37.5 hours a week as an FHT pharmacist), with many of the remaining combining this with other work, for example, in a community pharmacy.

The activities performed by FHT pharmacists are reported in Table 2. All respondents indicated that they were involved in some form of direct patient care, and almost all (96%) managed specific medication issues in direct patient care. General medication reviews (70%) and medication reconciliation (63%) were also common activities. Pharmacists reported providing content expertise and support to physicians

TABLE 1 Family health team pharmacists' demographics

Question and response options	No. (%) respondents (n = 70)
Do you identify yourself as	
Female	51 (73)
Age groups (years)	
≤24	1 (1)
25-34	17 (24)
35-44	21 (30)
45-54	24 (34)
55-64	7 (10)
How many years has it been since you graduated as a pharmacist?	
0-5	12 (17)
5-10	7 (10)
10-15	6 (9)
15-25	21 (30)
>25	23 (33)
What is your highest level of education?*	
Bachelor's of pharmacy	56 (80)
PharmD	10 (14)
PhD	1 (1)
Other [†]	2 (3)
How long have you practised as an FHT pharmacist? (years)	
0-5	39 (56)
5-10	25 (36)
>10	4 (6)
How many hours per week do you work as an FHT pharmacist?	
0-15	13 (19)
16-25	19 (27)
26-37	12 (17)
≥37.5	25 (36)
Do you work for more than one FHT site?	
Yes	38 (54)

*One survey respondent did not answer question.

[†]Other education listed by pharmacists was master's degree (MSc).

and other health care professionals in the practice (73%), participating in trainee supervision (27%) and less frequently offering structured educational sessions to patients (16%) and providers (11%). Patient-structured educational sessions focused primarily on smoking cessation

and diabetes. Activities aimed at increasing the pharmacist's integration in the team (i.e., promoting pharmacy services and/or interdisciplinary care involving pharmacists) were only reported as tasks performed frequently or very frequently by 6% of respondents. Seven percent

TABLE 2 Activities performed by pharmacists in family health teams (FHTs), as reported by survey respondents*

Activities	No. (%) respondents (n = 70)
Direct patient care	
Managing specific issues that involve medications	67 (96)
General medication reviews	49 (70)
Medication reconciliation	44 (63)
Direct patient care <i>not</i> associated with medication	18 (26)
Prescription refill/extension	12 (17)
Identifying patients appropriate for pharmacist activity	6 (9)
Patient-related administrative issues [†]	5 (7) [‡]
Any one of the above	70 (100)
Education and drug information	
Unstructured to physicians and other HCPs one-on-one or to a group	51 (73)
Teaching/educating/supervising students	19 (27)
Self-education	18 (26)
Structured to patients in a group setting	11 (16)
Structured to physicians and other HCPs in a group setting	8 (11)
Any one of the above	58 (83)
Systematic improvement programs	
Creating new programs for patients	13 (19)
Systematic improvements of drug prescribing and drug use	12 (17)
Systematic improvements in administrative efficiencies at FHT	10 (14)
Any one of the above	26 (37)
Other activities performed during FHT working time	
Research/involvement in quality improvement projects, etc.	6 (9)
Acting as manager/coordinator/administrator, etc.	4 (6)
Promoting pharmacy services and/or interdisciplinary care involving pharmacists	4 (6)
Health policy/LHIN activities/drug and therapeutics committees, etc.	3 (4)
Any one of the above	15 (21)

HCP, health care professional; LHIN, Local Health Integration Network.

*Only includes activities reported by survey respondents as performed very frequently or frequently.

[†]Emerged activity reported by respondents from free-text comment boxes.[‡]Representation of number of participants and not of frequency.

of pharmacists also reported that they performed patient-related administrative activities within the unprompted free-text area of the questionnaire.

Pharmacists wrote about other activities they wished to perform that they currently did not. One pharmacist expressed interest in being more integrated in terms of medication

follow-up, saying, “I believe that once a diagnosis has been made, a pharmacist could be used to great effect in terms of monitoring effectiveness and doing dose adjusting as necessary. I think it would be a good use of a pharmacist’s skill set and would free up the physicians to see other patients.” Other respondents were interested in patient program development and improving

prescribing of medication at the FHT level by doing chart audits, giving feedback, designing interventions to improve prescribing and then monitoring effectiveness. There was interest in implementing a seniors' wellness program involving home visits by pharmacists and nurse practitioners. One pharmacist hoped to be more involved in pharmacy practice research and publish data from the practice in the FHT.

A higher proportion of full-time FHT pharmacists was more likely to perform medication reconciliation (72%) and general medication reviews (76%), as well as being involved in student education (40%), creating new programs for patients (28%) and research (16%). However, none of the differences seen between the full- and part-time FHT pharmacists were statistically significantly different (Table 3).

The majority of FHT pharmacists reported that they felt their work had a high or certain (i.e., moderate) degree of impact on all 6 areas of potential impact asked about, including adherence, reducing inappropriate prescribing and reducing drug burden (Table 4). Survey respondents also identified other ways to intermittently assess the effectiveness of their services, such as conducting patient satisfaction surveys; obtaining feedback from physicians, nurses or other health care provider team members; and examining changes in biochemical markers (e.g., HbA1c in diabetics), quality of life, falls in the elderly and time to stabilization after a new diagnosis.

Discussion

The results of the study indicate that the pharmacist practice within Ontario FHTs is strongly centred on direct patient care, while at the same time including major roles for many FHT pharmacists in education and drug information and health system improvements. It is also notable that the majority of FHT pharmacists hold a bachelor's degree in pharmacy as their highest level of education, along with various special designations. These findings recognize that an advanced pharmacy degree may be an asset but is not essential to practise in an FHT.

Pharmacists in our survey felt they could make the most impact on reducing inappropriate prescribing and polypharmacy, improving patient medication adherence and helping physicians adhere to recommended guidelines when prescribing. This is aligned with the

findings of a recent meta-analysis by Tan et al.,¹⁹ which included 38 studies of pharmacists who worked in integrated primary care practices. The review showed favourable results in various areas of chronic disease management and quality use of medicines. When pharmacists provided only medication management reviews, a positive effect was less likely to be observed than when additional pharmacists' interventions (adherence assessment, health and lifestyle advice, medication initiation or adjustment and monitoring) were practised. The results of the meta-analysis strengthen the recommendation that pharmacists should work not only in areas focused on single medical conditions or specific areas of focus but also in a manner consistent with a comprehensive, patient-centred, multifaceted approach. Furthermore, the studies where pharmacists communicated verbally with the patients' primary care physician (as opposed to written or no communication) were also associated with improved outcomes.¹⁹ It is encouraging to find that many of the FHT pharmacists are practising at multiple levels of interaction and so are more likely to be having a positive effect on patient outcomes.¹² The data suggest that full-time FHT pharmacists are taking on multiple levels of interaction more frequently than part-time FHT pharmacists, but a larger study is likely needed to confirm this finding. It is also notable that over one-third of pharmacists are moving beyond individual patient care responsibilities to take on some leadership roles, aiming to effect change at the practice or health system level.

Interestingly, almost the same proportion of respondents reported conducting medication reviews and medication reconciliations. A medication reconciliation involves collecting and documenting an accurate and up-to-date medication list, comparing this list with the patient's chart, identifying and correcting the discrepancies as appropriate (thereby creating a reconciled list), communicating the resulting medication changes to the patient and verifying the patient's understanding of his or her medication regimen.²⁰ This is a critical first step in conducting a medication assessment. The results of this survey do not isolate the proportion of medication reconciliations done without going on to use this information in a comprehensive (more complex) medication assessment. However, as pharmacist practice evolves and the role of the pharmacist in the primary care team-based setting becomes

TABLE 3 Pharmacist status vs activity performance*

Activities	Part-time [†] (%) n = 45	Full-time [‡] (%) n = 25
Direct patient care		
Medication reconciliation	58	72
Managing specific issues that involve medicines	93	100
General medication reviews	67	76
Identifying patients appropriate for pharmacist activity	4	12
Prescription refill/extension	16	20
Direct patient care not associated with medication	33	12
Education and drug information		
Structured educational group sessions to MDs and HCPs	69	80
Unstructured one-on-one education sessions to MDs and HCPs	69	80
Structured educational group sessions to patients	11	24
Student education	20	40
Self-education	24	28
Systematic improvement programs		
Systematic improvements of drug prescribing and drug use	16	20
Administrative efficiencies	13	16
Creation of new programs for patients	13	28
Pharmacists' integration		
Structured presentations in a group setting to MDs and HCPs	7	8
Structured or unstructured one-on-one activities with MDs and HCPs	18	12
Other/outreach activities		
Research	5	16
Administrative support	7	4
Outreach involvement (health policy, drug and therapeutics committee)	2	8
Service promotion	9	0

HCP, health care professional.

*Only includes activities reported by survey respondents as performed very frequently or frequently.

†Part-time: <37.5 hours/week.

‡Full-time: ≥37.5 hours/week.

more entrenched, pharmacists with the appropriate training should be encouraged to determine more efficient ways of promoting quality medication reconciliation through work done by trained pharmacy technicians, nurses or others, leaving pharmacists to focus on advanced practice.

Pharmacists in our study were less confident that their activities affect hard clinical outcomes compared to surrogate outcomes (e.g., level of appropriate prescribing and adherence). This could be due to the fact that hard outcomes, such

as hospitalization, are extremely multifactorial and the possibility to affect this by targeting only one area—drug therapy—is likely to be limited. Also, the more integrated the pharmacist becomes, the harder it is to evaluate the effects of the pharmacist alone, as opposed to being one member of a team that has a collective effect on patient health or system outcomes. The impact on patient outcomes will also be influenced by the availability of pharmacists to perform the activities. A part-time pharmacist may not be able to be as engaged or deliver as many services

TABLE 4 Effects and outcomes of pharmacists on family health team practice*

Effects and outcomes	No. (%) respondents (n = 70)
Increase patient adherence	66 (94)
Reduce inappropriate prescribing for elderly	65 (93)
Reduce number of drugs	63 (90)
Increase adherence to prescribing guidelines for chronic conditions	60 (86)
Reduce drug-related emergency room or hospital admissions	57 (81)
Reduce unplanned emergency room or hospital admissions	49 (70)

*Effects and outcomes reported by survey respondents as to a high degree and certain (moderate) degree.

to the patient compared to a pharmacist who has routinely scheduled hours to provide consistent practices in the FHT. Research studies, with a robust design, are needed to determine the effects of pharmacist interventions on death, hospitalization and other health outcomes.¹⁹

Activities aimed at increasing the pharmacist's integration in the team were not reported performed frequently or very frequently by the pharmacist respondents. It may be that these types of activities occur less and less, as many pharmacists become more established at the practices throughout the province. However, some respondents also indicated that these types of activities are not undertaken because their time is already stretched and taking on any new initiatives would come at the cost of eliminating others. This indication of less time spent on team integration is worrisome, since it is well known that well-functioning teams can help patients prevent and control disease complications and symptoms and make better use of health care resources.^{21,22}

Weber et al.²³ performed a survey study that documented the experiences of pharmacists who were successfully incorporated into FHTs and provided tips and advice for practitioners who are looking to accomplish similar integration. Recommendations noted in the study included being visible, available during clinic hours, actively involved in all aspects of service and proactive in providing assistance. The surveyed pharmacists emphasized the importance of administrative support personnel. They were essential to the daily workflow and success of pharmacists in the clinic. It was also suggested that pharmacists who are new to their role in interprofessional practices need to be patient and show perseverance to understand the team dynamic and demonstrate the benefits of a

pharmacist's involvement.²³ Jorgenson et al.²⁴ have published guidelines for pharmacists integrating into primary care teams. Their recommendations were similar to the ones of Weber et al.²³ but also highlighted the importance of determining the needs and priorities of the team and its patients, developing a proper pharmacist job description and making sure the role and practice of the pharmacist was known to the other team members, as well as the pharmacist knowing the others' roles.²⁴ Finally, the survey respondents' free-text comments indicated an interest in becoming involved in other activities, suggesting their willingness for a deeper integration in the FHTs. This point possibly suggests that activities, knowledge and skills of pharmacists can continue to be developed, allowing the role to evolve in contribution to patient care and enhancement of the FHT's performance.

A strength of our study includes the foundational use of qualitative interviews with purposefully selected FHT pharmacists to generate items for the survey and ensure the questions asked were relevant and based on real practice. An additional strength is the reasonably high response rate for a web-based survey.

The main limitation is the self-reported nature of the data, so that the study is relying on the pharmacists' own subjective assessments of to what extent they perform certain activities and what the impact of their work is likely to be. The actual impact of practice-based pharmacists' different activities on clinical outcomes has yet to be determined in clinical trials. As well, Tables 2 and 3 only report the statistics for activities that are reported by respondents who perform them frequently (defined as spending 11%-50% of their time working at the FHT) or very frequently (defined as spending >50% of their time

working at the FHT). This might have skewed the results, as some of the activities surveyed are not expected to occupy pharmacists' time for >10% of their work time. For example, if a pharmacist is teaching a patient class 2 half-days per month or delivering a presentation to the physicians once every quarter, this may indicate that he or she is actively involved in providing structured patient or physician education. However, these activities would not have been presented in Tables 2 and 3, as they take up less than 11% of the time worked. Another limitation is that the survey did not ask for the characteristics of the respondents' practices. For example, activities such as teaching may be carried out to a higher degree in "academic" compared to "nonacademic" FHTs. Also, the generalizability of the results outside of Ontario FHTs should be questioned. The study is also hampered by a response rate that reflects less than half of the

FHT pharmacists in Ontario, and nonresponse bias may have influenced the results.

More work is needed to understand the extent and nature of interprofessional collaboration in FHTs, as well as how pharmacists should ideally practise and prioritize between activities to have an impact on hard clinical outcomes.

Conclusion

Pharmacists in Ontario FHTs are strongly focused on direct patient care activities, managing specific medication issues and unstructured drug information. The majority of pharmacists reported that their activities had a substantial impact on patient medication use and health.

The findings from this survey can assist pharmacists new to FHT practice, health policy planning and health research to assess associations between pharmacist activities and measures of health and health care system performance. ■

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