


# Community pharmacists' experiences with the Saskatchewan Medication Assessment Program

Krysta Currie, BSP, MSc; Charity Evans, BSP, PhD; Kerry Mansell, BSP, PharmD;  
Jason Perepelkin, BA, BComm, MSc, PhD; Derek Jorgenson, BSP, PharmD, FCSHP 

## ABSTRACT



**Background:** The Saskatchewan Medication Assessment Program (SMAP) is a publicly funded community pharmacy-based medication assessment service with limited previous evaluation. The purpose of this study was to explore community pharmacists' experiences with the SMAP.

**Methods:** Online, self-administered questionnaire that consisted of a combination of 53 Likert scale and free-text questions. All licensed pharmacists who were practising in a community pharmacy setting in Saskatchewan were eligible to participate.

**Results:** Response rate was 20.3% ( $n = 228/1124$ ). Most respondents agreed that the SMAP is

achieving all of its intended purposes. For example, 89.7% agreed that the SMAP improved medication safety for patients who receive the service. Most pharmacists enjoyed performing the assessments (84.6%) and were confident in their ability to identify drug-related problems (88.3%). Pharmacists reported lack of time, patients having difficulty coming to the pharmacy and restrictive eligibility criteria as the top barriers to the SMAP. Good teamwork, employer support and personal professional commitment were the top recognized facilitators. Respondents made several suggestions to improve the SMAP in the free-text areas of the questionnaire.

**Conclusions:** Community pharmacists in Saskatchewan were positive and confident about performing medication assessments, and most agreed that the SMAP is achieving all of the intended purposes. Respondents also identified several barriers to providing SMAP services, which have resulted in specific recommendations that should be addressed to improve the program. *Can Pharm J (Ott)* 2019;152:193-203.

## Background

Over the past decade, there has been a significant expansion of publicly funded clinical services available for pharmacists to provide.<sup>1</sup> Pharmacist-led medication assessment programs have become particularly common in Canada, and many provincial drug plans now reimburse community pharmacies for providing these services.<sup>1</sup> The goals of medication assessment programs are typically similar and include educating patients about their medications and optimizing patient care by identifying and resolving drug-related problems.

Several studies suggest pharmacist-led medication assessments can improve measures such as patient quality of life, medication appropriateness, patient knowledge, blood pressure and cholesterol levels, patient loyalty and satisfaction and identification of drug-related problems.<sup>2-8</sup> However, many of these studies were based on programs outside of Canada, and consequently, published research on Canadian medication assessment programs is limited. For instance, only 2 studies were identified that examined health professional perceptions of the programs in Ontario and British Columbia, identifying

As a pharmacist experiencing the rewards and challenges of integrating professional services into dispensing activities in community pharmacy, I was interested in exploring pharmacists' experiences with the Saskatchewan Medication Assessment Program. Through identifying the barriers and facilitators faced, I hoped to provide insights into program improvements to enhance patient care.

*À titre de pharmacien qui expérimente l'aspect gratifiant mais exigeant d'intégrer des services professionnels aux activités de délivrance de médicaments dans une pharmacie communautaire, je souhaitais examiner de plus près l'expérience des pharmaciens en lien avec le programme d'évaluation des médicaments de la Saskatchewan (SMAP). En déterminant les barrières et les agents de facilitation, j'espère fournir un aperçu des améliorations à apporter au programme pour améliorer les soins aux patients.*

© The Author(s) 2019

Article reuse guidelines:  
sagepub.com/journals-permissions  
DOI:10.1177/1715163519827980

## KNOWLEDGE INTO PRACTICE



- Community pharmacy-based medication assessment programs are common in Canada and abroad; however, published evaluations of these programs are limited.
- Community pharmacists in Saskatchewan enjoy performing medication assessments and are confident in their ability to provide the service.
- Community pharmacists in Saskatchewan believe that the publicly funded Saskatchewan Medication Assessment Program (SMAP), which was launched in 2013, is meeting all of the intended purposes.
- Pharmacists in Saskatchewan appear to be performing SMAP assessments, despite the many reported barriers, such as limited time, patients having difficulty coming to the pharmacy and restrictive program eligibility criteria.
- Several recommendations to improve the SMAP have been proposed in this article as a result of this research.

key implementation barriers and facilitators.<sup>9,10</sup> Four additional studies used administrative prescription drug databases to retrospectively examine the medication assessment programs in Ontario and British Columbia.<sup>11-14</sup> The administrative database studies from Ontario found that approximately 10% of eligible Ontarians received a medication assessment in the first 6 years that their program was available,<sup>14</sup> but only 2.7% of the assessments for patients with diabetes included any follow-up.<sup>13</sup> Statistical models were then employed to determine which Ontarians received the service and found that the program might not be reaching the high-risk patients who need it the most.<sup>11</sup> The analysis of administrative prescription drug databases in British Columbia found that patients who received medication assessments did not appear to have any change in medication utilization in the months after their assessment.<sup>12</sup>

The Saskatchewan Medication Assessment Program (SMAP) was introduced in 2013.<sup>15</sup> The SMAP is a comprehensive medication assessment service, requiring all of the following tasks to be completed: create an accurate medication list, educate patients about their medications and ensure regimens are appropriate, effective, and safe. The SMAP was designed to achieve the following purposes: ensure safe and effective medication management; improve patient safety; prevent drug-related problems, emergency room visits and hospitalizations; reduce medication wastage; optimize medication

adherence; provide support to seniors living in the community; and assist with medication administration.<sup>15</sup>

Pharmacies are paid a fee of \$60 for an initial assessment (which can be repeated once every year) and \$20 for each follow-up (maximum of 2 per year can be reimbursed). Saskatchewan residents who are aged 65 years or older and are taking 5 or more chronic medications, an anticoagulant or a medication listed in the Beers criteria are eligible to have this service reimbursed by the provincial government.<sup>15,16</sup> In 2016 to 2017, the Saskatchewan government paid \$776,653 in professional fees related to the SMAP program, yet there has been no published evaluation of the program.<sup>15</sup> Therefore, the aims of this study were to determine the extent to which Saskatchewan pharmacists believe that the SMAP is fulfilling its intended purposes, identify the barriers and facilitators to providing the SMAP and determine strategies pharmacists would like to see implemented to improve the program.

## Methods

### *Questionnaire content*

This study used an online, self-administered questionnaire. The questionnaire was developed after reviewing the literature regarding pharmacist-led medication assessment programs. A previously validated questionnaire was not identified, so one was developed for the purposes of this study. Since one of the aims of the study was to determine if the SMAP was achieving the intended purposes, several questions were developed based on the official purposes of the program.<sup>15</sup> Questions related to determining the barriers and facilitators to implementing pharmacist-led medication assessment programs were adapted from the literature.<sup>9,10,17</sup> Key stakeholders (Pharmacy Association of Saskatchewan, Saskatchewan College of Pharmacy Professionals, Saskatchewan Ministry of Health) were invited to review the questionnaire and provide suggestions. The final questionnaire was pilot tested by 10 licensed Saskatchewan pharmacists who were not practising in a community pharmacy setting and were therefore not eligible to participate in the study.

The questionnaire (Appendix 1, available online at [www.cpjjournal.ca](http://www.cpjjournal.ca)) contained 53 items with a combination of Likert scale and free-text questions. If participants indicated that they

were not aware of the SMAP or had never completed an SMAP medication assessment, they were directed to only complete demographic questions. Participants could skip any question that they did not want to answer and were able to exit the survey at any point and return at a later date prior to the survey being closed. Partially completed questionnaires were included in the data analysis.

#### Study sample

An invitation to complete the online questionnaire was distributed via email by the Pharmacy Association of Saskatchewan (PAS) to all Saskatchewan pharmacists with a PAS membership. Recipients of the invitation were asked to complete the questionnaire only if they currently practice in a community pharmacy setting on a full- or part-time basis.

The invitation to participate was emailed in January 2016. At the time, PAS had 1295 practising members, which was 82.6% of the 1568 licensed pharmacists in Saskatchewan. One reminder email was sent 2 weeks later, and the questionnaire was closed 4 weeks after the initial invitation. Respondents were offered a small gift card as a token of appreciation for participation.

#### Data analysis

Data from Likert scale questions were analyzed using descriptive statistics. In an effort to assess for nonresponse bias, data from early respondents (defined as those who responded before the reminder email) were compared with late respondents (defined as those who responded after the reminder email), using the Mann-Whitney *U* test. This method can be used when it is not feasible to directly assess nonrespondents and is based on the hypothesis that late respondents may be more similar to nonrespondents than they are to early respondents.<sup>18</sup>

Data from free-text questions were analyzed using content analysis. Three of the authors who had previous experience with the technique read through the responses independently to identify key themes. The investigators then met to reach consensus on a common list of themes. An external audit was performed by an additional researcher who was not involved in the project to verify that the final list of themes was consistent with the data collected.<sup>19</sup> This protocol was approved by the Research Ethics Board at the University of Saskatchewan. All data analyses

## MISE EN PRATIQUE DES CONNAISSANCES



- Les programmes d'évaluation des médicaments en pharmacie communautaire sont répandus au Canada et à l'étranger, mais on recense peu d'évaluations publiées de ces programmes.
- Les pharmaciens communautaires de la Saskatchewan aiment procéder aux évaluations des médicaments et sont convaincus de leur capacité à fournir un tel service.
- Ils sont d'avis que le programme public d'évaluation des médicaments de la Saskatchewan (SMAP), lancé en 2013, atteint tous ses objectifs.
- Les pharmaciens de cette province semblent procéder à des évaluations des médicaments en dépit des nombreux obstacles signalés, comme le manque de temps, les difficultés pour les patients de se rendre à la pharmacie et le caractère restrictif des critères d'admissibilité au programme.
- À la suite de cette recherche, de nombreuses recommandations pour améliorer le programme d'évaluation des médicaments sont proposées dans cet article.

were conducted using SPSS (Version 25.0; SPSS, Inc., an IBM Company, Chicago, IL).

### Results

A total of 20.3% ( $n = 228/1124$ ) of eligible participants responded to the survey. Not all participants answered every question; therefore, response rates are also subsequently reported for individual questionnaire items. The majority of participants were female (76%). Most (64.3%) respondents were staff pharmacists, and almost 80% worked more than 30 hours per week. The majority of respondents reported that they completed between 1 and 5 SMAP medication assessments per month, although approximately 10% reported they did not complete any assessments in a typical month (Table 1).

#### *Is the SMAP fulfilling the intended purposes?*

The majority of participants believed that the SMAP was achieving all of the intended purposes for which it was developed (Table 2). Participants were most confident that the SMAP was “assisting patients with medication administration,” “improving medication safety” and “preventing drug-related problems,” with 96.5% ( $n = 196/203$ ), 89.7% ( $n = 192/214$ ) and 88.8% ( $n = 190/214$ ) *strongly agreeing* or *agreeing* with these statements, respectively. Participants were slightly less confident that the program was “preventing emergency department visits,”

**TABLE 1** Participant demographics

<b>Demographic (n = 228)</b>	<b>Value</b>
<b>Position, n (%)</b>	
Owner	26 (11.4)
Manager	36 (15.8)
Staff pharmacist	128 (56.1)
Relief pharmacist	9 (3.9)
Not reported	29 (12.7)
<b>Weekly hours worked, n (%)</b>	
Less than 10	8 (3.5)
10-20	11 (4.8)
21-30	22 (9.6)
31-40	115 (50.4)
More than 40	44 (19.3)
Not reported	28 (12.3)
<b>Gender, n (%)</b>	
Male	44 (19.3)
Female	152 (66.7)
Prefer not to answer	4 (1.7)
Not reported	28 (12.3)
<b>Years of experience, n (%)</b>	
1 or less	20 (8.8)
2-5	40 (17.5)
6-10	33 (14.5)
11-20	48 (21.1)
21-30	36 (15.8)
More than 30	21 (9.2)
Not reported	30 (13.2)
<b>Population of community, n (%)</b>	
Rural (<5000)	63 (27.6)
Small city (5000-100,000)	54 (23.7)
Large city (>100,000)	83 (36.4)
Not reported	28 (12.3)
<b>Daily prescription volume, n (%)</b>	
Less than 100	23 (10.1)
100-200	78 (34.2)
201-300	56 (24.6)
More than 300	43 (18.9)
Not reported	28 (12.3)
<b>Addition education completed, n (%)</b>	
Hospital residency	3 (1.3)
ADAPT Certificate in Patient Care Skills	15 (6.6)
Certified Diabetes Educator	10 (4.4)
Certified Respiratory Educator	11 (4.8)
Certified Geriatric Pharmacist	2 (0.9)
Injection certification	114 (50.0)
Master's degree	4 (1.8)
PhD or postbaccalaureate PharmD	1 (0.4)

**TABLE 2** Pharmacists' perceptions of the Saskatchewan Medication Assessment Program (SMAP)

Intended purposes of the SMAP	Strongly agree	Agree	Not sure	Disagree	Strongly disagree
SMAP improves medication safety, <i>n</i> (%) <i>N</i> = 214	69 (32.2)	123 (57.5)	14 (6.5)	6 (2.8)	2 (0.9)
SMAP ensures patients are taking most effective medications, <i>n</i> (%) <i>N</i> = 214	53 (24.8)	126 (58.9)	23 (10.7)	10 (4.7)	2 (0.9)
SMAP improves patient health outcomes, <i>n</i> (%) <i>N</i> = 214	48 (22.4)	113 (52.8)	44 (20.6)	7 (3.3)	2 (0.9)
SMAP prevents drug-related problems, <i>n</i> (%) <i>N</i> = 214	54 (25.2)	136 (63.6)	17 (7.9)	5 (2.3)	2 (0.9)
SMAP prevents emergency department visits, <i>n</i> (%) <i>N</i> = 204	16 (7.8)	101 (49.5)	81 (39.7)	5 (2.5)	1 (0.5)
SMAP prevents hospitalizations, <i>n</i> (%) <i>N</i> = 203	22 (10.8)	112 (55.2)	66 (32.5)	2 (1.0)	1 (0.5)
SMAP reduces medication wastage, <i>n</i> (%) <i>N</i> = 203	41 (20.2)	130 (64.0)	28 (13.8)	4 (2.0)	0 (0)
SMAP improves medication adherence, <i>n</i> (%) <i>N</i> = 203	44 (21.7)	108 (53.2)	46 (22.7)	5 (2.5)	0 (0)
SMAP supports seniors to age within their homes, <i>n</i> (%) <i>N</i> = 203	38 (18.7)	95 (46.8)	59 (29.1)	11 (5.4)	0 (0)
SMAP assists patients with medication administration, <i>n</i> (%) <i>N</i> = 203	77 (37.9)	119 (58.6)	7 (3.4)	0 (0)	0 (0)

“supporting seniors to age within their homes” and “preventing hospitalizations,” with 57.3% (*n* = 117/204), 65.5% (*n* = 133/203) and 66% (134/203) *strongly agreeing* or *agreeing* with these statements, respectively.

#### Pharmacists' experiences with the SMAP

The majority of participants *strongly agreed* or *agreed* that they enjoyed performing medication assessments (84.6%, *n* = 159/188) and most *strongly agreed* or *agreed* that they were confident in their ability to identify drug-related problems (88.3%, *n* = 172/195, Table 3). Despite this confidence, more than half of participants (67.2%, *n* = 131/195) *strongly agreed* or *agreed* that they had trouble identifying drug-related problems due to a lack of patient history even though very few (10.2%, *n* = 20/195) reported that they *always* or *almost always* contact physicians to

request additional patient information (Table 3). Although participants reported that the majority of patients (78.9%, *n* = 150/190) *always* or *almost always* agree with their recommendations, it appears that many of these recommendations may not be accepted by physicians, as only 34.6% (*n* = 63/182) reported that physicians *always* or *almost always* agree with their recommendations (Table 3).

#### Barriers and facilitators to providing SMAP assessments

When participants were asked to rank their top 3 barriers to providing SMAP assessments, from a list of options that were previously reported in the literature, the most common barriers selected were lack of time, difficulty having patients come to the pharmacy and patients not being eligible for (government) reimbursement (Figure 1).

**TABLE 3** Pharmacists' experiences with the Saskatchewan Medication Assessment Program (SMAP)

	<b>Strongly agree</b>	<b>Agree</b>	<b>Not sure</b>	<b>Disagree</b>	<b>Strongly disagree</b>
I enjoy performing SMAP assessments, <i>n</i> (%) <i>N</i> = 188	52 (27.7)	107 (56.9)	14 (7.4)	13 (6.9)	2 (1.1)
I am confident in my ability to identify drug-related problems, <i>n</i> (%) <i>N</i> = 195	43 (22.1)	129 (66.2)	17 (8.7)	6 (3.1)	0 (0)
I have trouble identifying drug-related problems because I do not have adequate patient history, <i>n</i> (%) <i>N</i> = 195	23 (11.8)	108 (55.4)	19 (9.7)	44 (22.6)	1 (0.5)
I feel comfortable discussing my recommendations with patients, <i>n</i> (%) <i>N</i> = 195	63 (32.3)	125 (64.1)	6 (3.1)	1 (0.5)	0 (0)
I feel comfortable discussing my recommendations with physicians, <i>n</i> (%) <i>N</i> = 191	27 (14.1)	129 (67.5)	23 (12.0)	12 (6.3)	0 (0)
	<b>Always</b>	<b>Almost always</b>	<b>Sometimes</b>	<b>Rarely</b>	<b>Never</b>
How often do you contact physicians for additional patient history? <i>n</i> (%) <i>N</i> = 195	3 (1.5)	17 (8.7)	63 (32.3)	87 (44.6)	25 (12.8)
How often do you access additional patient history from the provincial electronic health record? <i>n</i> (%) <i>N</i> = 161	96 (59.6)	32 (19.9)	18 (11.2)	9 (5.6)	6 (3.7)
How often do physicians agree with your recommendations? <i>n</i> (%) <i>N</i> = 182	0 (0)	63 (34.6)	101 (55.5)	17 (9.4)	1 (0.5)
How often do patients agree with your recommendations? <i>n</i> (%) <i>N</i> = 190	13 (6.8)	137 (72.1)	39 (20.5)	1 (0.5)	0 (0)

When asked about their top 3 facilitators, the most common responses were pharmacy staff teamwork, employer support and personal pharmacist commitment to the program (Figure 2).

#### *Themes from free-text responses*

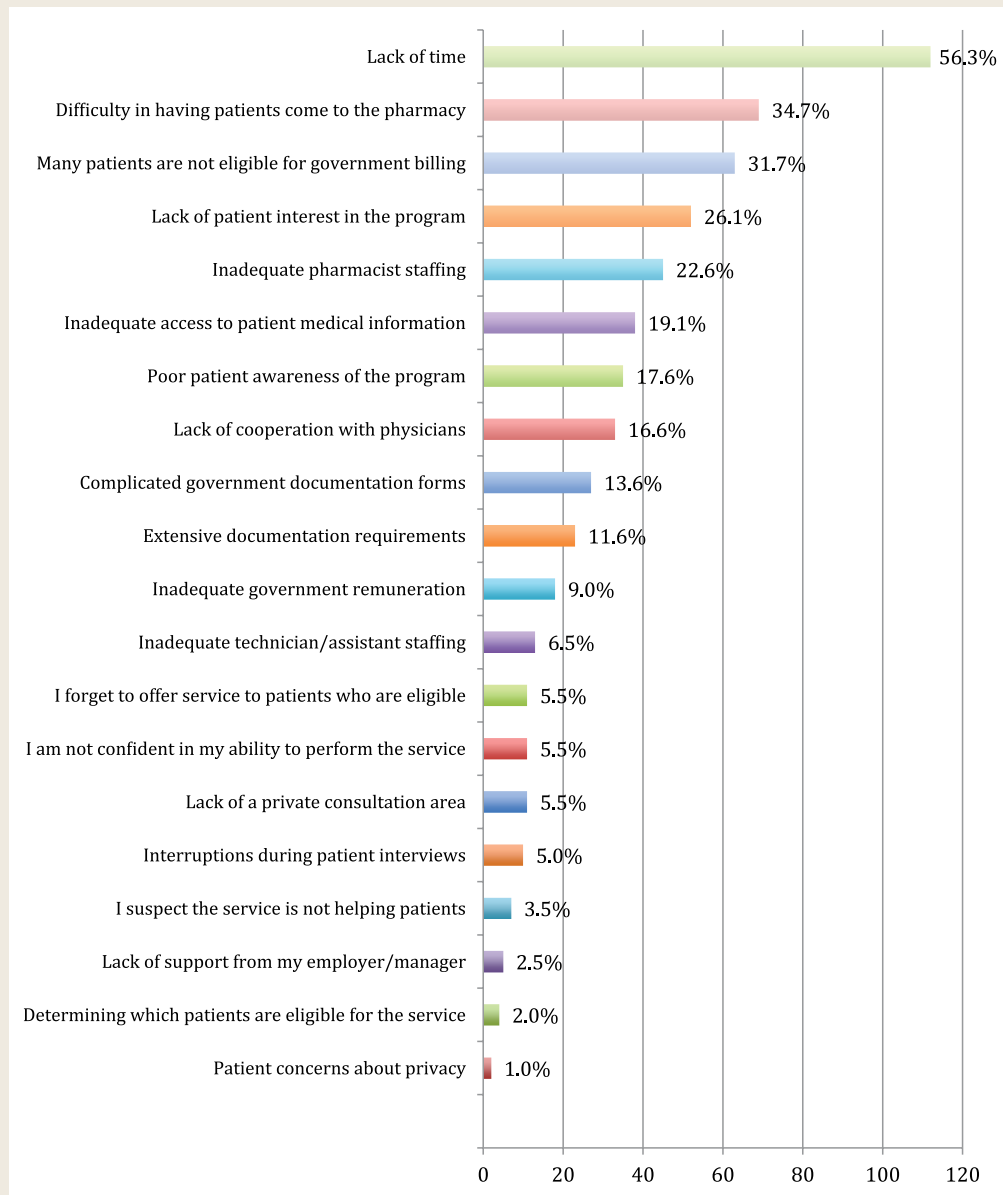
There were 9 free-text questions included in the questionnaire, asking respondents to expand on Likert scale answers and provide additional comments, and 9 themes that emerged from the data analysis.

*Theme 1:* Poor collaboration and communication with physicians limited the ability of

pharmacists to implement their recommendations. Respondents believed that this issue was rooted in physicians' lack of understanding of the value of the service, which resulted in their subsequent disinterest in collaborating.

*Theme 2:* Insufficient patient information made it difficult to perform assessments. While respondents praised the availability of the provincial electronic health record to access laboratory/diagnostic test results and a list of previously dispensed medications, they still felt that they lacked access to some information necessary to

**FIGURE 1** Top 3 barriers that make it difficult to provide Saskatchewan Medication Assessment Program assessments ( $n = 199$ )\*



\*Percentages in Figure 1 add up to more than 100% because respondents were asked to select 3 options.

complete a thorough assessment (e.g., specialist physician consultations, list of diagnoses). Respondents commented that requesting this information from physicians was difficult and time-consuming.

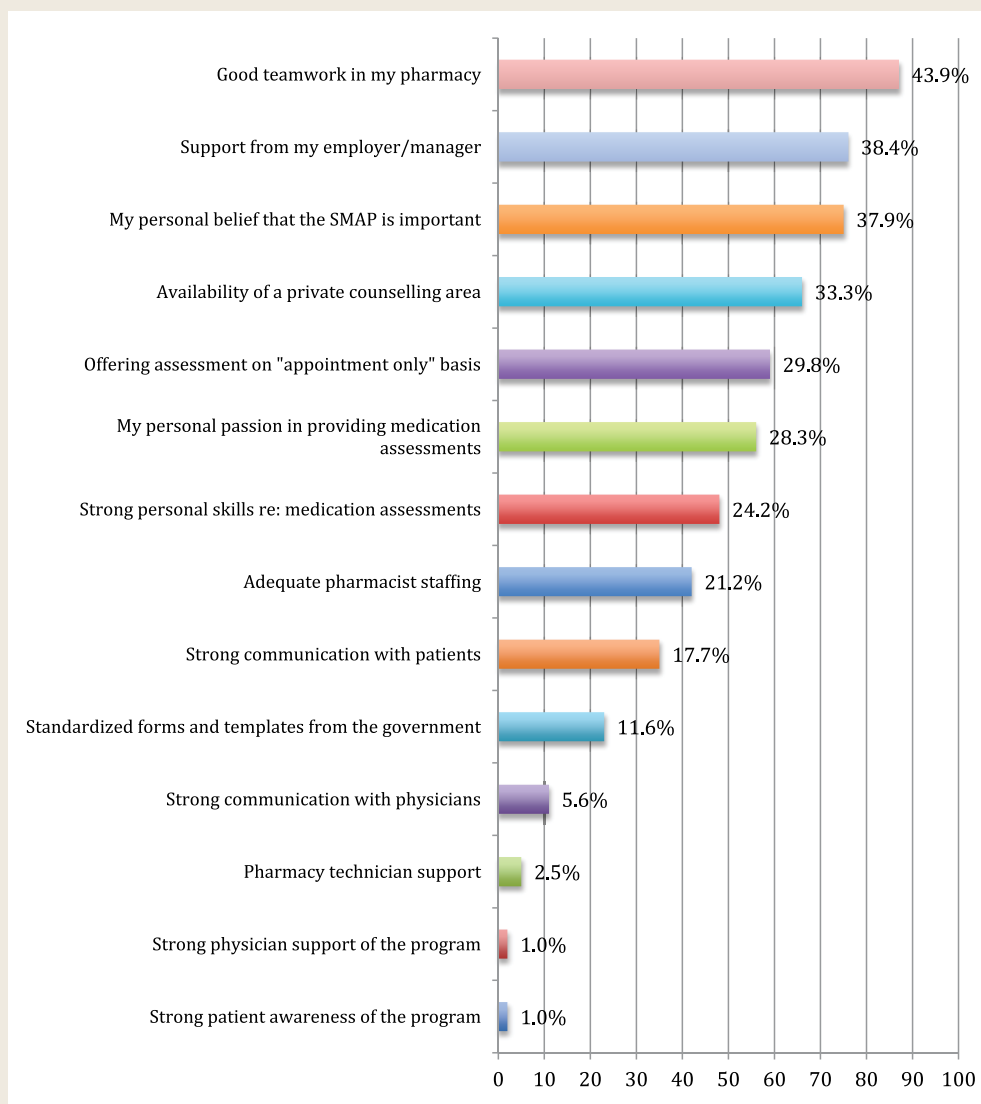
*Theme 3:* Mandatory government documentation forms were reported to be repetitive and frustrating, which unnecessarily increased the time required to complete assessments.

*Theme 4:* Existing community pharmacy workflow was a barrier to delivering the

service. Respondents referred to multiple competing priorities (e.g., dispensing, patient self-care requests, immunizations), poor access to resources, insufficient staffing and a lack of time as reasons why the community pharmacy is not the ideal place to perform medication assessments.

*Theme 5:* There is significant pressure on pharmacists to complete a high volume of medication assessments. Many respondents used the term *quotas* to describe the fact that minimum billing requirements

**FIGURE 2** Top 3 facilitators that help provide Saskatchewan Medication Assessment Program (SMAP) medication assessments ( $n = 198$ )\*



\*Percentages in Figure 2 add up to more than 100% because respondents were asked to select 3 options.

were often expected of pharmacists (by their employer), and several felt that this was limiting the quality of the service they were able to provide.

*Theme 6:* The government reimbursement eligibility criteria need to be expanded to allow all high-risk patients to access the program. Respondents specifically suggested expansion to include reimbursement for high-risk patients under 65 years old and individuals insured federally (e.g., First Nations and Inuit). It was also suggested that the requirement for a face-

to-face interview be eliminated to allow assessments by phone, increasing access to patients with mobility issues.

*Theme 7:* Many respondents were concerned about the quality of the assessments being performed by "other" pharmacists. Respondents believed that poor-quality assessments performed by some pharmacists affect how physicians and patients perceive the program and limited the impact of the assessments.

*Theme 8:* Respondents struggled to perform assessments on complex patients who



were taking large numbers of medications. There were a variety of reasons cited for this, including significant time required to complete the assessment, inadequate compensation and lack of experience and confidence in managing complex patients. Respondents suggested creating a referral-based system of pharmacists who could help them manage these patients.

*Theme 9:* Respondents felt that there was a lack of physician and patient awareness and understanding of the purpose and the benefits of the SMAP. Respondents believed that physicians and patients would be more receptive of the SMAP if they had a better understanding of the program and what it was meant to accomplish.

#### *Comparison of early and late respondents*

When responses to the Likert scale questions were compared between early and late responders, there were no differences identified, with significance set at  $p < 0.05$ . In addition, there were no differences identified between the demographic characteristics of the early and late responders.

## **Discussion**

This study identified that community pharmacists in Saskatchewan who participated in the survey perceive that the Saskatchewan Medication Assessment Program is achieving all of its intended purposes. These perceptions are subjective and were not based on any objective findings, but it is nevertheless comforting to know that the health professionals who are delivering a service are able to observe its value and impact. This study also found that the majority of participants were positive about this medication assessment program. Most participants reported that they enjoy performing the service and are confident about their ability to provide a high-quality service. This is noteworthy because previous studies have found pharmacist confidence/skills and pharmacist apathy to be barriers to practice change.<sup>20,21</sup>

This study also identified several opportunities for improvement of the SMAP. Incorporating both the quantitative and qualitative data from this study, the following recommendations are proposed:

1. Evaluate the program to determine the impact on patient outcomes and patient satisfaction.
2. Revise the documentation forms to be more practical and user-friendly.
3. Communicate with physicians to highlight the value of the SMAP and to encourage interprofessional collaboration.
4. Provide ongoing continuing professional development opportunities to support pharmacists who are providing the SMAP.
5. Evaluate SMAP government reimbursement eligibility criteria to ensure the program is accessible to patients who need it the most.
6. Continue to improve pharmacist access to electronic health records.
7. Create a referral-based system to assist pharmacists in managing highly complex patients.

Some of these recommendations are also potentially relevant in jurisdictions outside of Saskatchewan. For example, the recommendation to expand the government reimbursement eligibility criteria to include additional high-risk groups has been identified as an issue in other studies, suggesting that this is not just a barrier to the medication assessment program in Saskatchewan.<sup>13,22</sup>

The results of this study also identified an interesting dichotomy between pharmacists' perceptions of the SMAP in the Likert scale questions, which were mostly positive, confident and optimistic, and the free-text responses, which focused on aspects of the program that need to be improved. It may appear to be a contradiction that the majority of respondents enjoyed performing assessments, were confident in finding problems and believed that the SMAP was achieving all of its intended purposes, despite the many barriers identified in the free-text responses. However, a possible explanation for this apparent contradiction is that Saskatchewan pharmacists are successfully providing this service *despite* the many barriers that they experience.

Pharmacists have previously been accused of using the commonly reported barriers to practice change as an excuse for inaction and apathy.<sup>20</sup> Perhaps Canadian pharmacy practice has now reached the tipping point where this apathy

is no longer commonplace or acceptable. Previous studies regarding barriers to pharmacy practice change have reported similar results as this study, except for some key differences. Pharmacist level of interest, motivation and confidence have been previously reported as barriers to practice change, but in this study, these factors have been reported as facilitators, suggesting a possible shift in pharmacists' approach to practice change.<sup>20,21,23</sup>

Respondents of this study also highlighted some novel issues that warrant additional discussion. First is the finding that many pharmacists were concerned about the quality of the assessments being performed by "other" pharmacists. Although "lack of pharmacist skills and expertise" has been previously noted as a common barrier to practice change,<sup>23</sup> issues related to actual poor quality of care being observed raise a high level of concern, which should be investigated further. In addition, the finding in this study that pharmacists in Saskatchewan struggle to complete assessments with highly complex patients who are taking large numbers of medications is not surprising, but it is concerning since these are the patients who will likely benefit the most from this service. The suggestion from respondents that a referral-based system of pharmacists with additional training (and time) be created to assist with the management of

these patients is worthy of additional consideration and investigation. Developing and funding an internal medicine pharmacist speciality practice within the primary care system has been previously proposed as one possible option to achieve this goal.<sup>24</sup>

This study has some limitations worth noting. A response rate of 20.3%, while not uncommon in surveys of health professionals, raises the possibility of nonresponder bias and may limit the generalizability of the results.<sup>25</sup> However, the analysis that identified no differences between the responses of early and late responders provides a degree of confidence that nonresponder bias may not be significant in this study. It is also a limitation that the organization that distributed the survey on the researchers' behalf, PAS, had a database that only included 82.6% of practising pharmacists in Saskatchewan, since PAS is a voluntary professional association.

## Conclusion

Saskatchewan community pharmacists who participated in this survey perceived that the SMAP is achieving all of its intended purposes. Pharmacists also reported high levels of personal satisfaction and confidence in providing the medication assessments, despite raising many important issues that should be addressed to improve the program in the future. ■

---

*From Rosetown Pharmasave (Currie), Rosetown; the College of Pharmacy and Nutrition (Evans, Mansell, Perepelkin, Jorgenson), University of Saskatchewan, Saskatoon, Saskatchewan. Contact derek.jorgenson@usask.ca.*

**Author Contributions:** K. Currie initiated the project; took the lead in designing the methodology, collecting and interpreting the data; assisted with writing and reviewing the final manuscript. C. Evans, K. Mansell and J. Perepelkin assisted with designing the methodology, interpreting the data and writing/reviewing the final manuscript. D. Jorgenson supervised the project; assisted with designing the methodology, collecting and interpreting the data; and took the lead in writing/reviewing the final manuscript.

**Financial Acknowledgements:** This study was supported by an unrestricted research grant from the Pharmacy Association of Saskatchewan. The funder was invited to provide feedback on the final questionnaire (as were the pharmacy regulatory body in Saskatchewan and the Saskatchewan Ministry of Health), but the funder had no input or access to data collection or storage, interpretation of the data or writing/reviewing the manuscript.

**Statement of Conflicting Interests:** The authors have no conflicts of interest to report.

**ORCID iD:** Derek Jorgenson  <https://orcid.org/0000-0001-5790-4711>

---

## References

1. Canadian Pharmacists Association. *Publicly-funded pharmacy services by province*. 2015. Available: [https://www.pharmacists.ca/cpha-ca/assets/File/pharmacy-in-canada/Publicly-Funded%20Pharmacy%20Services%20by%20Province\(1\).pdf](https://www.pharmacists.ca/cpha-ca/assets/File/pharmacy-in-canada/Publicly-Funded%20Pharmacy%20Services%20by%20Province(1).pdf) (accessed May 31, 2018).
2. Geurts MME, Talsma J, Brouwers JRB, de Gier JJ. Medication review and reconciliation with cooperation between pharmacist and general practitioner and the benefit for the patient: a systematic review. *Br J Clin Pharmacol* 2012;74(1):16-33.

3. Hatah E, Braund R, Tordoff J, Duffull SB. A systematic review and meta-analysis of pharmacist-led fee-for-services medication review. *Br J Clin Pharmacol* 2014;77(1):102-15.
4. Holland R, Lenaghan E, Harvey I, et al. Does home-based medication review keep older people out of hospital? The HOMER randomized controlled trial. *BMJ* 2005;330(7486):293.
5. Holland R, Desborough J, Goodyer L, Hall S, Wright D, Loke YK. Does pharmacist-led medication review help to reduce hospital admissions and deaths in older people? A systematic review and meta-analysis. *Br J Clin Pharmacol* 2008;65(3):303-16.
6. Makowsky MJ, Koshman SL, Midodzi WK, Tsuyuki RT. Capturing outcomes of clinical activities performed by a rounding pharmacist practicing in a team environment: the COLLABORATE study. *Med Care* 2009;47(6):642-50.
7. Riley K. Enhanced medication management services in the community: a win-win proposal from an economic, clinical and humanistic perspective. *Can Pharm J (Ott)* 2013;146(3):162-8.
8. Zermansky AG, Silcock J. Is medication review by primary-care pharmacists for older people cost effective? A narrative review of the literature, focusing on costs and benefits. *Pharmacoeconomics* 2009;27(1):11-24.
9. Henrich N, Tsao N, Gastonguay L, Lynd L, Marra CA. BC Medication Management Project: perspectives of pharmacists, patients and physicians. *Can Pharm J (Ott)* 2015;148(2):90-100.
10. Dolovich L, Gagnon A, McAiney CA, Sparrow L, Burns S. Initial pharmacist experience with the Ontario-Based Meds Check Program. *Can Pharm J (Ott)* 2008;141(6):339-45.
11. Pechlivanoglou P, Abrahamyan L, MacKeigan L, et al. Factors affecting the delivery of community pharmacist-led medication reviews: evidence from the MedsCheck annual service in Ontario. *BMC Health Serv Res* 2016;16(1):666.
12. Kolhatkar A, Cheng L, Chan FKI, Harrison M, Law MR. The impact of medication reviews by community pharmacists. *J Am Pharm Assoc* 2016;56(5):513-20.
13. MacCallum L, Consiglio G, MacKeigan L, Dolovich L. Uptake of community pharmacist-delivered MedsCheck diabetes medication review service in Ontario between 2010 and 2014. *Can J Diabetes* 2017;41(3):253-8.
14. Dolovich L, Consiglio G, MacKeigan L, et al. Uptake of the MedsCheck annual medication review service in Ontario community pharmacies between 2007 and 2013. *Can Pharm J (Ott)* 2016;149(5):293-302.
15. Pharmacy Association of Saskatchewan. Professional services. 2018. Available: <https://www.skpharmacists.ca/pharmacists/funded-services/provincial/professional-services> (accessed May 31, 2018).
16. American Geriatrics Society 2015 Beers Criteria Update Expert Panel. American Geriatrics Society 2015 updated Beers criteria for potentially inappropriate medication use in older adults. *J Am Geriatr Soc* 2015;63(11):2227-46.
17. Khan A, Vuong V, Iftikhar N, Patel T, Chang F. Implementation of programs and services by community pharmacists: barriers, facilitators and operational requirements. *Can Pharm J (Ott)* 2015;148(4):S1-62.
18. Halbesleben JRB, Whitman MV. Evaluating survey quality in health services research: a decision framework for assessing nonresponse bias. *Health Serv Res* 2013;48(3):913-30.
19. Cohen DJ, Crabtree BF. Evaluative criteria for qualitative research in health care: controversies and recommendations. *Ann Fam Med* 2008;6(4):331-9.
20. Rosenthal MM, Austin Z, Tsuyuki RT. Are pharmacists the ultimate barrier to pharmacy practice change? *Can Pharm J (Ott)* 2010;143(1):37-42.
21. Rosenthal MM, Austin Z, Tsuyuki RT. Barriers to pharmacy practice change. *Can Pharm J (Ott)* 2016;149(6):317-9.
22. Pammatt R, Jorgenson D. Eligibility requirements for community pharmacy medication review services in Canada. *Can Pharm J (Ott)* 2014;147(1):20-4.
23. Penm J, Jorgenson D, MacKinnon NJ, Smith J. Part 1: barriers to the advancement of the pharmacy profession. *Can Pharm J (Ott)* 2017;150(3):150-2.
24. Jorgenson D. Is it time for internal medicine pharmacists in primary care? *Can Pharm J (Ott)* 2018;151(4):214-6.
25. Wiebe ER, Kaczorowski J, MacKay J. Why are response rates in clinician surveys declining? *Can Fam Physician* 2012;58(4):e225-8.