

# Analysis of Real-World Experiences with the Ontario MedsCheck Program

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## ABSTRACT

**Background:** The Ontario MedsCheck program was introduced in April 2007, with enhancements to strengthen the program made in October 2016. Previous literature has characterized patients who received the service before the enhancements and described the experiences of community pharmacists and physicians, but the experiences of participants in the enhanced MedsCheck program and those of hospital pharmacists and pharmacy technicians have not been explored.

**Objectives:** This study was designed to describe and compare the demographic and clinical characteristics of patients admitted to Sunnybrook Health Sciences Centre (SHSC) who had received a MedsCheck before and after the program enhancements of 2016. The study also aimed to describe the experiences of patients, hospital pharmacists, and pharmacy technicians with the MedsCheck program.

**Methods:** Chart reviews were completed to identify and characterize patients who had received a MedsCheck and were admitted to SHSC between March and May 2016 (retrospective cohort) and between March and May 2017 (prospective cohort). Patients were interviewed and focus groups were conducted with pharmacy staff to explore their experiences with the MedsCheck program.

**Results:** MedsChecks had been performed for 321 (14.5%) of 2216 patients in the retrospective cohort and 172 (6.8%) of 2547 patients in the prospective cohort, an absolute decline of 7.7% after the 2016 enhancements. Patient characteristics were similar between the 2 cohorts. Patients' experiences were varied, but because of low enrolment in the interview process ( $n = 3$ ), it was difficult to identify and summarize common themes. The analysis of focus groups involving pharmacy staff ( $n = 27$  participants) revealed that the benefits of MedsChecks depended on quality and access, and also identified common barriers and opportunities for future enhancements.

**Conclusions:** Patient interviews revealed the features of the program that patients valued. Pharmacy staff identified several benefits and barriers encountered when using MedsChecks. These findings can guide clinicians in optimal application of the current MedsCheck program and can inform subsequent program revisions.

**Keywords:** patient preference, hospital pharmaceutical services, community pharmacy services, MedsCheck, medication review

## RÉSUMÉ

**Contexte :** En avril 2007, l'Ontario a introduit le programme MedsCheck assorti d'améliorations visant à renforcer le programme élaboré en octobre 2016. La documentation antérieure décrivait l'expérience des patients recevant le service ainsi que celle des pharmaciens et des médecins communautaires avant les améliorations, mais les expériences des participants au programme MedsCheck amélioré ainsi que celles des techniciens en pharmacie et des pharmaciens d'hôpitaux n'avaient toutefois pas été étudiées.

**Objectifs :** Cette étude a été conçue pour décrire et comparer les caractéristiques démographiques et cliniques des patients admis au Sunnybrook Health Sciences Centre (SHSC) qui ont reçu un MedsCheck avant et après les améliorations apportées au programme de 2016. L'étude vise également à décrire les expériences qu'ont faites les patients, les pharmaciens d'hôpitaux et les techniciens en pharmacie avec le programme MedsCheck amélioré.

**Méthodes :** Des examens de graphiques ont permis d'identifier et de caractériser les patients admis au SHSC entre mars et mai 2016 (cohorte rétrospective) et entre mars et mai 2017 (cohorte prospective), ayant reçu un MedsCheck. Les patients ont été interrogés et des groupes de discussion avec le personnel de pharmacie ont été organisés pour étudier les expériences qu'ils ont faites avec le programme MedsCheck.

**Résultats :** Des MedsChecks ont été effectués auprès de 321 patients (14,5 %) sur les 2216 dans la cohorte rétrospective, et de 172 patients (6,8 %) sur les 2547 dans la cohorte prospective : une diminution de 7,7 % après les améliorations apportées en 2016. Les caractéristiques des patients étaient similaires dans les deux cohortes. Les expériences des patients étaient variées, mais la faible inscription au processus d'entretien ( $n = 3$ ) n'a pas permis de déterminer et de résumer les thèmes communs. L'analyse des groupes de discussion comprenant des membres du personnel de pharmacie ( $n = 27$  participants) a révélé que les avantages du programme MedsChecks dépendaient de la qualité de l'information fournie par le programme et de l'accès à cette information, et elle a aussi permis de cibler les obstacles courants et des possibilités d'améliorations futures.

**Conclusions :** Les entretiens avec les patients ont révélé les caractéristiques du programme que les patients appréciaient. Le personnel de pharmacie a relevé plusieurs avantages et quelques obstacles liés à l'utilisation du programme MedsChecks. Ces résultats peuvent faciliter l'application optimale du programme MedsCheck actuel par les cliniciens et orienter les révisions ultérieures.

**Mots-clés :** préférences des patients, services pharmaceutiques en hôpital, services des pharmacies communautaires, MedsCheck, examen des médicaments

## INTRODUCTION

The Ontario MedsCheck program aims to improve patients' medication knowledge, to optimize the safety and effectiveness of medication therapy, and to facilitate communication of patient information to the interdisciplinary team.<sup>1</sup> It also aims to promote adherence, healthier patient outcomes, and disease self-management.<sup>1</sup> MedsChecks provide an opportunity for pharmacists to review patients' prescription and nonprescription medications, as well as their medication-taking behaviour.<sup>1</sup>

The program began in 2007 with the MedsCheck Annual and has since been expanded to include MedsCheck Follow-Up, MedsCheck at Home, MedsCheck for Diabetes, and MedsCheck Long-Term Care.<sup>1</sup> On October 1, 2016, the Ontario government launched enhancements to strengthen the program. The changes included introduction of a MedsCheck brochure for patients, a standardized patient acknowledgement form, a pharmacist worksheet for professional notes, a standardized MedsCheck personal medication record, a take-home summary for the patient, and a standardized notification template for the health care provider.<sup>1</sup> These changes represented a significant increase in workload and documentation over previous versions.

About 1 in 9 Ontarians have received a MedsCheck,<sup>2</sup> and patients who receive MedsChecks are taking an average of 8 to 11 medications,<sup>2,5</sup> have multiple comorbidities,<sup>2</sup> and are more likely (relative to those not receiving the service) to be taking a high-risk medication.<sup>6</sup> It is important to consider that comorbidities, number of medications, and complexity of the medical situation may not indicate how well patients understand their medications or their desire to receive education about their medications.

Previous studies of medication review programs have explored the experiences of community pharmacists and physicians. In a study at an ambulatory internal medicine clinic, medical residents agreed that having access to MedsCheck records saved time when gathering a medication history, that they consulted medication lists when making treatment decisions, and that having an up-to-date medication list allowed them to provide better care.<sup>5</sup> Community pharmacists reported a beneficial effect on job satisfaction, improved interprofessional communication, and improved patient-pharmacist relationships, and they appreciated the opportunity to provide patient education and create more accurate and complete patient profiles.<sup>7</sup>

Hospital pharmacists and pharmacy technicians use MedsChecks to assist in gathering a medication history. However, the MedsCheck experiences of these health care professionals have not yet been explored. In addition, little is known about patients' experiences with the MedsCheck program. Several researchers have conducted surveys to determine patients' attitudes regarding the role of the pharmacist and interest in expanded pharmacy services,<sup>5,8-10</sup> and the types of patients who receive the MedsCheck service have been well documented.<sup>2,3</sup> However, few studies have

explored the patient experience in depth. The objectives of this study were to quantify and characterize patients who received a MedsCheck and were admitted to Sunnybrook Health Sciences Centre (SHSC) in 2017 (after enhancements to the program), for comparison with a cohort of patients admitted in the same period of the previous year (before enhancements). The study also aimed to describe the experiences of patients, hospital pharmacists, and pharmacy technicians with the MedsCheck program.

## METHODS

This study was approved by the Research Ethics Board at SHSC. The study had 2 components: a retrospective chart review and a prospective data collection phase. Both quantitative and qualitative data were collected.

The retrospective period was defined as March 1 to May 31, 2016, and the prospective period as March 1 to May 31, 2017. The study periods were selected for convenience, given the time constraints of a residency project.

### Identification and Consent of Participants

At the study institution, every patient admitted to the emergency department is flagged by the hospital's electronic patient management system and is subsequently seen by one of the institution's pharmacy technicians for completion of the admission best possible medication history (BPMH). For purposes of this study, the charts of all patients identified by this method (in both cohorts) were reviewed, and community pharmacy dispensing records were used to identify those patients for whom a MedsCheck had been completed before the admission. In addition, during the prospective data collection period, patients eligible for interviews were identified by pharmacy technicians when they were completing the admission BPMH. Pharmacy technicians obtained written informed consent from those who agreed to participate.

Eligible pharmacy staff were invited by email to participate in a focus group. One researcher (A.G.) obtained written informed consent from those who agreed to participate.

### Inclusion Criteria

All patients admitted to the emergency department or an inpatient ward of SHSC and who were identified as needing a BPMH during the prospective study period were screened for this study. To be eligible for the interview, patients had to be able to provide informed consent and to participate in a telephone interview after discharge.

All hospital pharmacy staff (pharmacists and pharmacy technicians) who were responsible for gathering a BPMH for newly admitted patients were invited to participate in a focus group.

## Data Collection

For both the retrospective and prospective cohorts, the charts of patients admitted to inpatient units or the emergency department were reviewed to obtain clinical characteristics and demographic data (age, sex, number of medications, number of prescribers, number of pharmacies, pharmacy type, and place of residence).

Patients who were identified as having had a MedsCheck before the admission and who agreed to participate were interviewed using a semistructured telephone interview (Appendix 1, available at <https://www.cjhp-online.ca/index.php/cjhp/issue/view/191/showToc>). The interview questions were reviewed in advance with a patient volunteer to verify understandability and use of patient-friendly language. The postdischarge telephone interview format was chosen to reduce the influence of stressors due to hospital stay, to minimize distractions in the hospital environment, and to increase convenience for the patient.

The experiences of pharmacy staff were gathered by means of focus groups (Appendix 2, available at <https://www.cjhp-online.ca/index.php/cjhp/issue/view/191/showToc>). This mode of data collection was chosen to utilize group dynamics to generate ideas, gather a broad range of ideas in a limited amount of time, and minimize workflow disruption for staff.

The interviews and focus groups were recorded and transcribed by one researcher (A.G.).

## Data Analysis

Descriptive statistics (means, standard deviations [SDs], medians, frequencies, and percentages) were used to describe patients' demographic and clinical characteristics.

Transcriptions of the interviews and focus groups underwent content analysis to identify, code, and categorize emergent themes. The themes were reviewed and categorized to create a set of codes. Finally, the transcripts were read again to facilitate application of the codes and to highlight associated passages. Two reviewers (A.G., A.D.) reviewed the transcripts independently and met to reach consensus on the final themes.

## RESULTS

A total of 4763 patients were screened: 2216 patients in the retrospective cohort and 2547 in the prospective cohort. The number of patients with a prior MedsCheck was 321 (14.5%) in the retrospective cohort and 172 (6.8%) in the prospective cohort. This represents a 7.7% absolute reduction in the proportion of patients with a MedsCheck admitted to SHSC after the 2016 enhancements to the program.

The demographic and clinical characteristics of the retrospective and prospective cohorts were compared (Table 1). No major differences between the cohorts were identified.

The pharmacy staff involved in the study consisted of 22 clinical pharmacists from various practice areas across the hospital and 5 registered pharmacy technicians, who were responsible for conducting BPMHs.

Review of the interview and focus group transcriptions revealed 4 major themes: quality, benefits, barriers, and collaboration (see Box 1 and Box 2). There was limited enrolment of patients for interviews ( $n = 3$ ), so the themes and quotations presented here are derived from focus groups involving pharmacy staff, unless otherwise noted.

## Quality of MedsChecks

Most of the comments relating to the quality of MedsChecks identified inconsistent or poor quality. Factors relating to poor quality included missing or inconsistent information, illegibility of information recorded on forms, variation between individual pharmacists and between types of pharmacies, hasty completion of MedsChecks, and completion of MedsChecks by someone other than a licensed pharmacist. The focus group participants reflected that some of these quality issues are linked to barriers experienced by community pharmacists.

## Benefits

The second major theme was benefits. Focus group participants noted that MedsChecks can serve as a good source of information for physicians, allied health professionals, and caregivers and that they provide a representation of the patient in a non-acute care setting. Pharmacy staff believed that MedsChecks can increase patients' knowledge about medications; however, this perception was not supported by findings from patient interviews. Nevertheless, a MedsCheck generates an up-to-date medication list that the patient can refer to and share with various health care providers, which focus group participants characterized as an important benefit.

Additionally, both patients (in interviews) and pharmacy professionals (in focus groups) discussed several benefits of the clinical analysis that occurs during a MedsCheck, including the identification and prevention of medication errors. The pharmacy professionals also identified the MedsCheck as an opportunity to generate suggestions for medication changes (which could then be communicated to the patient's primary physician).

Finally, focus group participants believed that MedsChecks can help to establish the role of pharmacists and to facilitate the development of patient-pharmacist rapport. Hospital pharmacy staff noted that this understanding of the role of a pharmacist can facilitate BPMH interviews while the patient is in hospital.

## Barriers

Patients and focus group participants identified many barriers to optimal MedsChecks, including inadequate time spent completing the MedsChecks and lack of preparation on the part of patients (because the service is often not appointment-based). Inappropriate patient selection was identified as a barrier by both patients and hospital pharmacy staff, which suggests that

community pharmacists may not be offering MedsChecks to patients with the most complex medication regimens or those who are struggling to understand their medications. Finally, even when MedsChecks have been completed, they are not being utilized to their full potential, because pharmacy staff prefer to rely on other information sources, and patients do not carry their MedsCheck documents or share them with health care providers.

### Collaboration

The final major theme was collaboration. Pharmacy staff reported that they encountered resistance when requesting MedsChecks from community pharmacies and were frustrated with the lack of access; this was such a common problem that some participants reported that they had stopped asking for MedsChecks documents altogether. Others believed that MedsChecks are nearly useless if the findings cannot be shared with other health care providers. Pharmacy staff felt that the program would benefit from increased collaboration between health care providers, and some cited examples of times when they had tried to engage patients so as to involve other health care providers.

### Opportunities for Improvement

Future directions to improve the MedsCheck program for patients and hospital pharmacy staff were identified, which included increasing collaboration among health care providers, allowing community pharmacies to share MedsChecks via the Ontario government's eHealth Portal, updating the forms to include information that is valuable to hospital staff (e.g., medication-taking behaviours and caregiver names), and introducing accreditation or quality standards to improve quality and increase access. Other suggestions from focus group participants included integrating patient-level technology, such as medication management apps, to help patients record and use their medication lists or providing updates to the patient's current list of medications to make it more user friendly (e.g., use of wallet-sized cards, inclusion of information such as indication and pertinent warnings/cautions). Finally, participants in the focus groups identified the potential role of pharmacy technicians in the technical task of gathering information for MedsChecks in the community setting (similar to how some hospitals use pharmacy technicians to gather the BPMH) while still involving the pharmacist in the clinical review.

**Table 1. Demographic and Clinical Characteristics of Patients**

Characteristic	Cohort; No. (%) of Patients*	
	Retrospective Cohort (n = 321)	Prospective Cohort (n = 172)
Sex		
Male	161 (50.2)	92 (53.5)
Female	160 (49.8)	80 (46.5)
Age (years) (mean ± SD)	75.3 ± 13.3	76.4 ± 12.9
No. of medications (mean ± SD)	9.8 ± 4.5	9.8 ± 4.6
Pharmacy type performing MedsCheck		
Chain	187 (58.3)	114 (66.3)
Independent	134 (41.7)	58 (33.7)
Place of residence		
Home	301 (93.8)	152 (88.4)
Long-term care facility	20 (6.2)	20 (11.6)
No. of prescribers per patient (mean ± SD)	4 ± 2.3 (n = 316)	3.9 ± 2.4
No. of pharmacies per patient (mean ± SD)	1.7 ± 1 (n = 319)	1.8 ± 1
Medications		
Antidepressants	74 (23.1)	51 (29.7)
Antihyperglycemics	78 (24.3)	52 (30.2)
Antihypertensives	263 (81.9)	136 (79.1)
Antilipidemics	203 (63.2)	105 (61.0)
Benzodiazepines	51 (15.9)	25 (14.5)
Gastroprotective agents	155 (48.3)	89 (51.7)
Insulin	32 (10.0)	22 (12.8)
Narcotics	77 (24.0)	46 (26.7)
Osteoporosis medications	32 (10.0)	19 (11.0)
High-risk medications†	268 (83.5)	141 (82.0)

\*Except where indicated otherwise.

†High-risk medications are listed in Appendix 3 (available at <https://www.cjhp-online.ca/index.php/cjhp/issue/view/191/showToc>).

### Box 1. Sample Views of Pharmacy Staff (Focus Groups)

#### Quality of MedsChecks

"I think we see a huge difference in good quality versus poor quality, so it's hard to say. When we do see the good quality ones [...] we can't say that's not valuable because it's clearly valuable."

"We've all been disappointed with some of the quality."

"The quality is hit and miss."

"I find it variable. I think it depends on the one you get and who's doing it."

"The potential is there but it's not done well."

#### Benefits of MedsChecks

"I think it's important because it's another source, another piece of information."

"The good quality lists usually come from the patient, so it's a MedsCheck that they have, that they recognize is accurate and they keep in their wallet or purse with them."

"I think it's a great platform for the community pharmacist. Especially in terms of re-establishing the communities' understanding of what the potential role of the community pharmacist is."

#### Barriers to using MedsChecks

"I have to admit, I don't really use it. I start from scratch."

"I've never [...] seen a patient have a MedsCheck with them."

"I've never found them to be useful personally."

#### Collaboration related to MedsChecks

"Getting them is the hardest part."

"Majority of the time I haven't even bothered to chase after it."

"So, I kind of stopped asking them anymore because of the resistance that I see."

"There is no point in gathering that information if it's just going to be stored in the corner somewhere."

"I just think as a whole, the medical field, all of us, need to work closer with each other. I mean as a whole, if we have information it's good to give to them and then vice versa."

### Box 2. Sample Views of Patients (Interviews)

#### Benefits of MedsChecks

"They helped me clear my mind about my medications and I wasn't nervous that I was taking the wrong thing."

"There were some [medications] that she didn't think were quite necessary and she spoke about those and she crossed them out and I took them to my doctor and my doctor did the rest."

"[They] went through all my medications with me, made sure that I was taking what I was supposed to be taking, that everything was up to date."

#### Barriers to using MedsChecks

"I would have appreciated if they had taken just a little bit more time."

"It could be important for *somebody* who does not know [about their medications]."

"I think it would certainly be beneficial for *other patients* that ... might not be as knowledgeable about the medications."

## DISCUSSION

In this study, we have described the patients who received a MedsCheck and were admitted to an acute care hospital before and after the introduction of program enhancements in 2016. Changes in the MedsCheck program may have reduced the proportion of patients admitted to SHSC with a MedsCheck completed; however, the characteristics of patients who received this service remained the same. Additionally, we have described the experiences of patients, hospital pharmacists, and pharmacy technicians with the MedsCheck program. Pharmacy staff clearly identified benefits and barriers that were largely dependent on quality and access. Opportunities for improvement were also identified, such as the need for increased collaboration and communication, including ease of access to MedsChecks documentation to improve seamless care.

Given the time constraints of a residency project, we restricted our data-gathering to a period of 3 months in each calendar year, and we did not achieve saturation of themes during the patient interviews because of the low sample size. Our results may not be generalizable across Ontario, because they do not

represent individuals from rural areas or those admitted to smaller hospitals. Finally, we did not collect outcome data, so we cannot comment on whether undergoing a MedsCheck was associated with changes in outcomes (such as likelihood of being admitted to hospital for adverse effects caused by multiple medications or likelihood of taking an inappropriate medication).

Despite these limitations, we were able to characterize patients who received a MedsCheck before and after the 2016 program enhancements and to describe experiences with the program. To our knowledge, this was the first study to examine the experiences of hospital pharmacists and pharmacy technicians with the MedsCheck program; however, given the lack of previous literature, our findings for hospital pharmacy staff cannot be compared with data for other health professionals. Perceived benefits of the program, such as generating a medication list and establishing the role of the pharmacist, indicate aspects of the program that are currently working well for patients and pharmacy staff. Opportunities for future program enhancements relate to barriers identified by the focus group participants, such as poor quality, illegibility, inability to locate or share MedsChecks findings, inappropriate patient selection, and lack of collaboration. These opportunities could be addressed in various ways, such as standardized education, peer-to-peer education (between hospital and community pharmacists), electronic forms (ideally uploaded to a web-based portal, such as the ConnectingOntario Clinical-Viewer, to allow multiple providers to view the information), and perhaps a review of patient eligibility criteria.

## CONCLUSION

These findings can guide community pharmacists in the optimal use of the current MedsCheck program, and the opportunities for improvement identified can inform subsequent program revisions. Future studies could further explore the patient perspective and examine the association between MedsChecks findings and patient outcomes.

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