

# Family physician perceptions of a medication assessment clinic located within a pharmacy school

Derek J. Jorgenson PharmD FCSHP Eric J.L. Landry ACPR Katherine J. Lysak

## Abstract

**Objective** To determine if the clinical services provided at a patient care clinic run by pharmacy faculty and students are valuable to family physicians.

**Design** Paper-based postal survey.

**Setting** The Medication Assessment Centre located within the College of Pharmacy and Nutrition at the University of Saskatchewan in Saskatoon.

**Participants** Family physicians who had more than 1 patient who underwent a complete assessment at the Medication Assessment Centre between April 1 and October 26, 2015, were included in the study.

**Main outcome measures** Family physician experience and satisfaction based on quantitative analysis of 6 Likert scale survey questions and thematic analysis of 2 open-ended survey questions.

**Results** A total of 81 questionnaires were mailed to family physicians, with a response rate of 43.2% (n=35). Respondents reported a very high level of support and satisfaction with the clinical pharmacist program; most (88.6%) stated that it helped them to improve the health of their patients.

**Conclusion** The family physicians who responded to the questionnaire perceived the services provided at the patient care clinic located within the pharmacy school at the University of Saskatchewan to be valuable to their practices.

### EDITOR'S KEY POINTS

- Of the 10 pharmacy schools in Canada, 3 have recently opened faculty-run patient care clinics that are physically located on campuses. The goals of these clinics are to provide expanded experiential education opportunities for students, to offer clinical pharmacist services to the community, and to evaluate new models of pharmacist-delivered patient care. These clinics train pharmacy students and provide a variety of clinical services for patients who self-refer or who are referred by health providers.
- Collaboration with family physicians is key to the success of these clinics. As this model of pharmacy student training is unique to Canada, evidence is lacking regarding the experiences and perceptions of family physicians.
- Survey findings showed that the clinic in the pharmacy school at the University of Saskatchewan in Saskatoon provides a valuable service to physicians with patients who have been referred there. Almost 90% of physicians believed that the program helped them to improve the health of their patients.

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# L'opinion de médecins de famille sur une clinique d'évaluation des médicaments établie dans une école de pharmacie

Derek J. Jorgenson PharmD FCSHP Eric J.L. Landry ACPR Katherine J. Lysak

## Résumé

**Objectif** Déterminer si les services cliniques offerts dans une clinique de santé tenue par la faculté de pharmacie et les étudiants sont utiles aux médecins de famille.

**Type d'étude** Un sondage papier par voie postale.

**Contexte** Le Centre d'évaluation des médicaments du Collège de pharmacie et de nutrition de l'Université de la Saskatchewan à Saskatoon.

**Participants** Des médecins de famille dont au moins 2 patients avaient eu une évaluation complète au Centre d'évaluation des médicaments entre le 1er avril et le 26 octobre 2015.

**Principaux paramètres à l'étude** L'expérience et la satisfaction des médecins de famille, fondées sur une analyse quantitative de questions de sondage sur une échelle de Likert en 6 points ainsi que sur une analyse thématique de 2 questions de sondage ouvertes.

### POINTS DE REPÈRE DU RÉDACTEUR

- Sur les 10 écoles de pharmacie canadiennes, trois ont récemment inauguré, sur leur campus, des cliniques de soins aux patients dirigées par la Faculté. Ces cliniques ont pour but de procurer aux étudiants des occasions d'apprentissage accrues, d'offrir à la communauté des services de pharmacie clinique et d'évaluer de nouveaux modèles de services aux patients offerts par les pharmaciens. Ces cliniques forment des étudiants en pharmacie et fournissent divers services cliniques aux patients qui les consultent d'eux-mêmes ou à la demande d'un professionnel de la santé.

- Le succès d'une clinique de ce type dépend essentiellement d'une bonne collaboration avec les médecins de famille. Comme ce type de formation d'étudiants en pharmacie n'existe qu'au Canada, il n'y a pas encore de données sur l'expérience ou la perception qu'en ont les médecins de famille.

- Les résultats du sondage ont montré que cette clinique dans l'école de pharmacie de l'Université de la Saskatchewan offre un service utile aux médecins qui y ont dirigé des patients. Près de 90 % des médecins estimaient que ce programme les aidait à améliorer la santé de leurs patients.

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**Résultats** Des questionnaires ont été postés à 81 médecins de famille; 35 ont répondu, soit un taux de réponse de 43,2 %. Les répondants ont rapporté un très haut niveau d'appui et de satisfaction à l'égard du programme de pharmacie clinique; la plupart d'entre eux (86,6 %) estimaient que ce programme les aidait à améliorer la santé de leurs patients.

**Conclusion** Les répondants au sondage étaient d'avis que les services offerts à la clinique de l'école de pharmacie de l'Université de la Saskatchewan étaient utiles à leur pratique.

The Canadian primary health care system continues to evolve toward a collaborative and interprofessional approach to patient care. Canadian pharmacists' scope of practice has expanded in response to this changing health system environment to include new services such as prescribing for minor ailments, administration of injectable drugs, prescription adaptation, smoking cessation counseling, and medication assessment consultations.<sup>1</sup>

Pharmacy schools in Canada are expected to take a leadership role through curricular innovation to support this expanded scope of practice. National stakeholder groups, such as the Blueprint for Pharmacy initiative, have advocated for pharmacy schools to expand existing experiential education opportunities for pharmacy students as a strategy to support these practice changes.<sup>2</sup> Of the 10 pharmacy schools in Canada, 3 (University of Saskatchewan in Saskatoon, University of British Columbia in Vancouver, and Memorial University of Newfoundland in St John's) have recently opened nondispensing patient care clinics physically located on campus and managed by pharmacy faculty. The purposes of these clinics are to provide innovative experiential training sites for students, to offer clinical pharmacist services to the community, and to evaluate new models of pharmacist-delivered patient care.

The Medication Assessment Centre (MAC) is one of these faculty-affiliated patient care clinics, located in the College of Pharmacy and Nutrition at the University of Saskatchewan. Patients self-refer, or are referred by family physicians and other health professionals, to receive comprehensive medication assessments. Patients meet with a team that includes up to 4 pharmacy students and a licensed pharmacist faculty member to provide a detailed medication history. Most of these initial appointments occur face to face; however, a small number are completed by telephone for patients with poor mobility. Additional patient information is collected using provincial laboratory and prescription databases. The patient's family physician is also typically asked to provide information from his or her chart (eg, specialist consultation letters, diagnostic test results). Patients receive personalized education, counseling, and adherence support to ensure they understand their medications. A comprehensive assessment is also performed to ensure the medication regimen is optimal. A consultation letter is faxed to the family physician that includes recommendations for adjustments to drug therapy that the pharmacist could not make independently (eg, stopping an antihypertensive agent). Patients are asked to make an appointment with their family physicians to discuss these recommendations before any medication changes are made.

The MAC team follows up with patients approximately 2 weeks after they are scheduled to discuss the pharmacist's consultation letter with their family physicians. This appointment occurs face to face in the clinic

and the purpose is to monitor the results of any of the medication changes that were implemented by the physicians. The MAC team continues to follow up on a regular basis, usually by telephone, to ensure the medication changes are safe and effective. All patients are recalled for a comprehensive reassessment every 1 to 2 years.

A retrospective patient chart audit completed in 2015 found that 52.6% of MAC patients were referred by their family physicians, 34.1% self-referred, and 13.3% were referred by other health professionals.<sup>3</sup> Patients of the MAC were older (mean age of 64.8 years) and complex (mean of 6.5 diagnoses and 13.8 medications each). The MAC team made, on average, 6.2 recommendations to adjust drug therapy per patient.<sup>3</sup> Support from patients has been strong, and they have expressed satisfaction with the service. In a recent survey, 97.5% of patients were satisfied or very satisfied with their overall experience and 92.6% stated they would recommend the MAC to family and friends.<sup>4</sup>

Unfortunately, nothing is known about family physician perceptions of these new pharmacy school-based patient care clinics. As this model of student pharmacist training is unique to Canada, previously published evaluations do not exist. Pharmacist-led medication assessment services provided by either community pharmacists or by pharmacists integrated within family medicine teams have shown mixed results when physician perceptions have been evaluated.<sup>5-10</sup> For example, when family medicine team pharmacists provided medication assessment consultations within physician clinics, the response was positive.<sup>6,8</sup> Physicians recognized several benefits of working with a pharmacist in their practices, including having increased prescribing confidence and gaining fresh perspectives on decision making.<sup>6,8</sup> Community pharmacy-based medication assessment programs have been less well received by family physicians, who have cited concerns regarding increased physician workload, inadequate training of pharmacists, and the lack of a trusting relationship between pharmacists and physicians.<sup>5,7,9,10</sup> However, none of these studies is applicable to the MAC because the unique attributes of an academic teaching clinic within a pharmacy school (eg, participation of multiple students in each interview, physical location on a university campus, involvement of pharmacy faculty) might alter the experiences of family physicians.

Considering that several Canadian pharmacy schools have opened patient care clinics that are physically located on campuses, it is vital to understand the perceptions of family physicians. The objective of this study was to determine if the clinical services provided by faculty and students at the MAC are valuable to family physicians.

## METHODS

This study used a paper-based postal survey. All family physicians who had more than 1 patient who underwent

a complete medication assessment at the MAC between April 1 and October 26, 2015, were included in the study, regardless of the original referral source (ie, health professional referral or self-referral). There were no exclusion criteria. A paper-based physician experience questionnaire, guided by the MAC vision and mission statements, was developed in consultation with the 10-member MAC faculty advisory committee. This advisory committee met on several occasions to develop survey questions that would assist in determining if the goals and objectives of the MAC were being achieved. The questionnaire included Likert scale questions aimed at collecting information about physician perceptions and experiences with the program. It also included 2 open-ended questions that elicited free-text responses regarding what physicians liked about the MAC and what could be improved. The questionnaire was pretested on 4 family physicians who were not eligible to participate and 5 pharmacists to ensure readability and clarity. The questionnaire took less than 5 minutes to complete in the pretest.

Questionnaires were mailed from April 1 to October 26, 2015, along with prepaid, preaddressed return envelopes, to all family physicians who met the inclusion criteria. Questionnaires were mailed approximately 1 week after patients were expected to see their physicians to discuss the MAC consultation letter. One reminder questionnaire was mailed to all nonresponders after 2 weeks.

Quantitative data (answers to the 6 Likert scale questions) were entered into SPSS, version 23.0, and analyzed using descriptive statistics. Qualitative data from the 2 open-ended questions were examined using thematic analysis.<sup>11</sup> Three individuals (1 member of the research team [K.J.L.] and 2 pharmacists external to the research team with no involvement in the MAC) independently reviewed the responses and organized them into representative themes. The analyzers met to discuss their independent analyses and to come to a consensus. Themes were subsequently reviewed again by 2 additional individuals (1 research team member [D.J.J.] and 1 pharmacist external to the research team).

Physician respondent identities were kept confidential from the research team and an administrative assistant sent and received the questionnaires. Identifying information regarding the respondents, other than location of practice, was not collected. Responses were de-identified before data analysis. Physician respondents were entered into a draw for a gift card to encourage participation. The University of Saskatchewan Behavioural Research Ethics Board approved the study protocol.

## RESULTS

A total of 81 questionnaires were mailed to family physicians and 35 were returned, for a response rate of

43.2%. All returned questionnaires contained complete data. Most respondents practised within an urban centre (88.6%, n=31) and 100.0% were located within group practices. Almost two-thirds of respondents (60.0%, n=21) reported that they had personally referred 1 or more patients to the MAC, while 34.3% (n=12) had patients exclusively self-refer and 5.7% (n=2) had both referred patients and had patients who self-referred.

Responses to the Likert scale questions are reported in **Table 1**. Most family physicians (94.3%) were either very satisfied or satisfied with their overall experience. Similarly high proportions stated that the MAC was a useful resource to their practice, that the recommendations were helpful, and that they would recommend the MAC to colleagues. Although physicians completed the survey only 1 to 2 weeks after meeting with the patient to discuss MAC recommendations, 88.6% reported that the MAC helped to improve patient health.

The themes from the 2 free-text questions were organized into the following 2 categories: aspects of the MAC that family physicians liked the most, and suggestions for improvement.

### Aspects of the MAC that family physicians liked the most

**Pharmacist recommendations.** Many respondents used the free-text space to elaborate on their appreciation for the pharmacists' recommendations, which is consistent with responses to the Likert scale question in which 97.1% of physicians either strongly agreed or agreed that the pharmacist consultation letters and recommendations were helpful (**Table 1**). The pharmacists' suggestions to adjust drug therapy were described as being useful, practical, and evidence-based.

Knowledgeable recommendations that are practical and clearly outlined in a letter that states a plan for how to better care for the patient. (Physician 2)

Useful and practical suggestions that can easily be put into practice. (Physician 26)

**Improved patient health.** Physicians observed an improvement in their patients' health as a result of the pharmacist assessment. They believed that these positive changes were a result of refined and simplified medication regimens, reductions in polypharmacy, and improved adherence.

[The MAC] helped to educate my patient about perceived side effects ... which encouraged her to restart her pills with great improvement. (Physician 31)

Refines treatments for maximal effect. (Physician 21)

**Useful asset to family physician practice.** Many respondents used the free-text space to express how

**Table 1. Participant responses to Likert scale questions:**  
N = 35.

QUESTION	N (%)
The following describes my overall experience at the MAC	
• Very satisfied	24 (68.6)
• Satisfied	9 (25.7)
• Unsatisfied	1 (2.9)
• Very unsatisfied	1 (2.9)
The MAC is a useful resource for my practice	
• Strongly agree	25 (71.4)
• Agree	7 (20.0)
• Not sure	2 (5.7)
• Disagree	1 (2.9)
• Strongly disagree	0 (0.0)
The MAC helps me improve the health of my patients	
• Strongly agree	21 (60.0)
• Agree	10 (28.6)
• Not sure	3 (8.6)
• Disagree	1 (2.9)
• Strongly disagree	0 (0.0)
The recommendations and consultation letters from the pharmacist were helpful	
• Strongly agree	26 (74.3)
• Agree	8 (22.9)
• Not sure	0 (0.0)
• Disagree	0 (0.0)
• I do not remember receiving or reading any recommendations or consultation letters	1 (2.9)
Would you recommend the MAC to your colleagues?	
• Yes	32 (91.4)
• No	2 (5.7)
• Not sure	1 (2.9)

MAC—Medication Assessment Centre.

useful the MAC resource was to their practices, which was consistent with their responses to the Likert scale question in which 91.4% of respondents either strongly agreed or agreed that the MAC was useful (**Table 1**).

[The MAC] allows physicians a chance to manage polypharmacy or potential medication-induced issues. (Physician 18)

It was helpful to have another opinion of treatment options for my patient. (Physician 3)

In the age of polypharmacy I really appreciate advice about what can and cannot be used. (Physician 13)

### Suggestions for improvement

Most respondents (74.3%, n=26) wrote the words “nothing” or “everything is fine” in response to the free-text

question regarding suggestions for improvement. Of the 9 respondents who made a suggestion, the focus was primarily related to reducing the time it takes to complete the assessment process and creating a referral form that could be integrated into an electronic medical record.

You can improve by making faster reviews, within 1 to 2 weeks, maybe. (Physician 31)

Make a referral form with check-boxes that can be put in our [electronic medical record]. (Physician 30)

## DISCUSSION

This study reports the first evidence regarding family physician perceptions of a patient care clinic located within a pharmacy school. Considering that 3 of 10 Canadian pharmacy schools have launched similar clinics within the past 5 years, it is vital to understand the perceptions of family physicians. This study provides initial evidence that these pharmacy faculty-affiliated patient care clinics appear to be valuable to family physicians, which represents a useful contribution to the existing literature.

Previous studies that measured physicians’ perceptions of pharmacist-led medication assessment programs have shown mixed results, depending on the pharmacists’ practice settings. Programs based within community pharmacies have been much less well received by family physicians compared with services that are offered directly within physician clinics.<sup>5-10</sup> The results of this study suggest that a medication assessment clinic located within a pharmacy school is perceived as a valuable asset to family physicians, similar to programs that have pharmacists working directly within physician practices.<sup>6,8</sup>

The conclusion that the MAC is valuable to family physicians is supported by both the quantitative and the qualitative data in this study. All 5 Likert scale questions aimed at eliciting physician satisfaction and experience consistently identified a high level of support from the respondents. As the overall goal of collaborative health care is to improve patient outcomes, perhaps the most important finding of this study is that almost 90% of physicians believed that the program helped them to improve the health of their patients (**Table 1**).

Qualitative data from the 2 free-text questions consistently reinforced the results of the Likert scale questions, supporting the internal validity of the questionnaire. Themes related to physician appreciation of the pharmacist recommendations, acknowledgment that the MAC was a valuable asset, and the effect of the program on patient health were consistent with responses from the Likert scale questions.

### Limitations

The response rate from the survey (43.2%) is a potential limitation, as one might question if the physicians who

did not respond would have reported similar experiences. Although there is no criterion standard for minimally acceptable survey response rates, some experts have stated that rates of about 50% provide results that are acceptably trustworthy.<sup>12</sup>

Another limitation is the size of the sample. A total of 81 family physicians met the inclusion criteria and 35 responded to the survey. Considering there are approximately 250 family physicians in Saskatoon and the surrounding area, almost one-third had experience with the MAC (n=81) and were eligible for the study. Therefore, despite the small sample, a good proportion of family physicians in the city were included in the survey. However, this study is primarily reflective of urban physicians (88.6%) and the results should not be extrapolated to rural family practices.

Finally, the questionnaire was purposefully quite short, which limited the extent to which physician perceptions of the MAC were explored. For example, it would have been interesting to collect more details about how the service improved patient health and what motivated physicians to use the service.

## Future research

Future research should confirm these results in other provinces and with a larger sample. In addition, it would be useful to determine if these pharmacist-run patient care teaching clinics have an effect on health outcomes such as hospitalization, family physician workload, and pharmacy student competency.

## Conclusion

Family physician experiences with pharmacist-led medication assessment programs have varied substantially in previous studies, depending on whether the program was offered within physician clinics or within community pharmacies.<sup>5-10</sup> This is the first study to examine physician perceptions of a pharmacist-led medication assessment program that is located within a pharmacy school and the findings suggest that family physicians believe the service is a valued asset to their practices. 🌿

**Dr Jorgenson** is Professor of Pharmacy in the College of Pharmacy and Nutrition at the University of Saskatchewan in Saskatoon. **Mr Landry** is a coordinator at the Medication Assessment Centre in the College of Pharmacy and Nutrition at the University of Saskatchewan. **Ms Lysak** is a pharmacist at Royal University Hospital in Saskatoon.

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### Contributors

All authors contributed substantially to the manuscript and met the criteria for authorship. **Dr Jorgenson** had the idea to perform the study, took a lead in developing the methodology, assisted with data collection, assisted with interpretation of the data, took a lead in writing the manuscript, and approved the final version of the manuscript. **Mr Landry** and **Ms Lysak** assisted with development of the methodology, data collection, and interpretation of the data, and reviewed several drafts of the manuscript and approved the final version.

### Competing interests

None declared

### Correspondence

**Dr Derek J. Jorgenson**; e-mail [derek.jorgenson@usask.ca](mailto:derek.jorgenson@usask.ca)

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