

CHALMERS



Opportunities for Improving the Link between MedsCheck and Medication Reconciliation in Home Care

Master of Science Thesis in the Master Degree Program, Quality and Operations Management

S. ARASH HAMIDI

Department of Technology Management and Economics
Division of Quality Sciences
CHALMERS UNIVERSITY OF TECHNOLOGY
Göteborg, Sweden, 2011
Report No. E2011:113

REPORT NO: E2011:113

Opportunities for Improving the Link between MedsCheck and Medication Reconciliation in Home care

S. ARASH HAMIDI

Supervisors: Henrik Eriksson, G. Ross Baker

Department of Technology Management and Economics
Division of Quality Sciences
CHALMERS UNIVERSITY OF TECHNOLOGY
Göteborg, Sweden 2011

Opportunities for Improving the Link between MedsCheck and Medication Reconciliation in Home care

S. ARASH HAMIDI

© S. ARASH HAMIDI, 2011.

Report No. E2011:113
Department of Technology Management and Economics
Division of Quality Sciences
Chalmers University of Technology
SE-412 96 Göteborg , Sweden
Telephone + 46 (0)31-772 1000

Göteborg, Sweden 2011

Researcher

Arash Hamidi
M. Sc. student in Quality and Operations Management
Division of Quality Sciences and Operations Management
Department of Technology Management and Economics
Chalmers University of Technology, Gothenburg, Sweden
arseyed@student.chalmers.se

Supervisors

Dr. Henrik Eriksson
Researcher, Division of Quality Sciences
Department of Technology Management and Economics
Chalmers University of Technology
henrik.eriksson@chalmers.se

Dr. G. Ross Baker
Professor, Full SGS Member
Department of Health Policy, Management and Evaluation
Faculty of Medicine, University of Toronto
ross.baker@utoronto.ca

Abstract

Medication Reconciliation (MedRec) has been used as an effective tool for preventing Adverse Drug Events. Although in recent years its application in hospitals and other care provider settings has become mandatory, in home care environments its application is not as pervasive as other care provider settings. On the other hand, the need for home care services is increasing dramatically in Canada and all around the world. Therefore, the need for more effective conduct of MedRec in home care environment has been identified.

Recently, the Ministry of Health and Long-Term Care in Ontario has launched a new medication review service at its provincial community pharmacies through which patients will be educated regarding their medications, and any possible discrepancies in the patients' medication regimens will be reconciled by the community pharmacist.

In order to facilitate both MedRec process in home care and MedsCheck at community pharmacies, the potential of linking the two initiatives has been identified. Unfortunately, there is a gap in the link between the two initiatives that impedes the fluent communication of medication information between the two environments.

In this research, the link between the two initiatives is explored. The literature review and the collected empirical data lead to the identification of a number of barriers to the effective transmission of medication information between the two initiatives of MedsCheck and home care MedRec. Furthermore, a series of recommendations are provided. It is believed application of such recommendations would facilitate the communication of information between the two initiatives.

Keywords: Medication Reconciliation, Home care, MedsCheck, Medication Information Communication, Change Management

Acknowledgment

I am indebted to all the people who have supported me during my studies at the Chalmers University of Technology and the University of Toronto. It has been a privilege and honor to conduct my Master's thesis project under the supervision of Dr. G. Ross Baker at the University of Toronto. His enthusiasm, sound guidance and support have made this an exciting and enlightening journey. I would like to express my gratitude to my supervisor at Chalmers University of Technology, Dr. Henrik Eriksson first for taking on this thesis and then for his directions, support, and encouragement throughout the work. This thesis could have not been successfully completed without his help and advice.

My special thanks go to Margaret Colquhoun at the Institute for Safe Medication Practices Canada, for providing valuable input and coordinating the conduct of my interviews. I am deeply thankful to the people who participated in my study, gave me the opportunity to interview them and provided me with all the required information. I truly appreciate their time and assistance.

I am very grateful for having the opportunity to conduct my Master's thesis project at the Health Policy, Management, and Evaluation Department of the University of Toronto. To the people at the Department, especially my dear friend Christopher Klinger, thank you for your everlasting kindness and support, and for creating a stimulating and fun environment to learn and grow.

I have had the fortune of having the love and support of very special friends during the conduct of my thesis project. I would like to thank Sima for her support, consideration, and patience. I am also thankful to Farzad for always being there for me.

At last but not least, my deepest gratitude goes to my beloved mother, father and sister for their unconditional love and support throughout my life; without them, I would not be where I am today. To them I dedicate this thesis.

Table of Contents

Researcher.....	3
Supervisors	3
Abstract	4
Acknowledgment.....	5
Table of Contents.....	6
Table of figures	10
Abbreviations.....	11
Terminology	12
1. Introduction.....	13
1.1. Background.....	13
1.2. Purpose.....	14
1.3. Problem analysis and research questions	14
1.4. Disposition	16
2. Method	17
2.1. Research strategy.....	17
2.2. Research design	17
2.3. Research method.....	18
2.3.1. Data collection	18
2.3.2. Data analysis.....	21
2.4. Research trustworthiness.....	22
2.5. Research ethics	22
3. Literature Review	23
3.1. Medication reconciliation (MedRec).....	23
3.1.1. Definition	23
3.1.2. Goal.....	23
3.1.3. Development	24
3.1.4. Process	24
3.1.5. MedRec at admission	26
3.1.6. MedRec at discharge	27
3.1.7. Implementation.....	29

3.1.8.	Advantages	29
3.1.9.	Challenges.....	30
3.2.	MedRec in home care.....	32
3.2.1.	Definition of home care.....	32
3.2.2.	Home care environment.....	33
3.2.3.	Requisite for MedRec in Home care environment.....	33
3.2.4.	Definition of MedRec in home care	34
3.2.5.	Process	34
3.2.6.	Challenges.....	34
3.3.	MedsCheck	35
3.3.1.	Definition	35
3.3.2.	Reimbursement.....	36
3.3.3.	Advantages	36
3.3.4.	Challenges.....	37
3.3.5.	Facilitators.....	38
3.4.	Information systems and technology.....	39
4.	Empirical data & Analysis.....	42
4.1.	Current state	42
4.1.1.	Medication Reconciliation in homecare.....	42
4.1.2.	MedsCheck.....	50
4.2.	Barriers.....	62
4.2.1.	Education	64
4.2.2.	Change.....	67
4.2.3.	Culture.....	68
4.2.4.	Standardization	69
4.2.5.	Resources.....	70
4.2.6.	Finance.....	70
4.2.7.	Logistics.....	71
4.2.8.	Incentive.....	72
4.2.9.	IT systems and Electronic Medical Record (EMR).....	74
5.	Discussion	76
5.1.	Future state.....	76
5.2.	Pharmacist's role	77

5.3.	Patient's role	78
5.4.	Future initiatives	78
5.5.	Receptivity	78
5.6.	Design and Planning.....	78
5.7.	Learning from others.....	79
5.8.	Leadership.....	80
5.9.	Theoretical contribution	80
5.10.	Limitations	81
6.	Conclusion.....	82
6.1.	Implications for practice and future research.....	82
7.	References.....	84
	Appendices	89
	Appendix A – Research Method Supplementary Documents	89
	A.1. Informant consent form	89
	A.2. Interview guide (MedsCheck professionals)	91
	A.3. Interview guide (MedRec professionals)	92
	A.4. Interview guide (Professionals in facilitating the link).....	93
	Appendix B – Coded interviews transcriptions.....	94
	B.1. Summary 1 - MedsCheck.....	95
	B.2. Summary 2 – MedRec and MedsCheck.....	97
	B.3. Summary 3 – MedRec and MedsCheck.....	101
	B.4. Summary 4 - MedsCheck.....	103
	B.5. Summary 5 - MedsCheck.....	105
	B.6. Summary 6 – MedRec, MedsCheck, and the link	107
	B.7. Summary 7 - MedRec.....	112
	B.8. Summary 8 - MedRec.....	114
	B.9. Summary 9 – MedsCheck and the link.....	116
	B.10. Summary 10 - MedsCheck.....	119
	B.11. Summary 11 - MedsCheck.....	121
	B.12. Summary 12 – MedsCheck and the link	122
	B.13. Summary 13 - MedsCheck.....	126
	B.14. Summary 14 - MedRec	128
	B.15. Summary 15 - MedsCheck.....	131

B.16. Summary 16 - MedsCheck.....	132
B.17. Summary 17 – The link	134
B.18. Summary 18 – MedRec and the link	136
B.19. Summary 19 - MedsCheck.....	141
B.20. Summary 20 - MedsCheck.....	143
B.21. Summary 21 - MedsCheck.....	146
B.22. Summary 22 – MedRec and the link	149
Appendix C – Medication reconciliation Supplementary Documents.....	153
C.1. Accreditation Canada Required Organizational Practices (ROPs).....	153
C.2. Medication reconciliation at transition points	154
C.3. Medication reconciliation process map at admission to healthcare facility	155
C.4. Medication reconciliation form at admission to healthcare facility	156
C.5. Medication reconciliation process map at transfer inside healthcare facility	157
C.6. Medication reconciliation process map at discharge from healthcare facility	158
C.7. Medication reconciliation form at discharge from healthcare facility	159
C.8. Best possible medication history form (BPMH)	160
C.9. Medication reconciliation process in home care.....	161
C.10. The client’s circle of care in home care.....	162
C.11. Elements of successful transitional care model	163
Appendix D – MedsCheck Supplementary Documents	164
D.1. MedsCheck payment fees	164
D.2. MedsCheck statistics.....	165
D.3. MedsCheck standardized form.....	166

Table of figures

Figure 1 – Medication Reconciliation at admission to home care.....	43
Figure 2 - Medication Reconciliation at discharge from home care.....	46
Figure 3 - SWOT analysis for Medication Reconciliation in home care	49
Figure 4 - Total number of MedsCheck claims (Ontario MOHLTC).....	50
Figure 5 - MedsCheck processes	52
Figure 6 - Total government cost for MedsCheck (Ontario MOHLTC)	53
Figure 7 - Number of Ontario residents who received a MedsCheck review (Ontario MOHLTC)	59
Figure 8 - SWOT analysis for MedsCheck.....	61
Figure 9 - Ishikawa diagram for barriers to the link between MedsCheck and MedRec in home care	63
Figure 10 - Percentage of MedsCheck follow-up reviews.....	65

Abbreviations

ADE	Adverse Drug Event
AE	Adverse Event
AMO	Admission Medication Order
BPMDP	Best Possible Medication Discharge Plan
BPMH	Best Possible Medication History
CCAC	Community Care Access Center
CCHSA	Canadian Council on Health Services Accreditation
CPhA	Canadian Pharmacists' Association
CPOE	Computerized Physician Order Entry systems
CPSI	Canadian Patient Safety Institute
DPV	Drug Profile Viewer
EMR	Electronic Medical Record
IHI	Institute for Healthcare Improvements
ISMP	Institute for Safe Medication Practices
IT	Information Technology
JCAHO	Joint Commission on Accreditation of Healthcare Organizations
LTC	Long Term Care
MAR	Medication Administration Record
MedRec	Medication Reconciliation
MOHLTC	Ministry of Health and Long-Term Care
NPSG	National Patient Safety Goal
OCP	Ontario College of Pharmacists
ODB	Ontario Drug Benefit
OPA	Ontario Pharmacists' Association
OPC	Ontario Pharmacy Council
OTC	Over-the-counter drugs
REB	Research Ethics Board
SHN	Safer Healthcare Now!

Terminology

Medication reconciliation (MedRec): is a process intended to ensure accurate and consistent communication of the patient's medication information through transitions of care. (Institute for Safe Medication Practices Canada 2010)

MedsCheck: is an initiative funded by the Ontario MOHLTC. It is an annual medication review that is performed by community pharmacists for patients via a one-on-one discussion, to help them better understand their medications. (ibid)

Chronic condition: is marked by long duration, by frequent recurrence over a long time, and often by slowly progressing seriousness. The U.S. National Center for Health Statistics defines a chronic condition as one persisting three months or longer. (MedicineNet.com 2011)

Acute condition: is the opposite of chronic condition, and refers to a health effect usually of rapid onset, brief and not prolonged. Acute hospitals are those intended for short-term medical and/or surgical treatment and care. (ibid)

Ambulatory care: is any medical care delivered on an outpatient basis. Sites where ambulatory care can be delivered include physician offices, hospital emergency departments, and urgent care centers. (ibid)

Medication error: "Any preventable events that may cause or lead to inappropriate medication use or patient harm while the medication is in the control of the health care professional, patient or consumer" (Herrero-Herrero, Garcia-Aparicio 2010, Wolper 2011). Medications errors are the most frequent adverse events following hospital discharge. (Corbett et al. 2010)

Medication discrepancy: is any difference between the medication list provided at discharge from the healthcare setting and the medications that are actually taken by patients. (Corbett et al. 2010)

Medication adherence: the degree of consistency between what patients think they should be taking and what they actually take. (Schnipper et al. 2006)

Adverse event (AE): Injuries occurring as a result of medical management, rather than the underlying disease (Wolper 2011, Forster et al. 2003). Baker et al. (2004) defines AEs "as an unintended injury or complication that results in disability at the time of discharge, death or prolonged hospital stay and that is caused by health care management rather than by the patient's underlying disease process" (Baker et al. 2004).

Adverse drug event (ADE): is defined as injuries due to medical treatment. (Herrero-Herrero, Garcia-Aparicio 2010, Wolper 2011)

Over-the-counter drugs (OTC): Over-the-counter medicines are drugs that can be bought without a prescription. Some OTC medicines relieve aches, pains and itches. Some prevent or cure diseases, like tooth decay and athlete's foot. Others help manage recurring problems, like migraines. (Food and Drug Administration 2010)

1. Introduction

This chapter provides a brief background about the efforts being taken in the fields of MedsCheck and MedRec in home care. Later on, the purpose of this research together with the research questions and the problem analysis are elucidated. In the end, the structure of this report is outlined in the disposition section of this chapter.

1.1. Background

Caring for patients is inherently a complex process. One of the most convoluted parts is the medication delivery which consists of prescribing, transcription, dispensing and administration of the medications (Moore 2003). Errors can and do occur during any step of the process, e.g. medication errors and consequently adverse events (AE) are common during the hospital stay and post-discharge (Greenwald 2010). There are myriad of studies indicating the incidence and frequency of such medication errors and AEs (Forster et al. 2003, Moore 2003, Baker et al. 2004, Tam 2005, Cornish 2005, Wong 2008, Coffey 2009, Herrero-Herrero 2010, Garcia-Aparicio 2010). Interfaces of care are the most insecure moments when patients are at high risk for medication discrepancies (Fernandes 2009), which have potential to deteriorate the patient welfare and cause financial burden on both, the patient and the society (Baker et al. 2004, Greenwald 2010, Cornish 2005, Coleman et al. 2005). Baker et al (2004) estimates in the year 2000, between 141,250 and 232,250 of 2.5 million similar admissions to acute care hospitals in Canada were associated with an AE, and that 9,250 to 23,750 deaths from AEs could have been prevented (Baker et al. 2004). In their study, Pronovost et al. (2003) indicated that 46% of the medication errors occur during transitions. In another study AEs in inpatients have been associated with the discontinuity of patient care during the hand-offs that occurs due to an inefficient communication between units of care (Moore 2003). There is multitude of studies that evidently show that improved communication mechanisms between care settings and between their internal care providers have decreased AEs (Herrero-Herrero, Garcia-Aparicio 2010, Fernandes 2009, Hughes 2008, Bayley et al. 2005).

Thus, accurate and effective transfer of medication information between care settings plays a critical role in reducing the numbers of AEs due to inaccurate communication. Similar to other countries, patient safety is receiving growing attention in Canada and many health care organizations have initiated efforts to improve patient safety, e.g. the Canadian government budgeted \$50million in 2002 over five years for the creation of the Canadian Patient Safety Institute (CPSI) intended to promote innovative solutions and to facilitate collaboration among governments and stakeholders to enhance patient safety. (Baker et al. 2004, Canadian Patient Safety Institute 2010)

In order to ensure the patient safety and prevent the incidence of AEs proactively a process called Medication reconciliation (MedRec) has been developed (Fernandes 2009, Hughes 2008). MedRec has been established in order to improve the consistency of information transfer between settings by identifying the medication name, dose, route and frequency (Safer Healthcare Now campaign 2007) and assigning responsibility (Hughes 2008) for obtaining this information. MedRec is a cost-effective (Edson 2006, Karnon 2009) and efficient process, and its benefits in decreasing the number of medication errors have been underscored (Safer Healthcare Now campaign 2007, Edson 2006, Bruning, Selder 2011). MedRec was first conducted at the major transition points (Fernandes

2009) within the inpatient settings, and later its employment was expanded to long-term care and home care settings. At present, due to the growing number of patients in home care settings (Coleman et al. 2005, Coyte, Baranek & Daly 2000) the need for MedRec in home care has been identified (Lang et al. 2006) and evidence-based strategies to reduce medication discrepancies and improve medication management as patients transition from hospital to home are suggested (Corbett et al. 2010, Bruning, Selder 2011, Coleman et al. 2005).

Following the governmental act in supporting health care improvement projects, provinces have also established a myriad of initiatives in this regard. In Ontario, the Ministry of Health and Long-Term Care (MOHLTC) launched MedsCheck in 2007 in collaboration with the Ontario Pharmacy Council (OPC) and the Ontario Pharmacists' Association (OPA) (Ontario Ministry of Health and Long-Term Care 2010). MedsCheck is an annual medication review provided by the province of Ontario community pharmacists for the patients to help them better understand their medications and ensure their adherence to their prescriptions (Ontario Ministry of Health and Long-Term Care 2010). A more comprehensive description of MedsCheck is provided in the Literature review chapter.

Considering the benefits of the MedsCheck service in community, in parallel to the advantages of running MedRec processes throughout the continuum of care, specifically in home care, the essence of making a link between the two initiatives is highly suggested. It is believed that facilitating the link between the MedsCheck program and the MedRec processes will result in efficiency and cost-effectiveness in the health care services provided, and ultimately the higher levels of quality in care would be achieved.

1.2. Purpose

The purpose of this thesis is to explore linking the two initiatives of MedsCheck and MedRec in home care, and to identify opportunities for improvement. The former initiative is mainly carried out by community pharmacists with patients in the community, and the latter is conducted at all transition points in home care environment.

1.3. Problem analysis and research questions

In order to achieve the abovementioned goal of the project, the following research questions are proposed:

- *How do the current states of MedsCheck and MedRec in home care look?*
- *What are the main barriers associated to the link between MedsCheck process and MedRec process in home care environment?*

As it can be inferred from the abovementioned research questions this project concerns with two main concepts of MedRec in home care and MedsCheck carried out at the community pharmacies. MedRec in home care environment includes all the process carried out to reconcile medications from the time a patient is admitted to home care services which may happen after being discharged from an acute care setting and transitioned to home, until his/her discharge from home care service. Patient may be admitted to the next acute care setting after being discharged from home care services. Unlike MedRec in home care that is conducted in patient's home, MedsCheck

comprises of the face to face interview and counseling by the pharmacist at the community pharmacy with a patient with the goal of reconciling any possible discrepancy in the medication regimen of the patient, and educating the patients about their medications. More detailed description of the two initiatives, MedRec in home care and MedsCheck, is available in the literature review section of the report.

To date, most of the research has been carried out within one certain healthcare setting, mainly hospitals, and few studies have been conducted to investigate the links between different settings (Wolper 2011). It is important to note that care transitions and patient handoffs between settings are critical phases in the continuum of care, because of the high level of vulnerabilities involved due to the lack of oversight by healthcare professionals. Considering these transitions, the transition of a patient from a healthcare setting to his or her home needs much more attention and there are studies that have identified the number and the types of medication problems experienced by patients during this transition (Coleman et al. 2005). These problems not only contribute to suboptimal treatment of illness, they also potentially jeopardize the patient safety. Discovering the reasons for occurrence of such problems and employing appropriate methods for improving the quality of the transitions is essential. Therefore, it is believed that identifying transition-related medication problems at discharge and the barriers to implementation of the MedsCheck at community pharmacies creates an opportunity to improve quality through the continuum of care.

Most acute care hospitals have employed MedRec initiative to prevent ADEs that can be resulted from discrepancies in the medication regimen of the patients. MedRec at admission is required by Accreditation Canada and its use is expanding quickly. The challenge is for MedRec at discharge, where still patients are transitioned to their homes with a number of medication discrepancies in their medication discharge plans (Herrero-Herrero, Garcia-Aparicio 2010). Reconciling such discrepancies and preventing AEs in the home care environment becomes complex due to the insufficient access to expertise. On the other hand, community pharmacies are running MedsCheck for patients, a program which is designed for reconciliation of such discrepancies. But unfortunately MedsCheck is not carried out efficiently enough, and has not yet achieved the expected goals.

Therefore, the two initiatives have been conducted in different environments with different disciplines being involved in their conduct. Although each care setting might have efficient communication mechanisms locally, there is not any accurate inter-settings communication taking place and clinicians from different settings are not accustomed to interactions as such. MedRec has been conducted form many years in hospitals and its process has been streamlined to some extent. In contrary to that, it is not so long that MedRec is required to be conducted by home care institutes, and as a result there are so many problems identifiable to its conduct. From another perspective, as mentioned previously in the background section of this chapter, the need for home care services is increasing tremendously in Canada, and the need for more efficient processes for MedRec has been realized. MedsCheck initiative that is carried out in community pharmacies has the potential to contribute to the MedRec process in home care, and facilitate its conduct. There are many different issues around what seems as a logical connection between the two separate programs of MedsCheck and MedRec, in terms of logistics, finance, and etc. that makes

implementing such communication a demanding task to be done. It is believed that the integration of these two separate initiatives could greatly lessen clinicians' work load at each setting, lower the potential risks, contribute to managed care, and ultimately enhance medication safety in the transition to or from home.

1.4. Disposition

This report is structured as follows. After this introduction, the research methodology is presented in chapter 2, where research strategy, design, method and analysis are described. In chapter 3 literature review is arranged in four sections that cover the concepts of MedRec, MedRec in home care, MedsCheck, and information systems in these contexts. Empirical data and analyses are given in chapter 4. In chapter 5 recommendations for making improvements are discussed. Finally, the report ends with the conclusion of my study and future research in chapter 6.

2. Method

In this chapter the conduct of the research is outlined and the epistemological and ontological standpoints are discussed. Thereafter, the process of data gathering and data analysis is elaborated thoroughly. The chapter finishes with a discussion about the evaluation of the research.

2.1. Research strategy

In order to conduct the research, a qualitative research strategy was chosen to explore the nature of the medication safety processes and their interrelationships. The complex interaction of health care staff including nurses, physicians, patients, and pharmacists along with family members, and care givers will be explored. This strategy is appropriate to understand the key processes and change strategies involved. As Bryman and Bell (2007) note such a qualitative strategy emphasizes words rather than quantification in the collection and analysis of data, and is more appropriate in projects where the researcher wishes to explore the why and how of structures and processes to gain a deeper understanding of human behavior (Bryman, Bell 2007).

Regarding the nature of the relationship between theory and research, considering the aim of my research which is to identify opportunities for facilitating the link between MedsCheck and MedRec in home care, the principal orientation to the role of theory in relation to my research is *inductive*. According to Bryman and Bell (2007) in an inductive stance, theory is the outcome of the research. Moreover, an inductive strategy of linking empirical data and theory is typically associated with qualitative research strategies (Bryman, Bell 2007), which is in line with the selected research strategy in my study.

From epistemological perspective, i.e. the way knowledge is viewed, my research orientation is interpretivism (Bryman, Bell 2007). This epistemological position advocates that the natural science is not the best way to study the social world, rather the role of the members of the settings (e.g. people) should be considered. Interpretivism respects differences between people and requires the social scientist to grasp the subjective meaning of any social action (ibid.). This epistemological position was chosen because human factor plays pivotal role in this research, and that people's interpretations are different from the same incidence. Therefore, this factor could not be skipped by choosing positivism approach which is in contrast to interpretivism.

From ontological considerations, constructionism was chosen as the orientation of this research. Constructionism is an ontological position that claims social phenomena and their meanings are not independent of social actors, rather are based on social actors' perceptions and interactions (Bryman, Bell 2007). Constructionism stands in contrast to objectivism, and is chosen due to the fact that people's perceptions and understandings certainly influence the incidence of linking the MedsCheck initiative with MedRec processes in home care.

2.2. Research design

The design of the research is *single case study*. According to Yin (2003) referred in Baxter and Jack (2008) a case study is appropriate for answering the "why" and "how" questions, which supports my chosen research strategy as mentioned above (Baxter, Jack 2008). Miles and Huberman (1994) referred in Baxter and Jack (2008) note the importance of defining the "case" as the "research's unit

of analysis”, which helps to most efficiently finding the answers to the research question. (Baxter, Jack 2008) literally, the unit of analysis – the case- is what determines whether a study is considered to be a case study (Merriam 2009). In this project the “case” is the link between the two initiatives of MedsCheck and home MedRec. Other than the unit of analysis, case studies have another defining characteristic which is a “bounded system”, as Merriam (2009) defined case study as “an in-depth description and analysis of a bounded system.” The defined case of this project is intrinsically bounded to the two initiatives of MedsCheck and MedRec (Merriam 2009). The type of the case study is chosen as *Exploratory*. Yin (2003) referred in Baxter and Jack (2008) delineates that exploratory case studies are used “to explore those situations in which the intervention being evaluated has no clear, single set of outcomes” (Baxter, Jack 2008).

Regarding the aim of this research as identifying barriers to well-run connection between MedsCheck and MedRec in home care environment, this case study research design is believed to be appropriate since its focus is on obtaining an in-depth understanding of the context in which an intervention occurs and the diverse view points of the stakeholders (Baxter, Jack 2008).

2.3. Research method

2.3.1. Data collection

Considering the purpose of my thesis and the epistemological and ontological orientation of it, literature review and interviews were considered as the most appropriate data collection methods which are described below.

2.3.1.1. Literature review

The data collection process was commenced by conducting a literature review. Literature review is an integral part of any research study. Its importance has been underscored by many authors. Bryman and Bell (2007) consider literature review as a possible starting point for the study, and Merriam (2009) indicates its role in providing a foundation for the problem to be investigated. Reviewing the literature enables the researcher to figure out what advances have been made previously, and through creating a deeper understanding of the problem it simplifies the investigator’s task (Bryman, Bell 2007, Merriam 2009).

The chosen method for reviewing the literature was *narrative review*, since my intention was to gain an initial impression of the two initiatives of MedRec in home care and MedsCheck, exploring the link between which is the aim of my study. According to Bryman and Bell (2007) narrative review is more suitable for qualitative researchers whose research strategy is based on an interpretive epistemology, which supports this research’s epistemological standpoint as well. For literature review a structured search strategy was developed using relevant articles, books, published conference papers, and internet pages. I searched MEDLINE, EMBASE, and PUBMED data bases for English-language articles using the following keywords: “medication history taking”, “medication errors”, “adverse events”, “medication reconciliation”, “BPMH”, “MedsCheck”, and “medication reconciliation in home care.” As mentioned earlier, the search strategy was deliberately broad to ensure inclusion of the maximum number of relevant articles. All bibliographies of papers identified in the search were screened for additional articles, and this was done subsequently for all papers retrieved.

The outcome of the literature review was gaining basic knowledge on the subjects of my research (more specifically, helped to answer the questions in section 1.3.), and it served as a source for constructing my interview guides, basing my analysis arguments on, and finally contributed to proposing the recommendations at the discussion chapter of this report. It is worth mention that literature review started in the beginning of my research and was carried out throughout the whole research. It was not just one single step that was taken at the beginning of my study.

The literature review is divided into three main areas of MedRec, MedsCheck, and the application of information technology systems in conducting the two initiatives. Since the purpose of my thesis is to explore the link between the two initiatives of MedsCheck and MedRec in home care, information systems is the first solution that comes to mind and that have facilitated many connections throughout the continuum of care, and it was important to figure out what has been done in the field of MedRec and MedsCheck.

2.3.1.2. Interview

According to Bryman and Bell (2007) interviews are the most utilized data collection technique in qualitative research. Accordingly, semi-structured interview was chosen as the primary empirical data collection technique in my thesis for several reasons. Semi-structured interviews are in line with interpretivism and constructionism approaches of my research (Bryman, Bell 2007), which highlights the fact that I was interested in learning about respondents' viewpoints regarding the purpose of my research. Moreover, in semi-structured interviews the interview guide questions work as the starting point for the discussions and only denote the general direction of the interview, but not confining the interview to a narrow course (ibid). Also, by conducting the literature review, I already had basic knowledge about the two initiatives and their interrelations, so I wanted to assure that certain criteria would be covered in the interviews. The aim of conducting interviews was to find answers for the research question, and more specifically answers to the last research question proposed in section 1.3.

2.3.1.2.1. Interview guide

Considering the fact that MedsCheck and MedRec are carried out by clinicians from different settings and that a person who is involved in MedsCheck is not necessarily aware of the MedRec process, three different types of interview guides were developed for three different target groups: clinicians active in MedsCheck, clinicians active in MedRec in home care, and clinicians who are involved in experimenting and practicing the link between the two initiatives. Interview guides are provided in appendix A.

Interview guides were developed to address the aim of my research, and questions were designed in the way to be as neutral as possible in order not to convey any interviewer's ideas to the participants. Also, a brief description of the research and its purpose is provided in the interview guide. Interview guides were first reviewed by supervisors and later by research ethics board (REB) at the University of Toronto. REB's approval of the interview guides were achieved prior to conducting any interviews with participants.

2.3.1.2.2. Sample

Since not all health care professionals are involved in conducting MedsCheck and MedRec in home care processes, randomized samples could not be employed for the purpose of this thesis. I had to search for professionals who are aware of the challenges and difficulties in conducting the two initiatives and making the link between them possible. In order to bring in different viewpoints, experts who were identified as having different views or are at different positions have been deliberately sought. Therefore, snowball sampling was chosen as the appropriate sampling approach for my research and is in line with the qualitative nature of my research. In snowball sampling the researcher makes initial contacts with group of people who are considered as a convenience sample and are relevant to the research, and then other contacts would be established through this group of people (Bryman, Bell 2007). In this approach, sampling continues until saturation and redundancy (Merriam 2009) was reached. According to Strauss and Corbin (1998) referred in Bryman and Bell (2007: 460) theoretical saturation is a point where no new or relevant data is emerged from data collection method.

2.3.1.2.3. Interview procedure

Initial key informants were contacted through Institute for Safe Medication Practices Canada (ISMP Canada), and they were experts all involved with MedsCheck and MedRec initiatives in community, home care, and acute care settings. Informants were mostly pharmacists, physicians, and nurses holding administrative and authoritative positions in regulatory and non-regulatory healthcare organizations, such as the Ontario College of Pharmacists (OCP), Ontario Pharmacists' Association (OPA), Ontario Ministry of Health and Long-Term Care (MOHLTC), Ontario Community Care Access Centers (CCAC), Faculty of Pharmacy at the University of Toronto, Faculty of Pharmacy at the McMaster University, a number of hospitals, and a number of community pharmacies. Due to research ethics limitations no patients were interviewed for this research.

All interviewees were informed about my background and the research subject. Regarding their interest in the research, I contacted them and a meeting was arranged. The interview guide was submitted to interviewees prior to the meetings, so that interviewees could think about the subject to be discussed with them. At the meeting, interviewee's consent was achieved by signing the informant consent form provided in appendix A. If the interview was conducted telephonically, the informant consent form was sent to the interviewee prior to the interview, and it was ensured that his/her permission had been achieved before conducting the interview. All informants were informed of their right to withdraw from the project through the informed consent form. If a participant would decide to withdraw from the study at any time, all information related to him/her would be excluded from data to be analyzed. No personal data was collected throughout the study. All data collected from the professional informants are de-identified, and the participants are reassured that the information is reported the way that ensures their anonymity. Access to research material is restricted to the main investigator and the supervisors only. All interviews were recorded digitally, and the recorded files are kept in the investigator's laptop, in a folder encrypted by the *Truecrypt* software designed for laptops (University of Toronto Information and Technology Services 2011).

During interviews, field notes were written down about my understandings, and after each interview discussions were transcribed and summarized about the topics discussed, which enabled

later reference to them and further analysis of them. The summaries of the interviews are provided in appendix B. The subscripts in the text are the codes that were used for analysis.

2.3.1.3. Documents

Another source of information for this research was the documents that were provided by the interviewees. Since interviewees were experts having critical positions at relevant organizations in Ontario and other provinces, they had access to useful information. Therefore, they provided important documents to me that are presented in the form of figures and tables throughout this report.

2.3.2. Data analysis

Overall, 8 interviews were conducted telephonically and 15 interviews were conducted in-person during the 7 months period from April to October 2011. There are some participants whose interviews cannot be assigned to one particular target group and they provided information on more than one subject, e.g. a pharmacist that works in home care institute that is well-aware of MedRec process in home care, but has conducted several MedsCheck reviews as well. Therefore, in 16 interviews issues of MedsCheck, in 9 issues of MedRec, and in 7 issues regarding the link between MedsCheck and MedRec have been discussed.

Qualitative content analysis was chosen as the method for analyzing the interviews. The approach is outlined by Altheide (1996) referred in Bryman and Bell (2007) as *ethnographic content analysis* and is in contrast with quantitative content analysis in that in quantitative analysis categories are predefined to the sources, but in ethnographic content analysis there are some initial categories and there is the potential for refinement of the categories as the analysis proceeds. Therefore, there is more movement back and forth between conceptualization, data collection, analysis, and interpretation in ethnographic content analysis. (Bryman, Bell 2007) Since some level of understanding was reached through reviewing the literature available, a number of themes and codes were pre-defined. System wise process analysis has been integrated to the exploration of the work processes. It means that in all interpretations and analyses I tried to look at the bigger picture. Looking at processes from a higher level of analysis (system level) as the analysis of the interview data proceed these themes and codes were modified and some new were added to them. Consequently, by the end of analyzing the interview transcriptions a number of codes and themes were extracted.

Afterwards, the concepts of KJ Shiba method (Shiba et al. 1992) were applied to the codes and themes that were under investigation. I grouped and categorized them the way that enhances the discovery of the answers to the research questions in section 1.3. In order to find the roots of the problems and barriers an Ishikawa diagram was developed which according to Bergman and Klefsjö (2003: p224) facilitates the systematic analysis of the findings. The Ishikawa diagram in section 4.2 depicts the types of barriers to the link between the MedsCheck program and the MedRec operations in home care. Moreover, the final groupings were used in outlining the recommendations for making improvements in linking the MedsCheck with MedRec in home care.

Also, based on the interviews carried out and the literature reviewed, effective and efficient process maps for the MedRec process in home care and MedsCheck process are developed based on the

ones already available and are presented in sections 4.1.1 and 4.1.2. The original process maps are provided in Appendix C.3 - C.6.

2.4. Research trustworthiness

In order to evaluate the trustworthiness of a qualitative research four criteria should be investigated: credibility, transferability, dependability, and confirmability (Bryman, Bell 2007). These four criteria and how this study is related to them are elaborated below.

Credibility deals with the matter of acceptability of the research findings to others. The credibility of the findings in my research is addressed by the employment of respondent validation technique. According to Bryman and Bell (2007) respondent validation is a process in which the researcher provides an account of the findings to people who have been participated in the research with the aim of seeking corroboration. After each interview, my understanding about the questions has been discussed with interviewees. In case there was any misunderstanding, they were corrected accordingly. Therefore, it could be said that by using respondent validation there is higher credibility of the conclusions in my report.

Transferability of a qualitative research concerns about the generalizability of a research. Although generalizability is one of the most pervasive critiques about the qualitative research, in order to address this criterion of trustworthiness it has been tried to provide thick descriptions (Geertz 1973 referred in Bryman and Bell 2007) in each step of the research. Therefore, the research process has been elucidated in detail in order to help reader better understand the context in which the research was conducted and decide whether or not the findings and the procedure of this study is transferable to another context.

Dependability which is about reliability of the research was ensured by keeping complete records of the research data in a computer file. This fact enables the later auditing of the records by peers that enhances the dependability level of my research.

According to Bryman and Bell (2007) confirmability is about the objectivity of the researcher's approach throughout the study. In my research due to the nature of my qualitative research strategy subjectivity is an inevitable characteristic. In this research and other qualitative researches since the researcher is part of the research process and the results and analyses entail the researcher's perception securing complete objectivity is impossible. Moreover, this research is subject to the interviewees' interpretation of the link between MedsCheck and MedRec in home care processes and the barriers associated to that link. But, I have kept this criterion in my mind throughout the research and aimed to be as objective as possible. One good practice to approach this criterion is changing the location of working on the findings. I worked on my findings and analysis at the facilities of the University of Toronto, away from any pharmacy and homecare facilities and environments. Therefore, I distanced myself from the case context in order to create a clearer picture of my study.

2.5. Research ethics

This research is approved by the University of Toronto Research Ethics Board.

3. Literature Review

In this chapter a brief literature review is provided. It is by no means a comprehensive or exhaustive review of literature. First the concept of MedRec is reviewed generally, and then more detailed information is delivered for MedRec in home care. After that, MedsCheck has been reviewed. It should be considered that in the area of home care and MedsCheck in community pharmacies literature is not as rich as MedRec in general and in other healthcare settings such as hospitals. For both concepts of MedRec and MedsCheck their advantages and challenges are discussed. This chapter ends with the review of the application of the information technology systems in the two initiatives of MedRec and MedsCheck, due to my own preconception about the dependency of their link to such IT systems. The insight gained from this literature review acted as a source for generating the interview guides, for basing the empirical data analyses on them, and for making the recommendations proposed in this study.

3.1. Medication reconciliation (MedRec)

3.1.1. Definition

According to the Joint Commission (2006) “MedRec is the process of comparing a patient's medication orders to all of the medications that the patient has been taking. This reconciliation is done to avoid medication errors such as omissions, duplications, dosing errors, or drug interactions. It should be done at every transition of care in which new medications are ordered or existing orders are rewritten. Transitions in care include changes in setting, service, practitioner or level of care.” Orders may be rewritten when the patient is post-operative or changes service setting, provider or level of care (The Joint Commission 2006).

MedRec became a 2005 Canadian Council on Health Services Accreditation requirement and a 2005 Hospitals' National Patient Safety Goal (NPSG) established by the US Joint Commission on Accreditation of Healthcare Organizations (JCAHO), regarding the ever increasing interest in identifying and correcting the medication errors across the continuum of care (Tam 2005). Also, the Institute for Healthcare Improvement (IHI), a private leader in the promotion of healthcare safety and quality, has endorsed MedRec as one of the six initiatives for its 100,000 Lives Campaign (Hughes 2008). The Joint Commission (2006) identifies five steps that the MedRec process comprises: develop a list of current medications; develop a list of medications to be prescribed; compare the medications on the two lists; make clinical decisions based on the comparison; and communicate the new list to appropriate caregivers and to the patient (The Joint Commission 2006).

3.1.2. Goal

The ultimate goal of MedRec is to guarantee that patients receive all necessary medicines adapted to their clinical and social situation, and to prevent adverse drug events (ADEs) at all interfaces of care, for all patients (Safer Healthcare Now campaign 2007). The aim is to eliminate undocumented intentional discrepancies and unintentional discrepancies by reconciling all medications, at all interfaces of care. For a patient receiving health services from any care settings having myriad of changes in the medication regimen is not unusual. In this procedure, changes in medication can be included: some of them are intended therapeutic changes (intentional discrepancies in

reconciliation), whereas others are the consequence of unintended changes (unintentional discrepancies) and can be considered as MedRec errors (Herrero-Herrero, Garcia-Aparicio 2010). The reconciling process has demonstrated to be an efficient tool to prevent medication errors and ultimately the incidence of potential ADEs.

3.1.3. Development

In the beginning of its conduct, hospitals were the only care settings that were required to carry out MedRec at their transition points (Coffey 2009). The JCAHO in its NPSGs for 2006 required MedRec to be done at hospitals, and the IHI put medications reconciliation in its 100.000 Lives campaign (Edson 2006). Later on, conduct of the MedRec became a requisite for most health care provider settings, e.g. long-term care residences and home care institutes. In Canada, the Canadian Council on Health Services Accreditation (CCHSA) released their Patient Safety Goals and Required Organizational Practices in 2005 for implementation in 2006 (Safer Healthcare Now campaign 2007). Appendix C.1 shows the Accreditation Canada required organizational practices. These requirements include the employment of the mechanisms for transferring the medication information of the patients at the transition points, reconciling the medication on admission, transfers, and discharge by involving the patient in the reconciliation process, and communicating the medication information of the patient inter- and intra-organizational with the next provider of service. Most who have attempted to implement a MedRec process, agree that it is a system change that requires time and commitment (ibid). Although the MedRec process seems to be a straightforward process which is beneficial for the patients, hospitals are finding that it is also very difficult to accomplish. Currently, hospitals and other care settings are at different points in this journey. Some may have not started to implement the process, while others may have implemented the process at one care transition point, but not at all care transition points. Still others may have implemented at all three care transition points, but the process is not being done the way it was designed or it is not consistently practiced with all patients (Edson 2006).

3.1.4. Process

The process of conducting MedRec regardless of the type of the organization – whether it is in a hospital, home care nursing agency, long-term residences, outpatient clinics, and etc. - incorporates three sequential phases of admission, transfer, and discharge (Appendix C.2). The abovementioned straightforward steps (Hughes 2008) could be elaborated as for a new admitted patient to the health provider setting, the medication history of the patient must be obtained from as many sources as possible, verified, and documented in order to enable further comparison against the medication orders prescribed at the admission and during the patient's treatment. MedRec process at admission is depicted in Appendix C.3. This accurate and comprehensive list of the patient's medication history is called Best Possible Medication History (BPMH), which is truly critical in the MedRec process. For a patient to be transferred to a different setting or another level of care (Appendix C.5), the current medications should be documented and the list be updated whenever a change has been made to the patient's medication regimen. Every change should be compared against the BPMH and the current list of medication in order to find and reconcile any possible discrepancy in the medications regimen. In the last phase which is discharging from the current care setting, a complete list of the medications to be taken after discharge should be provided and checked against the BPMH and the medications being ordered during the patient's treatment in the

organization. MedRec at discharge process is illuminated in Appendix C.6. Any discrepancies found between the discharge list of medications and the rest of the medication lists available should be reconciled before the patient leaves the setting. The complete list of the medications provided at discharge for the patient to take post-discharge from the current care setting is called Best Possible Medication Discharge Plan (BPMDP), and it should be given to the patient and also transmitted to all the appropriate care givers, e.g. patient's family physician, pharmacy, and etc. (Fernandes 2009, Hughes 2008)

MedRec is a shared responsibility of interdisciplinary health care professionals in collaboration with clients and families. On the one side, clients and their families know their medication-taking practices and provide medication vials, lists and information. On the healthcare professionals side, almost all disciplines (Sullivan et al. 2005) are involved: physician/prescriber (history taking and prescribing); pharmacist (verification, preparation, and dispensing); and nurse (validation, administration, and monitoring). The JCAHO does not specify which staff members should conduct the MedRec process and has just required it to be performed (Joint Commission Resources 2008). Therefore, the actual roles and responsibilities for each discipline and clinician are based on the local team's MedRec practice model taking into account staffing resources. Nurses, pharmacists, and physicians each has certain qualifications that contribute to the implementation of the MedRec process. Sullivan et al. (2005) indicates that nurses are ideal staff to begin the medication review since they are typically the first clinicians to interact with patient on admission, and they spend more time with the patient than other clinicians. Others believe that the prescriber physician must undertake most of the responsibility of reviewing and reconciling patient's medications as the physician has the sufficient experience and clinical knowledge to perform the task accurately (Joint Commission Resources 2008). Moreover, as Peyton et al (2009) state pharmacists may be the best personnel to do the MedRec, since they are well-educated in medications and they have extensive insight in recognizing the medications names and normal doses. Also, having pharmacists carrying out the MedRec may provide the patients the opportunity to receive education from the pharmacists regarding their medication regimens during the reconciling process (Peyton 2010). Thus, effective models are not necessarily identical in different organizations. Both sides, clients and their families and the healthcare professionals, build the circle of care of a patient (Safer Healthcare Now campaign 2010). The circle of care is demonstrated in appendix C. The client's circle of care needs to be identified and kept updated to support successful communication of medication information.

3.1.4.1. Communication of medication information

Medication information transfer has an integral role in the process of MedRec. This information transfer comprises the transfer from the patient to healthcare professionals and between the health professionals of the health care settings. About the information to be solicited from the patient, usually on admission to make the BPMH, there are many factors that affect the quality of the information obtained. Sullivan et al. (2005) identifies some of these factors as health literacy, language barriers, current health status, interview skills of the clinician, and time constraints. On the one hand, the initial interview with the patient usually takes place within the first 24 hours of the patient's admission to the setting, since it is critical for the prescriber physician to be informed about the pre-admission medications of the patient and his or her allergies and the past reactions

(Sullivan et al. 2005). On the other hand, the first 24 hours of the patient's admission is usually the time that the patient does not feel good or maybe is not at the certain level of consciousness to be able to provide the most accurate information regarding his or her medications for the health provider professionals.

3.1.5. MedRec at admission

About 25% of adverse events in healthcare are associated to medications (Baker et al. 2004) and approximately one quarter of all medication-related injuries is because of medication errors which are preventable (Aspden et al. 2007). Tam et al. (2005) found that up to 27% of all hospital prescribing errors can be attributed to incomplete medication histories at admission, and up to one half of the patients have at least one error in their hospital admission medication histories (Tam 2005). Therefore, the process of admission to the healthcare setting has been identified as a key vulnerable area in the continuum of care, and MedRec upon admission to hospital has been recognized as an important process in preventing adverse drug events (Coffey 2009, Fernandes 2009, Safer Healthcare Now campaign 2007, van den Bemt, P M L A. 2009, Remtulla, Brown & Frighetto 2009, Remtulla, Brown & Frighetto 2009, Leung et al. 2009, Vira 2006). To ensure that medications are prescribed safely on hospital admission, it is necessary to have an accurate and complete medication history. BPMH is the foundation of the MedRec (Fernandes 2009). Tam et al (2005) assert that BPMH is an integral element of medication safety for several reasons; first, the reason for the patient's illness may be revealed by BPMH, for example non-adherence to therapy. Second, medication errors due to lack of medication histories may cause in inappropriate drug therapy during and following the treatment process. Finally, computerized physician order entry (CPOE) systems (CPOE system is defined in the following sections) may fail to detect these types of errors (Tam 2005).

The BPMH, as defined by Ontario College of Pharmacists (2007), is a complete list that includes all current and relevant past prescription and non-prescription medications. The dose, dosage form, frequency, administration route, indication, level of patient adherence, and the source of the information must be identified for each medication or product in the BPMH (Ontario College of pharmacists 2007). The clinician can obtain the information for creating the BPMH from a number of sources, such as the patient, the patient's family and caregivers, medication packages and vials, primary care provider (family physician), specialists, and the community pharmacy.

For optimal therapeutic transition, the BPMH would be obtained before any admission orders were written in proactive MedRec approach (Remtulla, Brown & Frighetto 2009). However, there are so many factors, such as patient's condition and cognitive impairment that impede the creation of the BPMH to a time after admission and the initiation of therapy (retroactive MedRec). In such occasions, it is critical to compare the BPMH against the admission medication orders (AMO). Such comparison allows the identification and rectification of the discrepancies, if any found between the BPMH and AMOs, and prevent harms to the patient. As a result, the continuation of the appropriate medications would be ensured (ibid).

There are many guidelines and techniques indicated to most efficiently solicit the medication information history from all the sources available, specifically from the patient (Safer Healthcare Now campaign 2007, Sullivan et al. 2005, Ontario Hospital Association 2010, Ontario College of

pharmacists 2007). Sullivan et al. (2005) claims the skills of the health services professionals when accompanied with structured approach would result in more accurate and effective medication histories (Sullivan et al. 2005). Tam et al. (2005) and Bayley et al. (2005) have indicated many barriers to obtaining accurate medication histories, including patient illness, patient knowledge, availability of medication vials for inspection, lack of access to community pharmacy records, lack of time to search for better medication information, and reference to an out-of-date medication list. These barriers result in inadequate understanding of the patient's previous medication history, which may cause admission failures, including omitted medications, altered doses, or missed allergies (Tam 2005, Bayley et al. 2005).

There is evidence that lack of clinicians' relevant knowledge and skill in obtaining medication information histories contributes to poor quality admission records (Chan 2010). Additional training for clinicians, namely physicians, will highly reduce the incidence of such failures at admission. Such training for physicians not only improves the process, but also helps them recognize the incomplete medication histories (Tam 2005, Leung et al. 2009). Pharmacists are probably the most effective clinicians for obtaining the medication histories, due to their capabilities in patient-interviewing and their knowledge of medications (Leung et al. 2009). In addition to the training of the personnel, integrated and accessible community pharmacy databases (Tam 2005) and closer teamwork (Leung et al. 2009) between patients and healthcare professionals will enhance the accuracy of the medication histories.

3.1.6. MedRec at discharge

The process of discharging from a healthcare setting, e.g. hospital, home care, senior residence, etc., is a critical transition point in the continuum of care, when patients are at a high risk if medication discrepancies (Safer Healthcare Now campaign 2007). Medication discrepancies occur commonly at discharge (Wong 2008) and there are many studies showing the incidence, frequency and types of such discrepancies (Herrero-Herrero, Garcia-Aparicio 2010, Corbett et al. 2010, Schnipper et al. 2006, Forster et al. 2003, Wong 2008). Namely, Forster et al. (2004) identified that about one quarter of the patients being discharged from a teaching hospital in Canada had an adverse event, the most common of which is adverse drug events, resulting directly from medication discrepancies (Forster 2004). The most frequent medication discrepancy indicated is the omission of a medication (Herrero-Herrero, Garcia-Aparicio 2010). Finding these discrepancies and rectifying them is vital, as in one study it was revealed that 59% of the discrepancies can potentially cause harm to patients if they remain unresolved after discharge (Gleason 2004). There is evidence that a multidisciplinary integrated MedRec process will reduce the incidence of medication discrepancies at discharge (Corbett et al. 2010, Safer Healthcare Now campaign 2007). The ultimate goal of MedRec at discharge is to reconcile the medications the patient was taking pre-admission (BPMH) and the ones that have been initiated during the inpatient therapy, with those to be taken post-discharge, in order to ensure that all changes to the patient's medication regimen are intentional and that all the discrepancies have been resolved before the patient's discharge from the healthcare setting (Safer Healthcare Now campaign 2007). In this way, the incidence of errors such as duplication, omission, and confusion would be prevented. Each time a patient moves from one healthcare facility to another or to home, providers should review with the patient and responsible family member the previous medications lists with the medications prescribed at discharge, and

reconcile the differences. This process should take place both prior to leaving the hospital and again promptly after transition to the new setting of care (ibid). In order to make the discharge MedRec process doable for the clinicians, medication information from all sources should be integrated and tools and processes should be designed to support its implementation. These tools may be electronically produced or paper-based. Best possible medication discharge plan is considered as the final outcome of the discharge MedRec process.

The Best Possible Medication Discharge Plan (BPMDP) is the most accurate list of medications the patient should be taking on discharge. Safer Healthcare Now (2007) asserts that by using the Best Possible Medication History (BPMH) and the last 24-hour medication administration record (MAR) as references, BPMDP should be created taking all the following points into account (Fernandes 2009) ; new medications started in hospital, discontinued medications (from BPMH), adjusted medications (from BPMH), unchanged medications that are to be continued (from BPMH), medications held in hospital, non-formulary/formulary adjustments made in hospital, new medications started upon discharge, additional comments as appropriate - e.g., status of herbals or medications to be taken at the patient's discretion.

Patients usually go home after visiting a care setting with several changes to their medications regimes and often they are provided with more medications than before their admission to the healthcare setting. Also, seldom do they understand and remember all those changes made to their medication regimens (Bayley et al. 2005), and may cause in adverse events. By improving the communication through providing the BPMDP to patients, not only is this issue highly resolved, but also increased satisfaction among providers has been identified. One other advantage of BPMDP is that it facilitates the admission process at the next provider of care setting. Therefore it is pivotal that the BPMDP be communicated not only to the patient, but also to community pharmacy, community physician, and alternative care facility or services. If the patient is transitioned to home, it is critical to keep the list of reconciled medications updated and verified so that an accurate medication list could be prepared for any external transfer (Safer Healthcare Now campaign 2007). Moreover, transportability (Orrico 2008a) is another benefit of the BPMDP. Patients can carry the list with them when visiting a healthcare setting, e.g. the physician's office. In this way, the most accurate and up-to-date list of the patient's medications is in hand which contributes to enhance the quality throughout the continuum of care.

It is believed that MedRec process at discharge, especially the BPMDP form, addresses the failures at discharge from health provider settings. The most significant discharge failure is that the medications held during the stay at the healthcare setting are not resumed (Hughes 2008). Several causes have been identified for such issue, one of which is the lack of time at discharge resulting in rushed discharges (Bayley et al. 2005). Another reason is the incomplete gathering of medication regimen information and unresolved discrepancies at admission that has been carried over to discharge (Wong 2008). Insufficient patient education at discharge is also another high-probable, high-severe failure. Causes include low patient cognition, and sparse discharge orders (Bayley et al. 2005). The final high-priority failure is the inability of ambulatory care providers e.g. nursing homes to receive discharge medications information. Discharge summaries sent to wrong physicians, wrong clinics, or not sent at all, paper documents sometimes do not make their way into

the chart, delays, and specialists left out of the loop are some of the transmission errors during the discharge process (ibid).

3.1.7. Implementation

Edson (2006) points out the use of standardized form as a common successful strategy that hospitals have employed for implementation of MedRec. This approach has earlier been confirmed in a study by Rozich et al. (2004) that shows standardization increases the uniformity in healthcare practices which results in increasing safety and efficiency and reducing the costs. By using standardized forms and processes for MedRec nurses saved 50% in time gathering medication information of the patients and in preparing reports for the subsequent setting (Rozich 2004). In another study a multidisciplinary task group developed standard forms and processes for discharge from the hospital, in order to streamline the process (Namespetra 2009). The standardized form's components are medication history or current medication list, the medication orders, the continuation or discontinuation of the medication, and the reason for a medication discontinuation (Edson 2006). The examples of these forms are provided in the following sections.

One dominant challenge for implementation of MedRec has been the fact that it is a time consuming process, and busy clinicians, i.e. nurses, physicians, and pharmacists, can hardly find any time to insert this task among their other routine responsibilities (Hughes 2008). Therefore, a multitude number of studies have been conducted to investigate the effects of engaging less professional staff, e.g. technicians, in the MedRec processes (Michels 2003, Bemt et al. 2009, Remtulla, Brown & Frighetto 2009, Nester 2002, Leung et al. 2009, Ontario Hospital Association 2010). Herrero-Herrero et al. (2010) underlines the value of the internists' role in carrying out the MedRec process in hospital setting. In another study Remtulla et al (2009) assert that pharmacy technicians managed to obtain BPMH with 95% accuracy. Michels and Meisel (2003) claim that involving pharmacy technicians in obtaining medication histories reduced the problems and resulted in higher confidence of the pharmacists and nurses about these medication histories. Therefore, due to several reasons pharmacy technicians are considered as appropriate candidates for undertaking certain responsibilities in the MedRec process. First, they are familiar with the forms, strengths and usual dosing schedules of the medications (Remtulla, Brown & Frighetto 2009). Second, since pharmacy technician salaries are generally lower than salaries of the hospital pharmacists, the deployment of pharmacy technicians may result in a more cost-effective intervention (Van den Bemt et al. 2009). Third, although pharmacy technicians lack the in-depth knowledge of the pharmacists in indications, side effects, and combinations of medications, the good relation between the two disciplines results in complementary role of the pharmacists in supporting and supervising the technicians' tasks (Michels 2003).

3.1.8. Advantages

There are several situations in the continuum of care where MedRec is needed, especially in inpatient facilities. For example, patients are admitted to a health provider setting, e.g. the hospital, for a specific procedure, such as surgery, or on an urgent basis. It happens while specialty health care providers are focused on the one component of care related to the specific encounter, they do not take a holistic view to other aspects of the patients' health care needs and practices (Hughes 2008). Thus, it is easy to overlook medications that may cause an adverse event when combined

with new medications or different dosages. Moreover, some of the pre-admission medications may be discontinued during a hospital stay, and when there is a lack of a formal reconciliation process on discharge, the need to restart medications upon discharge may be neglected. These factors will increase the risk of safety in the health care services, and might cause the incidence of ADEs. This fact is corroborated by the work of Vira et al. (2006) in which it is indicated that medication errors at the interfaces of care (admission, transfer, and discharge) are particularly common. Therefore, MedRec was devised in order to address the issue of medication information transfer at the interfaces of care and a myriad of studies have highlighted its impact on preventing adverse events. In one study medication errors were reduced by more than 76% when MedRec was implemented at these transition points. (Leung et al. 2009) Another study reveals that MedRec identified and rectified most of the unintended medication variances at the time of hospital admission and discharge (Vira 2006). More examples of the impacts of the MedRec are provided in Safer Healthcare Now (2007).

The benefits of MedRec are not limited to preventing the potential adverse events. There is also evidence that implementation of MedRec reduces the amount of work and re-work associated with the management of medications orders, and as a result increases efficiency (Safer Healthcare Now campaign 2007). Moreover, although being carried out separately by healthcare settings, MedRec highly impacts the following health care setting and increases efficiency there as well. So, the benefits of the MedRec is not confined to the holder organization per se, rather affects all the settings that are visited by the patients through their continuum of care. Advantages of MedRec are summarized in table 1 below.

3.1.9. Challenges

The process of gathering, organizing, and communicating medication information across the continuum of care is cumbersome, and studies have pointed out a multitude of factors as reasons for that, namely the multi-disciplinary nature of the process, huge variation in collecting and recording the information, patient acuity and knowledge, clinicians' work flows, the amount of time needed, complex nature of the healthcare environment, additional training needed, and etc. (Schnipper et al. 2006, Hughes 2008, Safer Healthcare Now campaign 2007)

First, there is tremendous variation in the process for gathering a patient's medication history and recording such information. Unfortunately, although implementation of MedRec has been required for accreditation, in general there is no standardization of the process, which results in tremendous variation in the historical information gathered, sources of information used, comprehensiveness of medication orders, and how information is communicated to various providers across the continuum of care (Hughes 2008).

Second, there are at least three disciplines of medicine, pharmacy, and nursing generally involved in the process of MedRec. Due to the complex nature of the healthcare these three disciplines have little agreement on each profession's role and responsibility for the reconciliation process. Consequently, there is often duplication of data gathering with taking medication histories and documenting them in different places, and rarely comparing and resolving any discrepancies between those histories (ibid).

Third, patient acuity and medication knowledge may influence the process of reconciliation. Patients often incompletely understand their medication regimens, especially at hospital admission, when cognition may be impaired and medication lists, pill bottles, and knowledgeable family members may be unavailable. Patients and family members may not be good historians of a medication record, and due to limited access to pharmacy records, only an incomplete recording of current medications may be obtained (ibid). At discharge, patients may not understand the discharge medication orders. After discharge, inaccuracies in the discharge medication list, formulary restrictions, and lack of communication among a patient's many providers may also contribute to the problem (Schnipper et al. 2006).

Forth, clinician workflows have not traditionally included the collection of the information about all the medications a patient is taking, such as prescription medications, over-the-counter (OTC) medications, herbals, and etc., and documenting that as the best possible medication history. Inserting such a task in the routine workflow of the clinicians requires a great change to be made. Making any changes to what has been done before is accompanied by the resistance to change their workflows from the clinicians, and that itself demands much time and energy to deal with. Designing and streamlining processes that work throughout the continuum of care, and involving all stakeholders in the design and implementation may facilitate the process (Hughes 2008).

Fifth, putting aside the abovementioned fact about the change in the workflows of the clinician, MedRec demands commitment of substantial healthcare resources, such as time, clinicians, senior management, and etc. Obtaining a comprehensive medication history will initially take an additional 30 to 60 minutes per admission. Having concurrent multiple discharges and admissions translates the need for more full-time staff (ibid).

At last but not least, a systematic assessment of MedRec must be done to determine where the hospital is in the process. In the case of an organization that has not implemented a process at all, it is important to assess the current processes for medication history collection and determine if the physician orders and medication history are ever compared, and if the discrepancies between these two lists are being resolved (Edson 2006). An assessment will help to target improvement efforts and resources. It is important to have a more detailed understanding of the process in order to perform a systematic assessment.

Overall, developing and implementing effective programs is very complex considering the various sites of care, the need for standardization in the process, and the importance of including the patient in the process. Gaining executive leadership, support, and commitment, obtaining clinicians understanding of the need for MedRec, and actively participating in the design and implementation of programs may be difficult in many organizations where providers already feel burdened. There is a time commitment in both obtaining the medication history and completing the reconciliation process (Hughes 2008). Challenges are summarized in table 1 below.

Advantages	Challenges
<ul style="list-style-type: none"> • Prevents incidence of ADEs • Provides holistic view of patient's medications • Reduces works and re-works • Increases efficiency • increases safety in continuum of care 	<ul style="list-style-type: none"> • Lack of standardization and variation in the process • Involvement of three different disciplines of Medicine, Nursing, and pharmacy • Patient's acuity and medication knowledge affects the MedRec process • Great change needed in the routine workflow of the clinicians • Substantial resources needed

Table 1 - Advantages and Challenges of MedRec

3.2. MedRec in home care

The transition of the patient from an in-patient healthcare setting to home is critical as patients are extremely vulnerable during this transition due to their illness severity, functional impairment and changes to their medication regimens (Safer Healthcare Now campaign 2010). Medication discrepancies during this transition are common (Corbett et al. 2010), which may bring poor outcomes and cause potential patient safety risks. In their study, Corbett et al. (2010) indicate that 94% of the patients transitioned from hospital to their homes had at least one nurse-identified medication discrepancy. Another study by Moore et al. (2003) also illuminates the relevance of the medication errors to the discontinuity of care in such interfaces. Moreover, the ever increasing demand for home care services due to the aging of the population has been identified in the recent years (Coyte, Baranek & Daly 2000), and Canada has not been an exception in this area. The fact that the provision of the home healthcare services has been increased dramatically in Canada is corroborated with the result of a study that shows a 51% increase in the number of the home care clients since 1997, with over 900,000 clients receiving such services in 2007 (Lang 2009). The increase in the amount, acuity and complexity of the healthcare services provided at the clients' homes has had a faster pace than the growth of the body of the research on patient safety (Masotti, McColl & Green 2010).

3.2.1. Definition of home care

According to Health Canada (2010) home care is “an array of services which enables clients, incapacitated in whole or in part, to live at home, often with the effect of preventing, delaying, or substituting for long-term care or acute care alternatives.” Many different organizational structures

can provide home care services. It may address needs associated with a medical diagnosis (e.g., diabetes therapy), or may compensate for functional deficits in the activities of daily living (e.g., bathing, cleaning, food preparation). (Health Canada 2010)

3.2.2. Home care environment

Overwhelmingly, to date the research on patient safety has predominantly focused on institutional settings such as hospitals (Lang et al. 2006, Masotti, McColl & Green 2010). Considering the dominant differences between the home environment and the institutional settings, investigation through different sets of lenses is necessary. Settings such as hospitals are designed for providing healthcare services, with high accessibility to professionals and support staff. Whereas, in the home environment much of the care services are provided by the family members or untrained care givers, and as a result the level of control is much lower (Lang et al. 2006). These types of differences has caused emergent shifts in thinking about patient safety literature and Lang et al (2010) have highlighted some of such changes in the viewpoints of the researchers; views such as influences of organizational culture and workplace factors on patient safety, the need for multiple change processes to create safe environments, the role of the patients and their family members in their care, and that the patient safety is mostly perceived as systems' failure rather than human failure (ibid). Therefore, homecare safety is about mitigating the risks in diverse environments that are uncontrolled and unregulated (ibid).

Caring for individuals in their homes is inherently challenging and complex. The physical environment, family dynamics and the cognitive abilities of the client and family members are only a few of the factors to be considered in this regard (ibid). Lang et al. (2010) point out patients "often make decisions about managing medications and treatments while clearly recognizing that these decisions are not always congruent with or endorsed by their provider." Such intentional non-adherence to medication regimen is the most contributing factor for the patient-level medication discrepancy, as revealed by Corbett et al. (2010)'s study. Most frequently, patients decided not to fill a prescription because they perceived the medication was not necessary. Also included in this category were participants who purposely chose to take the medication differently from how it was prescribed (Corbett et al. 2010). Such challenges are exacerbated by communication break downs during transitions in care and system level issues that put home care clients at high risk for adverse drug events (Safer Healthcare Now campaign 2010).

3.2.3. Requisite for MedRec in Home care environment

MedRec has been employed in home care services as a solution for the lack of accurate communication of the patients' medication information in transition from an inpatient setting to their homes. Safer Healthcare Now (2010) has delineated a myriad of cases where MedRec has been identified as a powerful tool to prevent medication discrepancies. If drug-related problems continue to occur in the relatively controlled inpatient setting, drug-related problems in the home care patient will continue, perhaps at an even greater frequency or magnitude. Once these problems are identified, they need to be accurately and consistently categorized and documented to aid in their prevention (Audette et al. 2002).

3.2.4. Definition of MedRec in home care

MedRec in home care is a systematic process for obtaining a medication history through client interview and review of the information from all sources available. The ultimate goal is creation of a reconciled medication list verified by the patient in order to contribute to the understanding by the patient, family members, and caregivers. (Safer Healthcare Now campaign 2010) In this process, the medications listed on the hospital discharge instructions, those taken before hospitalizations and those taken by the patient are being compared, discrepancies are identified, and proper action will be done to resolve those discrepancies (Bruning, Selder 2011). Although BPMDP from an acute care facility is an excellent source of information on admission to the home care MedRec process, it should not be taken as a substitute for the MedRec at admission, because there maybe additional medications that the patient takes at home and there may be some differences between the way those medications are taken by the patient and those been listed on the BPMDP (Safer Healthcare Now campaign 2010).

3.2.5. Process

MedRec in home care starts and ends with the client and according to Safer Healthcare Now (2010) it comprises four basic steps: identifying the client; creating the BPMH and identifying discrepancies; resolving and communicating discrepancies; and closing the MedRec loop. The optimal time to complete the BPMH is during the first visit of the home care clinician. The admitting clinicians must be well-trained for conducting a systematic process for obtaining the medication history from all sources possible. The admitting clinician is responsible for verifying clients' medications with the primary care provider to account for those they have previously taken at home and any new medications added during a recent hospital stay. MedRec is an effective means to reduce medication errors and improve medication safety (Bruning, Selder 2011). During the process of obtaining the medication history of the client, the clinician identifies discrepancies and either resolves them with the client or family members or communicates the identified discrepancies to the responsible physician or pharmacist. The last step of the MedRec is pivotal, since in this step the reconciled medications must be verified by the patient or family members to ensure they have understood the changes appropriately (Safer Healthcare Now campaign 2010).

Although MedRec has been recognized as an effective resolution for the problem of the communication of the medication information and prevention of the medication discrepancies, a number of hindrances have also been identified for the performance of this process. Bruning and Selder (2011) revealed three major factors hampering the accurate formation of the home care medication list; firstly, referral documents lack a clear list of the medications being taken before hospital admission and those specified at the hospital discharge. Secondly, interpretation and decipher the meaning of terms by the clinicians because of the typographical errors, problems in faxed or copied documents, and etc. Finally, the use of the prohibited abbreviations and instructions in the patient's medication information lists (Bruning, Selder 2011). These practices are discouraged because they allow for error of interpretation.

3.2.6. Challenges

Like in other health care settings, while conducting MedRec in home care a number of challenges would be encountered, most of which are relevant to the unique environment in the home of the

patients. As mentioned earlier, homes are places designed for living and not for providing healthcare services. Accessibility to health care professionals is much lower, and most of the tasks are carried out by the patient or the family members and caregivers who are not usually trained for provision of such services and administration of the medications. As Lang et al. (2006) emphasize, the traditional institutional patient safety perspective does not fit the home environment and that the complexity of the issues in home setting should be viewed from “different sets of glasses.” In this regard, Audette et al. (2002) studied the classification of the drug-related problems in the home care setting, and concluded that the traditional classification schemas may not be efficient and practical in the home environment and is unable to illuminate the problem correctly and resolve that (Audette et al. 2002). Therefore, client autonomy, active physical and emotional role of the family members and caregivers, knowledge deficit of the patient and family members, uncontrolled environment, intermittent access to health care professionals, inadequate preparation of the patients to participate in their post-institutional care (Coleman et al. 2005), and etc. are only a number of factors that cause the complex nature of the home care environment. Safer Healthcare Now (2010) has indicated a number of challenges for implementation of the MedRec by the home care staff agencies: work load issues and change fatigue; closing the MedRec process loop; multiple providers, specialists, physicians, pharmacists involved in the client’s care; the most responsible physician/nurse practitioner is not always easily identified; clinician engagement; and communication from one care setting to the next (Safer Healthcare Now campaign 2010). Another critical factor is the lack of data concerning the costs and consequences of such services in home care settings, which has caused limited ability of the home care managers to undertake evidence-based decisions; home care health professional and providers are limited in their ability to practice evidence-based care; and provincial and federal policy makers are limited in their ability to develop evidence-based health policy (Coyte et al. 2000).

3.3. MedsCheck

In Ontario Government profoundly believes in the role of pharmacists as part of an integrated team that provides an enhanced level of care for patients. The Transparent Drug System for Patients Act (TDSPA) passed in the Ontario Legislature in June 2006 included a landmark decision to recognize the valuable role of pharmacists by compensating them for providing professional services to Ontarians. MedsCheck as the first of these initiatives was launched by the Ministry of Health and Long-Term Care (MOHLTC), collaboratively with the Ontario Pharmacy Council (OPC) and the Ontario Pharmacists’ Association (OPA) beginning April 1st, 2007. On July 17, 2007 the program was expanded to include all Ontarians, and on November 30, 2007 the MedsCheck Follow-Up was introduced to accommodate patients who require another MedsCheck during the annual time-frame. (Ontario Ministry of Health and Long-Term Care 2010)

3.3.1. Definition

According to MOHLTC (2008) patients who are residents of Ontario, hold a valid Ontario Health Card, and are taking a minimum of three prescription medications for a chronic condition are eligible for this service. The service is intended to promote better patient health outcomes. MedsCheck annual service is a one-on-one interaction of the community pharmacist with a patient, in order to review their medications, identify and resolve any medication-related issues, educate patients about their medications and their possible side-effects, and ensure that medications are

taken as prescribed. In another word, MedsCheck is a service provided to maximize patient compliance to the medication therapy (ibid). Patients are advised to bring their medications containers and vials and all the OTC medications they are taking to the MedsCheck review. It is pivotal to ensure that the conversation with the patient is conducted in a private area away from others, and patients should feel comfortable during the MedsCheck service, since the pharmacists will collect personal, life-style and health information from the patients (ibid).

The results of any MedsCheck, including a comprehensive medication list (Appendix D.2) and recommended action, will be shared with the patient/caregiver and, when appropriate, with their physician and/or primary healthcare provider. It is important to ensure that if the patient's medication list is to be sent to the family physician or any other healthcare providers, be ensured to explain clearly why the report is sent to them. For example, it should be indicated whether the list is for information and record purposes only, or if it is needed that the physician addresses a specific concern. (ibid)

MedsCheck Follow-Up is referred to any additional MedsCheck reviews conducted within the one-year time-frame for patients. MedsCheck follow-ups are conducted based on the annual MedsCheck at the same pharmacy that the annual MedsCheck was provided. Otherwise, the pharmacist must take every effort to obtain the annual MedsCheck review from the originating pharmacy or the patient (ibid). MedsCheck follow-up is carried out if a patient is discharged from hospital, a pharmacist decided it is necessary, a physician or registered nurse requested for it, and a planned hospital admission is available. Therefore, the MedsCheck program is an optimal resource for accurate and up-to-date medication information at the transition of care from community to institution (Leung et al. 2010).

3.3.2. Reimbursement

Pharmacists are reimbursed for the MedsCheck service they are providing for their patients. They are paid \$60 for each annual MedsCheck (which was initially \$50 and was increased recently), \$25 for MedsCheck follow-ups, \$150 for each consultation with homebound patients, and \$75 for reviewing medications for patients with diabetes (Lynas 2011). A full list of reimbursement fees are illustrated in Appendix D.1.

3.3.3. Advantages

There is a myriad of benefits identified for running the MedsCheck program. From the patients' perspective, MedsCheck has enabled them to better understand their medication regimens, their adherence to their medication regimens has been improved, which has resulted in higher satisfaction for them. In addition to provision of a most up-to-date medication list for the patients, MedsCheck has increased patients' familiarity with their medications, and has enhanced their participation in their own care processes (ibid).

From pharmacists' point of view, it has improved the relation between patient and pharmacist to a great scale, has valued the pharmacists' job through reimbursement, and consequently has increased their job satisfaction. MedsCheck has provided the opportunity to the pharmacists to better educate their patients, and obtaining a more accurate profile about their patients. A study about the initial experience of the pharmacists in Ontario reveals that the majority of pharmacists

felt that an important benefit of providing this service was the personal satisfaction they felt (Dolovich et al. 2008). Despite the challenges, all found the experience to be very fulfilling.

From Physicians and nurses' standpoint MedsCheck has the potential to decrease the effort needed at the admission and discharge processes of healthcare settings. MedsCheck has facilitated the MedRec by providing the most recent updated medication list, which can enormously save time from soliciting such information from different sources. Moreover, it has improved the communication between the different settings as well. While it is not possible to simply substitute a pre-admission clinic BPMH with MedsCheck, it is believed that if MedsCheck could be arranged for all eligible patients prior to pre-planned admissions for inpatient surgery, MedRec could be performed on admission and at discharge for a greater number of patients. This is because a major current workload for hospital pharmacists is to create BPMH for MedRec on admission (Leung et al. 2010).

3.3.4. Challenges

Regarding the implementation of the MedsCheck, healthcare professionals are facing a number of challenges, which should be overcome in order to obtain more number of reviews. Firstly, the patients' unfamiliarity with the program has resulted in less interest by them to receive such a service and makes patient recruitment a time consuming process for the pharmacists (ibid). Pharmacists have to allocate more time for explaining the benefits of the MedsCheck to their patients, and convince them that the service is free for them and is paid for by the government.

Secondly, conduct of the MedsCheck demands changes to the workflow and the staffing of the pharmacies. The most significant change identified is the pharmacist overlap coverage which highlights the need for an additional pharmacist to carry out dispensary while MedsCheck is being conducted for another patient (Dolovich et al. 2008). Moreover, conducting reviews outside of regular pharmacy shifts, setting appointments for reviews, changing pharmacist schedules to accommodate reviews, cleaning up a room to be used for the reviews and training technicians to prioritize prescriptions and minimize interruptions while a pharmacist is conducting a MedsCheck are other changes need to be applied.

Thirdly, time constraint is the most prominent challenge for the pharmacists to overcome (Leung et al. 2010). The interview with the patient takes about 30 minutes, depending on the number of medications, patient's familiarity with his or her medications, and the number of discrepancies being identified during the review. Also, pre and post-discussion activities such as the time involved preparing for the discussion (i.e., printing, reviewing and cleaning up the patient profile) and for documentation and follow-up (i.e., with the patient's physician) also significantly adds to the time commitment (Dolovich et al. 2008).

Forth, the quality of the MedsCheck reports varies in different settings. MOHLTC has allowed the pharmacies to adapt the MedsCheck template to meet their preferences, but from the MedRec point of view it is important that the report includes accurate and up-to-date information about the name, dose, route and frequency of all drugs, including over-the-counter (OTC) medications. Usually, inclusion of the OTC drugs highly varies from different pharmacies.

Fifth, insufficient reimbursement is another challenge for the pharmacies. The amount of compensation provided is not enough to cover the cost of hiring an overlap pharmacist. Also, it is said that “there is not enough funding to support all other activities we [pharmacists] do, many of them mandated by the legislation” (Lynas 2011). Other barriers to the process identified as potential poly-pharmacy, frequent interruptions during reviews, forgetting to offer the service, documentation requirements and the lack of a private room, and patient inability to visit the pharmacy for a face-to-face appointment (Leung et al. 2010).

3.3.5. Facilitators

It is pivotal to take action in order to overcome the barriers to the MedsCheck process, and increase the provision of the service with such benefits as mentioned before. There are a number of tasks that could be done in order to increase the patients’ awareness about the MedsCheck service and its benefits, and as a result mitigate the challenge of patient recruitment. Activities such as providing an information pamphlet about the MedsCheck service into the documents distributed to patients prior to admission and after discharge from hospital (ibid). Television and radio advertisements are also valuable recruitment tools. Pre-established good relationships with patients also allow pharmacists to introduce and explain the value of the service more effectively (Dolovich et al. 2008). Regarding the workflow and staffing issues, it has been suggested to schedule MedsCheck reviews by appointment during the slower times, reduce documentation, and maximizing the use of technicians. Pharmacist overlap is a key facilitator, being indicated in one study (ibid). Also, availability of a private room, access to computer and internet during the interview are other factors that assist the carry out of the MedsCheck reviews. Although there is no requirement for the pharmacists to provide a copy of the MedsCheck review to the family physicians (Tracy 2008), increasing the physicians’ awareness (Pojskic 2011) of the program is another key facilitator in motivating the patients to receive MedsCheck more often. It would be worthwhile to submit the MedsCheck report to the patients’ family physicians, when is thought to be necessary by pharmacists. It should be noted that bombarding physicians’ offices with unrequested MedsCheck documentation (Steven 2008) will degrade the value of such reports and discourage physicians from asking such information from their patients. However, providing such information for physicians takes time and effort by the pharmacists which should be considered for more effective compensation (ibid). Advantages, challenges, and facilitators for MedsCheck are summarized in table 2 below.

Advantages	Challenges	Facilitators
<ul style="list-style-type: none"> • Increases patient's understanding about their medications • Enhances patient's participation in care processes • Improves the relation between patient and pharmacist • Personal satisfaction for pharmacists • Facilitates the MedRec procedure 	<ul style="list-style-type: none"> • Patient's unfamiliarity with MedsCheck • Changes to the workflows and staffing of the pharmacies • Significant time commitment needed • Highly variable quality of the MedsCheck reports • Insufficient reimbursement 	<ul style="list-style-type: none"> • Increase patient's awareness by different techniques • Schedule MedsCheck reviews by appointment • Maximizing the use of pharmacy technicians • Access to computer and internet

Table 2 - Advantages, challenges and facilitators for MedsCheck initiative

3.4. Information systems and technology

As mentioned in the preceding sections, medical errors may originate from a variety of causes ranging from the cognitive limitations of humans, to temporary slips in knowledge and problems with healthcare workflow (Kushniruk 2005). Information technology (IT) has the potential to decrease the number of medical errors by streamlining workflow and providing features such as alerts and reminders. There is a myriad of studies demonstrating the effectiveness of the health care information systems (HIS) in reducing the number of AEs and improving the healthcare performance (Kushniruk 2005, Carvalho 2009, Ash et al. 2007, Koppel et al. 2005, Schnipper et al. 2009, Crosswhite et al. 1997). Based on this literature, large amount of investments have been made in HISs in order to reduce AEs rising from the medical errors in health organizations (Coleman et al. 2005). Systems such as Computerized Provider Order Entry (CPEO), pharmacy systems and electronic prescription network, decision support systems, and medication administration systems. Beside their potential benefits in reducing medical errors and preventing AEs, HISs has introduced new types of errors called technology-induced errors (Carvalho 2009), which will be taken into account later in this section.

Due to the complex nature of the health care services, many developments have been emerged in the health informatics area, one of which is the CPOE systems. In their research, Koppel et al. (2005) have identified a number of advantages of employing a CPOE system in comparison to the paper-based systems in a list. Free of handwriting identification problems, faster to reach the pharmacy, more easily integrated into decision support systems and medical records, provision of

the drug-drug interaction warnings, appropriate for training and education, connectivity to internet and online accessibility are a number of the benefits indicated in their list (Koppel et al. 2005). Use of a computer order entry system can tremendously reduce errors at the time of discharge by generating a list of medications used before and during the hospital admission. The medication list with instructions can be printed and used for education and review with the patient (Hughes 2008). All information is formulated into the discharge summary, discharge orders, patient discharge instructions, and transfer information as applicable. This communication process has tremendously enhanced information management across the system, contributed to maintaining complete and thorough documentation in patient records (Crosswhite et al. 1997), and facilitated the reconciliation process (Vira 2006) by making all relevant medication information available at the time of discharge. Some CPEO systems are capable of direct transferring of the orders to the community pharmacy and to the primary care physician, as well as keeping a permanent record on the electronic health record (Hughes 2008).

Electronic Medical Record (EMR) is one other product of the application of IT in health care services. EMR makes it easier to access medication histories, but they need to be kept up to date, and information must be correlated with patients' actual medication use (ibid). Generally, it is believed that EMRs contain more accurate information and facilitates faster retrieval of medical information than paper-based systems. On the contrast there are some critics stating that the accuracy of the information available in EMR is dependent to the data entry accuracy by the health professional (Wagner 1996, Orrico 2008b). Data entry errors occur frequently and it has been revealed that 71 percent of the computerized medication profiles of patients in one study contained discrepancies (DeCarolis 2005). Moreover, electronic prescribing network systems are also being developed that can instantaneously provide a patient's medication history to pharmacists, consumers, and health care providers, while protecting patient privacy. Additionally, electronic prescribing allows for key fields such as drug name, dose, route, and frequency. These systems can be integrated into decision support systems such as checking for allergies, double prescribing, and counteracting medications and CPEO systems in the hospitals (Hughes 2008).

Furthermore, computerized MedRec has also been developed and unintentional medication discrepancies have decreased as a result of its employment. According to Schnipper et al. (2009) hospitals stand at different levels in integration of the electronic MedRec into their CPOE systems. It is believed that IT-based MedRec interventions have several advantages over paper-based solutions, including the ability to use existing electronic sources of ambulatory medication information, better integration into workflow in hospitals with CPOE, easier sharing of reconciliation information across providers, automatic production of documentation for discharge summaries, comparisons of medication lists to facilitate reconciliation and patient education, provision of alerts and reminders to ensure compliance, and ability to track compliance to inform further process improvement (Schnipper et al. 2009). It is strongly recommended that institutions consider adopting electronic MedRec tools as availability increases, since they highly facilitate comparisons of medication lists at transition points and use of these lists to order medications for the next care setting (ibid). Eventually, it is clear that many failures, such as those associated with illegibility, miscommunication, and limited information access, can be ameliorated by the use of clinical IT (Bayley et al. 2005).

However, developing and implementing such systems is not a straightforward task and requires many challenges to be overcome (Hughes 2008). In the first place lies the basic structural, technical and cultural challenges that affect the ability of IT to solve the problems inherent in handoffs across diverse settings (Bayley et al. 2005). Fully integrated information systems are difficult to design, expensive to build, cumbersome to implement and maintain. To date, most investments have been made within settings for developing such systems than across them, because due to the smaller number of users and pre-defined uses more clearly shows the return of investment, which is one of the most critical barriers to development of such systems (ibid). The need for comprehensive training the prospective users, and the importance of integration with upstream and downstream applications (Turchin 2008) are among other challenges to be noted. When health care information is not integrated across settings, organizations, and among clinicians, it is not easy to validate or fill in the gaps from patient-reported information (Hughes 2008).

At last but not least, it should be noted that recently a growing number of studies have documented the prevalence of new types of errors in the HISs, called technology-induced errors (Carvalho 2009). Therefore, it is crucial to evaluate the accuracy and potentials of such systems not only prior to investment and procurement, but also post-implementation, in order to identify any possible defects and eliminate them by making improvement changes to the system. Carvalho et al. (2009) in their study have provided a comprehensive list of most effective evaluative heuristics to be used for assessing an HIS prior to procurement. In another study by Ash et al. (2007) a thematic hierarchical network model of consequences of using a CPEO system is depicted. This model shows that not all of the outcomes of deploying such systems are desirable and intended (Ash et al. 2007). Finally, as Koppel et al (2005) assert, substitution of technology for people is a misunderstanding of both, and that organizations should plan for continuous revisions and quality improvement, recognizing that all changes generate new error risks (Koppel et al. 2005).

4. Empirical data & Analysis

Due to the nature of the case in my research, which is the link between the two initiatives that does not exist in its pure meaning, it was not easy to draw a clear-cut line between my findings from interviews as empirical data and my analyses about those results. Based on my ontological standpoint in my research, which is constructionism, these results are subject to my interpretation from the respondents' ideas and my analysis has been integrated in my perception from those interviews. Therefore, I decided to discuss the empirical data and my analysis concurrently in this one chapter.

This chapter is divided into two sections, each related to one of the research questions in section 1.3. In the first section, my understanding of the current state of the MedsCheck process at community pharmacies and MedRec process in home care environment is provided. My arguments are based on the interviews and are supported by the reviewed literature in chapter 3. It has been tried to illuminate the ways in which MedsCheck and home MedRec complement each other, how existing efforts create greater synergies in that sort of complementarity, and what people think to do to actually enhance that. As mentioned earlier in section 2.3.1.2.2 different viewpoints from experts who were identified as having different views or are at different positions have been declared.

In the second section of this chapter, barriers to the accurate link between the two initiatives are described. These are in fact answers to the second research question in section 1.3. An Ishikawa diagram that is developed based on the interviews presents the types of barriers to the link between the two initiatives and their causes. This chapter ends with a thorough elaboration of each category of Ishikawa diagram.

4.1. Current state

In this research my focus has been mostly concentrated on figuring out the current state of the two initiatives. System wise process analysis has been integrated to the exploration of the work processes. This section identifies how the two initiatives of home MedRec and MedsCheck are being conducted.

4.1.1. Medication Reconciliation in homecare

As mentioned in the literature review chapter, home care institutions are required by Accreditation Canada to conduct MedRec at transition points. Within homecare operations transition points are mainly considered as admission to the home care services and discharge from it. Although there is a myriad of guidelines and standardized forms and working processes available from regulatory and non-regulatory organizations such as OCP, ISMP Canada, Safer Healthcare Now! (SHN), and OPA, it seems that homecare institutes have not yet reached their comfort zones in conducting the in home MedRec.

Figure 1 depicts MedRec related processes at admission to home care as they are designated to be done by institutions. This figure is created based on available guidelines and the conversations with experts in the field. Currently, home care institutions are struggling to streamline the admission process, and still there are many opportunities identifiable for improving.

Admission to home care

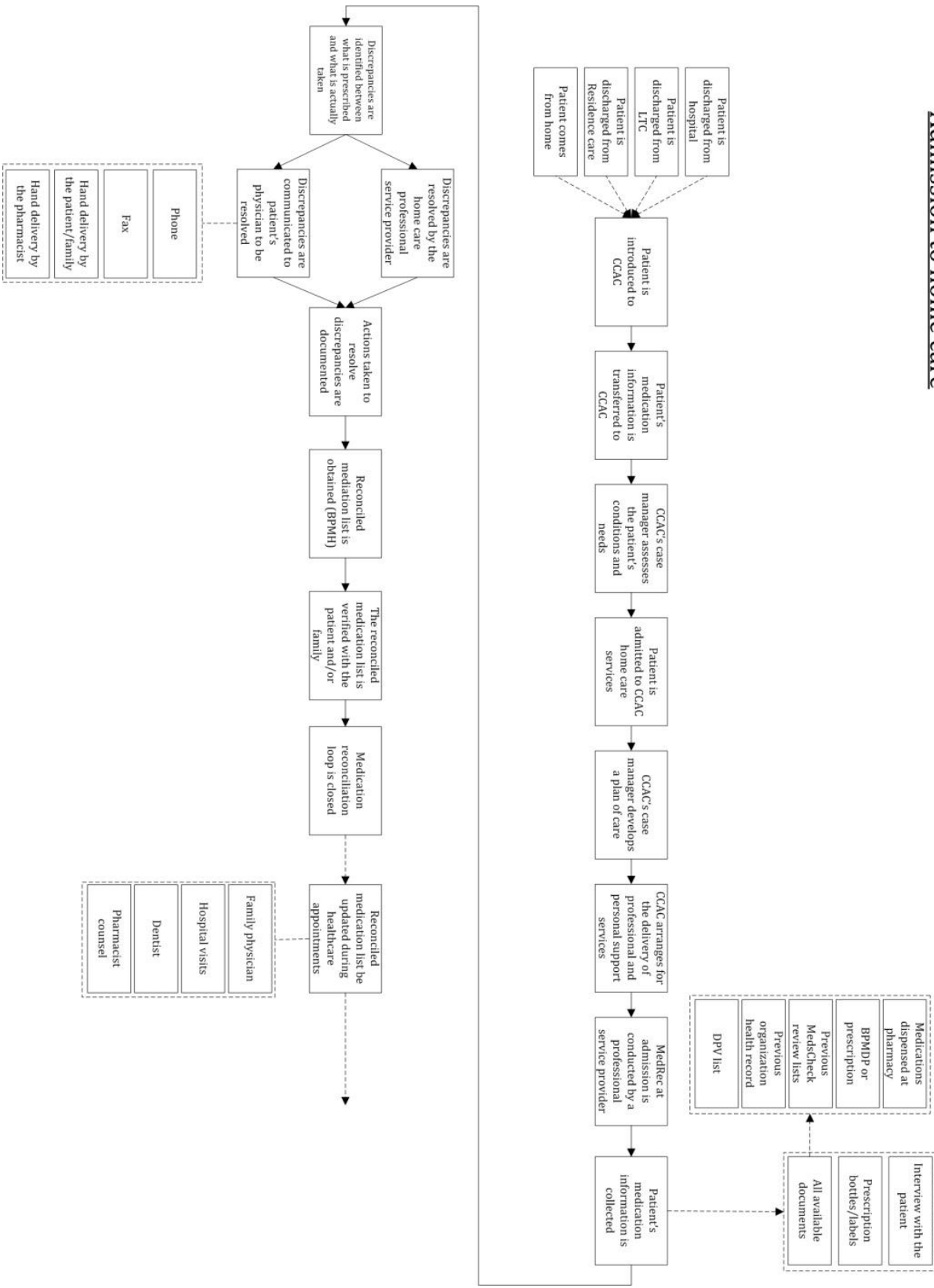


Figure 1 – Medication Reconciliation at admission to home care

4.1.1.1. Communication

Communication of the patient's medication information from preceding health care provider settings to CCAC is one of those challenging areas. On the one hand, the quality and accuracy of the information received by CCAC case managers highly varies. This problem mostly stems from employment of diverse systems at different settings, and as a result there is much inconsistency in the discharge lists provided by them. One of the respondents stated:

"The biggest hurdle is that every setting has its own system..."

A few numbers of them are providing very detailed and comprehensive information regarding patient's condition and medications regimen, whereas the rest majority provide simple list of medications without any reconciliation or review being conducted. On the other hand, there are times that such information, disregarding its quality and accuracy, does not reach CCAC case managers and they are not even aware of the patient's need for homecare services. A pharmacist at CCAC Central Toronto mentioned:

"One problem in this system is that all the eligible patients for CCAC's service are not discharged to CCAC, and CCAC is not aware of the conditions of them %100 of time."

From the time that patient's information has reached CCAC case manager another issue arises: who should conduct MedRec at admission? And how should it be done? In their contracts with home care institutions, CCAC requires them to conduct MedRec at admission and at discharge. Unfortunately, in their current contracts it is not stated how the home care institutions have to carry out MedRec. Eventually, it is not possible for CCAC to investigate if homecare institutions are conducting home MedRec correctly. Basically, CCAC is not accustomed to audit the home care institutions for the service of MedRec they are providing. Although CCAC audits other services such as wound care, but no one ever has audited the way MedRec is conducted. And this is where a huge gap could be realized. It was mentioned by a case manager that since CCAC is not involved in the conduct of home MedRec, they are not well-aware of the details of its processes and challenges. One CCAC case manager mentioned that it has been decided to consider such details in their new contracts with home care institutions. There is a fact here that if CCAC can make only one institution to conduct home MedRec in the required and correct way, then all the rest of the home care institutions will do that, because they will see that it is doable.

There is a new process at Toronto Central CCAC on which they are working to put it in place that when a patient is admitted to homecare, the case manager in his initial visit to the patient's home asks the patient to bring all the medication lists and vials, and case managers have to enter it into their database named Resident Assessment Instrument (RAI) that is a standardized assessment tool used by all CCACs. In this way CCAC case managers are somehow engaged in the MedRec process and it is a good one step forward to a more standardization of processes and operations being done.

The ambiguity of this situation has been elevated with the advent of the MedsCheck service provided by community pharmacies, and the recent collaborations between them and home care institutions in conducting MedsCheck service for those patients who are eligible to receive a MedsCheck review by community pharmacist. Now that this service is available, and its advantages

have been recognized, home care practitioners refer patients to community pharmacies to conduct MedsCheck review for them. One home care practitioner said:

*“... MedsCheck is more effective than home MedRec, because MedRec lists are usually old and out of date, but MedsCheck reports would be updated ... what’s the advantage of conducting a home MedRec?
...”*

Moreover, he stated that patients are more in contact with their community pharmacist rather than home care personnel. A pharmacist at a nursing home also said that:

“... sometimes they are six or eight months old, so it’s almost like that you are producing a potential risk for error because of that information.”

On the other hand, there are some challenges for community pharmacies for conducting MedsCheck for some patients (that would be discussed in section 4.1.2) that hinders the provision of such service.

At discharge, due to several reasons MedRec processes are not being carried out the way they were designed. Figure 2 illustrates the MedRec processes at discharge from home care services. Most importantly one of the reasons is the fact that institutions are still working on their admission processes, so their discharge piece is not being implemented optimally yet. In most cases, the reconciled list created at admission is used for discharge operations and no new reconciliation happens. But there are some efforts taking place to improve this area. Currently, Central CCAC is working on the transfer to LTC piece to work smoother. They are focusing on the clients to be admitted to LTC within three months, the case managers are mandated to ensure that the list they have on the patient’s record is up-to-date. In this way, case managers may refer their patients to community pharmacies to receive a MedsCheck review.

Discharge from homecare

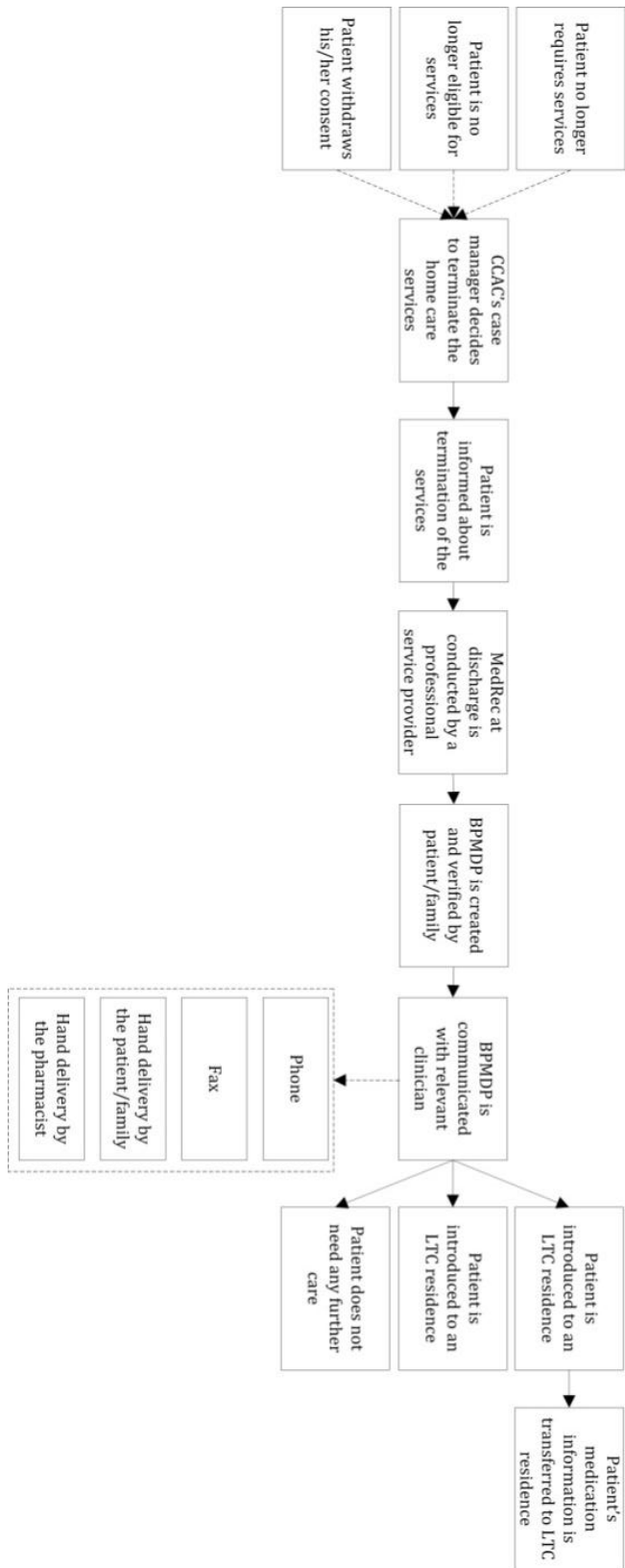


Figure 2 - Medication Reconciliation at discharge from home care

4.1.1.2. Education

“... this problem stems from their lack of skills, they [home care practitioners] are not really trained to conduct MedRec in the correct way...”

The above quotation was declared by a pharmacist in home care services. Unfortunately, the term medication reconciliation itself is misunderstood by many homecare MedRec practitioners for a number of reasons. It is critical to note that medication reconciliation is not just about making a list of patient’s medications. It is considered by many home care practitioners that asking patients what they are taking and making a list at admission (BPMH) is what is meant to be MedRec at admission. In contrast, MedRec can only be conducted when we have two or more lists of medications to make comparison between them, finding discrepancies, and then reconciling them. Moreover, MedRec in homecare is not a one-time operation that should be taken place only at admission. It is a loop of processes that should be conducted to its end. MedRec at discharge is the ending point of such a loop. Upon patient’s discharge from homecare services a BPMDP should be created and provided for the patient and the subsequent healthcare provider setting. This part of MedRec, as mentioned above, is actually not carried out by homecare institutions and the list that has been created at patient’s admission to homecare is communicated to the next settings. These lists of medications are usually old and are not up-to-date.

4.1.1.3. Resources

One reason for not having the most optimized MedRec processes in home care environment is identified as lack of resources such as time and skilled personnel. Lack of resources is justifiable to some extent. Due to lack of pharmacists for conducting MedRec in homecare, this process is not carried out by them most of the times. Although there is evidence that pharmacists are the best candidates for conducting MedRec processes because of their qualifications mentioned earlier in the literature review section, not all case managers and home care practitioners are pharmacists. As a result, MedRec lists created may not have the required quality or accuracy for reference by other settings. But, this gap could be bridged by other means such as having more standardized processes with less variations, employment of efficient IT systems, more effective communication between health care provider settings, and more efforts to encourage the culture of accountability between health care professionals. These points are elaborated in the following paragraph.

First, as mentioned earlier each home care institute works its own way and each hospital creates its own discharge plan. Although there is a host of helpful guidelines available on how to implement home MedRec the most efficient and effective way, how the discharge plan should look like and what parameters and information should be put into that list, they are not carried out properly. Secondly, most of the operations are done paper-based. Since IT systems in different settings cannot talk to each other, all data communication should be done via phone and fax on a paper-based format. Due to this fact tracking information pieces between settings and modification of such information is either impossible or requires much of the staff’s time and energy. Imagine a clinician recognizes a mistake or a necessary change in a faxed paper that needs to be corrected. The only way for her to manage that is starting from scratch. Lack of effective computerized communication systems in place increases the work and re-work load of the staff, increases the risk of making mistakes, and takes much of their time that could be spent on more value adding

operations. Unlike in most hospitals that MedRec processes are integrated into their CPOE systems, there is no such system available for home care practitioners.

Third, home care practitioners are hesitant to carry out MedRec because of their uncomfortable feelings about its consequences. They are not sure what to do if they identify a discrepancy in the patient's medication information. Even if they manage to identify a discrepancy and communicate it to patient's physician, although physicians are thankful for receiving reconciled and up-to-date medication lists of their patients, they are not fast enough in responding to any discrepancy identified by home care practitioners. This attitude by physicians discourages home care practitioners in attempting to conduct the most effective and accurate MedRec. This lack of self-confidence and accountability may originate from their inappropriate training and education and therefore they are reluctant to accept the additional responsibility of resolving any potential discrepancy while reconciling patient's medication lists. Due to lack of sufficient training and education for home care practitioners they are not aware of the implications of their work on other health care provider settings. If they could realize the importance of their roles across the continuum of care they would undertake responsibilities more willingly and as a result the outcome of home MedRec processes would be more accountable.

4.1.1.4. Temporary discharges from home care service

One of the challenging parts of home MedRec operations is for a time that patient visits hospital while receiving home care services by an institute, and then goes back home after a certain amount of time. As patient's discharge from home care services is considered temporarily, MedRec at discharge is not conducted for the client. On the other hand, when the client goes back home, his medication information is not communicated properly with home care institute because of disorganized discharge plans of hospitals and their lack of awareness that their patient was receiving home care service. Also, secondary MedRec is not carried out for him at home either. Therefore, there might be some changes being applied to client's medications that are not modified in the home care MedRec list. This process can be truly risky for the safety of the patient.

4.1.1.5. Infrastructural requisites

MedRec is being required by regulatory organizations for more than four years. At this point, all home care institutions are committed to the implementation of home MedRec processes. After all these years, potential defects and challenges of the program are identified in this study and many other same studies. As noted in the literature review chapter, a multitude of factors such as patients' lack of knowledge of their medications, physician and nurse workflows, and lack of integration of patient health records across the continuum of care all may contribute to a lack of a complete medication reconciliation, which in turn creates the potential for error. (Hughes 2008) But, experts believe that nowadays shortcomings are more due to infrastructural necessities such as IT systems, auditing programs, and correct change management strategies that were not in place at the right time. A professor at the University of Toronto believes that:

"...not enough attention has been paid to actual change management piece of this process..."

Having said that, there are constructive and improvement processes under consideration as well. One of such good movements is the getting together of the responsible organizations that has

happened in smaller communities such as Brampton and Cambridge areas, where representatives from CCAC, community pharmacists, hospital pharmacists, home care practitioners, long-term care practitioners and all other disciplines get together and discuss each other's forms and their ways of communication and their requirements from one another. Incidence of such meaningful dialogues between different stakeholders contributes to better understanding of each organization about others' and promotes the mutual consideration between all members. Also, there are suggestions from home care professionals for launching Medication Reconciliation Task Force like the ones present in hospitals that evaluates the home MedRec operations being carried out and assesses the real life challenges of home care institutions in their day-to-day operations in order to eliminate them.

4.1.1.6. SWOT Analysis: Medication Reconciliation in home care

In this section an evaluation of the MedRec process in home care environment is provided in a SWOT analysis framework, as it is described in the above figure. Strengths and weaknesses that relate to the internal factors have been delineated in the literature review and the section including the current state of the home MedRec processes; therefore they are not going to be discussed any more. Opportunities and threats that are concerning the external factors impacting on MedRec operations are presented below.

Strengths	Weaknesses (Limitations)	Opportunities	Threats
<ul style="list-style-type: none"> •Addresses the issue of medication information transfer •Prevents adverse drug events •Increases patient's awareness •Increases safety •Reduces re-work associated with medication management •Increases efficiency •Facilitates the admission process at the next care setting 	<ul style="list-style-type: none"> •Time-consuming task •Lack of standardization in practice •Additional training needed •Lack of proper auditing programs •Dependent on patients' acuity and knowledge •Clinicians engagement from three different disciplines of medicine, pharmacy, and nursing •Intermittent access to health care professionals 	<ul style="list-style-type: none"> •More efficient use of MedsCheck reports •More effective communication with other healthcare settings •More efficient use of IT systems 	<ul style="list-style-type: none"> •Incorrect and out of date information from other settings •Low level of responsiveness from other disciplines (physicians) and health care provider settings (hospitals)

Figure 3 - SWOT analysis for Medication Reconciliation in home care

Opportunities are about the factors from outside the home care system that contribute to the conduct of home MedRec operations. MedsCheck program being provided at community pharmacies can significantly expedite the conduct of home MedRec specifically at admission. Having a high quality and new report of the MedsCheck review helps home care practitioners to create BPMHs and lessens their work load for this purpose. In the same way that MedsCheck reports contribute to the home MedRec operations, existence of an effective communication with other health care provider settings, especially hospitals as most patients are admitted to home care

services while discharged from hospitals, would lighten the cumbersome task of collecting reliable information from different sources. Moreover, utilization on information systems throughout the whole processes would definitely streamline the operations. If information be transmitted electronically rather than nowadays paper-based communications, the probability missing information would be decreased, potential risk for making mistakes in reading handwritings would be lessened, and information could be traced. All these three factors can accelerate the conduct of home MedRec processes.

Threats are those factors that may spoil the effectiveness of MedRec processes in home care environment. Provision of incorrect and out-of-date information by other health care provider settings would requires the MedRec practitioner spending more time and energy to resolve the potential problems and re-confirming that information from other resources. Also, if requested information is not responded in a timely manner by those responsive clinicians (e.g. physicians) this would certain lengthens the process time, and hinders home care practitioners from their other tasks and responsibilities. Eventually, they may become discouraged for conducting an appropriate MedRec review which would undoubtedly jeopardize the credibility of their MedRec lists which would endanger the safety of patients.

4.1.2. MedsCheck

It was declared earlier in the literature review chapter that MedsCheck service was launched on April 1, 2007. Like any other change initiatives, it could be predicted that there would not be a quick uptake by the community pharmacies. In the early years of its launch not so many pharmacies conducted MedsCheck reviews. Figure 4 illustrates the number of MedsCheck reviews carried out at the community pharmacies based on the statistics provided by the ministry.

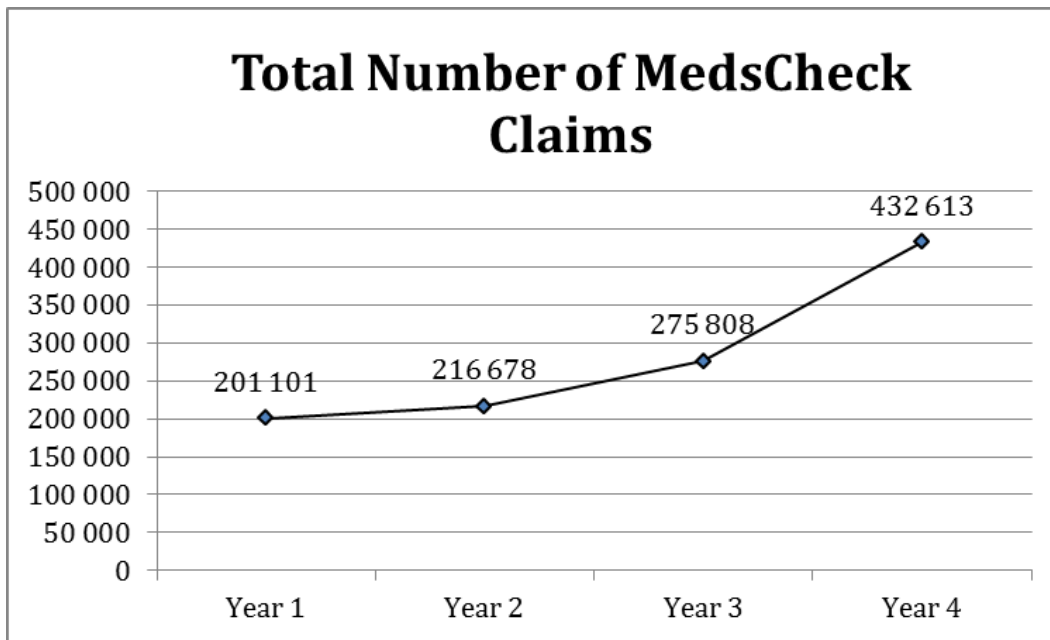


Figure 4 - Total number of MedsCheck claims (Ontario MOHLTC)

The very first reaction from the community pharmacists, especially the big chains, was that they did not show any interest in the program for a host of reasons. One is that they were not used to providing such services. Collecting information from different sources, comparing a number of lists, and reconciling between them was not a routine task for them and could be considered as a big jump to be taken by them. Figure 5 depicts all the processes to be done during the MedsCheck service by the pharmacist.

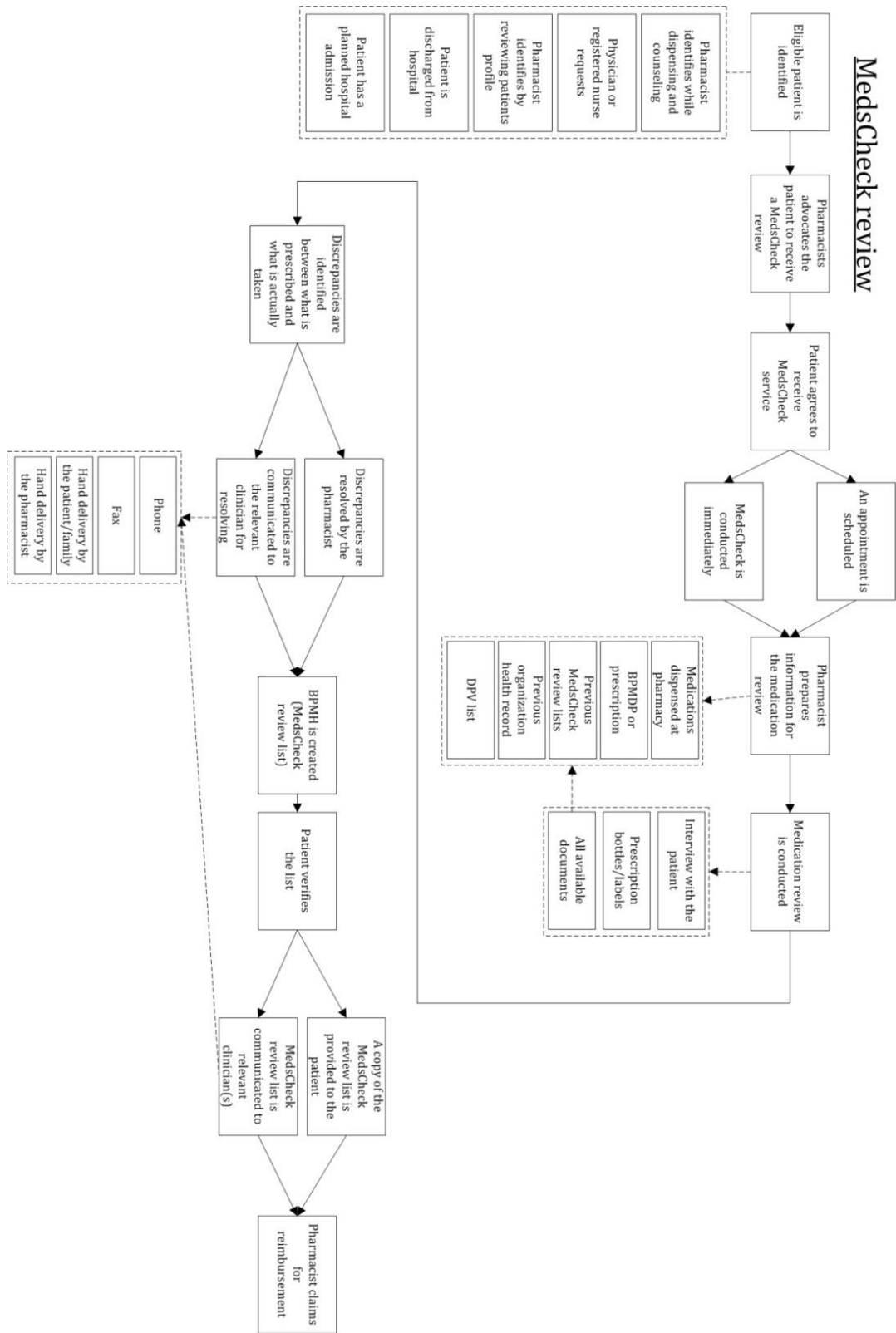


Figure 5 - MedsCheck processes

4.1.2.1. Education

They were not trained for providing such service for their patients. At that time the ministry had allotted a budget of \$50 million per year for the conduct of the professional services, mainly MedsCheck at that time, by the community pharmacies. Although the reimbursement fee is considered as one of the strengths of such program for compensating the professional services offered by the pharmacists, as figure 6 demonstrates very small portion of the budget dedicated was paid to pharmacies and the uptake was not significant.

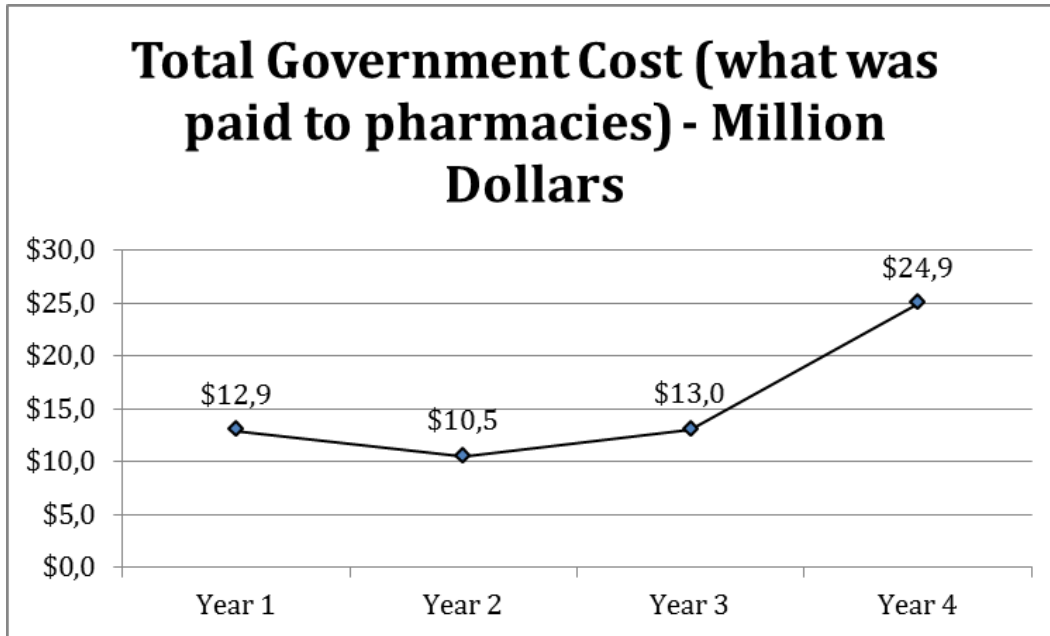


Figure 6 - Total government cost for MedsCheck (Ontario MOHLTC)

Another reason that is mostly mentioned by insiders is the additional responsibility that MedsCheck introduces into their day-to-day life coupled with the fact that a salaried pharmacist will have these additional responsibilities while the salary is not increased. Therefore, it is difficult for them to find any motivations in doing that. Looking at this issue from a systems perspective, we can notice many challenges for the pharmacies to incorporate such a service in their routine work flows. These issues will be discussed later in this section.

4.1.2.2. Government investment

Three years after launching the MedsCheck program, on June 7, 2010 it was announced that the Ontario government is investing \$100 million to pay for expanded pharmacy professional services in addition to the already \$50 million budget for the MedsCheck program, and on September 13, 2010 the ministry announced the expansion of the MedsCheck program to meet the drug therapy needs of the more Ontarians. The new programs were MedsCheck LTC, MedsCheck at home, and MedsCheck for diabetes. Looking at the statistics depicted in Figure 6 above, the increase in the

total government cost paid to pharmacies for MedsCheck reviews being conducted after these announcements is evident. This decision by the government is considered positive by most of the community pharmacists. Putting aside the fact that with the new programs larger groups of Ontarians would be eligible to receive this free service from their community pharmacies, they give better opportunities to the pharmacies as well to include them in their routine workflows. They can find the best service that best suits their facilities and equipment. That allows them to look across their patient population in more ways than just one MedsCheck general.

During the last Ontario drug system reform, professional allowances in the public sector were eliminated from July 1, 2010, which certainly is another pivotal driver for the increasing embracement of the MedsCheck program by the community pharmacies. (VanderElst 2010) Professional allowances are the amounts paid by manufacturers to pharmacies to be used for patient benefit initiatives. Therefore, pharmacies took in MedsCheck reimbursement fees as a way to recoup the professional allowances curtail. However, it is believed by many community pharmacies that the reimbursement fees are not sufficient and they do not cover their expenses, even the wage of the pharmacist that conducts the MedsCheck reviews. Unfortunately, there has not been any comprehensive financial analysis on the outcomes of running MedsCheck services at the community pharmacies to prove whether it can be considered as a new revenue stream.

4.1.2.3. Financial viability

There is a myriad of interconnected factors in a chain that has impeded the progress and development of the MedsCheck program. It is believed that MedsCheck is not profitable because pharmacists complain that the amount of time needed for preparing documents to be reviewed during the MedsCheck appointment with the patient, and the time needed after having delivered the service for documentation and communication of the results and discrepancies, if any was identified, is not considered for reimbursement.

“...a big problem with MedsCheck right now is that the pharmacist is not paid for the communication made with the family physician or the hospital pharmacist or etc. They don't feel they are being compensated for the time and energy they are putting for informing people in the circle of care of a patient...”

On September 1, 2011 the ministry expanded the criteria of another pharmacy professional service named Pharmaceutical Opinion Program and announced that the time needed for resolving any identified discrepancies in MedsCheck with prescribers is reimbursed through this program (\$ 15 per drug therapy intervention per prescription or as identified as a result of a MedsCheck review). Since this option is offered quite recently there is not any feedbacks received from the community pharmacies, to check if it covers their expenses. Moreover, in this regards OPA is working on new software that integrates the documentation and transmission of information into the MedsCheck processes, so that pharmacists do not need to spend any more time after their interview with patients. Not to forget that this fee is paid only for resolving identified discrepancies, and it can be claimed for the time pharmacists spend on sending relevant information to appropriate health care provider settings, e.g. hospitals, family physicians, and LTC settings. Also on the topic of the time span of the MedsCheck service, it is mentioned by several pharmacists that it happens many times when they start the MedsCheck review they realize that creating a list is not enough and the patient

needs more medication assessment. But due to the MedsCheck instructions they are not reimbursed for providing medication assessment to their patients. In contrast to the abovementioned approach by some passionate pharmacists, there are others that encourage pharmacists not to do more than what is required.

“MedsCheck is meant to create a proper drug profile, including OTCs, to help patients understand what their meds are for, how to take them and to identify any major issues,”

Said by a senior leader, she emphasizes that:

“It’s not a disease-state analysis and shouldn’t require a lot of research.”

In order to address this issue it is hoped that the ministry expands the MedsCheck service to its second phase in which pharmacists are paid for delivering medication assessment for their patients. Medication assessment means to make sure that the patient is taking the right drug at the right time and that the medication is correct for the patient.

4.1.2.4. Initial objective

There is a sense of cynicism among community pharmacists apropos the real objective of the ministry in launching the MedsCheck program. It is claimed that MedsCheck was a cheaper quid pro quo for the government after the professional allowances curtail, rather than having the intent of achieving quality therapeutic outcomes for the Ontarians. A pharmacist with academic background mentioned:

“MedsCheck is now more about funding opportunities for the pharmacies ... Perhaps after a while their MedsCheck reviews become better...”

This sense of cynicism is strengthened when pharmacists notice there is no receptivity at other health care provider settings for their MedsCheck reports. Literally, there is no obligation for other settings, e.g. nursing agencies, hospitals, or CCAC to ask for MedsCheck review lists from their patients. Eventually, lack of motivation from community pharmacists based on the issues mentioned above is considered a major hindrance for the progress of the MedsCheck reports.

4.1.2.5. Standardization

“... as every pharmacy has its own system, the forms that we get are highly different in terms of the format and type of information available on them, and these systems can sometimes potentially create some problems, when in some forms due their marginal limitations some of the information is cut off...”

In terms of quality, there is a huge variation in MedsCheck reports from different settings. Some are impressively comprehensive and can certainly be used as the most accurate source for creating the BPMH form in MedRec processes. While, there are also MedsCheck reports that are just a low quality print from the pharmacy dispensing system without any review or reconciliation applied to them. These reports cannot be used as a source for patient’s medication information and the receptive pharmacists prefer not to use them at all. Other than lack of motivation, a major reason for such variation in the quality of the MedsCheck reports is lack of standardization for forms and

formats. No standardized forms were provided by the ministry for the pharmacies to imitate. There were only some samples provided by organizations such as ISMP Canada and OPA, but they were not mandatory for the pharmacies to use those standardized formats. Each pharmacy has its own system with its own format of the MedsCheck print. After more than 4 years, on August 31, 2011 the ministry announced MedsCheck program standardization and system requirements to be effective from January 1, 2012. It is hoped by implementation of the new regulated standardized requirements the quality of the MedsCheck reports from all pharmacies improves. There is a point not to be neglected that in the new regulations no standardized format has been required. Current standards just describe which parameters and information are mandatory to be available on the MedsCheck review lists and which are recommended to be on the forms. Therefore, it is probable that other health care settings' problems with different formats of the MedsCheck reports from different community pharmacies may be unsolved.

Interesting to know that although pharmacists themselves agree that lack of standardization was a prominent factor for their highly variable quality of MedsCheck reports, they are not satisfied with the new regulations either. They claim that whenever a change has become mandatory, its progress has been encumbered. It should be noted that adoption of the proposed standards are difficult for the large number of average pharmacists who have practiced for a long time. So there is a disconnection considering the very large untapped professional need to support pharmacist who might want to do this but are afraid to do it.

4.1.2.6. Accountability

Another factor that truly helps to boost the quality of the MedsCheck reports is educating the pharmacists on their responsibilities regarding their reports. Pharmacists should be aware that signing the bottom of their reports brings accountability for them and that these reports are going to be used in other healthcare settings. So it is critical that the information on that forms be as accurate and concise as possible. In this way, they would be more cautious, and hopefully the quality of their MedsCheck reports would improve.

"...if a community pharmacist knew that the hospital pharmacists and clinicians base their treatment on that MedsCheck done by them, they would do it more carefully and the outcome would be much more trustable. But currently the pharmacies believe that the MedsCheck is a local phenomenon, and it is basically for education of that particular patient..."

To address the problem of receptivity by other organizations, there has been promising shifts toward better use of the MedsCheck reviews, one of which is a new process under investigation at Central CCAC. In this new process the case manager of CCAC in his initial visit of the patient's home would fill out an e-form regarding the preliminary mediations of the patients, and following that document would submit a request for a MedsCheck review from a community pharmacy. This request could be made either for home MedsCheck or at store MedsCheck upon patient's first visit. Although the objective of such process is inspiring, pharmacies' responses fall into variation from the time that a request for MedsCheck reaches them. Some would see the request and just ignore that, and some would do their best to conduct a MedsCheck review for the given patient. Especially, if the request is for a home MedsCheck review there is less interest by community pharmacists to conduct that for several reasons, such as lack of time, safety issues of the pharmacists to go and visit

the patient, not enough reimbursement, what if it takes longer than thirty minutes, and etc. Relationship between the given patient and the community pharmacy plays an important role here. If they have a good relationship and if the patient is a loyal customer of the pharmacy they do whatever they can to run a MedsCheck for that patient. In another case, it can be seen many family health teams have systems that orders a MedsCheck review for their patients prior to their physical visit to their offices. In this case, both the family health team physician and the community pharmacist can realize the value of that because the patient's medication information is in place at the time that it's needed. Employment of a transitional care pharmacist by some hospitals is another example. The liaison pharmacist is the link between hospital pharmacists and community pharmacists and ensures that all medication information is communicated between the settings correctly. Moreover, L&A hospital has sent out letters to all community pharmacies in the region and has conveyed their interest in having close relations with community pharmacies. In that letter they have clarified their interest in having MedsCheck reports from them.

Also, there is another boosting collaboration between community pharmacies and the York Central CCAC in conducting home MedsCheck reviews for those patients that are not able to have their MedsCheck done at the community pharmacy. As mentioned earlier, one of the hurdles for conducting home MedsCheck by community pharmacies is a sort of doubtful feeling whether their visit to the patient's home would take longer than 30 minutes of the MedsCheck program for which they would be paid for. If there is too much complicated problems in a patient's case and it is a two hour work for the community pharmacist to run a MedsCheck, since the community pharmacist is going to be paid for only \$150 which is not covering their wages at all, so this hesitation is logical. In their collaboration with CCAC, they are assured that if their visit to the patient's home takes longer than 30 minutes they can leave there, and just send whatever information they have collected in that period to CCAC case manager. Then, CCAC will send in a professional pharmacist that would complete the community pharmacist's work with home MedsCheck. So, that's how they have tried to loop things. A pharmacist that is a member of such team of professional pharmacists at the York Central CCAC mentioned that:

"We do know that there are some clients with circumstances that really need far more intensive investigations and follow-ups. So our program deals with the patients that aren't easily fixed in thirty minutes."

Currently, there is huge ambiguity in the system and it is not clear who is responsible for what. When the ownerships become clear then we can check where the obstacles are that hinder the system. Once things got clear and we started to do what we are supposed to do, then things will perpetuate and we can make them as effective as they should be.

4.1.2.7. Resources

Similar to the conduct of home MedRec, lack of resources is identified as one of the major barriers to the conduct of MedsCheck reviews at community pharmacies. Due to the basic requirements for the conduct of the MedsCheck review for a patient, pharmacy owners claim that it is not possible to carry out MedsCheck at a pharmacy with one pharmacist. They state that in order to be able to conduct effective MedsCheck reviews it needs overlap of the pharmacists, and they claim that MedsCheck reimbursement is not sufficient to recruit an additional pharmacist. MedsCheck

reimbursements do not cover the pharmacist wage, putting aside other expenses for the pharmacy owner.

Regarding this issue of resources for conducting home MedsCheck reviews by the community pharmacists, there is at homes program for those patients to be admitted to Residents care and nursing homes. In this program a pharmacist from the nursing homes can go to the patients' homes prior to their admittance to the nursing homes, and run a home MedsCheck for them. In this way the next health care provider setting can be sure that this information is complete and timely, and that the same pharmacist that has visited the patient's home will get that information when the patient comes in the nursing home. This program has been suggested by long-term care settings for preventing the home discharge MedRec issues by the home care institutions and the home MedsCheck visits by the community pharmacies. So, it would be ideal if the nursing home could be informed in advance which patient would come in, and that they could arrange for conducting home MedsCheck (if a community MedsCheck report is not available). Thereafter, when the patient is resided in their nursing homes, they can run MedsCheck quarterlies and can claim for them as well. It has not been yet taken place, but the nursing homes are ready to provide such service. A pharmacist at Medisystem Company stated:

"... as our pharmacists are already on the road when they have to visit different nursing and retirement homes, so this option could be considered as an extension to their routine tasks."

4.1.2.8. Requisite for auditing programs

"There isn't any quality assurance of the process, and in that environment this variability starts to diminish the quality of the whole program, and because of such a variability it really seems to be based on the individual skills and motivation of the pharmacists that are engaged in it, that variability undermines the broader attempts to have this as an appropriate part of the system."

Other than lack of standardization for the forms and formats of the MedsCheck reports, one of the shortcomings of the government in launching the MedsCheck program is the fact that there is no quality measurement tool identified to assess the quality of the MedsCheck reviews carried out by the community pharmacies. Although some pharmacies such as Zellers have created their own quality measurement tools, there is not a standardized way of assessing the quality of the MedsCheck service provided for the patients. At Zellers they provide an anonymous patient satisfaction survey to their patients after receiving MedsCheck service. In this way Zellers can review those surveys and try to improve those areas that are identified by their patients as the weaknesses of their service. In this way, patients are also engaged in the improvement projects and their voice can be heard. At the higher level, ministry should be interested to know about the quality of the service they are paying for. It was beneficial if the team of experts that have designed the MedsCheck service would also have designed a way to collect tangible data on the way service is provided, the number of discrepancies being identified through this program, and the number of medication related problems that have been identified and resolved. Moreover, ministry should also ask about the evaluation of the physicians and hospitals and other health care provider settings that receive those MedsCheck reviews. There should be some sort of mechanism that other settings give feedbacks on low quality MedsCheck reports, and ask the issuing pharmacy to correct their reports and improve their systems. The only statistics that are available to assess the program are

the number of times MedsCheck has been carried out and number of Ontarians that have received the service and finally the amount of money that has been paid to the community pharmacies through MedsCheck service.

4.1.2.9. Public awareness

Another reason for the slow uptake of the MedsCheck service is the low level of public awareness about the MedsCheck program and its potentials both to patients and to health care professionals. It is not until very recently physicians are becoming more interested in MedsCheck reports and starting to ask their patients to bring a MedsCheck review list with them at their visits to their offices, but still there is room for improvement. Figure 7 illustrates the number of Ontario residents that have received the service so far. It is obvious that the capacity of this program is much higher. For example, other settings are not requiring their patients to bring MedsCheck reports with them while visiting.

“... currently CCAC is not involved in MedsCheck, and is not enforcing any patients to go to a pharmacy for having MedsCheck...”

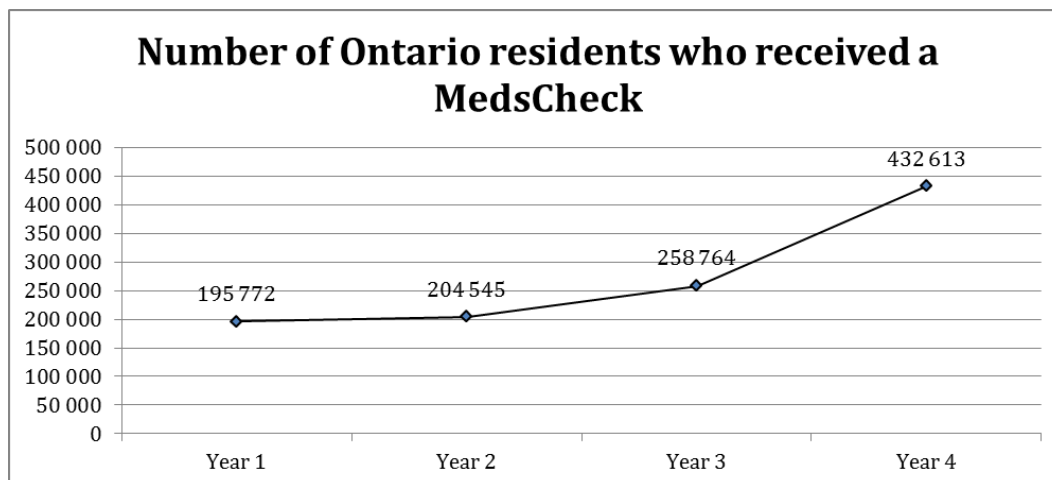


Figure 7 - Number of Ontario residents who received a MedsCheck review (Ontario MOHLTC)

A dominant reason for this lack of public awareness is mediocre marketing of the service. Literally, no one is interested in marketing the MedsCheck service. Government is not marketing because they do not want to spend money. Basically, pharmacies should advertise the service because they are going to be paid for that, but they don't advertise it either. Pharmacies are not sure about it and they are not used to provide such service yet. It is amazing to imagine that if big chains such as Shoppers Drug Mart would start mass-marketing on the service. It is obvious that the service would be very well received and that people would line up for receiving such service. The problem is that making changes in large-scale companies such as Shoppers Drug Mart is not so easy and it is challenging, especially because the decisions need to be made by their boards in the public organizations. Recently, pharmacies such as Pharmasave, Dell Pharmacy, Zellers, etc. have started

to market the service separately, each one through their own fliers, while counseling their patients at the counter, and other situations. Utilization of standard guides for the pharmacy staff to market the MedsCheck service and tell patients about the benefits of that in an easy and understandable way by Dell Pharmacy is a promising move.

4.1.2.10. Information Technology

From information technology perspective, pharmacies are only using computers locally to print the initial list of their patient's medications. After that, most of the task is done paper-based and the final review list is also printed out. If it is necessary to consult the prescriber, these printed lists are faxed to the appropriate clinician. Unfortunately, MedsCheck systems and pharmacy systems at pharmacies are not able to talk to each other and transfer information electronically. Due to lack of appropriate information systems it is not possible to figure out whether a patient has had a MedsCheck review in the last year due to system constraints. The only way to ensure is that the pharmacist is encouraged to ask from a patient if he or she had any other reviews previously in the last year. Pharmacies tend to use software for their MedsCheck service from the same vendor of their pharmacy dispensing system. As a result, there are many different types of reports created at pharmacies as mentioned earlier in this section. Some of these systems are capable of populating medication information of a patient from the pharmacy system into MedsCheck system, which at least reduces the time that a pharmacist or a pharmacy technician has to spend to enter such information in the MedsCheck software. Dell Pharmacy has initiated a program named eHealthLink that enables the pharmacists to upload patient's MedsCheck review on a secure website. Given patient is provided with a username and password that enables him/her to have access to the latest MedsCheck review via internet. Although this initiative is quite new and it has not been used under its full capacity, it is considered as a good start for information communication between health care settings. There is a huge room for improvement in this area, as a pharmacist at University Health Network stated:

"... An ideal system for carrying out MedsCheck is that we could have a tablet computer, and we could fill out the forms on that. At the end of the interview different reports could be generated from it..."

4.1.2.11. Change management

Overall, most clinicians believe that the MedsCheck program is useful and has high potentials across the continuum of care. The execution of MedsCheck has not been the best. Activists assert that MedsCheck is good by itself, but it could be complemented if pharmacists could go further than creating the most accurate list of medications and they could run medications assessment. Currently, pharmacists that are conducting MedsCheck have not connected it to the broader health care system needs. No one has shown them how to do that, and there is not enough incentive for them to do that. There has not been any receptivity on the other side of the equation, especially family physicians, who may not have understood what it is. There are a lot more system pieces that must be put together. MedsCheck itself is useful just as it is, but its real value come in when it is connected to a broader EMR, broader inter-professional collaboration, broader communication between physicians and prescribers and pharmacists. It should be considered that it is totally new for the uptake to happen right away, and from systems management and business workflows it

actually takes time for the new initiatives to be set in place. Change management strategies should be in position to help community pharmacies uptake the new services and changes.

The lack of awareness of the issues surrounding change management can limit success when adding services such as MedsCheck to a pharmacy business. Change is often hard and requires long-term commitment. As pharmacy moves from a dispensing-center business to one based on services, MedsCheck is a good place to begin laying the foundation for the future. At the current state pharmacies are reviewing and changing their business models. While it is important to have the vision of what you want your business to be, some people can become paralyzed if they look too far ahead at the big picture. (Felix 2008) The key to success is to make a plan, write it down and focus on one incremental step at a time. They should have an expert body that has designed the process and assessed its feasibility for implementing into the busy work settings. They should allow pharmacy managers to have training to understand how to change their stubborn patterns to accommodate this flow of the new business. Registered pharmacy technicians should play more active role in facilitating that uptake of the MedsCheck service. There is a huge potential lying there.

4.1.2.12. SWOT Analysis: MedsCheck

The same as what was provided for the current state of the MedRec in home care process in figure 8 a SWOT analysis is displayed for the conduct of the MedsCheck program at the community pharmacies. Strengths and weaknesses are already discussed in the previous sections. In this section opportunities and threats that are about the external factors that affect the conduct of MedsCheck are elaborated.

Strengths	Weaknesses (Limitations)	Opportunities	Threats
<ul style="list-style-type: none"> •Increases patients' understanding about their medication regimens •Prevents adverse drug events •Values pharmacists' professional services •Improves relationships between community pharmacists and other stakeholders (including patients) •Enhances communication between health care provider settings •Facilitates MedRec processes at other settings •Increases patients' loyalty to one community pharmacy 	<ul style="list-style-type: none"> •Reimbursement not enough •Lack of standardization in forms and requirements •Lack of quality measurement tools •Lack of public awareness and proper marketing strategies •Pharmacist overlap coverage •Time constraint 	<ul style="list-style-type: none"> •Effective strategies to involve more patients (marketing) •Better communication and collaboration with other healthcare settings •Better use of information systems 	<ul style="list-style-type: none"> •Incorrect and out-of-date information from other settings •Low receptivity by other health care provider settings (e.g. hospitals) •Low patients engagement (no volunteers) •Destabilized government payments

Figure 8 - SWOT analysis for MedsCheck

In terms of opportunities, effective marketing strategies would certainly enhance patients' awareness about the real value of this free service being offered by community pharmacies, and therefore more patients would demand for MedsCheck reviews. Since one of the elements that affect the financial viability of conducting MedsCheck reviews for pharmacy owners is the pharmacy location and the number of patients visiting that pharmacy, having recognized the increased demand for receiving MedsCheck, pharmacy owners would consider the investment in such a service and on recruiting additional pharmacists dedicated only to undertaking the conduct of MedsCheck service. The more number of patients ask for MedsCheck service, the more legitimate would be for pharmacy owners to invest in recruiting more personnel. Moreover, better collaboration with other settings in their routine work processes, such as home care institutes, LTC settings, and hospitals, would increase the opportunities to run MedsCheck reviews for community pharmacies. The more collaboration with them would enhance the level of information communication between them. In this way, community pharmacists would get more information about patients' conditions and their treatments, which helps them to run more accurate MedsCheck reviews. Also, better communication between settings will help community pharmacies to better figure out opportunities for running MedsCheck follow-up reviews for their patients, i.e. MedsCheck post-discharge and MedsCheck pre-admission. Finally, more efficient use of information technology can reduce their workload to a great extent and increase their precision in creating the review lists for their patients.

In terms of threats, receiving incorrect and out-of-date information from other sources has the same effect as if in home MedRec. It certainly prolongs the time and procedure needed to re-confirm that information, increases the risk of making mistakes, and adds non-value added tasks to their work loads. This issue together with the fact that if there would be no receptivity by other settings for their reports would discourage community pharmacies from conducting MedsCheck service, that can impede the progress and improvement of it. As receiving MedsCheck service is voluntary for patients, if for any reason their interest to receive such a service decreases, all investments by community pharmacies and the government would be wasted. Ultimately, destabilized government payments that has been recognized by many pharmacy owners at some periods of time would put pharmacy owners into troubles for paying their personnel wages and eventually convinces them to kill this project at their pharmacies.

4.2. Barriers

In this section, the Ishikawa diagram is presented. This diagram describes the types of the barriers to the smooth link between the MedsCheck process at community pharmacies and MedRec process in home care. This diagram is developed concerning the second research question in section 1.3. Following the Ishikawa diagram a complete description for each barrier is provided.

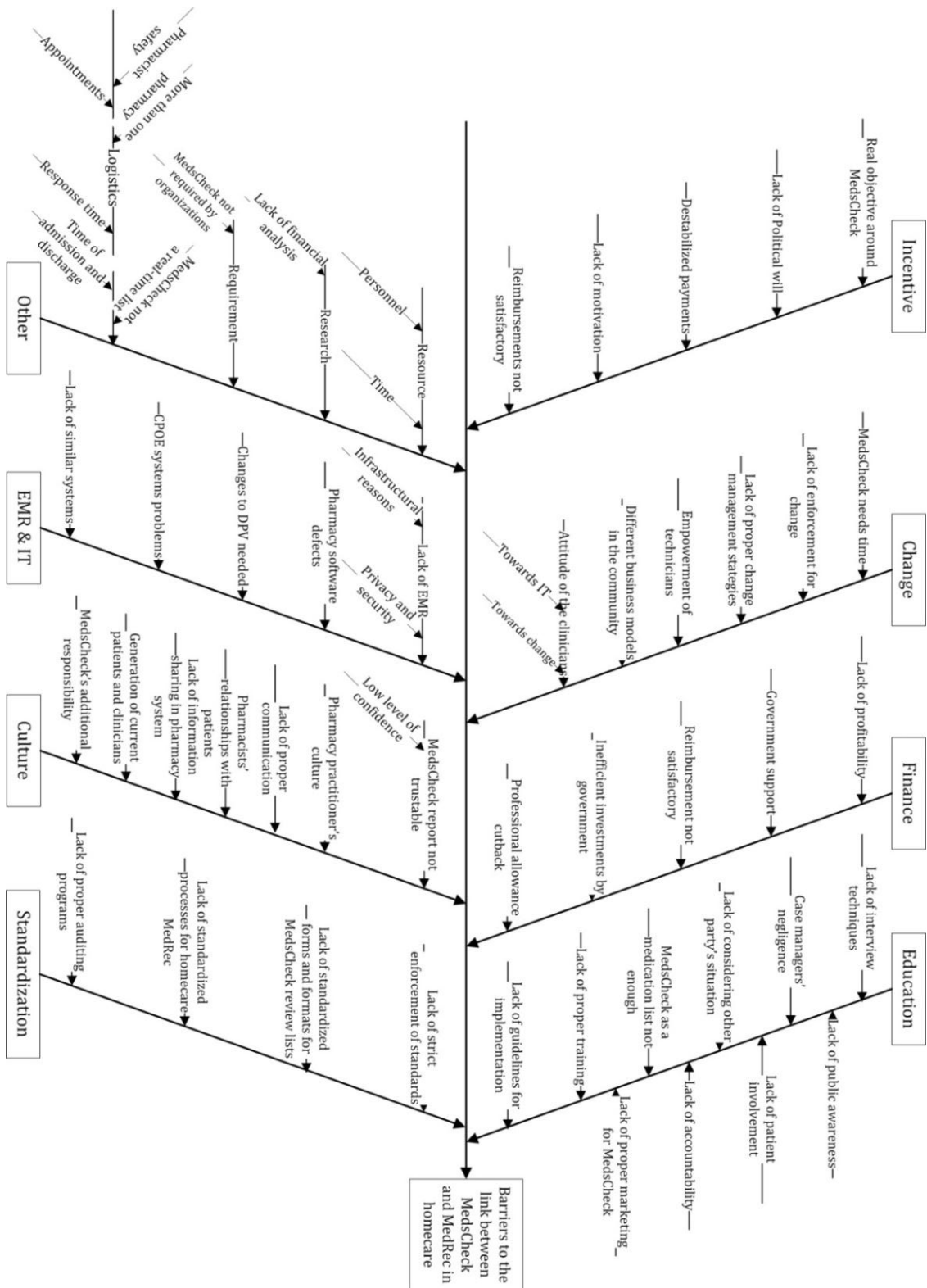


Figure 9 - Ishikawa diagram for barriers to the link between MedsCheck and MedRec in home care

4.2.1. Education

The most critical barrier to the fluent communication between MedsCheck and home MedRec is the lack of knowledge about the two initiatives among these programs' practitioners which may result in creation of inappropriate reports that cannot be used by one another. Unlike in academia where students are educated about MedsCheck and MedRec concepts from policy wise to practice level from the very first year of their studies, professionals in practice have not received a true comprehensive education in this field. In academia curricula have been changed significantly and the emphasis is on medication reviews. Medication review has a broad meaning of working with patients, the kind of information needed, how to assess drug therapy, what to do when encountering drug therapy problems, how to work with team members. So the curriculum is structured the way that students learn these early on throughout their studies. In contrast, there has not been any formal MedsCheck and MedRec professional development training programs for pharmacy practitioners. They are not trained to be competent enough to conduct MedsCheck and home MedRec, and figure out how these processes integrate in the body of the healthcare services. As mentioned earlier, in fact one of the issues has been that many pharmacists that have been in practice for quite a while are afraid what if they find something out during the MedsCheck and MedRec process, what are their legal, ethical, and professional responsibilities in that case. The responsibility that comes with the implementation and administration of MedsCheck and MedRec processes has put these subjects out of their comfort zones. In order to address this issue, there has been an education program called ADAPT being run by CPhA (Canadian Pharmacists Association) which is more about skills developments. So, it elevates pharmacists' confidence and competency to take on these new services. This is an online distance education, and the feedback has shown that people were satisfied with the program and has found it helpful. Educational programs like this are necessary to provide pharmacists with tools and guidelines for correct implementation of these new processes. Also, pharmacists should become aware of the importance of accountability of MedsCheck and MedRec review lists. Most of the current practitioners of MedsCheck at community pharmacies are not informed about the impact of their work on other settings' operations. There is a huge room for improvement in this area.

Another prominent barrier is lack of public awareness about the MedsCheck program and its benefits. Due to this lack of knowledge, MedsCheck review lists are underused by most other disciplines. The term public relates to patients, family members, physicians, nurses and all other clinical disciplines.

"There has not been any receptivity on the other side of the equation especially family physicians who may not have understood what it [MedsCheck] is ..."

First of all, patients who are the ultimate beneficiaries of such initiative are not aware of this program and most of the eligible patients are not aware of their eligibility to receive such a free service at their community pharmacies. There are many cases that even those patients who have received a MedsCheck review are not well-informed about receiving such a service. For this reason, their MedsCheck review lists are always lost among other pile of papers they collect from health care provider settings they visit. Also, because of the voluntary type of the MedsCheck service most patients believe there is no benefit in it for them. Secondly, physicians are not really paying

attention to the MedsCheck reports and they were not using them, even if those small numbers of MedsCheck reports were faxed to them from community pharmacies. Physicians do not show very interested in medication information of the patients, and this is not surprising, because physicians' responsibilities are different. Their focus should be on diagnosing, and that is so much of their training. So this is not really their priority and we should respect that. Until very recently that physicians have discovered the real impact of having the most up-to-date list of patients' medication they are actually starting using the information from MedsCheck reviews. Pharmacists and other disciplines at hospitals and other settings were not trusting in these reports and were not using them. Figure 10 shows the number of MedsCheck follow-up being conducted during the four years of its conduct. It is apparent that most of the MedsCheck follow-ups were not requested by physicians and other professionals, rather they were conducted based on the community pharmacists' decision who are the most informed clinicians about the value of the service.

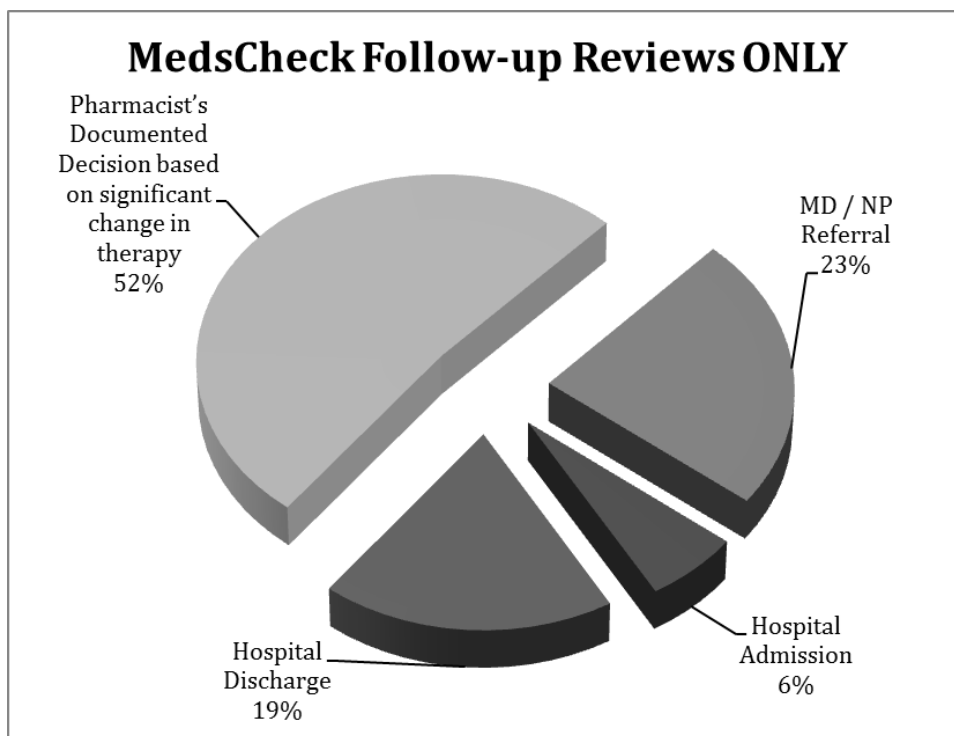


Figure 10 - Percentage of MedsCheck follow-up reviews

Part of this lack of public awareness is attributed to improper advertising strategies around the benefits of MedsCheck service, which has been elaborated in the MedsCheck section of this report. Therefore, it can be inferred that by having an effective advertising system in place to inform patients and other clinical disciplines about the potentials of services such as MedsCheck and home MedRec, their real values would be understood and people would start looking for their reports. One way to encourage patients to receive such service and other disciplines to require conduct of such services is to engage them in quality assessments of these processes. By asking about their

feedback on the quality of the reports they receive, they feel more engaged in the whole process and become more interested in using them.

Moreover, education is needed on higher levels of the pharmacy practice. Pharmacy managers need to have training to understand how to change their stubborn patterns to accommodate this flow of the new business. The new business in which the focus is shifted from dispensing services to more professional pharmacy services and consultations. In practice management courses in academia, students are being educated on the concepts of pharmaceutical industry, within which new models of practice are offered. So they teach ideas like what it means to develop a business plan and what factors should be taken into consideration.

Another factor that challenges the streamlined transfer of information is lack of consideration. Unfortunately, each profession takes its own concerns into account without considering the other profession's limitations and difficulties. One of the respondents that was a professor at the school of pharmacy at McMaster University mentioned that:

"I always tell physicians and pharmacists, that pharmacists you don't know what it is like unless you've been there in a family physicians' office and see their work flows, and physicians if you are to go and work in the pharmacy you'll have a hard time, too. So, it's on both sides..."

As long as everyone respects everyone else's niche it's not a problem. Consequently, at the academic level we should emphasize inter-professional education, which will help students to better understand other professions and disciplines and their roles and values in providing care for the patients.

Receiving education on using IT systems is one other indispensable must for the professionals in practice. This generation is not as familiar with computer systems as the student generation in schools. Older generation is not interested in IT systems and there is a kind of resistance to work with computers from them. Due to ever increasing need for application and deployment of IT systems within healthcare services, this area must not be disregarded. In academia, most clinical students are working in computer labs with different clinical software, to be competent enough to employ IT systems when graduated from school and start working in society. At North York General Hospital, physicians were adapted to use CPOE systems by first requiring them to use the simple version of the program. After a while, features were added to that version until now that they are all working with one of the most integrated CPOE systems.

Considering all issues mentioned above, it is evident that education is a significant driver for success in implementation and development of MedsCheck and home MedRec services, and requires multi-level strategy from academia to frontline practitioners. Unfortunately MedRec in home care environment is one of those untouched areas and that our knowledge in this field is not as rich as other MedRec processes such as MedRec in hospitals and in LTC settings. Education will enable people see the bigger picture and figure out the necessity of having a smooth information transmission between home and community pharmacies. Closer collaboration between academic institutions and MedsCheck and MedRec practitioners help to identify required competencies for undertaking provision of such services, and students ought to learn in practical education about

these tasks. Professionals often act differently, because in their view they are doing correct. It is critical to bring professionals together and let them go through literature and review the procedures to decide together what the best process is to implement and to act. Therefore we have to have a sophisticated conversation between professionals and clinicians about what autonomy means and what their role is to ensure the highest possible quality.

4.2.2. Change

Having a success information transmission between MedsCheck program and home MedRec operations requires a change in the routine workflow and attitude of the participants in these processes. Implementing any change initiative is inherently a cumbersome task that requires ambition and resources, especially if that change has impacts on the people side or soft side (Edmondson 2003) of the organizations. As mentioned earlier, there is a change happening within the profession of pharmacy. Pharmacists' role is shifting from dispensary tasks to more professional pharmacy services such as counseling, medication review, and medication assessment. There is sort of resistance to this change by the pharmacy practitioners. This resistance is reasonable because people are working in the community in silence. For a community pharmacist MedsCheck is totally something new and they are not sure if this service can significantly help. Any kind of change requires people to redefine the roles and responsibilities, the way they are doing tasks, and as everybody is working independently and they are not working under the same structure it makes it more difficult for them to adapt to those changes. They have limited motivations to take those changes and try to implement them. It is believed that giving people the big picture and providing them with enough resources and incentives will make them actually accept the change.

It is not only about changing the way things are done, but the business of pharmacy and the revenue streams are changing as well. Pharmacy owners are trying to figure out what the best option is for their new business models considering the change in the services being offered to patients and other clinical disciplines. They have to consider new revenue streams for their businesses and this has been one of the reasons for the prolonged uptake of the MedsCheck service by many pharmacies. Yet, they are not sure if the new services would cover their costs and that they can survive by adhering to the new revenue streams.

The advent of the new services has plagued the culture and attitude of the pharmacists and other clinicians as well. Effective communication of patients' medication information is not possible without efficient use of IT systems. Those who have been in practice for decades and are not used to work with computerized programs will not survive. The existing isolated culture within pharmacy system is changing. Pharmacists who due to the nature of their careers are not used to delegating power and responsibility to others, i.e. pharmacy technicians, need to change their behaviors and they also need to make better relationship with people from other professions.

Unfortunately, there has not been any effective change management strategy suggested to the pharmacists and pharmacy owners to help them adopt themselves and their businesses to the new changes. Here is a huge gap and needs to be considered into account. There is a lot of toing and froing that masks the real underlining issue around change management needs, and there is a lot of irritation between government and the profession right now in terms of who should be doing what

and who should be paying for what. This will change with time and that's part of the process that we should be patient, because simply offering a program does not mean that overnight everyone will take it over. Students should be graduated and people become more confident in it and as employers start to pushing it other ways to employees to do them. Right now we are in the transition period and over time we'll reach all positive outcomes. It is much easier for us as researchers to see the gaps, because we are looking from a different level of analysis. The level of analysis for a typical pharmacist is that he/she should provide service for people who walk in the door. It is really critical to figure out a way to help pharmacy practitioners to see the need for such a change.

4.2.3. Culture

Existing culture between pharmacy practitioners is considered as one of the major barriers to an effective communication. There is a strange culture that pharmacists from different settings have low confidence in information received from other settings and there is not much reciprocal communication happening between them. Partly it is just because they are different worlds and different silos have been emerged, partly it is due to lack of seamless systems that facilitates the transfer of information. For example, although home care practitioners are required to call the patient's community pharmacy and ask for or provide them with medication information, they resist doing that because they are simply not used to carrying out such interconnections. It is conceived by some pharmacists that their job is superior to pharmacists at other settings. This delusion has encumbered the smooth communication of information among them. It may take a generation for the relation and communication between pharmacists at different settings to be improved. It is more of a systems level issue, pharmacists at different settings have complicated tasks to do and due to shortage of the staff it is difficult to find them and ask for more information regarding any given patient. There is not any efficient mechanism or system in place to facilitate the communication between these groups. Maybe it is not about their desire and willingness, rather it is more due the different natures of jobs and responsibilities. Also, there has not been a trustful interaction between pharmacists and physicians, and usually pharmacists are more responsive than physicians in their conversations.

There is more collaboration happening and more inter-disciplinary learning is taking place in academia in order to change the culture that exists between physicians and pharmacists that limits their cooperation and productivity. Furthermore, it has been tried to put the patient care as the main goal of the students, no matter where they are going to work in the future. If they understand that patient is the central goal those wrong misconceptions should be put away and everyone should try to contribute across the continuum of care. Therefore, it could be understood that younger physicians are more aware of the role of pharmacists, but in general they cannot figure it out until they work with a pharmacist.

As mentioned in previous part, the practice of pharmacy is also undergoing a change process. To be able to handle all new responsibilities, pharmacy technicians should be engaged more in pharmaceutical workflows, and this is where another cultural gap could be identified. Unlike students of medicine and physicians that are accustomed to power delegation and autonomy from very first years of their studies, there has not been such entrustment between pharmacists and

pharmacy technicians. Pharmacists must learn to break down tasks into two subtasks of technical and clinical, the former to be conducted by pharmacy technicians and the latter by pharmacists.

4.2.4. Standardization

Lack of standardization has been identified as the foremost hurdle to the effective connection between MedsCheck and home MedRec. Home MedRec processes are evaluated as highly variable processes. At some instances it is done extraordinary well and effective and in other cases it is not. This variability in the conduct of the home MedRec process has significant impact on its outcome, which is a comprehensive discharge medication list of the patient from home care services. Home care discharge lists affect MedsCheck reviews at community pharmacies and MedRec processes at other health care provider settings. Due to this lack of standardization the quality of MedsCheck reports also differs to a great extent. Very few reliable MedsCheck reports are truly comprehensive and of good quality. But most of them are just a computer print of a patient's profile and nothing on that has really been reviewed. There are many cases that are referred to CCAC for medication assessment and they can realize that MedsCheck has failed to do the deed and has not resolved the patient's problems. In such environments this patchiness starts to diminish the quality and objective of the initiatives. It becomes more reliant on individual skills and motivations, which undermines the broader attempts to have an appropriate system. Lately, this issue has been addressed by the ministry's recent announcement of the standardized requirements for the conduct of the MedsCheck service at community pharmacies. It is hoped that problems from the community pharmacy's side and the variable quality of the MedsCheck reports would be eradicated from the beginning of 2012.

But as mentioned earlier in the analysis of the current state of the MedsCheck program, in the recent standardized requirements inclusion of certain parameters have become mandatory and inclusion of some other parameters are recommended. Therefore, no certain standardized format for the MedsCheck reports has been announced. This can be both positive and negative. It is positive because pharmacies are given freedom to choose whatever format is most manageable for them based on their systems' capabilities. And it is negative, because again there will be many different formats for such MedsCheck reports and professionals at other health care settings will have to encounter the same problem as today's that they should dig into the forms in order to be able to extract whatever information they are looking for. So there is still this controversy about the standardization, considering that everyone has consensus on the necessity of having standardization. Also, there are still some professional who believe making those standards mandatory is not the best option, as every pharmacy is using its own system with their different features and capabilities. If there was an intention to make these changes mandatory, the ministry should have announced earlier. Not to forget that for over four years there was not any standardization mandatory and the result is such patchiness in the system. It is logical to require some mandatory changes so that nowadays' issue of standardization be resolved.

Worth to mention that just by taking an enforcement perspective it is not easy to achieve the demanded results, because although it is an easy task to enforce people to do things, it will be done in a very superficial way without any expected impacts. The more impressive way is to try to make

people understand the importance of the project, to make it easier for them to carry it out, and to show them that it actually can be done and practiced.

In order to check the level of adherence to the standards by responsible organizations there should be proper auditing programs. There must be metrics to measure processes from a quality as well as outcome perspective. As mentioned earlier in the current state of the MedsCheck and home MedRec sections, there is no way to measure the quality of a MedsCheck report, or evaluate the conduct of home MedRec operations. This has been another hindrance for the effective link between the two initiatives. Putting aside the appropriate auditing programs by professionals, surveys from patients and pharmacists at community pharmacies and home care institutes would help in enhancing the quality of such services.

4.2.5. Resources

Shortage of resources namely time and staff is claimed to be one of the most prevalent reasons for not having proper MedsCheck and MedRec processes. Concerning the MedsCheck program, it is a new task added to the routine workflow of the pharmacy practitioners. Yet, they have not figured out the best way of its implementation. The first issue that comes to mind is lack of pharmacists at community pharmacies to undertake the responsibilities regarding that initiative. It should be noted that recruiting an extra pharmacist just for the conduct of MedsCheck is not financially viable, particularly when there are just a handful of MedsCheck reviews a week. Also, it happens that patients do not show up for their appointments. These excuses are acceptable to some extent, but there have been pharmacies that managed to overcome this issue by other means such as scheduling overlaps of their pharmacists at the beginning or end of shifts, and breaking down the whole task and giving more active role to pharmacy technicians.

Concerning MedRec processes, and more specifically home MedRec, shortage of pharmacists is easily recognizable. Although pharmacists are considered as best candidates to carry out MedRec operations, there are a handful number of pharmacists engaged in home care services. MedRec in home care environment is mostly conducted by nurses or social workers. Even though they all should have received training on how to conduct a proper MedRec service, they do not have pharmacists' patience and precision in MedRec related tasks. Also, social workers and nurses have other responsibilities to take care of and it becomes difficult for them to insert MedRec operations in their busy workflows.

The issue of resources is not limited to time and staff per se, rather includes financial barriers and lack of facilitating IT systems as well. These two subjects will be elaborated in the sections to come. Overall, lack of resources has inhibited the proper implementation of the MedsCheck program at community pharmacies and MedRec processes in home care environments. When suitable reports are not available from the two initiatives, it is not logical to expect good communication between them either.

4.2.6. Finance

Financial concerns are mostly relevant to the conduct of MedsCheck service at community pharmacies. Home care institutes have not claimed any financial problems for running MedRec operations in home care environments. There is a strong dispute regarding the financial support of

the government for the MedsCheck program. On the one side of this equation is government. According to the statistics indicated earlier in the current state of the MedsCheck program, government has allotted \$150 million for pharmacy professional services, mainly MedsCheck. Statistics show that very small portion of that budget has been used by community pharmacies. Therefore, relying on these numbers there are professionals who believe that government's support has been enough and justifiable. On the other side of this equation are community pharmacies who assert that the mentioned budget has not been used, not because MedsCheck was simply not carried out, but the reimbursement fees for conducting MedsCheck do not suffice and that it is not financially viable for them to carry out MedsCheck. They claim that reimbursement fees do not even cover their pharmacists' wages. Unfortunately, there has not been any comprehensive economic analysis done to investigate the community pharmacies statement. Having said that, government has modified the reimbursement regulations at some points and increased the compensation fee for conducting general annual MedsCheck from \$50 to \$60 in the first step. Afterwards, government has initiated another pharmacy professional service named Pharmaceutical Opinion Program, in which there is \$15 compensation fee for pharmacies attempt in resolving identified discrepancies based on MedsCheck reviews being done. Overall, still there is this strong debate going on regarding the reimbursement fees and profitability of the MedsCheck service and the ambivalence sense for the system is that they are not compensated correctly and fairly

All these financial concerns have somehow distracted the attention of clinicians from the therapeutic intention of the MedsCheck service, and that it is looked at more as a way to recoup money that is curtailed on the professional allowances, rather than a way to enhance patient safety and quality of care. As mentioned by a professor at the University of Toronto faculty of Pharmacy:

"I fear [these financial debates] maybe skewing the actual utility of the whole enterprise [MedsCheck program]. When it's looked at as a way to earn money rather than a way to optimize patient care the quality and the integrity of the process all will start to suffer."

4.2.7. Logistics

Logistical matters are ubiquitous in any projects, and MedsCheck and home MedRec are not exceptions either. There are a number of issues that can be categorized under logistics heading that have impeded the development and utilization of the two initiatives. For MedsCheck processes one of the hurdles is about arranging appointments for patients, and the patients that do not show up on their schedules. Also, part of the problem is that most of the people who really need MedsCheck service are not able to go to their pharmacies and receive a medication review. Conducting home MedsCheck has its own issues, one of which is the safety of the pharmacist to go and visit patients in their homes. Another logistical factor is that many patients do not visit one certain pharmacy and as a result their medication information is not available at one certain point. This factor can actually affect home MedRec processes as well, because the home care practitioner has to call several pharmacies to ensure he/she has all medication information of their client.

Regarding home MedRec operations, the biggest challenge is for the time that a patient visits hospital for any reason while he/she is receiving home care services. Problems begin from the time that patient returns home and home care services must be resumed. As mentioned in preceding

sections, at home care usually MedRec is conducted upon patient's admission to home care services, and for this specific time it is difficult to arrange for another MedRec to be carried out, assuming that all information are available from discharging hospital.

Another challenge for both MedsCheck and home care practitioners is for a time they identify a discrepancy in patient's medication regimen that needs to be resolved by prescriber. Most of the times, physicians are not responsive as timely as they are expected to be. In some cases they might not receive any responses from contacted prescribers. This fact can increase the overall paperwork and workload of the pharmacy and home care practitioners and increases the potential risk for making any mistakes.

A criticism to the MedsCheck report by home care practitioners is that MedsCheck report is not a real-time list of patient's medication. Therefore, in any case they have to reconfirm the available list with all possible sources, and this would make it a little bit challenging for them.

4.2.8. Incentive

There are many complicated issues to be solved to support the pharmacists and home care practitioners (nurses and social workers), because within their professions there are many forces impacting on their day-to-day lives. For several pharmacists and home care practitioners the general responses have been more of subversion. What they are trying to do is to hang on to a model of practice that is very technically focused and a lot of hard work, but a lot of hard work within a certain comfort zone. It is really complicated to try to incentivize people to move forward from that comfort zone into the unknown. And it is believed by several experts that not enough attention has been paid to actual change management piece of these processes. The marks to actually incentivize people to change practice, such as proper education as mentioned earlier and other sorts of incentives are not in place yet. Moreover, it should be considered that MedsCheck, home MedRec, and communication between them are in three different glossaries that should not be looked at with a same lens.

For MedsCheck, one of the strengths of the program is identified as its reimbursement for the professional services that pharmacists offer to their patients at community pharmacies. It is considered as a positive gesture by the government after cutting professional allowances in public sector. Although there is controversy around these issues, overall reimbursing pharmacists is accepted as a good movement. One of the discussions is about the notion that paying people to deliver excellent quality is interesting, however evidence is mixed. On the one hand we know by paying pharmacists we can get much higher levels of adherence to recommended processes of care. But, it is not clear what expenses would come with it. We are not sure if it undermines the larger professional values that people have, as mentioned by a lead pharmacist at Dell Pharmacy that:

"Pharmacists should know that MedsCheck is not about the money, rather it is about making a change, about improving patient safety."

We are not sure if it distracts people from other initiatives that are not incented but are equally important. We are not sure what its effect is on other initiatives conducted at other settings. Although hospital pharmacists and home care pharmacists are salaried pharmacists and

practitioners that are already paid for all services they provide for their patients, but still it is mentioned by many of them that:

“Public pharmacists are being compensated for providing MedsCheck, but we are not receiving any additional fees for BPMHs that we conduct on patient’s admission”

It clarifies how demotivated they have become for running MedRec processes, when MedsCheck program was launched. It is not hidden. It is known that the strongest motivation to do a task is the internal motivation, which is the first thing to work on, for example through education. We have to ask this question that if the current environment enables professionals to deliver the care that they would like to give. One argument is about the initial objective of the MedsCheck program, since many believe that MedsCheck was not launched for the sake of therapeutic implications, rather it was more about a way to compensate the money that was cut previously. Therefore, the financial perspective has jeopardized the medical aspects of the program, and diminished the internal motivation of many health care practitioners. From another point of view, care delivery systems are truly complex systems. In some cases it cannot be anticipated what would be resulted from a simple change in the input. So when you put in new incentives, it changes behaviors in an unanticipated way. Therefore, this is a warning that incentives are not always the easiest ways to resolve problems.

Putting aside the arguments mentioned above, and assuming that financial reimbursement is a positive factor for incentivizing, expansion of the MedsCheck program to cover more numbers of Ontarians by providing MedsCheck at home, MedsCheck for diabetes, and MedsCheck for LTC, gives better opportunities for the pharmacies to include these services in their routine workflows, and they can find the best service that best suits their facilities and equipment. That allows them to look across their patient population in more ways than just one MedsCheck. Because of the diversity in the services, there are more patients that are eligible for the services, so there is actually quite an opportunity for the pharmacists to look across their patients lists and see who is eligible for which service. Also launch of Pharmaceutical Opinion Program is also a positive movement for incentivizing pharmacists for the conduct of MedsCheck and the services as such that are not reliant on dispensary issues.

Another motivation factor for pharmacists to conduct MedsCheck reviews is the sort of loyalty that it brings for them when they review a patient’s medications at their pharmacies. Patients are encouraged to visit one pharmacy to receive their MedsCheck review and that for some MedsCheck services they are required to visit the same pharmacy they have received their general annual MedsCheck. Therefore, conducting MedsCheck reviews serves to ensure pharmacy owners those patients would come back to their pharmacies to fill their prescriptions or for many other pharmaceutical demands.

For home MedRec practitioners, not enough attention has been paid to inspire them for conducting proper reconciliation and communicating the MedRec lists to correct stakeholders. Homecare practitioners are also undergoing a change process in their practice when they are required to insert the new MedRec operations among their other critical tasks.

Lack of motivation is recognized in higher levels of the community. It seems that government is not very interested in application of IT services and launching electronic medical records. Other than financial, vendor, security and privacy of patients' information, lack of political will to facilitate the communication between health care settings with EMR applications is indicated as the major barrier for not having such system. This topic is discussed more elaborately in the following part.

4.2.9. IT systems and Electronic Medical Record (EMR)

The most central facilitator for the communication of information between different health care provider settings is believed to be sophisticated IT systems, lack of which has slowed down the effective information transfer. MedsCheck and MedRec processes are useful initiatives as they are, but their real value comes in when they are connected to broader EMR that all stakeholders across continuum of care can have access to that information. Lack of a central database that all information from all settings would be stored in it is indicated by most clinicians. Currently, most communications between settings in Ontario are done paper-based, which has many disadvantages. Inability to track information across settings is its principal drawback. Putting aside the need for central database, right now each setting is using its own system. Some of them are performing very well and are able to produce comprehensive reports and lists, and some are not as productive as the rest. But the real problem is that none of these systems can talk to each other, and no information is transmitted between settings electronically. Even in corporates such as Shoppers Drug Mart even though all their stores are using the same software, they are not connected to each other and each store keeps its own records of the patients.

There are of course a number of infrastructural issues that inhibits the creation of such unified integrated electronic systems in Ontario. Issues such as software program, language, vendor, similar modules in different systems, systems architecture, and etc. are identified by professionals. But one stated reason for not having such integrated systems is the security and privacy of the patients, which to the opinion of most of the clinicians does not sound reasonable at all. It is claimed that assuming such central electronic databases are available for patients' medication and medical information, it would be used by the same clinicians who otherwise have access to those information on papers. Moreover, there has not been any survey conducted to investigate patients' response to that issue. Moreover, since other provinces like British Columbia and Alberta have already implemented such EMR systems, the privacy issue together with all infrastructural issues seems to be a sort of scapegoat for not having EMR and unified integrated systems in Ontario. At present, there is a team in Ontario working on eHealth project, in which they are focusing on a way to make all different systems that are being used in health care provider settings talk to each other. In other words, they are developing a kind of hub in the middle that can translate whatever machine and program is talking to it into a one common language. So, it is hoped that within two years they will release a program similar to current Drug Profile Viewer (DPV), but more complete than that and more groups and professions can have access to that. DPV is an application that is mostly used by pharmacists at community pharmacies to put dispensing information of their patients who are under the Ontario Drug Benefit (ODB) coverage into that. Not all clinicians have access to DPV, and for those who have, their access is limited. There is this strong argument about DPV that as the community pharmacists are not able to talk to each other through their systems, and that there is one commonality that most clinicians have access to it, why it is not possible to

build on that and utilize DPV more robustly. Therefore, DPV has high potentials for the current state and many professional propose some modifications to that application to cover all patients all drugs.

“The question here is that as the community pharmacists are not able to talk to each other through their systems, and that we all have something in common that we all have access to it which is ODB profiles, is it possible that we build on that and utilize it more robustly?!”

In the MedsCheck program, since no standardized software for conducting MedsCheck reviews was provided at the time of its launch, pharmacies had to re-invent and design their own systems and forms. Consequently, there are many different systems being utilized by pharmacies and there is no standardization in the reports that are generated by those systems. Some pharmacies are utilizing software for their MedsCheck reviews that could be linked to their pharmacy dispensing systems. In this way, they will generate the initial list of medications through their pharmacy systems, and it is not necessary that information be put in the MedsCheck program manually. It saves them time and is more efficient. Moreover, using HL7 standard language for pharmacy and hospital systems facilitates the connection to a central database of EMR.

Now what really facilitates that is a good information system. So the sophisticated information systems that provide a lot of data but cut in different ways for the individual patient, for the teams, for the clinic, and the organization as a whole which helps them pretty quickly understand where they are successful and where their new targets are to focus their resources. It really enables health care practitioners to gather information about the current status of their patients, to identify the impact of the changes that they are making to their patients’ medication regimens, and eventually accelerates the move to higher levels of care. Many organizations have recognized that they can make quick gains and redesign their processes and provide more effective care with investing in IT systems, which is the engine that can take them forward.

5. Discussion

The purpose of this research was to identify opportunities for improving the link between the two initiatives of MedsCheck and MedRec in home care environment. I have tried to address the research questions proposed in section 1.3 by figuring out the current state of the conduct of the two initiatives and finding the barriers to the mentioned link in chapter 4. These answers were found from conducting interviews and were analyzed based on the reviewed literature. In this chapter recommendations have been discussed in a number of areas that according to my opinion are most attainable for making improvements. The chapter concludes with a discussion regarding the theoretical contribution and limitations of this study.

5.1. Future state

Both MedsCheck program and MedRec processes in home care environment are initiatives with high potentials, but are underused at the present moment. Although the output of each initiative could be considered as a reliable input for the other's operations, there is not an effective and efficient medication information communication happening between them. Knowing about all the benefits of a smooth information transmission between the two initiatives, the question is that why it is so difficult to execute mechanisms that enable such information transmission.

All the informants underscored the fact that unified integrated electronic system will actualize the accurate and real-time communication between settings. Putting aside the matter of EMR systems, the picture depicted by professionals regarding the future state of the connection between community, home care, and acute care settings are concordant rather than discordant. This future state, although is not the ideal state, is better and more efficient than the system in practice right now across the continuum of care. Maybe not everyone agrees on the reasons why it is so difficult to reach that future state, where the break downs are, and what needs to be done. It is important to make sure that everybody agrees what the right thing to do is, and that it is possible to be done. This is where we can move forward and draw everyone's commitment. In the future state, all facets should get together, so that all the pharmacists in community and hospitals and family health teams get together and consider that patient's profile needs to be managed and they need to communicate amongst themselves. Since they are the gatekeepers of this information they have to work together as a team.

In this future state, CCAC is informed from beforehand which patient is going to be discharged or is going to be admitted to home care services. There is a more proactive discharge approach in acute care settings, if the patient is going to be discharged from any of them. Meantime, a MedsCheck review is conducted for the given patient, either at home or at the community pharmacy by the community pharmacist. The patient's medication information is transferred to CCAC to be put into patient's folder by his/her case manager. Therefore, a complete discharge list of medications from an acute care setting and/or a MedsCheck review report is available on the patient's file when the home care service practitioner visits the patient in home. During the initial visit, MedRec at admission is carried out and a BPMH is created for the given patient. All necessary communications for reconciling any identified discrepancies within MedRec process are conducted with responsible professionals. The BPMH is kept in patient's profile and is updated regularly, based on patient's visits to hospitals and physicians offices. Upon patient's discharge from home care services, MedRec

at discharge is carried out and the BPMDP list is communicated to all stakeholders, including community pharmacies. In all steps, communication between pharmacists at different settings, i.e. community pharmacy, home care services, and acute care provider is happening effectively. In this future state, the outcome of each setting is used as a reliable input for the subsequent setting, practice operations are facilitated and streamlined, work load is justifiable for practitioners, and most important of all patient safety is elevated to the highest level possible.

In this study it has been tried to figure out what the future state look like, and what the barriers are to reach that state. I tried to understand which setting is doing good considering all existing shortcomings and what they are doing. It was tried to find out why it is so difficult to discharge a patient from an acute care setting or home care service into community. It is illustrated what the journey is from the current state to that ideal future state, and where the organizations are throughout that journey. Of course they are not all in the same level and some are ahead of others. There are some pharmacies that are taking advantage of it, and some pharmacies that are not, and a lot of that has to do with culture, corporate issues, and the kind of store. Through this research it was recognized that there are pharmacies that are in large retail environments, pharmacies that are in chains and in medical centers so there are a lot of aspects that we can help people to run their business. It has been tried to demonstrate why those are leading in this journey and what their success factors are. People do disagree on this journey and their contrasting ideas are discussed. Similarities and differences in the approaches have been identified.

5.2. Pharmacist's role

Pharmacists should gain confidence in their new roles and adopt themselves to the change happening in their profession. The willingness of health professionals to adopt expanded roles and new models of care will enable many changes. It should be considered that there is going to be less reliance on dispensing operations, and they are required to focus more on critical issues that give more value to the patients' health and the rest of the clinical and medical team members. There is a shift toward a more teamwork and pharmacists at different health care provider settings should learn to work together as a team. People need to work as teams, and define care as teamwork, and then look at the outcomes as a team. Unfortunately, people are used to interact with others from the same background, and when they have to work with people from other professions and backgrounds they find it pretty difficult to communicate about the same reality. They need to have a common language to work together. New processes of collecting medication information from different sources, reconciling them, and then communicating that information to other settings have net traditionally been in their workflows, but now they should figure out the best way to insert new services that brings new responsibilities with them into their routine and traditional workflows. For sure, adding a new service like MedsCheck is a big adjustment for stores and inserting such tasks in their routine workflows requires a great change to be made. And making any changes to what has been done before is accompanied by some sort of resistance from the clinicians, and that itself demands much time and energy to deal with. Designing and streamlining processes that work throughout the continuum of care, and involving all stakeholders in the design and implementation may facilitate the process.

5.3. Patient's role

Another critical factor to be noted is the new role of patients in their treatments and medication management. Clinicians ought to recognize that patient plays a critical role in transmission of the medication information, specifically in the community as there are a number of health care settings involved in the treatment of the patient and they are not connected to each other. It can be said that patient is the facilitator for the accurate communication between health providing settings. Moreover, as patients do not always take whatever is prescribed for them, so it is necessary to put back the patient's perspective in the whole systems. The most accurate list is the one that shows all the medications that a patient is actually taking, not the ones that have been prescribed and dispensed. Thus, as Lang et al (2006) asserts the care and safety of patients in home care settings cannot be attended to without including the family members, the unpaid caregivers and the paid providers in the equation.

5.4. Future initiatives

According to the ministry's statistics (Appendix D.2) the MedsCheck program's uptake has increased a lot recently and it is believed that the launch of the professional pharmaceutical opinion program and then its expansion to cover operations for MedsCheck drug related problems would contribute to its commitment. Other professional pharmacy services continue to be developed and will focus on appointment-based professional services and will require communication and planning. More inter-professional collaboration and development regarding these services is expected. The services under development include: MedsCheck Complex Assessment, Medication Reconciliation for Hospital Discharge, Chronic Disease Management, and Home Diagnostic Training.

5.5. Receptivity

Practitioners at other health care provider settings are starting to realize the real value of such professional services by pharmacists, and they are seeking the ways to make the best use out of them. This is why we can see that many family health teams, pre-admission hospital clinics, and nursing homes have systems that order a MedsCheck review for their prospective patients prior to their admissions and their visits. In this way the accurate information is available at the right time at the right place. But still there is much room for improvement, and each care setting should consider the other settings' challenges and problems, and they all try to take advantage of such services that are offered by pharmacists. If everyone considers others situations no problem would occur. It is critical to know that communication inspires and supports individuals to excel, and attain confidence that extraordinary results can be achieved.

5.6. Design and Planning

There is some political expediency that needs to be noted. It is essential to see what has been stated as the intent of a program and what the real intent of it is and it is actually being done. As mentioned earlier, regarding the MedsCheck program it can be realized that although the initial objectives of this initiative have been very promising that could really enhance the quality of patient care, in the beginning years the attitude toward that was different and it was simply looked at as a way to recoup a money that was curtailed on the other side. This is the reason that by looking at these grandiose programs, we can easily recognize that implementation in the weak leg, and this is what exactly happened to MedsCheck initiative. There was not that much planning

behind its implementation and the appropriate change management strategies was not installed. Therefore, it can be seen that there has been a difference between what is decided to be done on higher levels, and what employees at the frontline are in reality doing. These are the gaps that have been investigated in this study. It is hoped that by bridging such gaps with correct mechanisms such disconnect would be eradicated. Planning for the future and informing all practitioners about the future state is a vital factor for the changes to be attainable. In this way everyone is provided with sufficient time to proceed with the current operations but make incremental changes step by step. Changing the computerized systems is not an easy to do task for organizations, but if they are informed that within certain period of time their systems must have certain architecture to be compatible to other systems, this is achievable.

5.7. Learning from others

The learning culture should be promoted and clinical leaders must be engaged, both internally and inter-organizational. We know that many projects have been tested elsewhere and can be adapted to our organizations and environments. It is beneficial to find out what strategies have been successful, and try to motivate organizations to make dialogues internally among their senior leaders, clinicians, members of the boards that if this strategy has been successful somewhere else and it has been possible to implement that, why should not we try that. There should be more investment in providing ways that facilitates learning from others. The national summit hosted by CPSI, ISMP Canada, and Health Infoway last February to establish best practices for enhancing communication is an excellent example of such gatherings that should take place. Also, the roundtable about optimizing communication at transitions of care in Ontario on September 2010 hosted by ISMP Canada in collaboration with SCHP Ontario branch is another example of such constructive gatherings. According to Baker et al. (2008) in high performance health care systems senior leaders come together a couple of times in the year, and have a high level conversation which starts with the issue of how they are doing, how well they are doing for their patients, where they are being successful, and where they need to focus. Based on this conversation certain projects will be picked off to work on, and they work on them consistently in teams to improve care. (Baker et al. 2008) In this way they will make gains in efficiency at the same time that they are making gains in outcome, they are improving and standardizing the processes of care to improve the consistency of care between the care environments. Therefore, they end up reducing those bad events that sometimes happen in care, and reducing the cost at the same time. And that gives them the freedom to go back and ask now that they have achieved these goals, what they have understood about the critical issues for their systems. In many ways it is a sort of strategic perspective that these leaders are standing high on the catwalk looking down to their systems and see how things are happening, and then again pick off certain problems and hand off those responsibilities to the leaders within their systems, looking at the results, coming back and revisiting them. So there is an important dialogue that happens at strategic level linking to the operational level, and then measuring the results (financial results, clinical results) and using that information to guide the future decisions.

There is another fact that should be kept in mind that findings of such roundtables should be followed up by some organizations to see if they are really implemented and applied in real work or not. Many times it happens that people reach positive results in their meetings, but due to lack of follow ups they are not expediting the achievement of more effective outcomes in the community

and in hospitals and other health care provider settings. Therefore, it is really important to take the findings of such meetings and make changes to practice. These gatherings should be taken as call for action. With concentrated and collaborative efforts a solid path may be forged.

5.8. Leadership

The kind of leadership needed to guide the change processes is not certainly top-down and that I know what to do and you should do it. So, not everybody has all the skills and they learn to utilize each other's skills to overcome the barriers. This is the culture that should be in the environment. It is both top-down and bottom-up. It is top-down to the extent that senior leaders can create a shared agenda and provide resources and help people to see the problems, but it's bottom-up because the answers cannot be dictated from the top. We need to engage people and help them to see that the solutions have to be crafted locally, and in most cases elements of the solutions are the adaptations of the local environment and require the skills and knowledge of the people at the front line. So, it's totally mixture of approaches and it's a paradoxical kind of concept. This actually is what happened regarding the standardization in MedsCheck program. The concept was originally to see how pharmacies figure it out, and in the end the pharmacy council together with OPA recommended a set of standardizations to be used. The issue of how to decide what the goals are for the organization is again an area of dialogue between the clinicians who have a clear understanding of the current needs and outcomes for the group of patients. In effect local clinical group help to define the agenda and then they push it up to senior leaders where they can look at those issues both from a strategic eye and take advantage of the frontline expertise of the clinicians who are providing that care.

In the end, it worth to be noted what the Canadian Patient Safety Institute (CPSI) CEO Hugh MacLeod mentioned in the national summit (Canada Health Infoway 2011) that:

"Changes in practice need to occur at the national, provincial and local levels to promote a more collaborative and standardized approach to medication traceability to keep Canadian patients safe, while ensuring communication at all levels."

5.9. Theoretical contribution

In this study, a number of opportunities for improving the link between the MedsCheck process and MedRec process in home care have been identified. As it was stated in the introduction of the chapter 3, literature is not rich enough in the area of MedsCheck and MedRec in home care. By conducting a qualitative case study research on the link between the two initiatives this study has contributed to the body of knowledge in this field. In general, the findings of this research try to reveal the reasons for not having an accurate communication happening between different care settings through the initiatives of MedsCheck and MedRec, and most interviewees' ideas are concordant in this regard. In this study a number of recommendations have also been suggested by implementing which more effective transmission of medication information between care settings would be achieved. Finally, a contribution from this study is the proposal that facilitating a more effective information communication between home care setting and community pharmacies greatly lessens clinicians' work load at each setting, lowers the potential risks, and ultimately enhances medication safety in the transition to/from home.

5.10. Limitations

There are a number of limitations to this study that should be taken into consideration. The first limitation is regarding the nature of my research strategy and the sampling strategy of this research. By employing snowball sampling some other key informants and their viewpoints may have been overlooked. Also, qualitative strategy of the research limits generalization of the research findings. The people who were interviewed in my study are not meant to be representative of any population. Therefore, the findings of my research are to generalize to theory instead of populations.

Secondly, since participation in this study was voluntary for interviewees, it may introduce self-selection bias. Therefore, it could be implied that mostly people who were looking at the link between the two initiatives with a positive frame of mind and were more interested in making improvements took part in this research.

Thirdly, a literature review was done, but articles were filtered from my standpoint. There is this possibility that some materials have been overlooked. Moreover, time frame and working alone caused prolonged process of digesting the volume of materials in the literature review, and may have bias.

The forth limitation is concerning the interviews. There is a response bias between in-person and telephonic interviews. The in-person interviews were much longer (about an hour) than the telephonic interviews (25 minutes), so that findings include more information from in-person interviews. Also, maybe the interviews are not as much productive as expected due to the extreme busy regular commitment of the key informants, and that interviews were interrupted several times which could affect the approach of the interviewees in their speech.

6. Conclusion

A gap was identified in communication of medication information between the two initiatives of MedsCheck conducted at community pharmacies and MedRec carried out in home care environment. This research was set out with the aim to explore the link between the two initiatives and identifying opportunities for improving the link.

In the first research question it has been tried to analyze the current state of the initiatives and to illuminate the ways in which MedsCheck process and home MedRec process complement each other. Strengths, weaknesses, opportunities, and threats to each initiative have been investigated and the results are provided. I have sought to understand the drivers of high quality for systems in each initiative. The differences between the initial design of the initiatives and the current implementation and administration procedures have also been clarified.

The second research question was proposed to reveal why it is so difficult to have an effective communication between MedsCheck process at community pharmacies and MedRec process in home care. By developing an Ishikawa diagram types of barriers associated to this link were identified as educational, change-wise, cultural, standardization, resources, financial, logistical, IT systems, and motivational. Each criterion has been elaborated and the strategies taken by organizations to eliminate that barrier has been provided. Organizations have taken different journeys, there are similarities between them, and it's important to pull out the commonalities and at the same time the differences.

Finally, I conclude that both MedsCheck and MedRec in home care are initiatives with high potentials that are unfortunately underused at the present. One way to exploit their potentials is to make a better link between the two initiatives so that medication information is flown smoothly between the two different care environments. Having an effective information transmission between the two initiatives significantly impacts the processes in each initiative, reduces work load and re-works, lessens the potential risks, and elevates the level of safety. In order to reach that point, it is important for organizations to encourage the learning culture in their bodies and try to learn from each other's success stories. Pharmacists become aware of their new roles throughout the continuum of care and patients being treated as members of the clinical teams rather than the receiver of the treatments per se. People from all different respects should achieve consensus on the prospective state of care practices and by planning and designing their internal processes accordingly, make it possible. Like in any other change programs, leaders play critical role in reaching that future state. It is hoped by employing these recommendations an ideal solution for creating a well-designed process that integrates MedsCheck to home MedRec would be attained.

6.1. Implications for practice and future research

This study identified a number of opportunities to improve the link between the MedsCheck program and home care MedRec. Future research is needed to implement changes to these areas and evaluate their effects on improved transmission of medication information. Furthermore, a comprehensive economic analysis is needed to investigate the profitability of the MedsCheck program. Yet it has to become evident whether conducting MedsCheck can be considered as a new

revenue stream for the business of pharmacy. Unfortunately, there has not been any study that shows if running the MedsCheck program is financially viable for community pharmacies, neither is there any study that shows it is not. Therefore, we have to have more financial modeling done, to try to figure out the financial aspects. In addition to these efforts, research is needed to explore the link between MedsCheck and MedRec at other health care provider settings, such as physicians' offices, clinics, hospitals, and etc.

7. References

- Ash, J.S., Sittig, D.F., Dykstra, R.H., Guappone, K., Carpenter, J.D. & Seshadri, V. 2007, "Categorizing the unintended sociotechnical consequences of computerized provider order entry", *International journal of medical informatics*, vol. 76, no. Supplement 1, pp. S21-S27.
- Aspden, P., Wolcott, J.A., Bootman, J.L., Cronenwett, L.R. & eds 2007, *Preventing medication errors*, National Academies Press, Washington, DC.
- Audette, C., Triller, D., Hamilton, R. & Briceland, L. 2002, "Classifying drug-related problems in home care", *American Journal of Health-System Pharmacy*, vol. 59, no. 24, pp. 2407-2409.
- Baker, G.R., MacIntosh-Murray, A., Porcellato, C., Dionne, L., Stelmachovich, K. & Born, K. 2008, *High performing healthcare systems : delivering quality by design*, Longwoods Pub. Corp., Toronto.
- Baker, G.R., Norton, P.G., Flintoft, V., Blais, R., Brown, A., Cox, J., Etchells, E., Ghali, W.A., Hébert, P., Majumdar, S.R., O'Beirne, M., Palacios-Derflingher, L., Reid, R.J., Sheps, S. & Tamblyn, R. 2004, "The Canadian Adverse Events Study: the incidence of adverse events among hospital patients in Canada.", *Canadian Medical Association Journal CMAJ*, vol. 170, no. 11, pp. 1678-1686.
- Baxter, P. & Jack, S. 2008, "Qualitative case study methodology: study design and implementation for novice researchers", *The Qualitative Report*, vol. 13, no. 4, pp. 544-549.
- Bayley, K.B., Savitz, L.A., Rodriguez, G., Gillanders, W. & Stoner, S. 2005, *Barriers Associated With Medication Information Handoffs*, United States.
- Bemt, P.; Broek, S.; Nunen, A.; Harbers, J.; Lenderink, A. 2009, "Medication Reconciliation Performed by Pharmacy Technicians at the Time of Preoperative Screening", *The Annals of Pharmacotherapy*, vol. 43, no. 5, pp. 868-874.
- Bergman, B. & Klefsjö, B. 2003, *Quality from customer needs to customer satisfaction*, Studentlitteratur, Lund.
- Bruning, K. & Selder, F. 2011, "From hospital to home healthcare: the need for medication reconciliation", *Home healthcare nurse*, vol. 29, no. 2, pp. 81-90.
- Bryman, A. & Bell, E. 2007, *Business research methods*, 2nd edn, Oxford University Press, Oxford.
- Canada Health Infoway 2011, *Communication needed for medication safety in Canada* [Homepage of Canada Health Infoway], [Online]. Available: <https://www.infoway-inforoute.ca/lang-en/about-infoway/news/news-releases/690-communication-needed-for-medication-safety-in-canada> [2011, 10/15].
- Canadian Patient Safety Institute 2010, *Background* [Homepage of Canadian Patient Safety Institute], [Online]. Available: <http://www.patientsafetyinstitute.ca/English/About/overview/Pages/default.aspx> [2011, April/05].
- Carvalho, C. 2009, "Ensuring the safety of health information systems: using heuristics for patient safety.", *Healthcare quarterly*, vol. 12 Spec No Patient, pp. 49-54.
- Chan, A. 2010, "Effect of education on the recording of medicines on admission to hospital.", *Journal of general internal medicine*, vol. 25, no. 6, pp. 537-542.
- Coffey, M. 2009, "Implementation of admission medication reconciliation at two academic health sciences centres: challenges and success factors.", *Healthcare quarterly*, vol. 12 Spec No Patient, pp. 102-109.
- Coleman, E.A., Smith, J.D., Raha, D. & Min, S.J. 2005, "Posthospital medication discrepancies: prevalence and contributing factors", *Archives of Internal Medicine*, vol. 165, no. 16, pp. 1842-1847.
- Corbett, C.F., Setter, S.M., Daratha, K.B., Neumiller, J.J. & Wood, L.D. 2010, "Nurse identified hospital to home medication discrepancies: implications for improving transitional care", *Geriatric nursing (New York, N.Y.)*, vol. 31, no. 3, pp. 188-196.
- Cornish, P. 2005, "Unintended medication discrepancies at the time of hospital admission.", *Archives of Internal Medicine*, vol. 165, no. 4, pp. 424-429.
-

- Coyte, P.C., Baranek, P., Daly, T. 2000, *Identifying Outcome Indicators for Evaluating Services Provided by Community Care Access Centres (CCACs)*, University of Toronto, Toronto, ON.
- Crosswhite, R., Beckham, S.H., Gray, P., Hawkins, P.R. & Hughes, J. 1997, "Using a multidisciplinary automated discharge summary process to improve information management across the system", *The American Journal of Managed Care*, vol. 3, no. 3, pp. 473-479.
- DeCarolis, D.D. 2005, "Medication reconciliation upon admit using an electronic medical record.", *Pharmacotherapy: The Journal of Human Pharmacology and Drug Therapy*, vol. 25, no. 10, pp. 1505-1505.
- Dolovich, L., Gagnon, A., McAiney, C.A., Sparrow, L. & Burns, S. 2008, "Initial pharmacist experience with the Ontario-based MedsCheck program", vol. 141, no. 6, pp. 339-345.
- Edmondson, A.C. 2003, "Framing for Learning: Lessons In Successful Technology Implementation", *California management review*, vol. 45, no. 2, pp. 34-54.
- Edson, B.S. 2006, *Medication safety reconciliation toolkit*, North Carolina Center for Hospital Quality and Patient Safety©, Cary, NC.
- Felix, S. 2008, "200,000 MedsChecks and counting", vol. 72, no. 2, pp. 20-23.
- Fernandes, O.A. 2009, "Medication reconciliation: practical tips, strategies and tools for pharmacists", *Pharmacypractice*, vol. 7, no. 4, pp. 24-55.
- Food and Drug Administration 2010, 03/10/2010-last update, *Over the counter medicines* [Homepage of National Institutes of Health], [Online]. Available: <http://www.nlm.nih.gov/medlineplus/overthecountermedicines.html> [2011, 03/23].
- Forster, A.J. 2004, "Adverse events among medical patients after discharge from hospital (vol 170, pg 345, 2004)", *Canadian Medical Association Journal CMAJ*, vol. 170, no. 5, pp. 771-771.
- Forster, A.J., Murff, H.J., Peterson, J.F., Gandhi, T.K. & Bates, D.W. 2003, "The Incidence and Severity of Adverse Events Affecting Patients after Discharge from the Hospital", *Annals of Internal Medicine*, vol. 138, no. 3, pp. 161-167.
- Gleason, K.M. 2004, "Reconciliation of discrepancies in medication histories and admission orders of newly hospitalized patients", *American journal of health-system pharmacy*, vol. 61, no. 16, pp. 1689-1695.
- Greenwald, J. 2010, "Making inpatient medication reconciliation patient centered, clinically relevant, and implementable: a consensus statement on key principles and necessary first steps.", *The joint commission journal on quality and patient safety*, vol. 36, no. 11, pp. 481.
- Health Canada 2010, 11/03/2011-last update, *Provincial and territorial home care programs: a synthesis for Canada* [Homepage of Health Canada], [Online]. Available: <http://www.hc-sc.gc.ca/hcs-sss/pubs/home-domicile/1999-pt-synthes/index-eng.php#s1a5> [2011, 08/03].
- Herrero-Herrero, J.I. & Garcia-Aparicio, J. 2010, "Medication discrepancies at discharge from an internal medicine service", *European journal of internal medicine*, vol. 22, no. 1, pp. 43-48.
- Hughes, R.G.(.). 2008, *Patient safety and quality: An evidence-based handbook for nurses. (Prepared with support from the Robert Wood Johnson Foundation)*, AHRQ Publication No. 08-0043. Rockville, MD: Agency for Healthcare Research and Quality.
- Institute for Safe Medication Practices Canada 2010, *Optimizing communication about medications at transitions of care in Ontario - Roundtable report September 2010*, Institute for Safe Medication Practices Canada, Ontario.
- Joint Commission Resources, I. 2008, *Medication Reconciliation: Toolkit for implementing National Patient Safety Goal 8*, Joint Commission Resources, Inc., USA.
- Karnon, J. 2009, "Model-based cost-effectiveness analysis of interventions aimed at preventing medication error at hospital admission (medicines reconciliation)", *Journal of evaluation in clinical practice*, vol. 15, no. 2, pp. 299-306.
- Koppel, R., Metlay, J. P., Cohen, A., Abaluck, B., Localio, A. R., Kimmel, S. E., Strom, B. L. 2005, "Role of Computerized Physician Order Entry Systems in Facilitating Medication Errors", *ACC current journal review*, vol. 14, no. 7, pp. 8.

- Kushniruk, A.W.1. 2005, "Technology induced error and usability: The relationship between usability problems and prescription errors when using a handheld application", *International journal of medical informatics*, vol. 74, no. 7-8, pp. 519-526.
- Lang, A., Edwards, N., Hoffman, C., Shamian, J., Benjamin, K. & Rowe, M. 2006, "Broadening the patient safety agenda to include home care services", *Healthcare quarterly (Toronto, Ont.)*, vol. 9 Spec No, pp. 124-126.
- Lang, A. 2010, "There's no place like home: research, practice and policy perspectives regarding safety in homecare", *International Journal for Quality in Health Care*, .
- Lang, A. 2009, "Home care safety perspectives from clients, family members, caregivers and paid providers.", *Healthcare quarterly*, vol. 12 Spec No Patient, pp. 97-101.
- Leung, M., Jung, J., Lau, W., Kiaii, M. & Jung, B. 2009, "Best Possible Medication History for Hemodialysis Patients Obtained by a Pharmacy Technician", vol. 62, no. 5, pp. 386-391.
- Leung, V., Mach, K., Charlesworth, E., Hicks, S., Kizemchuck, K. & Stumpo, C. 2010, "Perioperative Medication Management (POMM) pilot: Integrating a community-based medication history (MedsCheck) into medication reconciliation for elective orthopedic surgery inpatients", vol. 143, no. 2, pp. 82-87.
- Lynas, K. 2011, "Ontario pharmacists embrace new MedsCheck opportunities, but funding concerns remain", *Canadian Pharmacists Journal CPJRPC*, vol. 144, no. 1, pp. 6-7.
- Masotti, P., McColl, M.A. & Green, M. 2010, "Adverse events experienced by homecare patients: a scoping review of the literature", *International Journal for Quality in Health Care*, vol. 22, no. 2, pp. 115-125.
- MedicineNet.com 2011, 04/27/2011-last update, *Medical terms definitions* [Homepage of MedicineNet], [Online]. Available: <http://www.medterms.com/script/main/art.asp?articlekey=2218> [2011, May/30].
- Merriam, S.B. 2009, *Qualitative research : a guide to design and implementation*, Jossey-Bass, San Francisco.
- Michels, R.D. 2003, "Program using pharmacy technicians to obtain medication histories", *American journal of health-system pharmacy*, vol. 60, no. 19, pp. 1982-1986.
- Moore, C. 2003, "Medical errors related to discontinuity of care from an inpatient to an outpatient setting", *Journal of general internal medicine*, vol. 18, no. 8, pp. 646-651.
- Namespetra, M. 2009, "Admission to Discharge: Development of a Seamless Discharge Prescription Form", *The Canadian journal of hospital pharmacy*, vol. 61, no. 4.
- Nester, T.M. 2002, "Effectiveness of a pharmacist-acquired medication history in promoting patient safety", *American journal of health-system pharmacy*, vol. 59, no. 22, pp. 2221-2225.
- Ontario College of pharmacists 2007, , *Best possible medication history guidelines for medication reconciliation*. Available: ocpinfo.com/bestpossiblemedicationhistory [2011, 03/01].
- Ontario Hospital Association 2010, *A Guidebook to Patient Safety Leading Practices: 2010*, Ontario Hospital Association, Toronto, ON.
- Ontario Ministry of Health and Long-Term Care 2010, 09/08/2010-last update, *The MedsCheck Program Guidebook 2nd Edition* [Homepage of Ontario Ministry of Health and Long-term Care], [Online]. Available: http://www.health.gov.on.ca/english/providers/pub/drugs/meds_check/medscheck_mn.html [2011, 03/18].
- Orrico, K.B. 2008a, "Sources and types of discrepancies between electronic medical records and actual outpatient medication use", *Journal of managed care pharmacy : JMCP*, vol. 14, no. 7, pp. 626-631.
- Orrico, K. 2008b, "Sources and types of discrepancies between electronic medical records and actual outpatient medication use.", *Journal of managed care pharmacy*, vol. 14, no. 7, pp. 626-631.

- Peyton, L. 2010, "Evaluation of medication reconciliation in an ambulatory setting before and after pharmacist intervention", *Journal of the American Pharmacists Association*, vol. 50, no. 4, pp. 490-495.
- Pojksic, N. 2011, "Ontario family physician readiness to collaborate with community pharmacists on drug therapy management", *Research in social and administrative pharmacy*, vol. 7, no. 1, pp. 39-50.
- Pronovost, P. 2003, "Medication reconciliation: A practical tool to reduce the risk of medication errors", *Journal of critical care*, vol. 18, no. 4, pp. 201-205.
- Remtulla, S., Brown, G. & Frighetto, L. 2009, "Best Possible Medication History by a Pharmacy Technician at a Tertiary Care Hospital", vol. 62, no. 5, pp. 402-405.
- Rozich, J. 2004, "Standardization as a mechanism to improve safety in health care.", *Joint Commission journal on quality and safety*, vol. 30, no. 1, pp. 5-14.
- Safer Healthcare Now campaign 2010, *Medication reconciliation in home care getting started kit*, Safer Healthcare Now Canada.
- Safer Healthcare Now campaign 2007, *Getting started kit: medication reconciliation prevention of adverse drug events how-to guide*, Institute for Healthcare Improvement, Quebec.
- Schnipper, J.L., Hamann, C., Ndumele, C.D., Liang, C.L., Carty, M.G., Karson, A.S., Bhan, I., Coley, C.M., Poon, E., Turchin, A., Labonville, S.A., Diedrichsen, E.K., Lipsitz, S., Broverman, C.A., McCarthy, P. & Gandhi, T.K. 2009, "Effect of an electronic medication reconciliation application and process redesign on potential adverse drug events: a cluster-randomized trial", *Archives of Internal Medicine*, vol. 169, no. 8, pp. 771-780.
- Schnipper, J.L., Kirwin, J.L., Cotugno, M.C., Wahlstrom, S.A., Brown, B.A., Tarvin, E., Kachalia, A., Horng, M., Roy, C.L., McKean, S.C. & Bates, D.W. 2006, "Role of pharmacist counseling in preventing adverse drug events after hospitalization", *Archives of Internal Medicine*, vol. 166, no. 5, pp. 565-571.
- Shiba, S., Alänge, S., Jernberg, A.C., Jernberg, B. (1992). KJ-Shiba Metoden, Dept. of Industrial Management. Göteborg: Chalmers University of Technology.
- Steven, A.K. 2008, "Involving physicians in MedsCheck", vol. 178, no. 8, pp. 1035.
- Sullivan, C., Gleason, K.M., Rooney, D., Groszek, J.M. & Barnard, C. 2005, "Medication reconciliation in the acute care setting: opportunity and challenge for nursing", *Journal of nursing care quality*, vol. 20, no. 2, pp. 95-98.
- Tam, V. 2005, "Frequency, type and clinical importance of medication history errors at admission to hospital: a systematic review.", *Canadian Medical Association Journal CMAJ*, vol. 173, no. 5, pp. 510-515.
- The Joint Commission 2006, January 25, 2006-last update, *Medication reconciliation. Sentinel event alert, Issue 35, 2006*. [Homepage of The Joint Commission], [Online]. Available: http://www.jointcommission.org/sentinel_event_alert_issue_35_using_medication_reconciliation_to_prevent_errors/ [2011, 06/05].
- Tracy, C.S. 2008, "MedsCheck: an opportunity missed", vol. 178, no. 440.
- Turchin, A. 2008, "Evaluation of an Inpatient Computerized Medication Reconciliation System", *Journal of the American Medical Informatics Association*, vol. 15, no. 4, pp. 449-452.
- University of Toronto Information and Technology Services 2011, , *Data products using encryption* [Homepage of University of Toronto Information and Technology Services], [Online]. Available: http://www.utoronto.ca/security/UTORprotect/encryption_guidelines.htm [2011, 25 April].
- VanderElst, I. 2010, June 17, 2010-last update, *Ontario drug system reform now finalized* [Homepage of Torys], [Online]. Available: <http://www.torys.com/Publications/Pages/publicationsarea.aspx?practiceAreaID=97&year=2010&startYear=2011> [2011, 06/20].
- Vira, T. 2006, "Reconcilable differences: correcting medication errors at hospital admission and discharge", *Quality Safety in Health Care*, vol. 15, no. 2, pp. 122-126.

- Wagner, M.M. 1996, "The accuracy of medication data in an outpatient electronic medical record", *Journal of the American Medical Informatics Association*, vol. 3, no. 3, pp. 234-244.
- Wolper, L.F. 2011, *Health care administration : managing organized delivery systems*, 5th ed. edn, Jones and Bartlett Publishers, Sudbury, Mass.
- Wong, J.D. 2008, "Medication reconciliation at hospital discharge: Evaluating discrepancies", *The Annals of Pharmacotherapy*, vol. 42, no. 10, pp. 1373-1379.

Appendices

Appendix A – Research Method Supplementary Documents

A.1. Informant consent form

University of Toronto – Department of Health Policy, Management & Evaluation Letter Head

Informant Consent Form

Introductory information

You are invited to participate in a study conducted by Arash Hamidi (principal investigator), M.Sc. degree candidate under the supervision of Professor G. Ross Baker from the department of Health Policy, Management, and Evaluation at the University of Toronto. We hope to learn how to make the link between MedsCheck and Home Medication Reconciliation (MedRec) more effective and efficient. You were selected as a possible participant in this study because of your expertise within this field. Your commitment to this research is in form of interviewee in a one hour meeting with principal investigator at any place suggested by you.

Conditions of participating

Your participation in this research is entirely voluntary. If you choose not to participate, that will not affect your relationship with University of Toronto. If you decide to participate, you are free to decline to answer to any question or withdraw your consent and discontinue participation at any time without prejudice to your future relationship with the University of Toronto. If you decide to withdraw, all data related to you will be excluded in the study. The Research Ethics Board (REB) at the University of Toronto has reviewed and approved this research.

If you decide to participate, the principal investigator of the research will contact you by email and a meeting with you would be arranged. Prior to the meeting a set of semi-structured questions would be sent to you, in order to provide you with the chance to think about the topics to be discussed. If necessary, the principal investigator may contact you again, and ask for your further opinion and/or feedback on certain subjects.

I hereby agree that the discussion be recorded with a digital audio recorder and be used for further analysis.

Risks/Benefits

There may be no direct benefit to you by participating in this research. Your participation cannot be reimbursed. No major risks are associated to your participation in this study.

Access to information, confidentiality, and publication results

Any information that is obtained in connection with this study is treated as confidential, and that can be identified with you will be disclosed only with your permission or as required by law. If you give us your permission by signing this document, the principal investigator and Dr. Baker will access the interview information.

If you have any questions, please ask us. If you have any additional questions later Principal investigator (arash.hamidi@utoronto.ca) will be happy to answer them. Questions regarding the rights of participants may be directed to the Office of Research Ethics at the University of Toronto at ethics.review@utoronto.ca or 416-946-3273.

You will be given a copy of this form to keep.

You are making a decision whether or not to participate. Your signature indicates that you have decided to participate, having read the information provided above.

Participant

Name: _____ Signature: _____ Date: _____

Principal investigator
Arash Hamidi, M.Sc. student, Department of Health Policy, Management & Evaluation,
University of Toronto, Toronto.
Arash.hamidi@utoronto.ca

Signature: _____ Date: _____

A.2. Interview guide (MedsCheck professionals)

Semi-Structured Interview Guide

Date & Time:

Interviewee:

Researcher: Arash Hamidi, M.Sc. degree candidate in Quality and Operations Management

Research title: Linking MedsCheck to Home Medication Reconciliation

Purpose: This project will explore the processes involved in linking the two initiatives of MedsCheck and Medication Reconciliation in home care, the former of which is mainly carried out by community pharmacists with patients in the community and the latter is conducted in acute care settings and seen as valuable in other healthcare settings. Integration of these two separate activities could greatly enhance medication safety in the transition from acute care to home. More specifically, the project includes the analysis of the processes of reconciling discharge medication orders from acute care settings with the home care medications. Based on these analyses, a set of recommendations will be identified for improving the current processes within each initiative and streamlining the connection of the two programs. Moreover, the change management strategies necessary to implement effective medication reconciliation between acute care discharge and the home environment will be investigated and discussed.

MedsCheck

1. Please describe the MedsCheck service carried out at your community pharmacy?
2. At what level is MedsCheck carried out?
3. How accessible is information from different sources for your MedsCheck reviews?
4. What is the reaction of the pharmacists, technicians, and patients regarding MedsCheck?
5. How are resources (pharmacists and technicians) allocated for conducting MedsCheck?
6. What are the major barriers to the conduct of MedsCheck in your pharmacy?
7. What are the success factors for your achievements in conducting MedsCheck in your pharmacy?
8. Are you aware of any future plans for improving the MedsCheck processes in your organization?
9. Do you provide in-home MedsCheck? At what level?
10. What are the main barriers to the conduct of home MedsCheck?
11. From financial perspective, is conducting MedsCheck justifiable for your pharmacy?
12. What efforts are you aware of to support community pharmacies to increase MedsCheck reviews? Are they sufficient?
13. Does your organization collaborate with any home care agencies and/or institutes for MedRec processes in home care environment? Please describe.
14. What ideas do you have for increasing the number and quality of MedsCheck reviews in your pharmacy? What system changes would you make?
15. What are the critical success factors to have ever more accurate and effective MedsCheck reviews?

A.3. Interview guide (MedRec professionals)

Semi-Structured Interview Guide

Date & Time:

Interviewee:

Researcher: Arash Hamidi, M.Sc. degree candidate in Quality and Operations Management

Research title: Linking MedsCheck to Home Medication Reconciliation

Purpose: This project will explore the processes involved in linking the two initiatives of MedsCheck and Medication Reconciliation in home care, the former of which is mainly carried out by community pharmacists with patients in the community and the latter is conducted in acute care settings and seen as valuable in other healthcare settings. Integration of these two separate activities could greatly enhance medication safety in the transition from acute care to home. More specifically, the project includes the analysis of the processes of reconciling discharge medication orders from acute care settings with the home care medications. Based on these analyses, a set of recommendations will be identified for improving the current processes within each initiative and streamlining the connection of the two programs. Moreover, the change management strategies necessary to implement effective medication reconciliation between acute care discharge and the home environment will be investigated and discussed.

Medication Reconciliation

1. Please describe the MedRec processes in your organization, and the link between computerized medication order entry system and the MedRec processes? Is the CPOE system integrated with the MedRec processes and its reports?
2. At what level is MedRec carried out in your organization currently?
3. How accessible is information from different sources for conducting MedRec in your organization?
4. How resources (pharmacists, technicians, nurses, and physicians) are allocated for conducting MedRec? Who is responsible for what?
5. Does your organization collaborate with any home care agencies and/or institutes for MedRec processes in home care environment? Please describe. [to be asked from non-home care organizations]
6. What are the major barriers to conduct MedRec in your organization?
7. What are the success factors for your achievements in conducting MedRec in your organization?
8. Are you aware of any future plans for improving the MedRec processes in your organization?
9. What recommendations or suggestions do you have for improving the MedRec processes in your organization?

A.4. Interview guide (Professionals in facilitating the link)

Semi-Structured Interview Guide

Date & Time:

Interviewee:

Researcher: Arash Hamidi, M.Sc. degree candidate in Quality and Operations Management

Research title: Linking MedsCheck to Home Medication Reconciliation

Purpose: This project will explore the processes involved in linking the two initiatives of MedsCheck and Medication Reconciliation in home care, the former of which is mainly carried out by community pharmacists with patients in the community and the latter is conducted in acute care settings and seen as valuable in other healthcare settings. Integration of these two separate activities could greatly enhance medication safety in the transition from acute care to home. More specifically, the project includes the analysis of the processes of reconciling discharge medication orders from acute care settings with the home care medications. Based on these analyses, a set of recommendations will be identified for improving the current processes within each initiative and streamlining the connection of the two programs. Moreover, the change management strategies necessary to implement effective medication reconciliation between acute care discharge and the home environment will be investigated and discussed.

Link between MedsCheck and Medication Reconciliation

1. How do you find the current link between the MedsCheck and MedRec processes? Where are the bottlenecks?
2. Do you believe that MedsCheck program is currently connected to/supporting the MedRec processes at hospitals?
3. Are MedsCheck reports practical for administering MedRec at admission?
4. What are the major obstacles in the link between MedsCheck and MedRec?
5. Do you think the link between hospital pharmacists and community pharmacists is working? Please elaborate.
6. What would help to improve the communication between hospital and community pharmacists?
7. Are community pharmacists aware of the effect of their work on other settings' processes?
8. Are hospital pharmacists aware of the effect of their work on community pharmacies' processes?
9. From your point of view, in order to improve the link between the MedsCheck program and the MedRec processes especially at discharge and in home care, where should I focus most?
10. How would you define the ideal communication system between MedsCheck and MedRec?
11. What are your suggestions and recommendations for improving the link to reach that ideal system in the future?

Appendix B – Coded interviews transcriptions

Coded interviews transcriptions

B.1. Summary 1 - MedsCheck

She started to talk about the standards and the documentation of the standards. They started making standards for healthcare at a time that there has been no standard and nobody believed they were necessary. There are different types of standards so to say, i.e. big standards that are documented and are written down, and the smaller standards that are not usually documented and it is supposed that everyone in the field should know about them. These smaller standards are like the routines that everyone knows e.g. dispensing the prescriptions accurately. Sometimes it can be referred to as the standards of profession, and it is better not to write them down, because it may reduce the validity of the whole documentation process.¹ What's the use of documenting a standard that nobody obeys or implements? So the standard in the first place should be doable for the majority of the people and understandable. She referred to NAPRA report on standards (March 2009) and notified that was a great success. Provinces were obligated to either adapt or adopt the standards and the Ontario adopted the standards.² It means that they didn't try to re-write the standards to make them more suitable for the province. Points 26, 27, 28, 60 are the examples of the standards which are related to her project.

Although these standards are communicated to all pharmacists, there is no rule to show pharmacies how to implement them.³ This is why still we can see many discrepancies between pharmacies and that there is not any specific way of doing them. The college does not have anything to do with hospital pharmacists. The college educates its members (pharmacists), so the hospital pharmacists are licensed through us, but the accreditation and the control processes are not done by the college and are under the control of the Public Hospitals Act. So what the college can speak to is the community pharmacies, and it is important to note that honestly in the community there is the business of the pharmacy, which is conducted by a number of chains and independents that are not the same.⁴

MedsCheck is a brand name for the part of the MedRec, for conducting which the pharmacies are being paid. The college does not require pharmacies to use same forms,⁵ but what is obvious is that pharmacies are interested to have a kind of form, to be told what to do, where to check, and what to ask. But they don't like to make something up by themselves, they say just tell us how to document it and we do it.⁶

We have standards, and lower than the standards there are rules, policies, tools, etc. Worth to mention that the college regulates a lot in the practice of pharmacies and that it is not just one MedRec. College has a committee structure, so there is a professional practice committee they look at the matters of professional practice to assist the college to develop those things to improve practice. So, the professional practice committee would be the group that makes recommendations to college about the way that something should happen (guidelines, tools).

In response to the question about why is there no obligation for the pharmacists to implement the standards, and why these standards are not translated into law it was mentioned that first of all the college can recommend that one certain law has to be changed, and secondly making a law is not an easy task and you have to think about many complex details, and above all it is not very clear whether government has the appetite to write on law. So, although obeying a law is a must and everyone has to implement that, and underneath that are the standards that are not mandatory. It

is believed that there is a greater success in prosecuting a pharmacist for not obeying a standard as opposed to writing a law which has a lot more task and requirements to do. So there is a more chance of success with standards.⁷

In response to the question about the reaction of the pharmacies to all these standards, it was mentioned that unfortunately due to lack of resources, i.e. time and staff,⁸ it is not very clear what has been the reaction of the pharmacists. What is known right now is that there are some pharmacists that they just say they cannot do this or that, and at the same time there are some pharmacists who have been successful in implementing those standards. What is happening right now is to try to connect these two groups together, that the lessons learnt from the successful ones be transferred to those that have been unable to implement those standards. One way of spreading out the success stories is by publishing a journal by the college. Workshops are another way for these types of connections.⁹

Another issue right now is the lack of motivation for the pharmacists to undertake the changes.¹⁰ How can one commit to a change process without any incentive or motivation? One recent problem is that the payments from the government to the pharmacies for filling prescriptions have been destabilized.¹¹ This reason has pushed away the ambition of the pharmacists to undergo the change processes. MedsCheck is a good example of the compensation that will be paid for something done by the pharmacy. It is believed that one of the success factors of the MedsCheck program is its subsequent payment.¹² We shouldn't forget that having a pharmacy is a business and in order to keep the businesses going you have to earn something out of them.¹³ And the destabilized payments of the government for the prescriptions have really undermined the change process and the professional practices of the pharmacies.

Also, it was stated that pharmacists are not very good in adding something new to their processes and tasks. They tend not to be very creative.⁶ And this has been a kind of hindrance for implementing the new standards, because no certain way of doing things has been mentioned in the standards and it is up to the pharmacist to change the current processes, prevent overlaps, etc. to be able to implement those standards.³

Currently college does not concern about the business of the pharmacies. The only connection of the college to the business of the pharmacies is the accreditation process in which the college accredits the pharmacy. But further financial and monetary issues are not the concerns and should not be the concerns of the college. But we are not unaware of those issues.

College is a member of the Pharmacy Council, which has member from other institutes and associations. The college will bring the regulatory perspectives to the council whereas other members will bring other aspects.

For further work it was mentioned that it is really necessary to measure the level of applicability of the standards in the pharmacies.^{s1} How successful are the pharmacists in undergoing the changes? Also, interfaces of care were highlighted as the most critical point in the whole process and needs the most attention.

The college has the role of the regulator in the health care system right now. In the beginning of a program such as MedRec the college has regulated a number of standards for the way tasks should be done. Currently college is trying to communicate with the pharmacies and transfer the success stories to the ones that have failed in making changes to their process through journal, workshops, meetings^{SF1} and the inspectors who are moving around between the pharmacies.^{SF2} In response to the question about the next step, the next plan of the college in this regard, it was identified that unfortunately currently college does not have any further plans for administering the changes, for controlling the implementation of the standards. In fact the strategic plans of the college are decided by the strategic council of the college, where strategic decisions are made for a three-years periods. The next meeting of the strategic council for planning for the next three-year period would be held by the end of 2011. And hopefully more resolutions will be made in regard to the MedRec implementation.

Also it was questioned about the process of legislation and what happens that a standard or regulation becomes a law, and it was noted that there is no one-way, and it really differs in different circumstances. For example, it is obvious that currently due to the change of the cabin in a few months, no changes would be made or no new laws would be legislated.¹⁴ Maybe by the advent of the new government they put healthcare issues on higher priorities and then larger budget be assigned to these issues. So, it is very dependent on the circumstances.

B.2. Summary 2 – MedRec and MedsCheck

At Trillium Health Centre the pharmacy department is responsible to ensure that for 90% of the patients admitted to the hospital a BPMH would be achieved. In some cases nurses are responsible, in some cases pharmacists are responsible, etc.

The problem is that people think MedsCheck is the same as MedRec, which in fact is not true. MedsCheck is just a kind of the first stage of the history, but MedRec is not a slur against MedsCheck. MedRec is a process built in for hospital admission facilities. Changes might be made to the medication regimen of a patient due to many different reasons, e.g. something new is discovered about the patient, there should be a change to a dose of a medication, and etc. Of notice that all the changes in the hospital are not necessarily communicated to the community and it is essential that the reasons for those changes being articulated accurately why those adjustments are made. MedRec is all about this issue, and is not limited to admission; it should be run for transfers and for discharges as well. MedRec at discharge is that we get the information from community in the admission and we give it back to the community in the discharge. So, it is supposed to be a continuous loop of information circulation. The biggest problem is when a patient is admitted at 3:00 a.m. when most of the pharmacies are closed at that time,¹⁵ and if they are open, how fast and efficiently they can find the information regarding the patient to be admitted, and how quickly this information will be faxed to the hospital, and how quickly the fax is received.¹⁶ As it can be seen, it will take quite some time for a pharmacist at a hospital to wait for the information about the patient's medication regimen, and this is why they usually tend to obtain the BPMH themselves and not to wait for MedsCheck from community pharmacies and so on.¹⁷

Another issue is that there are not so many patients that have their MedsCheck reviews with them at the time of admission.¹⁸ At Trillium Health Centre if a patient would have a MedsCheck list with

him, they would consider the list as a starting point, but what is certain is that they won't trust it 100%, and they try to get the information from as many resources as they can.¹⁹

Trillium Health Centre has reviewed medications for 6,000 patients, but not anymore, due to the fact that the ministry will not pay them for the MedsCheck service that they are providing. In fact it is believed that the MedsCheck review that was conducted by the Centre had a certain level of trust and that it could be used to reduce the workload at the admission, and was accepted as a base for a treatment of the patient. But from the time that the payment was stopped by the government, it was not financially feasible for the hospital to continue reviewing the patients' medication regimens.

There are two different approaches by the community pharmacists and the hospital pharmacists. Community pharmacies do not have the kind of databases that hospital pharmacies have. They don't have the information about the patient that the hospital pharmacies have. So, we know everything about a patient who is in the hospital. Pharmacists at the hospitals have collaborations with nurses and physicians which enable them to know exactly what is going on with the patient. They exactly know the reason for certain types of medications ordered for the patients. They understand what is happening in the physicians head when they are prescribing something.²⁰ But this is not the case with the community pharmacies. When a prescription goes to them, they can only guess that this med is usually prescribed for this type of illness. The community pharmacists do not have such information about the patient unless they establish a strong relationship with the patient, having an ongoing dialogue with the patient and starting putting goals for those patient follow-ups.²¹ When this happens that community pharmacist has an active player role in decision making about what kind of therapy. Our aim is to involve our pharmacists in decision making process for the therapy for the patients, but the problem is that we don't have enough pharmacists to engage them with the treatment of every patient. And it is known that whenever a pharmacist is involved in the treatment process, the mortality rate is decreased. Another difference in the approach of is that hospital pharmacies are not a business. They are not looking for making profit at all.

The problem for the Trillium Health Centre was that the ministry stated that "you are already getting global funding, why are you billing us for such a service too? Why are you allowed to double dip"? But the fact was that we didn't want to double dip, we were providing MedsCheck for the patients and the pharmacist should be compensated for the service being offered. Actually, the intention was to achieve a seamless care process, and in that case greater portion of the patients admitted to the hospital would have the pharmacists' review of their medication regimens. Right now, there is not sufficient number of pharmacists available in the hospital to intervene in the treatment of every single patient.

What can be seen here as the most prominent obstacle is the miscommunication between facilities and institutions. Regarding the lack of an integrated and unified electronic health record system in Ontario,²² it seems to be a big mystery. While British Columbia is using this type of unified system from late 1990s, why shouldn't Ontario have such a system yet? Is duplicating such a system an impossible thing? There should be some reasons for not having and not planning to have such a unified and integrated system in Ontario. It is believed with the existence of such HL7 standard making such a database should be a pretty straight forward task.^{SF3} And then tell everyone that they

have to use this language for their systems,^{s2} and it will be done. Therefore, a political will has to be there to force companies to say what we are doing right now is not the best for the safety of the patients versus the best for their businesses.²³

Currently, what we have done is to break down the whole task into technical task and clinical task. Technical task is about gathering information and confirming the information, versus clinical task of assessing and deciding whether this is the optimum and appropriate therapy. Technical task can be done by a technician. Clinical task is to be done by the pharmacist.^{SF4}

There is another problem with today's electronic systems, as they are not standardized and each setting has its own system and platform,²⁴ when a physician moves from one institute to another one, he/she has to be trained again to be able to work because there is something completely different there.²⁵

Let's get them all talk to each other. Let's share the information. Some systems don't like sharing of the information. For some bizarre reasons pharmacy systems are the most complex of all. The pharmacy information systems are probably the most complex.²⁶

Another issue about the MedsCheck in the community pharmacies is that from the financial point of view for the business and the industry of the pharmacies, MedsCheck is not proven to be a sufficient profit making task for the pharmacies. Each MedsCheck review may take half an hour, within which time pharmacists can fill ten prescriptions and earn much more than that of the MedsCheck. So, MedsCheck is not financially justifiable for a community pharmacy.¹³

The connection between the community pharmacy and a hospital pharmacy is not acceptable right now, and this is due to the lack of information transfer between them. Neither community pharmacist, nor hospital pharmacist tends to give information to the other partner.²⁶ BPMDD is one solution for that lack of communication and information sharing from the hospital pharmacy to the community pharmacy, in which it is identified the meds to be continued and to be stopped and the reasons for them. It seems to be quite interesting for the community pharmacies, but again there is a problem of standardization. Each healthcare setting has its own forms and community pharmacies won't receive a standardized form with certain components in it.²⁷

One of the big debates in hospital pharmacy is the whole idea of discharge counseling. Being logical it's easy to realize the issue here.²⁸ First of all there are not enough pharmacists available to counsel patients about their discharge plan. Secondly the patient is going to fill the prescription at the community pharmacy, and it is an obligation for the pharmacists to counsel patients for the meds being dispensed at their pharmacies. So there will be duplication of work. Thirdly, the low level of confidence in the whole system requires such a task to be done by the hospital pharmacists,²⁹ when there won't be any prescriptions being filled. Right now, I don't have any pharmacists to do things which will evidently decrease mortality, how can I allocate my resources for a task for which there is no evidence in literature that discharge counseling will decrease the mortality.

The problem regarding the flow of information between facilities is not a new issue, and there have been examples of that before, such a dialogue between the specialists and the general physicians

(GP), where a specialist has to fill in a kind of a discharge form for the GP, and that it is done on paper and it is time consuming.

Regarding the MedsCheck program, once it was carried out at the Trillium Health Centre, patients welcomed it very openly and they really liked the program, in the way that it became somehow another issue for the center, when patients come back and asked for more reviews (more than once a year), and again lack of resources didn't allow the center to help them. But what can be said is that patients were quite satisfied with the service.³⁰ And from his point of view this type of communication between a patient and a pharmacist is the one that should really exist. Because we all know that medications are the cause for all the harms and at the same time cause for all the wellness. It is known that 10% of the patients are re-admitted to hospitals due to medical reasons and medical mistakes. So, involving pharmacists in such services can definitely reduce the harms and prevent such mistakes to damage patient's health.

For the future plans of the center, he believes that investments in CPOE and these types of systems will not help a lot,³³ and instead establishing a type of the barcoding system for the pills and patients is much more beneficial. He believes by using these systems they will help staff to do the right thing correctly, and they will decrease the large amount of mistakes occurring at the bedside, where the actual pill administering and Meds taking is happening. He states that Kaizen methods are not effective in such huge and complex systems, rather the incremental continuous improvements are more advantageous.⁵⁴ One example of deploying such quality improvement tools was the use of Six Sigma for preventing the messy meds concept in different wards of the hospital, and the project was successful.

He declares that if the community pharmacists knew that the hospital pharmacists and clinicians base their treatment on that MedsCheck done by them, they would do it more carefully and the outcome would be much more trustable. But currently the pharmacies believe that the MedsCheck is a local phenomenon, and it is basically for education of that particular patient, and as far as this is their understanding the interface between community pharmacies and the hospital pharmacies will not develop as it should be.³¹ Also, the same problem arises from the hospitalists side when using that MedsCheck is not yet their priority and focusing more on their own systems inside the hospital in order to make them as efficient as possible distract them from improving that kind of dialogue between the hospitalists and community pharmacists. Another issue is the frequency of the patients who has the MedsCheck reviews done before. If every single patient that comes in the hospital has done the MedsCheck review before, then it is more accountable for the hospital pharmacies to consider that and use that the way it is designed for.¹⁸

The problem with the case why MedRec is not performed for 100% of the patients originates from the lack of resources and not the system of the hospital.⁸ This is what you can figure out from talking with all the hospitals and it should be taken into account by the ministry.

Computer system force behavior is an essential element to improve the electronic flow of information, and free up some working hours of the staff, which enables them to cover more numbers of patients in MedRec.³³ But the funding to start such systems is not approved yet. These force behaviors will prompt staff, including nurses, pharmacists, and physicians, to engage in the

whole process, and this is the place where change management strategies become essential, and this is one of the toughest tasks to do. To change the way things are done, to change the culture, to change the behavior of the physicians, and then monitoring the adherence to these systems.³²

B.3. Summary 3 – MedRec and MedsCheck

The interviewee was one of the members of the Ontario Pharmacy Council when MedsCheck actually started. He is a strong supporter of the program and he believes this is one of the most brilliant ideas. The concept of MedsCheck when it was designed was to make the right people do the right work. He believes that MedsCheck is really helpful to the processes in the hospital.³⁴ He states that MedRec at admission is one of the most inefficient and wasteful process which is totally out of context and out of place. When the patient arrives at the hospital, he/she is totally ill and then the hospitalists are trying to find out about the patient’s status in the community.³⁵ If the community knew what they are doing in community and we focus on what we do in hospital and we communicate these information to each other appropriately the whole system would look so much better. The waste process is that the hospitalists put so much time and effort to realize what community has done to the patient, and then later the patient is discharged inappropriately and the community tries to realize what has happened to the patient while staying in the hospital.³⁶ He mentioned that the discharge processes and prescriptions and the follow-up programs by the hospitals are of the most inefficient in the whole process. A comparison between the practices at the community versus the hospital indicates that hospitals have access to a large amount of information about the patient, physicians, nurses, therapeutic plans are generated in hospitals and etc.²⁰ whereas community has the patient. Because when the patient leaves the hospital, hospitalists don’t really follow up and they shouldn’t do that in fact. Then most of the communication will be between the community pharmacist and the patient. So the community pharmacist has access to the patient for the long term.²¹ So the good idea is that the hospitalists should focus on generating a good plan for the patient and just articulate it in the correct way, and let the community pharmacist to assess the adherence to the plan by the patients. After all, it could be inferred why MedsCheck is suitable for community pharmacists because it engages them, it lets the patient to get counseling on their health plans and information in the time they have scheduled for it, in the correct time, not at the discharge.²⁸ In this case, we will prevent the situation when patient is in the emergency room of a hospital and thinking about how to get information about his/her meds.

Regarding the applicability and feasibility of the MedsCheck, we talked about the article “Perioperative Medication Management (POMM) pilot: Integrating a community-based medication history (MedsCheck) into MedRec for elective orthopedic surgery inpatients”, in which he is one of the co-authors. He pointed out that this study showed that if it is asked, it (MedsCheck) can be done correctly and thoroughly. Although there has been a number of MedsCheck with pretty low quality, the study shows the effectiveness of running the MedsCheck before the operations.³⁴ He believes one way toward improving this process is that when hospitalists receive one MedsCheck report with low quality, it is good to feedback on it and let the community pharmacist know about it. In this way they can improve their reports as well, and it proves to them (community pharmacists) that their work is valuable and if it is done well it will be used. That would be some great peer-peer feedback which is indeed of use.^{35, 31}

Currently the hospitalists don't ask for MedsCheck due to the fact that most of them do not meet the minimum requirements and qualifications,³⁷ and takes much of the hospitalists' time and effort⁸ to check the creativeness of the reports and send their feedbacks on them The hospitalists simply don't trust in the MedsCheck reports at the current time.¹⁹ The approach right now is that the pharmacist or the technician at the hospital just runs the MedRec at admission from scratch, without considering the fact that maybe the patient has done the MedsCheck review before admitting to the hospital. Considering the workload of the personnel at the hospital, maybe this is the solution not to waste the time and the resource of the system,^{17, 8} but this does not contribute to improve the whole system according to Lean methodology. If MedsCheck is done correctly, then the hospital pharmacist has more time at admission and discharge.

To review the process right now at the Toronto East General Hospital (TEGH), it should be mentioned that currently the whole system is computerized. There is now a built –in CPOE system available at the TEGH, and the process starts with the pharmacist in the Pre-admission clinic (PAC) enters the medications the patient is taking, and these medications are entered in the way that they can easily become active orders in the hospital. Then the physician sees the information entered by the pharmacist (BPMH), and decides whether to continue or stop any of the meds. So the Physician reconciles the entries by the pharmacist. From now on everything is in the system and it is really easy to follow-up and making changes to the meds for a patient. Later on, at discharge, the physician can see the meds that have been continued from home and the ones added at the hospital, and decide about the discharge plan. The system is working quite well right now, but there are some problems as well. It works very well when there is just one physician responsible for the meds, otherwise it becomes complicated.³⁸ Also, all physicians do not have the same attitude towards the system. In contrast to the GPs who have welcomed and adapted themselves to the system, surgeons do not show that much compliance to the system. Surgeons want to deal with their own meds,³⁹ and maybe it's better for patients as well, because they are not really good with general medications. And it has been decided that if pharmacists are going to be responsible for the MedRec at admission, then physicians should be responsible for MedRec at discharge. Because pharmacists will find out about what patients are taking at home, then in collaboration within the inter-professional team with physicians will come up with a plan for the patients in hospital, and then finally at discharge physicians can see what has happened overall, and they should decide about the plan for their discharge. So the most value can be seen for the general medicine patients. So, in general the reaction of the physicians and pharmacists to the CPOE system and having a pharmacist at the PAC clinic to run MedRec at admission (BPMH) has been satisfactory and positive.³⁹ Currently computerized MedRec is applied for 55% of patients, based on the request of the physician to do the MedRec for a patient and for those patients the pharmacist sees as a high risk meds and high number of meds. And the goal is to raise it to 75%.

MedsCheck has not been conducted at TEGH, and He believes that it was not intended to be conducted at hospitals. He states that MedsCheck was devised as a tool to encourage the communication between community pharmacists and the hospitals.⁴⁰ Currently MedRec at admission is certainly done and BPMH is achieved for patients, which shows why MedsCheck should not be carried out at hospitals.

About receiving the MedsCheck reviews, He says that he has not seen so many of them,¹⁸ but the ones that are available for the hospital they have validate them. Unfortunately they do not have complete faith in them,¹⁹ either and have to double check with the pharmacy.²⁹ Again back to Lean thinking, whenever we have a check process this is waste of time and energy and this is not Lean and it's a system failure.

Regarding the problems with the correct implementation of the MedsCheck, one point of view is that pharmacists have not yet figured out their business models for their pharmacies.⁴ They don't know yet how to do it the most efficient way³ and how to make money from it.¹³ One of the advantages of MedsCheck for pharmacies, as believed by him, is the patient loyalty which will be brought for the pharmacies.⁴¹ If it is done efficiently by using technicians to get the history, at least they will break even, with the advantage of the customer loyalty and more prescriptions overall. In terms of the quality of the MedsCheck being done, it is highly related to the human nature. When the pharmacist knows that the MedsCheck review will not be used, and it is not demanded and is done voluntarily, decrease of the quality would be expected.³¹ There should be some motivation for the community pharmacists to do that, they should know there is a demand for it, it is critical for the following process at the hospitals. In this way they feel involved in a team.¹⁰ Also, it is important to know that the results are not really available. He declares that if it is done the review should be posted and others should be informed about it. It seems that right now Ontario lacks the political will to implement an integrated system which enables the transfer of information between health settings,²³ and one reason for it could be that there is not that much money in it.

Most of the problems at discharge originate from the problems at the admission. So you cannot send them home correctly if you do not know what they have taken before. Another issue with discharge is that currently the healthcare processes are not proactive enough. Somehow every discharge seems to be a surprise for the system. We cannot predict correctly how many patients will discharge in the coming day. And this makes a problem, when you have to conduct five or six discharges concurrently.⁴² How can it be done correctly? Number of admissions is approximately fixed for every day, with a little standard deviation. But the number of discharges is a catastrophe. And it is almost the same for all the hospitals.

B.4. Summary 4 - MedsCheck

She believes that from a community pharmacists aspect there is no standardization in the process of MedsCheck, which has resulted in different approaches by the community pharmacies towards that.²⁷ Some are just carrying out the MedsCheck to bill the government for it and they are not aware of the true value of such a service.³¹ There are others who have taken it more seriously and they are not just looking at what the patient is taking, and trying more to evaluate the meds and see if the meds are really appropriate for the patient and if any changes or resolutions needed they contact the family doctors and etc.⁴³ She is a proponent of the Nexus system, because she says that she gets the initial information regarding the patient's medication from that software and it is capable of producing effective reports for her (or pharmacists in general). What is really good about this Nexus is that when a patient gets new drug, it will automatically be added to the list and the list of the patient's meds are always up-to-date. Nexus is available through Proparm in Hamilton and Nexus together with two other software programs (Helpwatch which is used in Shoppers Drugmart

and Crowl?) account for 79% of the pharmacy programs in Hamilton and they are considered in the Prescription Refill Optimization program. One other strength of the Nexus is that it is very helpful for communicating with physicians about re-ordering the patient's meds, and its easy interface has made it very practical.

Within community pharmacy our losing professional allowance money last year was a significant hit to all community pharmacies. Since then she has had a number of MedsCheck carried out at her pharmacy⁴⁴ but there are always some who are more proactive than others. And the suggestion from head office that we should make an effort to actually do this, because the payment by the government has increased from \$50 to \$60 and now diabetes are also included in the MedsCheck.⁴⁵ Within Dell Pharmacy they had an initiative that they pointed out some role models who have been pretty active in MedsCheck and conducting several workshops for all the pharmacies to encourage them toward this program and they identified several suggestions how to run the MedsCheck at their pharmacies.⁹ One of them is that Dell Pharmacy stores have to stamp "MedsCheck" on the forms in order to highlight and identify the report as a MedsCheck report which makes it easier for hospital pharmacists to recognize that and make the use of that.^{SF5} Also all the pharmacists have their own stamps by using which it is much easier to follow up and check problems if any arose.^{SF6} So the whole idea is to make the list current and present it to any healthcare professional.

As a pharmacy manager one strategy to do more MedsCheck is to take a proactive approach towards that. It is important to take advantage of any opportunities to carry out a MedsCheck for a patient, when a patient describes a feeling regarding the meds, when you know they are going to visit a specialist, at pre-admissions, when they are going to travel.^{S6} And also the force from the senior management of Dell pharmacy has mandated the more number of MedsCheck^{SF7} and by announcing the name of the pharmacist who has created more numbers of MedsChecks they have encouraged pharmacists to make MedsCheck more often.^{SF8} Therefore she believes that incentives play a critical role in this regard.¹⁰ Unfortunately, the loss of the professional allowance money has restricted the pharmacist overlaps at the pharmacies⁴⁴ which has resulted in less resources,⁸ which means you have to be the most efficient to be able to conduct the MedsCheck.

From the business point of view, she states that you should be really efficient to make good money out of it.¹³ And it really depends on the location of the pharmacy and the number of patients filling their prescriptions at the pharmacy. The more the technicians can do, the more time the pharmacist can spend with the patients.⁴⁶ From her perspective technicians are capable of running the MedsCheck but it would be much better if a pharmacist conducts that. The technicians can help in the initial preparation of the lists and reports so that the pharmacist can just sit down and talk with the patient.^{SF4} She suggests that the government should understand the importance of the "initial proper" MedsCheck and should have another approach for compensating for it. Because the first MedsCheck is the most time consuming one and if it is done "properly" then the next MedsCheck would be much faster and efficient. So, she suggests that government should pay more for the first MedsCheck and expect the pharmacist to run the "proper and good quality" one, and then later the pharmacist won't need to put that much time for making the report.^{S7} Also it is important that they support more the follow-up MedsCheck because they are much more effective than the annual visits once the proper initial MedsCheck is obtained. She thinks that government is inefficiently making

the use of their money on inappropriate initiatives, such as controlling the cost of the dispensing fees, controlling the cost of the drugs, in which they have not been successful either.⁴⁷

A current problem with the conduct of the MedsCheck is that the reports are made with many different levels of quality and different types of reports,^{37, 24} which makes it really challenging for the next care setting to make the use of that reports. It seems that a more standardized forms and reports are crucial to have more effective MedsCheck reviews.²⁷

She highlights the importance of having an intra-professional communication between the community pharmacists and the hospital pharmacists. Because the whole idea is that the hospital pharmacists are much busier than the community pharmacies. So if the patient arrives at the hospital with a good quality and proper MedsCheck list, the hospital pharmacist start their treatments and BPMHs based on that review, then their time will be saved more, and they can put more time on the discharge process where they should communicate with community pharmacies and the home care staff. She suggests if there were a mandate that all patients should have a pre-admission MedsCheck review because of all the benefits that mentioned above.⁵⁸ In this regard, She indicated that the discharge plans that come out of hospitals vary a lot in quality, and some are really good and comprehensive, and for some they have to call back and follow up to find out what has happened.⁴⁸

About the poor communication between the hospital pharmacists and the community pharmacists she believes that this issue is mostly due to the fact that people usually don't consider the other care setting professional's perspectives.⁵¹ So it is really good to find out about the other care setting problems and needs and try to solve them from our own organization. And she believes that the "proper" MedsCheck can be great start.³⁴

Dell Pharmacy has launched a new program eHealthLink, which is supposed to be a kind of a database for the patient's medication information. But it should be noted that this program does not provide any advantages unless a proper MedsCheck has been conducted for the patient and is inserted in the system. Unfortunately, currently this program is not being used effectively, although it has great potentials for facilitating seamless information transfer between the care settings.⁵⁹

She identifies the privacy and the security of the patients' medical information as the main reason for not having an integrated electronic system in the whole province.⁴⁹ And also the incidence of the financial abuse of the previous team who were working in this field has significant implications on the progress of such a system.⁵⁰

B.5. Summary 5 - MedsCheck

She said that they have done a number of MedsChecks at their pharmacy, and she has been one of the founders and proponents of the idea.³⁴ She has worked a lot for integrating the MedsCheck process in the working processes of the pharmacy, and to make it as efficient as possible. She mentioned that in the beginning the aim of the MedsCheck was just the education and awareness of the patient about their meds, so it was supposed to be patient-focused, but currently this aim has been evolved and it has become much broader.⁴³ Now MedsCheck works as a facilitator for information transfer between care settings.⁴⁰

From her point of view the reaction of the pharmacists to the MedsCheck program is very diverse. Some pharmacists are truly committed to patient safety improvements, and are intensively carrying out the MedsCheck, whereas others either have not figured out how to implement it³ or don't want to make changes to their systems, and the program is not within their comfort zone.⁵² So, the reactions have been very different. I talked about the financial benefits of the MedsCheck program and asked if this can be one of the hindrances for effective implementation of the program, she said that this has been the reason from some pharmacists who want to justify their dislike for implementing the program.¹³ What She believes is that in the first place this program is launched to make a big change in the whole system, and maybe right now from financial perspective it is not justifiable (which should be investigated),⁵⁹ and it is about a change in the business models of the pharmacies, the more we carry it out the more effective and efficient it will be by using the skills, competencies and everybody's collaboration.⁵³

About the patients' reaction, she pointed out that unfortunately patients do not know about it.⁵⁴ If a pharmacist could convince them by using some kind of strategies to come and have the MedsCheck review, they will like it, and they will become one of the proponents of the program. They will start self-reporting, self-follow ups and etc.³⁰ But the problem is that not so many patients are aware of such a service offered by the pharmacies.⁵⁴

About the major obstacles in implementation of the MedsCheck, She identifies the lack of public awareness of this gap in the health care continuum, that information transfer is not as effective as it should be. With this MedsCheck report, information transfer would be streamlined.⁴⁰ The real challenge is if people would know the importance of this service and asked for that from their pharmacies and pharmacies have the facilities to run the MedsCheck effectively and to book appointments for their patients. It is really important how pharmacists would market the service and this is where they are going to either make or break it.⁵⁵ If they ask a patient whether they want to have the MedsCheck review, and the response of the patient is "what is MedsCheck?" here is the real challenge how to market that. Dell pharmacy has taken an effective approach in this regard. They have devised a standard guide for the pharmacists to invite the patients to review their meds in a MedsCheck service. Their guide is easy to understand, encouraging and highlights the benefits of the service in a few words. So, by using such guide pharmacy staff can easily persuade their patients to have a MedsCheck review with their pharmacist, and take advantage of the service.^{SF10} Another important fact to identify is the opportunities to ask the patients for having MedsCheck, if they are leaving Canada for a trip, if they are going to be admitted to the hospital, if they are going to see a specialist, if they are going to move to another city, if they are going for a surgery, and etc.⁵⁶ Moreover, this MedsCheck can be considered as way to evaluate their tax returns, how much they paid for their meds. So there are so many opportunities in that the pharmacies can intervene and help with their MedsCheck program.

Regarding the quality of the MedsCheck report, she agrees that the report vary a lot in standard qualities. Some of them are truly crap, and some are perfect.³⁷

I asked about the barriers to implementation of an electronic health record system in Ontario, that all care settings could have access to it but in different levels, and she believes that there are other reasons for it in addition to the privacy laws and security regulations⁴⁹ in Ontario. To name a few,

the number of software provider vendors, the number of EMR vendors, pharmacy software vendors, Drug Information System (DIS) which all the information will go into that, and the connections, and the laws regarding the way the prescription should be written, filled and refilled, we still cannot accept electronic signature and it has to be a wet signature by pen for several reasons. So there are a lot of infrastructural issues in addition to the security and privacy issues.

She is aware of the governmental initiatives to expand the role of the pharmacists in the healthcare system, initiatives to review the system, initiatives to investigate the quality of the MedsCheck.

She talked about a perfect incidence that happened to her only once. She received a call from a hospital pharmacist that informed her about discharging their patient, had faxed the patient's prescription in advance to discharge of the patient to her, and provided her with a direct phone number if there were any problems in the patient's prescription. She believes this was the most effective communication that could happen between two colleagues and that filling the patient's prescription was done really efficiently and when the patient arrived to her pharmacy his prescription was ready for him. Unfortunately this experience never happened again for he. She thinks that the same approach could be provided by the community pharmacy when there is pre-set admission to the hospital. In this case if the patient has the pre-admission MedsCheck review and arrives at the hospital with a good quality MedsCheck review report it would be very beneficial for the hospital pharmacist. A fact here is that she believes that there are not so many pharmacists who are aware of the importance of the MedsCheck reports and the implications of their service in the continuum of health care system.³¹ It is really important to educate pharmacists about the service and run mentoring programs for them by the pharmacists who are aware of the benefits of the program and have conducted the service effectively.⁵¹⁰ She says that this approach from most of the pharmacists is not purposefully. The fact is that nobody has ever discussed the service with them.

About the integration of the MedsCheck with processes involved in home care, she has had some cooperation. She has developed a business model to run home MedsCheck, and how to integrate with CCAC system and physicians' system, and they have also developed software in this regard. She believes there is a bundle of opportunities in this field.

Dell pharmacy has an online service called eHealthLINK. Unfortunately this system is not active now, due to the fact that patient plays an important role in updating the information on this system, and as the current patients are usually more than sixty years of age, they are not very interested in using computers for their medication stuff and they are pretty much used to the pharmacy system and the current processes. But it is believed that further on, by the advent of the next generation this system would act more effectively.⁵⁷

B.6. Summary 6 – MedRec, MedsCheck, and the link

He states that most of the tasks are done in the community and that the patient spends less time in hospital than the time he/she spends in the community and is in contact with the health service providers in the community.²¹ This is why he indicates that MedsCheck plays a central role throughout the continuum of care.³⁴ Therefore, discharge from a hospital or other acute care settings is an important point, but the management of care for the patient in the community is more

challenging and risky since there is not as much access to expertise as in the acute care setting, it's a big environment, and there are fewer control and monitoring issues.

Toronto Central Care Access Centre (CCAC) is a service administrator that connects patients who are eligible for their service to the service providers e.g. nursing agencies. So basically CCAC assesses the services, and through the contracts with nursing agencies they determine what services they are supposed to provide. More generally, CCAC is a guardian for the government's money for home care. So all the money for home care gets funneled through CCAC, and by contracted services with agencies they provide the service for the patients. The frontline staff of the CCAC, called as care coordinators, they decide what services should be provided for each patient.

CCAC is not involved in conducting processes such as MedRec, and therefore they are not well-aware of the details of these processes. Since CCAC itself does not provide the nursing services, they are not really good at these processes. What CCAC does is that in the contracts with the nursing agencies they mandate the agency to run the MedRec, but it is not mentioned how to do that, and in what format it should be.⁵⁸ From his point of view, the nursing agencies' adherence to conducting MedRecs is not good at all.⁵⁹ They never communicate the patient's medication information to different points such as pharmacies and physicians' offices.⁶¹ He declares that this problem stems from their lack of skills, they are not really trained to conduct MedRec in the correct way.⁶⁰ Other reasons are time and resource limitations,⁸ as the nursing agencies explain. Other critical reason for this issue is the lack of enforcement from the CCAC. The contracts to be signed between the CCAC and the nursing agencies are pre-set contracts that the parameters are somehow fixed in them, e.g. the number of visits they should make, the amount they will be paid by CCAC, etc. He states that even though MedRec was important item, from the beginning of the contracts they really never enforce that. And this is primarily due to the fact that CCAC does not have the capacity to do that. He says if the organization (CCAC) has wanted him to enforce the MedRec in the contracts, he might have done that, but he knows there are not enough resources for doing it. Thus, CCAC knows the importance of conducting MedRec, but they don't enforce it. Another prominent fact is that it is not CCAC's custom to audit the nursing agencies for the service of MedRec they are providing. Although CCAC audits other services such as wound care, but no one ever has audited the way MedRec is conducted. And this is where a huge gap could be realized.⁶³ Moreover, Accreditation Canada is also accrediting all these agencies, but they cannot find these gaps, because the nursing agencies may show that they have good processes. Another point is that CCAC cannot start auditing the agencies right now, because they will bring up the contracts and will say that we know we have to run MedRec and we are having it, but CCAC has not told them how to do that.⁵⁸ And this is true. So, what CCAC plans to do in this regard, is that by the time of renewing the contracts, these issues will be inserted in the contracts, e.g. how to conduct the MedRec, what type of reports to prepare, etc. There is a fact here, that if CCAC can make only one agency to do that, then all the rest of the agencies will do that, because they will see that it's doable.⁵¹¹ One other issue is that currently the government has kept all these types of contracts on hold.

He believes that family doctor's role is critical for capturing information, because they are in contact with almost all points of care, they get notes from hospitals, they contact pharmacists, etc. And they

do the changes too. He found that it is difficult for a family doctor to do the medications review at the appointments, because it is time consuming, and a lot of people are waiting outside.

Currently CCAC is not involved in MedsCheck, and is not enforcing any patients to go to the pharmacy for having MedsCheck. What happens now is that actually the care coordinator of CCAC, to be specific when the pharmacist, visits a patient at his/her home, the care coordinator will ask for the list of medications from the patient, and when the list is obtained then the care coordinator contacts the pharmacy and asks them having a MedsCheck review the next time that patient visits their pharmacy.⁵¹² Literally, there is no obligation for nursing agencies and pharmacies, or for CCAC to ask for MedsCheck.⁶⁴ He believes this intervention by CCAC will help the pharmacists and patients uptake the MedsCheck process and will encourage the community pharmacies to carry out MedsCheck for greater numbers of their patients. It is evident that the current MedsCheck reviews are not flawless,¹⁹ but the more they would be taken the faster the problems will be identified and could be fixed.⁵³ In this way the more effective and efficient procedure for MedsCheck would be achieved.

As a pharmacist He indicates that before MedsCheck pharmacists were not aware of their role in the treatment of patients. The primary task of a pharmacist was to dispense drugs to patients, and giving some kind of counseling regarding their meds. But with MedsCheck pharmacists sit in front of patients and during a face-to-face interview they counsel, solicit information and identify discrepancies and resolve them. The outcome of the MedsCheck is not only an updated list of the medications, rather a patient who is well informed regarding their medications, a report to be sent to the family physician and the hospital or any other acute care setting where the patient is usually admitted.⁴³ The big problem with MedsCheck right now is that the pharmacist is not paid for the communication made with the family physician or the hospital pharmacist or etc.⁶⁵ They don't feel they are being compensated for the time and energy they are putting for informing people in the circle of care of the patient. He believes that MedRec in home care is not as important as the MedsCheck in the community pharmacy.⁶⁶ Because the nurses that are assigned for each patient from the time they are discharged from the hospital are not available for long time. They usually visit patients for fifteen to maximum thirty days after their discharge from acute care setting. So the MedRec list which is prepared in this period of time is for a short term. Whereas the MedsCheck review done at the community pharmacy is a long term one. Patients are more in contact with the community pharmacy than with any other organizations. In the flow diagram of the process of taking care of the patients, community pharmacies have a central role, and they can be assumed as storage of huge amount of information regarding each patient.

The process for taking care of the patient by CCAC begins when an eligible patient is discharged from hospital to CCAC. In this case usually all the discharge information of the patient is transferred to CCAC as well. So fortunately they know about the patient's medications and drugs. One problem in this system is that all the eligible patients for CCAC's service are not discharged to CCAC, and CCAC is not aware of the conditions of them %100 of time.⁴² There is still a gap here, which is starting to get better. This problem originates from the diverse discharge systems in different acute care settings.²⁴ Since they are not integrated or standardized systems,²⁷ some of them discharge the patient with the most detailed information regarding the patient's conditions, others just identify a

patient as an eligible patient for receiving nursing services at home with no further information.⁴⁸ At this point the essence of having a kind of integrated system becomes valuable. A system that all the data goes into it and everyone has access to it. With such a system all these steps would be removed and a total streamlined process would be achieved.²²

I suggested a systematic process that when a patient is admitted to CCAC, the care coordinator sets an appointment for the patient at the closest pharmacy to the patient's place, and mandates the conduct of the MedsCheck either at the pharmacy or home MedsCheck.^{s13} This could also be done when the patient is going to be discharged from CCAC services, and before going to the hospital a pre-admission MedsCheck could be set for him/her. This process is not yet in place, but CCAC is working on it. He agrees with my whole idea, and he believes that follow-up MedsCheck are truly helpful in this process, specially the post-discharge MedsCheck which is the riskiest one. A primitive solution for it can be that if a patient is going to be discharged tomorrow, a nurse/pharmacist goes to him/her and ask who is the patient's pharmacist in the community, then with just one phone call the nurse/pharmacist can inform the community pharmacist that their patient is going to be discharged, and it is necessary that upon his/her arrival at the pharmacy to fill the prescriptions the pharmacist conduct a MedsCheck for him/her. There is another issue here; the care coordinators don't always call the pharmacies. Pharmacies don't always know that their patients are receiving a home care.⁶⁷ So what He always asks the coordinators about is to call the pharmacies. A coordinator will do the home visits, it could be right after the discharge, it could be just an update, and what they should do is to take one of the bottles of the drugs and check the pharmacy, call the pharmacy right from that place, introduce him/herself as the care coordinator of the patient and inform the pharmacy that the patient is receiving their home care, and ask them to carry out a MedsCheck upon the patient's visit to their pharmacy or through the home MedsCheck. It is very critical for CCAC's patients because of the highest risks they have; they are special types of patients and should be taken into consideration more carefully.

Virtual Ward is a project right now. It's a randomized control trial looking at standard care versus care with virtual ward. Virtual ward is a team that is not hospital based, that comprises of multiple disciplines e.g. nurse, pharmacist, physician, case manager, etc. and the team is assigned to people who are in high risk of going back to hospital within thirty days. And the risk is determined with a validated tool. For these patients the case manager will contact the patient within 24 hours after the patient goes back home, and if it is necessary will go and visit the patient, to see what are the needs of the patients, does the patient need any food, any help for bathing, shaving and etc. and if the doctor is necessary the physician will visit the patient at home and they are very well experienced physicians (internal medicine) who are used to dealing with these kinds of complex patients. I asked about the difference of the Virtual Ward to the routine tasks of the CCAC, as CCAC care coordinator has to contact the patient soon after discharge, and all those issues should be addressed pretty soon. I wonder if this Virtual Ward can really add any value to what is already being carried out. He believes that what separates between Virtual Ward from CCAC activities is the focus and the higher level of attention and more resources available. In fact the care coordinator's responsibilities are more than the case manager in Virtual Ward. And one of the value added things being done for all the patients admitted to Virtual Ward is that MedRec is conducted for all of them. But MedsCheck has not yet been included in the Virtual Ward. One of the strengths of the Virtual

Ward is that a pharmacist goes into the house of the patient and identifies the needs of the patients. This is something that the community pharmacist is not aware of. They don't know how the patient takes the meds, is the patient taking them correctly, and this is where the pharmacist of the Virtual Ward can ask the community pharmacist to watch them a little more closer, talk more with the patient whenever you see them, follow them up, and etc.

One other issue is that nurse practitioners/pharmacists that are conducting the MedsCheck and the MedRec operations are not really aware of the importance of these processes and what implications their task has on the next stage organizations that will receive the report from them.³¹ Another important fact is that for elders it is not quite feasible and efficient to have the face-to-face interview with them regarding their meds in the pharmacy, rather you should go to their homes and check every here and there to find the meds and the expired drugs should be taken out, and all these stuff. Another fact is that some people think that MedsCheck is only about the prescription drugs, which is not true. So, if the pharmacist goes to the patient's home, he/she could also check for non-prescription drugs too, e.g. over-the-counters, herbals, creams, nose inhalers, eye drops, etc.⁴³

He says that he can realize how doctors are pleased with the service of MedRec that he is providing. It saves them time, and they can get much more information about the meds.⁶⁸ But the unfortunate thing is that physicians usually do not act fast enough on resolving the discrepancies identified by the pharmacists,⁶⁹ but most doctors are very thankful for the list and they appreciate that, and it's a positive engagement.

One other concern is that He believes there is not enough obligatory for organizations to follow the instructions and carry out processes accurately.⁵ When there is no mandatory rule, then organizations may not obey them as serious.⁶² The lack of compulsory regulations in this regard is due to the fact that government believes that there is no need for them to become legislations and that with such incentives organizations would conduct the required instructions,⁷ which is not actually true. The incentive structure is not strong enough now to force such behavior from the organizations.¹⁰

From the perspective of a home visiting pharmacist, He notes that MedRec lists and MedsCheck reviews are very well received by the patients. They are very satisfied with such a service; they like to talk with someone about their meds, their effects, and etc.³⁰ It's like a personalized service for the patients. But unfortunately, there are not so many patients who know about the MedsCheck service,⁵⁴ and He says that the marketing for such a service has not been good enough at all.⁵⁵ And the fact behind that is that no one is interested in marketing the MedsCheck service. Government is not marketing because they don't want to spend money. Literally pharmacies should advertise the service, because they are going to be paid for that, but they don't advertise it either, because they are not sure about it, and they are not used to provide such service yet.⁵² It is amazing to imagine that if big chains such as Shoppers Drug Mart would start mass-marketing on the service. It is obvious that the service would be very well received and that people would line up for receiving such service. The problem is that making changes in large-scale companies such as Shoppers Drug Mart is not so easy and it's challenging, especially because the decisions need to be made by the boards in the public organizations.

Given the current economic situation, He believes that government has supported the MedsCheck program and the pharmacists sufficiently,⁷⁰ but what can be done is that it's better that government mandates that standard discharge processes by hospitals, where more accurate information of the patients could be delivered to organizations such as CCAC.²⁷

Finally, He indicates that it's good to map out the whole process and identify who is/are the owner(s) of each service to be provided. Because currently there is huge ambiguity in the system, and it is not clear who is responsible for what.⁵¹⁴ When the ownerships become clear then we can check where the obstacles are that hinder the system. Once things got clear and we started to do what we are supposed to do, then things will perpetuate and we can make them as effective as they should be.

B.7. Summary 7 - MedRec

NYGH is using eHealth system; an electronic system which is an integrated system and encompasses all the processes held in the hospital, it includes all the processes regarding the medications as well, from prescribing until administration. It encompasses a CPOE system as well. So as mentioned all the activities done physically and written in hospital are all recorded electronically. Although, at NYGH pharmacists, nurses, and physicians are all trained to insert the information regarding home medications, it's mostly completed by the pharmacists, and study has confirmed that the histories taken by the pharmacists are the most accurate one. But when there are no pharmacists on site, mostly after 5:00pm, physicians and nurses will do that.

One reason for physicians to obtain the home medication of the patients is that this information will facilitate them to place their orders and their following tasks on the system, so it could be said somehow that having home medications information could be considered as a prerequisite for the rest of the activities. Pharmacists will always review and reassess those histories that are not taken by them. It's been tried to obtain BPMHs proactively, but as they are not 24/7 there might be sometimes that they get them retroactively. Currently there are two pharmacists located at the emergency department, so when they know that the patient is going to be admitted they'll start obtaining the history. One of the strength points of the eHealth system in NYGH is that it keeps the historical records of their patients from before, so if the patient was admitted to the hospital in the past, they can have access to his/her records during that period. This system is not linked to any pharmaceutical electronic programs, so it's not capable of getting information about the MedsCheck review done at a community pharmacy directly through the system, and if there is any MedsCheck reviews available, they should be inserted manually in the system, not as a MedsCheck review report, rather as one source of information to complete BPMH.

The only link available in this system is to DPV (Drug Profile Viewer), where they can just check for the meds listed in the patient's ODB list. In general, he is not sure about the number of pharmacies who provide their patients with MedsCheck reviews, and also he believes there are not so many reports available for the hospital pharmacists to go through.¹⁸ Another issue with the MedsCheck reports is that they are not standardized,²⁷ and each pharmacy is using its own templates and tables, which makes it a bit confusing for the hospital pharmacists, and if they receive any of these reports, they certainly have to double-check them with the issuing pharmacy.^{19, 29}

A critical barrier to the link between the pharmacies systems and the hospital's is that every individual pharmacy has its own system and database.²⁸ Even big chains like Shoppers Drug Mart pharmacies have their own individual systems which are not connected to each other at all. All these problems are due to privacy issues.⁴⁹

Even for a hospital, like NYGH, that has two outpatient pharmacies there isn't any links between their systems. Also it's not legal to ask (enforce) the patients to fill their prescription at a certain pharmacy which has good communication with the hospital. And if patients of the hospital are motivated to fill their prescriptions at a certain community pharmacy, whose MedsCheck reports are very well received by the hospital and are of good quality, maybe the patient would go there just for one time, and later on will go to the community pharmacy which is closer to them and there are most convenient with that. In this way, there would be sort of break down in the profile of the patient at both pharmacies, which is not what we are looking for.

Currently, MedRec processes are conducted computerized completely. One of the present issues of such system is that surgeons have not welcomed it very openly, as they don't care about all other meds of a specific patient. And they just want to deal with those that are relevant to their surgery.³⁹ As all meds are showed in the system, it would be a bit complicated that two physicians or surgeons to work on the same form for a patient.³⁸ There is a kind of trade-off about the surgeons' role in MedRec systems. If you made it mandatory for them to complete all the meds and reconcile them, they would reject that, and they won't even reconcile the ones that are related to their own medications and treatments. So, it's not been put mandatory, so that at least surgeons would care about those meds that are relevant to their field.

One of the strengths of the CPOE system at NYGH is that it groups together those medications that are in the same family, or the ones that are related to each other, one for the home medications and one of the inpatient meds. It makes it much easier for the physician or surgeon to check the meds and find discrepancies. And enables them to see what the patient was taking at home, and what was ordered in the hospital.

One of the success factors for the NYGH to adapt its physicians in using the system is that from the beginning a very simple version of the program was deployed, with less notifications and alarms, to let the physicians to make mistakes and realize the system. Little by little the features of the program (notifications, alarms, warnings, etc.) were activated. They didn't want to make the physicians mad in the first [place so that they become resistant to using the system, when they have acquired an extent of expertise in using the system, then features would be deployed.^{SF11}

In their system, at discharge, they can print a very comprehensive report about the patient which should not be considered as a prescription, rather a very good source of information for what happened to the patient in the hospital. It's not only for the medications, but also for the reasons why to continue or discontinue any meds.

Proficiency of the physicians in working with the system is the major problem at NYGH right now. Usually, the younger generations do not have any problems, for this is not the care for the elders. They don't know if they put a wrong data in the system, how to go back and correct that, it's more

the mindset that is not in place.²⁵ So, currently everyone is enforced to use the computerized system, and there have been a number of training sessions for everyone, but still they are yelling at people and computers about the problems they face in those systems. And of course in the early days there was a lot of resistance from them in using that, but the approach that the hospital took, didn't allow them to neglect the deployment of the CPOE systems. The management of the hospital announced that from a certain date, everyone should move on the computers, and no excuses were accepted. This is the way they enforced everyone to learn, practice, and now use the systems.^{SF12}

There are many improvement projects defined in their systems, to review the system and make it work better, but unfortunately, still patients are not involved in any of this processes, and the voice of the patient is not heard.⁷¹ Because patients can bring up some important and effective ideas which may make the whole system work better, but unfortunately nobody has asked for their thoughts yet.

Regarding the MedsCheck reports, he said that as there is not any standards for the templates and the tables of the reports,⁵ so the quality of the reports truly vary, and some are very concise reports, whereas others are just a waste of time to look at them and try to understand them.³⁷ So, standardization is one of the critical issues for the MedsCheck reports.²⁷

DPV is one of the barriers as it doesn't provide enough information for the people who need that information. It doesn't incorporate a certain number of meds. So, by having this report already, it's much better to improve it the way to be more effective for the use of the hospitals and community pharmacies.⁷²

B.8. Summary 8 - MedRec

The Lennox & Addington hospital is a small community hospital with 52 beds, equally split for the acute care services and the complex services. Currently, most of the admissions are through ED. Regarding the MedRec process, BPMH is obtained for all the admitted patients by the pharmacy technicians (5 people). This technician staffs work half a day on obtaining BPMHs and the other half day on other tasks. The number of admissions is about 2-3 a day. There also a small group of nurses that have been trained to achieve BPMHs, for a specific unit in the hospital, special care unit with 4 beds. Right now, the BPMH is paper-based, but they are moving toward electronic systems. The Meditech system is implemented in the hospital, and the next step is to use the system for such services. So, at present a copy of the BPMH is kept in the patient's chart, another copy is kept in the pharmacy records, for auditing and statistical issues. The BPMH is achieved after the AMOs by the physicians, so the reconciliation process by the physician is kind of retrospective when the physicians checks the BPMHs and compare them with the AMOs to find any discrepancies and resolving them. Another form has been developed recently, in which both BPMH and AMO will be inserted which makes it easier to compare and reconcile the two lists, and is a more proactive model. There is a slow evolving change in physicians' practices to encourage the proactive attitude in the BPMH process. The typical process currently is that the emergency physicians write the admission orders and they leave the part about the home meds of the patients, and after them the technicians will complete the form with the home Meds, which opens up a better opportunity for carrying out a proactive model.

For discharge there is no formal process,⁴² rather there is a policy procedure includes MedRec at transfer and discharge. What's happening is that with the use of Meditech pharmacy system they generate reports as custom discharge summary report, which lists all the active meds for the patients, and the physician makes some hand-edited changes to the form, by considering the information from the BPMH and the patient's chart at the hospital. So, the success of this process is tightly dependent on the patient, physician, and the situation.⁴⁸

There is no certain plan for conducting a more systematic MedRec at discharge, rather the next plan is to implement the electronic BPMH, where technicians can enter the information right into the system, and the discharge lists would be generated based on that information. So no specific plans for MedRec at transfer and discharge yet.

It seems that they are very much focused on the admissions processes. I asked about the influence of the MedsCheck reports in their admissions as a source of information. He stated that they do ask for the MedsCheck reports from the patients, but unfortunately there are not so many patients having those reports, and he himself haven't seen many MedsCheck reports.¹⁸

The process is that they check the Ontario Drug Profile Viewer (ODP) list and then ask the related pharmacy to send the drug profile of the patient, there are about ten community pharmacies in the area, and the communication between them and the hospital is really good, so they send the requested information, but the MedsCheck reports have been very rarely seen,¹⁸ although the hospital pharmacist does specifically ask for the MedsCheck report, and it's mentioned in the request from the hospital to the community pharmacist. One good practice has been that the hospital sent out letters to all the community pharmacies in the region and has identified their interest in having good relations and collaborations with them, and in that letter they have clarified that they are looking forward for the MedsCheck reports,^{SF13} but it seems that MedsCheck has not been received very welcome.⁵⁴ One major problem mentioned is that community pharmacies have problems in arranging schedules for the patients to come and have their MedsCheck reviews,⁷³ because of their other duties and the people's availability. So the work flow issue is a prominent one for most of the pharmacists.⁸ He agrees that there a lot of money sitting there and if he was a community pharmacist he would certainly hire someone just to run MedsCheck.⁷⁰ Because as he says they are running a sort of MedsCheck reviews at their admissions and they cannot bill for it. Another factor that he mentioned is that right now MedRec at admission is mandatory for the hospital due to accreditations requirements, but it's not the case for the community pharmacists.⁷⁴ So despite the monetary incentive for conducting it,⁷⁰ as it's voluntarily right now no one adheres to its conduct. Another critical factor is that the public awareness is not as strong as it should be around the program and its importance.⁵⁴ People keep their own lists, with all those wrong spelling although they do their best, but they are terrible, especially for the older people.

Back to the subject of the communication between the community pharmacies and the hospital pharmacists, He believes that community pharmacies are doing a great job in providing information for them, and having a sort of an auditing role for the patients' Meds, and it happens that they often contact the hospital and ask for the reason to change a patient's medications and so forth. He hopes to reach better communication from the hospital side by providing more comprehensive

information at discharge for the community pharmacies. And he sees a lot of chances for improvement on their side.⁴⁸

He asserts that they are putting so much time and effort on BPMH, and not at all on their discharge.

As a recommendation for a better link, He looks for a standardized universal format for the processes, either electronically or manually.²⁷ But he believes that having such a unified format in critical.

B.9. Summary 9 – MedsCheck and the link

Sunnybrook health center is still working on its MedRec process, and they are trying to find out the best way to implement it. Their current concern is about how to make the most accurate and effective BPMH, which is the starting point for the MedRec processes. During fall a project would be launched to assess the quality of the BPMHs created by the technicians, and compare them with those created by the pharmacist, to ensure technicians are capable of gathering the information needed for the subsequent steps in the MedRec process. Currently, BPMH is created in the general medicine department through ED, and on other wards just when the pharmacist has time to do that. The latest statistics show that they obtain BPMH for 60% of the Patients at General Medicine ward.

On the other hand, e-Discharge is the name of the program being used by the hospital. In contrast to their admission procedures at discharge they are using this electronic system for generating discharge lists and prescriptions. So, all data from BPMH, admission orders, and the inpatient medications will be entered into the e-discharge program in which a physician will conduct a sort of reconciliation and generates the discharge lists and the prescriptions for the patients.

About their study to be launched in fall, I recall studies that have revealed the potential results that they are looking to achieve, and I wanted to know about their initiative to repeat such a study at their hospital. He agrees with my statement and says that they want to prove the fact to their staff that pharmacists' collaboration with technicians is doable and possible, and having pharmacy technicians carry out the creation of BPMH is a practice affecting the efficiency of the pharmacy services department. He touched a very good point in his arguments, by emphasizing on the fact that medical students are quite used to start working under the supervision of the professionals from the very first years of their studies, and the higher level physicians are accustomed to delegating responsibilities and authorities to these students at a certain level. Unfortunately, this is not the habit for pharmacists, and the pharmacy students and technicians are not used to the sort of hierarchy present among physicians and students of medicine.⁷⁵ So this project would also be used as a facilitator to encourage pharmacists to hand over more responsibilities to technicians and people with lower experiences and technical knowledge. I would say it acts as a change facilitator among pharmacists.

I asked why they first started with the discharge process, and they developed an electronic system for their discharge, and he says that the reason might be that this was the most convenient and quickest development that could be achieved in their system, as they have most of the data available in their pharmacy program, and most of it could be dipped into their discharge program, which could generate the prescriptions.^{SF14} The next step was to enable the physicians to compare

the inpatient medications with the ones the patient was taking at home, literally BPMH, which is in progress and they are currently working on this area to facilitate the creation of the BPMH electronically, so that all information could be transferred to the discharge section and be used for generating prescription and discharge lists.

So, MedRec is currently carried out for 60% of the patients, at admission and transfer it is paper-based, but at discharge it's totally electronically done. At admission they have the retroactive approach, which means that the patient is admitted and the admission orders are given by the physician, and afterwards pharmacist would complete a BPMH for the patient and compare the BPMH list with the admission orders and reconcile discrepancies if any was identified. So here many examples of reworking and non-value added tasks could be identified,³⁶ which is in some cases highly dangerous for the patients, and may result in drug-drug interventions. Moreover, no CPOE systems are in place at present time, but they are working on them.

He pointed out that at ambulatory care settings the points of transition are not clearly identifiable, where the patient visits a clinic or outpatient setting maybe just once. So it's critical to take into consideration this fact that MedRec processes in the ambulatory settings are not the same as the inpatient settings such as hospital, in which transition points are pretty obvious; admission, transfer, and discharge. Whereas in ambulatory settings, such as specialty clinics or general medical clinics, this transition point could be considered as the patients visit to this settings, in most cases of which it's just onetime visit. In another respect, the importance of completing an accurate BPMH (which is pretty much the same as MedsCheck in community pharmacies) comes to attention, because most of the patients are sent to hospital for treatment for the side effects of their therapies (especially for the cancer center patients) and/or are referred to their primary care physicians or family physicians. There is usually some sort of one-way communication between the ambulatory care settings and the primary care providers or inpatient settings, and it's more in the type of a letter from the ambulatory settings to them, identifying the diagnosis of the patient's disease and the envisioned treatment for that.

Regarding the MedsCheck program at the community pharmacy, He has developed software that all the data from the patient's profile in the pharmacy dispensing system could be dumped into it and therefore the MedsCheck is conducted electronically, without entering the meds manually in the system. It's fast, easy to work and efficient.^{SF15} But he hasn't found anyone else being interested in his system; even the ministry doesn't find any utility for such system. One of the strengths of this system is that the MedsCheck report is updated into a secure website, where a patient can sign in and have access to his/her medical history information. One point to be taken into account is that some of the pharmacy programs do not have this capability to generate data electronically, so that it could be used as an input for another system.⁷⁶ He has asked several vendors of such programs, and they admitted that at the current position their systems are not capable of being linked to other systems, which brings up the question of why? Why shouldn't be such feature in the system that its outputs could be used as inputs to other systems? System wise it is totally workable, so why not providing such capability for the pharmacies (customers).

He sees the ideal future state of the communication between settings in a way that there should be central database for each patient, which could be accessible from care providing settings with the

permission of the patient, ability to download the information to whatever module available at that setting, manipulating the data, and then send it back again, and uploading all the changes to the central database. So there must be a two-way communication in all transition points, and that the data being available in the central dataset to be accessible to use with different systems of settings at the current moment.^{s15}

Regarding the conduct of MedsCheck at his community pharmacy, he mentioned that he used to conduct MedsCheck a lot with having a part-time pharmacist working on that, but now it has been stopped for a while. Later on, a new pharmacist will be added to the pharmacy with the only concern of MedsCheck, so she will concentrate on the MedsCheck process and try to streamline the process and make the necessary changes to the electronic software being used at their pharmacy. They had carried out a number of home MedsCheck as well, and they encountered some issues such as the security of the pharmacist sent to the house of the patient,⁷⁷ etc. But He believes that there is a critical need for home MedsCheck for certain type of patients. Regarding the acceptance of the MedsCheck service by the patients he said that patients truly were satisfied with the service and of course they welcomed it very warmly.³⁰ His pharmacy's MedsCheck report templates were exactly identical to that suggested by ISMP Canada, and therefore their review print outs were truly readable and concise.

To him MedsCheck was justifiable financial wise,⁷⁸ and he stated that one of the most important reason for it was the efficient system that he has developed by utilization of information technology at his pharmacy.⁷⁸ He hates to ask a pharmacy to copy and paste data which is already available electronically in their MedsCheck system, and making the link between their pharmacy program and the MedsCheck program has enabled them to carry out the process as effective and efficient as possible.

Unfortunately He has not received any feedbacks from other settings, e.g. hospitals, home care institutes, regarding the quality and effectiveness of their reports,^{s5} but what he found is that their MedsCheck are most useful for surgeons and pre-operation clinics.⁶⁸

One of the areas that need improvements is at the primary care physicians' offices. He believes there is not that much interest or motivation for the primary care physicians to enter the latest prescription in the electronic record of the patient (if there would be any) or to ask the patients to have a MedsCheck review after their visit, to update their medication lists.³⁹ It's a kind of cultural fact behind their attitude,³⁶ as he exemplifies that if you prepare the system for them that just by clicking a button all the recent changes to the patient's medication regimen would be sent to patient's pharmacy, they won't push that button.

There is a need in the continuum of care for the patient to minimize and eliminate all the confirmations needed for double checking that the recent change to the patient's medications is intentional and is confirmed by the physicians or surgeon or whoever is responsible for that, and this need could be satisfied by the role of MedsCheck review,³⁴ and a pharmacist would once confirm all the changes made to the patient's medications regimen, and the subsequent care providers do not need to go through the same process of validating the medications.

I asked about the “Privacy” issue here in Ontario, and that if it’s the real issue, He agrees with me that it’s kind of an excuse. He thinks that if we explain and inform the patients why we need their medical information, for which context, and that it’s all about their own benefits, they would certainly accept to share the information between all different settings.⁵⁶

I asked about his opinion regarding the current major problem in the system, and he emphasizes that lack of electronic link between the systems is a huge problem for now.²² He cannot accept the fact that systems cannot talk to each other, and it’s impossible to make changes so that the output of one system could be used as an input to the other one.²⁴ Also he pointed out that the way that information is being showed can be a great incentive for family physicians to start working with MedsCheck. Because currently the medications are shown just the way they are entered in the system, but if there was this possibility to group the medications together, and to present the information the way that is more understandable for the physicians maybe they become interested in it as well.⁷⁹

Regarding the recent contract with the TELUS Company for creating the electronic medical records for Ontarians, He is not very optimist about its success. He believes that by having a big vendor like TELUS to make a system for everyone in different fields, the needs would not be met, and that would not be the best solution. He adds that right now every healthcare providing setting has its own system which is designed or manipulated to fit into the needs and requirements of that organization. What the ministry should do is to try to make a system to link all these different systems, instead of bringing up another new one, which will bring many problems with its advent. He says that such system in this scale should be built bottom-up rather than top-down.⁸⁰ The care providers at the bottom are interacting with patients and other settings, and know their needs the best. So ministry is taking the enterprise approach, which he believes would not work for the current situation in the community.

B.10. Summary 10 - MedsCheck

Two people that might be helpful for me to talk with them, one is the executive director of the community nursing agency, and the other one is the director of the pharmacy at the hospital. In their current project She mentioned that on the hospital side they are trying to increase the number of patients show up at the hospital, whether pre-planned appointment or through the emergency department, that have an up-to-date accurate MedsCheck reports available for the hospital professionals. Because hospitals are enforced to run MedRec required by the accreditation Canada. On the other side, when the patient is discharged from hospital and goes home and is admitted to any of the home care nursing agencies in which MedRec is also required for accreditation, they make the use of the reports from the community pharmacies (MedsCheck).

One of the current obsessions of the dell pharmacy is to increase the public awareness of the MedsCheck.⁵⁴ When it first came out, there was very good advertisement about MedsCheck from the ministry of health, which was really helpful, but unfortunately it didn’t continue.⁵⁵ And now it’s about maintaining that awareness, and reminding people that this report or list must be updated after each filling any new prescriptions or any hospital visits. Logistic wise, time is a critical factor in the pharmacy to run the MedsCheck.⁸ Also, it’s important to persuade the patient to come back to the pharmacy to have the MedsCheck review of their meds. Some of them live far from the hospital

and it's difficult for them to come back to the pharmacy to have their review. They are trying to explain to the patients about the importance of having an up-to-date list of their medications, and how it benefits them.⁷³

The time factor that mentioned above is both for the patients and the pharmacy staff. Well of course pharmacist has to prepare patient information from different sources before conducting the MedsCheck, and it certainly takes time and effort.⁶⁵ And also just to make sure that they will have an uninterrupted time with the patient is important. But time is also a crucial factor for patients who need to go back to the pharmacy to have their meds be reviewed by the pharmacist.

In order to increase the patients' awareness there are a number of methods that are utilized by them. Speaking to them is the most powerful and influential way to encourage them to have a MedsCheck review. Ministry of health has printed some pads in which the benefits of the review are highlighted. Also, some computer programs have this capability to identify patients who are eligible for MedsCheck, and prints a letter that says you are eligible for the MedsCheck and etc.⁵⁵

MedsCheck is teamwork, and it's important to ensure that the team will help to identify the potential candidates for the MedsCheck.

About the home MedsCheck, She also agrees that when the pharmacist goes to the home of a patient it's more effective, because a part of the task is to clean the medicine cabinet, and to find out if there are any others drugs saved up somewhere, if the medicines are expired, if there are more than one container for a specific medicine, and etc. A critical factor to run home MedsCheck is the overlap of the pharmacist. So you certainly need an extra pharmacist to attend during the working hours, so that the one in the pharmacy can do the dispensing tasks.⁸

Presently, pharmacy technicians are also involved in the MedsCheck processes. They help in the preparations of the MedsCheck, also in identifying the potential candidates, and to remind the patients about their MedsCheck reviews, and that it needs to be updated. Reminding the pharmacists that they have MedsCheck appointments and make sure that everything is in place before the patient arrives at the pharmacy.⁴⁶

Regarding the quality of the MedsCheck reports, She said that at Dell Pharmacy they are using a standard system for their reports, and that all the pharmacy staff have been trained about the MedsCheck, and the philosophy behind it, and why do we need to run MedsCheck. So, according to feedbacks that have been received so far, the quality of the MedsCheck reports is quite good and acceptable.

Currently, they have printed out the MedsCheck pads and have distributed them among surgeons to be given to patients who are potential candidates for the review and referring to the community pharmacist to run a MedsCheck review for them. Also they are using a software program which is capable of identifying those patients that are eligible for having a MedsCheck review with the pharmacist, and printing a letter for encouraging them to have such a review.⁵⁵

An initiative has just been launched in their community in which community pharmacies collaborate with home care nursing agencies. Conducting MedRec is mandatory for the nursing

agencies as a part of their accreditation. Now instead of the MedRec done by the nurse, a MedsCheck review is done by a community pharmacist, and in this way the nursing agency will have more time to provide other services to the patients, and all tasks related to the medication management is done by the pharmacist.^{SF16}

A barrier to the conduct of effective Med Checks is the type of discharge reports generated at hospitals. Like the quality of the MedsCheck reviews that highly vary, the quality of these discharge lists are different from different settings, which makes it difficult for the pharmacist at the community pharmacy to get the appropriate information out of it.⁴⁸

Overall, she believes that it would be most effective if physicians and surgeons would ask patients to take a MedsCheck review at community pharmacies, and raising the awareness of the physicians about this initiative would be truly advantageous.^{S16}

B.11. Summary 11 - MedsCheck

In order to train their staff for conducting MedsCheck, Zellers has provided a training CD that takes their staff through all steps of the interview process.^{SF17} They are using their own forms that have been developed at Zellers. One good point in their process is that they provide their patients with an anonymous evaluation form that they can assess the quality of the service they received by Zellers' staff, and Zellers can review their feedbacks.^{SF18} So far, the reaction of the pharmacists has been relatively positive regarding the provision of the service,⁵² and also MedsCheck is done by the pharmacists. Overlap of the pharmacists is needed for those sites that their volume is somewhat high. So the overlap of the pharmacist issue is volume dependent.⁸ On the subject of the number of MedsCheck being carried out, the number is increasing and they have put some targets for their pharmacies to reach that number.^{SF8}

From the financial perspective, MedsCheck is not assumed as a high profitable service for the pharmacy,¹³ because it's not all about the time that the pharmacist is interviewing the patient, rather all the time for back work should also be considered.⁶⁵ The pharmacist has to prepare information before visiting the patient, and after interview the process of documentation and then communication of the results to other healthcare settings is time and resources consuming. He believes that improved information communication about the patient's medication regimens in the future would enhance the quality and the number of MedsCheck reviews.³⁷ Currently, they are basically building their MedsCheck reviews on the preliminary information they get from the patients and other care provider settings.

Regarding the communication between hospitals and the pharmacies, he mentioned that this communication is more from the community pharmacy to the hospital, and they provide whatever information they have for the hospitals,⁶¹ but what they receive from hospitals is just in the form of prescriptions for the patients to be filled by the pharmacy.⁴⁸ It hasn't happened that hospital asks the pharmacy for the MedsCheck review of the patients.⁶⁴ Maybe the reason is that patients don't really take their MedsCheck reviews with them when they are going to hospitals.¹⁸ Currently they are conducting MedsCheck paper-based and he believes that their forms are quite comprehensive. He believes an ideal system for carrying out MedsCheck is that the pharmacist could have a tablet

computer, and could fill out the forms on that and at the end of the interview different reports could be generated from it.^{s17}

Concerning the major obstacles, he indicates that patients' familiarity with the service is critical.⁵⁴ Patients are not always open enough to have this sort of review, although due to their number of medications they are eligible for receiving such a service. And also the understanding of the patients from this service, what is it good for? Also the interview technics is another issue, because there are not so many pharmacists that are familiar with these technics, and it's been very recently that pharmacists are asked to do these types of reviews, so although they have put training sessions in the CD for their staff, but still it's an issue to be taken into consideration.⁸¹ He believes that at present it's actually critical to raise the awareness of the patients, which could be done through promoting the service in conjunction with the initiatives from the government that are not very consistent.

They have conducted very few in-home MedsCheck, and the most central reason for that is the issue of the safety of the pharmacist in the home environment.⁷⁷ In terms of efficiency he states that in-store MedsCheck are more efficient and more viable. Because of travel time involved and the safety issue. About the effectiveness of the in-home service, and that I asked maybe it's better that the pharmacist goes into the home of a patient and can check the vials and all the documents that a patient has and might not bring all of them to the pharmacy, he said that is depended on the interview technics and expertise of the interviewer.

About the link between the MedsCheck and MedRec he said their MedsCheck is considered as valuable document in some hospitals,³⁴ and this type of communication is more beneficiary for the hospitals,⁴⁰ whereas they don't provide much detailed reports about the patients' stay in their hospital, and by creating a discharge list they reduce the community pharmacist' operations in gathering information from different sources which enables them to compare the lists and reconcile any problems. He also mentioned that maybe their service is not considered valuable by the hospital pharmacists¹⁹ (cultural?!). Discharge medication information is not comprehensive enough at all.⁴⁸

Having access to the full patient medication records is what he finds critical for having the most effective system,²² like the ones in British Colombia and Alberta. Therefore they can know exactly what medications the patient is taking. Also in Alberta, pharmacists have access to lab results. Especially in the context that why those medications were administered. But he believes that it's not possible to have accurate MedRec without having access to proper information.

In the end, he really sees the ultimate success of MedsCheck and MedRec on the technology. With technology they can get better and more complete information. Also, he agrees that privacy issue is not a real reason for not having access to patient's information.⁵⁶

B.12. Summary 12 – MedsCheck and the link

Technology is pointed out as the biggest challenge. Of course there are many different types of technology that are being used nowadays, such as telephones, faxes, emails, and etc., but what is meant by technology is the unified electronic record for each person that could be accessible for all

health professionals.²² Nowadays in order to go around the lack of such system, people are taking different approaches, but it should be known that they are all time consuming, and not as efficient as they should be. Technology is certainly a facilitator for proper communication between settings. Technology is easy because it's a sort of a seamless approach to communicate. Until the various business models are linked technologically, we are always looking at barriers like taking up the phone and sending and receiving fax. Currently processes are intrusive and separate. With technology there would be sending back and forth of information in real time, so the most efficiency would be achieved with that. Without it, in case of a community pharmacist that is looking for some information from a hospital pharmacist or vice versa there are a number of barriers one of which is that their schedules should be in line to each other's and they can find each other on other setting.¹⁶

MedsCheck is financially viable for the community pharmacies in terms of the best use of time.⁷⁸ If you look at the MedsCheck process from this point of view that the ministry reimburses pharmacists for a 20-30minuts talk with their patients, it's doable and possible. But while pharmacists are trained the same way, they deliver the service in different ways. If the pharmacist wants to talks with a patient a lot more than 30mins and counsel regarding the medications and conditions, reviewing everything, or even going on the disease management, in that case I would say it's not economically justifiable.¹³ But if a pharmacist sticks to the time allotted by the MedsCheck program and if a pharmacist can stay just with Medication Management rather than disease management and conditions and etc., then the government's payment would suffice. But it should be noted that there are Ramp up time for preparation for the interview with the patient and reviewing patient's history at the pharmacy, and when the patient leaves documentation of the information and then transmission of that information to other settings is time consuming as well.⁶⁵ At the present time, OPA is working on a project to provide pharmacists with a tool (software) that can be used by them while engaging patients in their discussions regarding patients' medications, this software enables pharmacists to carryout documentation tasks right at the exact same time of interviewing with the patient so that they don't need to spend any extra time after patient's leaving, and just by pressing a button a print will be generated and the report will be transmitted to the specified settings. So it would be a seamless process in that regards. So the documentation and transmission tasks would be integrated to the MedsCheck process, and it would be computerized procedure.^{SF19}

One of the reasons that pharmacies somehow are forced to conduct more numbers of MedsCheck reviews is that their business models are betting changed,⁴ and they cannot make more money from dispensing operations, as their professional allowances and rebates have been cut by the government.⁴⁴ He said that it's encouraging that government has recognized the role of pharmacists across the continuum of care, and is now compensating their professional services.¹² He wishes that there were more technical and electronic tools that could facilitate the carry out of such services by the pharmacists.³ It took a while for the pharmacists to become comfortable with the MedsCheck program, and now they are more comfortable and they have incorporated it in their work flows.⁵³ MedsCheck is actually what pharmacists want to do.^{68, 34}

Pharmacists want to provide this type of service to their patients. They couldn't manage to insert that in their work flows because it's difficult for them, to carry it out among many other tasks they

have to do, the most important one is dispensing medications and counseling patients on how to take them and related issues. It is pretty hard for them to find a time⁸ to sit down with their patient and having a one-on-one interview without any distractions. It's doable unless there is another pharmacist in the store that can take over all those interactions. But having another pharmacist in the pharmacy costs a lot. Unfortunately there haven't been any studies regarding the economic perspectives of running MedsCheck check-ups at pharmacies. There has not been any economic analysis of the process, to see how much money is brought in by running MedsCheck in comparison of how much money it's needed to recruit another extra pharmacist.⁸²

The other problem for MedsCheck that has always been criticized by OPA is that there aren't any parameters for MedsCheck identified by government.^{27, 5} It's been said that the government pay you \$60 for this service, but has not mentioned what should be included in the report other than just a list of medications that has been copied for the patient as well. So, government cannot actually measure the impact of MedsCheck on the patient safety, they cannot say if it has really improved the quality of care. The only measure available for them is the total number of MedsCheck that shows these amounts of patients have MedsCheck reviews or this number of pharmacies conducted MedsCheck, but nothing else. This reason has caused other problems such as the quality of the MedsCheck reviews enormously varies from different pharmacies.³⁷ In fact the incentive for having a good MedsCheck and not having a good MedsCheck is the same,¹⁰ \$60, so it doesn't show whose job has been better. So the complexity of the care hasn't been built into the model. He doesn't see any necessity to have legislation in this regards,⁷ but he believes that having policies for standardizing the process is essential and would work.²⁷ He says that pharmacists want to do their jobs correctly and help patients in their medications, as far as the compensation system truly compensates the pharmacists' professional services there isn't any need for legislation.

So far it can be said that pharmacists are satisfied with the MedsCheck service,⁶⁸ and they certainly like to conduct that, but they are in the position to recreate their business models and overcoming their financial obstacles.⁵³ He believes that we are on the right path, and there are a lot of opportunities to leverage the MedsCheck and its developing but with a slow pace. ⁵³

Currently MedsCheck brand has been marketed very well, although government didn't really help effectively in this regards, but they own the name MedsCheck and the program and they are trying to build on that, so now we have MedsCheck for diabetes, MedsCheck for people living in their homes and etc. Other jurisdictions in Canada are looking at MedsCheck and they have found it effective, so they want to start such program in their provinces, therefore, the government is recognizing the value of the MedsCheck maybe not as broad as they expect but still it's good.

There are some programs that are leveraging the MedsCheck program; there is a colon cancer check program that pharmacists are asked to counsel their patients during the MedsCheck about that.

Unfortunately currently MedsCheck is not being used by other professionals in other healthcare settings,¹⁹ and it was never required from a pharmacist to send the MedsCheck review list to a physician or to a nurse practitioner. The need to send it to hospital has a different story. The original idea behind MedsCheck was to educate the patient about the medications and to give them

the messages that whenever you go to visit your physician or a hospital, take your MedsCheck with you. With this in mind, consider the situation where a patient is provided with a sheet of paper that MedsCheck name is not obviously recognized on it, most probably a hand-written paper, with so many different shapes from different pharmacies,³⁷ in this situation as a patient it's really hard to remember this paper with you when you visit your family physician,¹⁸ and it'll most probably get lost among so many other useless papers that we all keep in our houses without knowing what's the use of them. But according to the privacy issues⁴⁹ it's never been asked from pharmacists to transmit the MedsCheck information of the patient to their family physicians or other credible health care providers.

The issue of privacy here in Ontario is not a real problem and it's more perceived as a problem.⁵⁶ We make it a problem ourselves. We just think that patients are too hesitant to share their information, and no one has ever done any studies in this regard. He himself doesn't believe in the hesitance from the patients as a real problem. In fact there is this assumption that a pharmacist is linked to the physician and the physician is connected to the hospital where the patient has been admitted. This is their expectations. Wherever there are computers, these computers should be able to talk to each other, and it makes sense. So according to patient-centered care system, patients truly expect to receive team-based professional services and that members of these teams (physicians, surgeons, pharmacists, nurses, orthopedists, etc.) should be linked together.²⁴ So this privacy issues maybe a concern for a group of people and in fact it can be, but it's not for the majority of the patients.

Regarding the culture of communication between hospital pharmacists and community pharmacy pharmacists, it's said that it's more of a misunderstanding between the two groups, and usually this misunderstanding originates from hospitals.⁵¹ Because pharmacists at hospitals are very much involved in the treatment of the patients and are well informed about the medication therapy of the patients,²⁰ but the problem is that this information does not get out of that setting.²⁶ On the other hand, the community pharmacist has a big problem in finding the right person to transmit that information. Should the information be sent to the emergency room, or to the admission desk, to the pharmacy services... at which level is the pharmacist involved in the treatment process? Also, usually MedsCheck is required for only pre-planned admissions. What is being used a lot nowadays is the DPV which is not a complete source of information, it doesn't provide comprehensive information about patient's medications, and if it shows that a MedsCheck review has been conducted for the patient, it doesn't show the final product of that which is the most updated list of patient's medications. That's why it's incomplete information. Actually this has been another defect in the system that DPV was not meant to be a complete viewer of the patients' medications. This could be exactly the same system that is currently working in BC or in Alberta. And pharmacy was interested in the program and wanted to participate and not only putting information for the Ontario Drug Benefit program but also other medications such as over-the-counters and herbals, and etc.⁷² So they couldn't make it work together, and again technology became a barrier.

From another point of view, MedsCheck is only as accurate as the day it has been carried out. It doesn't show the real-time list of the medications a patient is taking. So, it needs to be confirmed and checked by the next health care settings.⁸³ Moreover, MedsCheck reviews are as accurate as the

patient says to the pharmacists, so if a patient wants to commit fraud against the pharmacist they know how to do that, which in turn will decrease the credibility of the MedsCheck.

Another barrier which is pretty critical is the documentation process. There is no standardization in this regards,²⁷ and government has not provided pharmacists with standardized forms so that they could use them.³ It was left to the pharmacists to design forms and put parameters in them.⁶ Based on the feedbacks that OPA has received from physicians and other health professionals it is indicated that they don't know what they are looking at (MedsCheck review list).⁷⁹ In this regard, OPA has started developing the standardized forms and has put them out. OPA cannot mandate the utilization of such forms, but there have been a number of pharmacies that has taken them up and utilized those forms. After developing these standardized forms, OPA has requested government to make it mandatory for the healthcare settings to use them, and finally ministry has accepted that there needs to be a standardized documentation, and it's promising.

MedsCheck is currently being conducted in community pharmacies, and there is no companion for the hospitals. Sharing of information is not a one-direction flow of information from community to the hospital, and there should be from hospital to the community as well. That seam in between institutional care and community care is so large, and we need to make it a seamless transition. Pharmacists in the community don't see any BPMDPs from hospitals.⁴⁸ Maybe one of the problems for not receiving any BPMDPs is the funding which is needed for this procedure. If community pharmacists are being paid for MedsCheck, then hospital pharmacists should be paid for MedRec at discharge, too. Even if right now some hospitals are providing BPMDPs, they are not sending those reports to anywhere, because it's not clear to whom they should be sent.

B.13. Summary 13 - MedsCheck

In order to evaluate the MedsCheck program and its administration the Ministry uses the claims that are made to be paid and the numbers of people who have received the service together with the type of MedsCheck that they've had and also the number of pharmacies that are conducting MedsCheck. That would reveal the government cost, there was a budget for original MedsCheck program for \$50 million per year, and the program has met the ministry's expectations as far as the numbers indicate. Almost all pharmacies have conducted MedsCheck. In the first three fiscal years of the launch of the program fairly consistent number of Ontarians received the service. For example approximately \$12 million, \$10.5 million, and \$13 million were spent on the program for the first three years, respectively. And then in the fourth year this number jumped to \$25 million, so that's clearly indicative of the growth and acceptance of the program. A Drug systems reform/ there was a significant drug system review that the Ontario government underwent/ what happened was the elimination of the professional allowances to pharmacies,⁴⁴ therefore there was a loss in revenue for the pharmacies and the pharmacists, at the same time they always had their professional services program in which there was room for them to make revenues from there, and there was a \$50 million per year budget that was underutilized, and so then it seemed to align with drug reform change, and the increase at the same time. Regarding the drug system reform, the minister announced in June 2010 that another \$100 million will be added to the already in place \$50 million for pharmacist's professional services that an even higher number of spending that has been allotted for those professional services. So her team was assigned to recommend the ministry

a list of professional services that the ministry should be looking forward to. So it's a significant shift in the profession that the ministry is reimbursing pharmacies for the medication management services that they offer.¹² MedsCheck is the first program, and in September 2010 three new MedsCheck were added to the original one, i.e. in-home MedsCheck, MedsCheck for diabetes, and for Long-Term Care patients, to further expanding the service.

She said that according to all feedbacks from professionals MedsCheck has been a real success for the benefit of the patients³⁴ and to benefit of the collaborative inter-professional care.⁶⁸ So utilizing a community pharmacist in this program is a very positive fact. But of course there are some certain challenges with the program as well. Most of our findings are taken back to our advisory group at pharmacy council. Pharmacy council is comprised of 12 professional pharmacists from different groups and settings that recommend the ministry in professional services. There are also physician representatives in the group as well.

One of the recommendations that the pharmacy council pointed out to the Ministry was that it's important to standardize the original MedsCheck program in order to be able to move forward.²⁷ And currently the Ministry is looking into this advice from the council. British Columbia, for example, has provided its community pharmacies with standardized vendor requirements, and this has been the advice that the ministry has received for MedsCheck. Because in the original MedsCheck program the community pharmacists were left to develop their own MedsCheck review list,⁶ so the government provided a template which was not necessarily used,³ and as a result there was not a consistent product provided to the patient.³⁷ In addition, it was not clear for the patients that they've received a MedsCheck review list, and so the patients left the pharmacy without having the feeling that they have received a consultation from their pharmacist. So the patient awareness and the professional healthcare providers' awareness should be raised with the standardized documentation of MedsCheck.⁵³ Another critical task that should be done by the pharmacists, as she emphasized, is to communicate the ending product of the MedsCheck review to appropriate stakeholders.⁵¹⁸

OCP is a regulatory body that provides guidelines to the pharmacists on developing a best possible medication history. So the job of the OCP is to provide its members with guidelines.

On the subject of double-checking of the MedsCheck reports, she mentioned that MedsCheck review list is a sort of Best Possible Medication History for the time of its conduct, and it's not necessarily the most updated list of the medications that a patient is taking.⁸³

Regarding the standardization of the forms and processes of MedsCheck, it's not clear now whether the ministry is going to make it mandatory for the pharmacists to use the proposed standard forms.⁵ The only thing that can be said at this moment is that the ministry really emphasizes the standardization of the documents.

Concerning the communication between MedsCheck and MedRec, she referred to the numbers that are available. The number of pre-admission MedsCheck and post-discharge MedsCheck reviews that are conducted in the community pharmacies are significantly low.^{64, 26} This indicates a challenge that either pharmacists are not aware of their patient's pre-planned admission or either

hospitals have not added MedsCheck as their sources of information to be obtained for their patients.¹⁸ She suggests that there are some patients that fill their prescriptions every three months and therefore their community pharmacist is not aware of their medical treatments and hospital visits during that time, it's important that community pharmacists start connectivity with their regional hospitals, and in that regard get to know when their patients are going to be admitted to those hospitals. By the same token, for those patients that prescriptions are being dispensed every month or every second week and that they are more in contact with their patients they can provide comprehensive information for those regional hospitals that are in contact with them.

One suggestion is that OCP can regulate or in their inspections can ask for the communication of the pharmacies with other care facilities in their regions,⁵¹⁹ such as family health teams, community health centers. OCP has a clear role here, and not only OCP but other organizations as well. It's a big challenge to leave it up all to the patient.

Ontario drug profile viewer is an example of a system which is to some extent working and is helpful for health professionals to figure out the medication information of a patient, and where they have their MedsCheck done. But certainly it has its limitations.⁷²

B.14. Summary 14 - MedRec

My understanding about the beginning of the MedsCheck program is considered as an authentic frame by this hospital pharmacist. His humble understanding of the initiative is not that perhaps the ministry is saying that we really want to do it for the patient care, let's do this and find out how to do it, but as they are changing the reform legislation they had to find a bridge, there is a huge difference in income for the pharmacists that are going to lose as they are moving away from the professional allowances.⁴⁴ So he believes that MedsCheck was a good way to say that here is the money that has been taken away but from different venue,³⁴ and it is a little bit more patient centered and a little bit more patient focused and a bigger emphasize on patient safety. So, in line with that were changes in scope of practice for the pharmacists as well, so the legislation changed not only with regard to the business models and professional allowances, but there are different legislations for all healthcare professions. For example before pharmacists couldn't prescribe, but now they have limited prescribing authority. So new legislations have been out since then that also allows for other types of activities beyond just a MedsCheck review. Therefore, he believes that MedsCheck is a good start in the right direction about moving and changing from what people normally have done over years against what they should do today.⁵² So it's about moving the pharmacist away from the drug products per se, and focuses closer on the patient and a way of more reimbursing some of that.¹²

The MedsCheck's uptake has been very different in many different areas.⁵² There are some people that are very consciences now and they do that, and hopefully it's getting beyond the concept to just getting the list into a more cognitive assessment of what the patient is taking is really appropriate and what the drug therapy problems are.⁴³ So the MedsCheck was a way to having a meaningful conversation to do that process. So it's a meaningful dialogue.

There have not been any studies that show if the MedsCheck is a profit making program for the pharmacy owners.⁸² As a hospital pharmacist you are salaried so your income is not dependent on

the number of services that you provide. But this is not similar to what's happening in the community to the pharmacists, and their incomes are highly dependent on the number of prescriptions that they fill and the number of patients they provide counseling for. It's just the system of government's payments which is the same for the physicians in the community and etc. So it's like a fee for service, so they get paid for the number of services they have provided.

Regarding the role of academia in launching the MedsCheck initiative he mentioned that there were academia representative in the pharmacy council, like deans and pharmacy faculty members, together with people from other organizations such as hospitals and chain pharmacies and drug stores and also patients' representatives (?) and they collectively made decision about the MedsCheck program.

The challenge in their system is that when a patient is admitted to their hospital it's really useful to have a comprehensive MedsCheck report from the patient's pharmacy and that is a good starting point, but not all the patients have those reports with them¹⁸ and not all those reports are of good quality to be used.³⁷ So it would be really good if hospitals could prompt patients to bring their MedsCheck reports with them while being admitted.^{64, 516} Most patients have more than one pharmacy to collect their medication information from them, and this is another challenge.⁸⁴ In terms of the accuracy it really depends on the pharmacist and the pharmacy. Some are really comprehensive and some are just a printed list of the patients' dispensed prescriptions, versus the list of the medications that the patients are really taking. So what's happening in the hospitals right now is that as folks cannot trust on these reports and as they cannot see which one is accurate enough,¹⁹ they tend to obtain a full BPMH themselves.¹⁷ So if there is any information available they are going to use that as a starting point but they certainly have to verify that completely. This arises the issue of accountability and the importance of education for the community pharmacists that if they are signing the bottom of this form they are attesting that they have had a dialogue with the patient and the data are the most accurate.³¹ Also there is a need of standardization²⁷ and standard accountability that pharmacists know exactly what they are doing meaning that they know what they are accountable and responsible for when they sign it.³¹ Actually the awareness is getting better over time but there is actually room for improvements.⁵⁴ But it should be considered that as their focus has been on dispensing prescriptions so they need time to figure out how to provide such services.⁵³

In their hospital they carried out a pilot project in which there was a transitional care pharmacist. This service was available to a certain types of patients with specific clinical conditions. So when they were about to leave to their homes, they have this opportunity to work with these pharmacists to liaise with hospital within in-patient areas and the community pharmacy to make sure that the medication information is communicated correctly.^{SF20} And in situations that if the patient is going home with some pain, they help to fill their prescriptions. And these pharmacists make sure that the hospital pharmacists and community pharmacists and the patients and their families are talking to each other, and they provide counseling on the medications to the patients and their families. The overall result was positive but there were times that they faced some logistical challenges and getting patients involved. The home pharmacies were satisfied in terms of the information they received.

At Toronto Western General Hospital they do both retroactive and proactive MedRec based on their patients' conditions. Usually they have proactive model at their surgery sections and the retroactive model for their ER. It's not about their inability to run proactive model at ER, but it's more about the culture existing in that department.

The biggest challenge and waste nowadays is due to lack of a central system for medication information, a sort of a unified electronic medication record for everyone.²² If such system was in place there wasn't any need to invest in MedRec at all, and everyone could have access to that central point and get the most updated information for their patients.

Another challenge is the discharge medication list for patients,⁴⁸ which is called "the golden list" that identifies the medications that the patient should take while going back to their homes and also shows all the changes taken place while the patient was in hospital. And then there is a need to systematically communicate such information to all the people that would need to know about them.²⁶ Sometimes at a national level they are not doing a good job in making sure that the patient gets such information in a usable format, and that could be used by the community pharmacist for running a MedsCheck review for the patient.⁷⁹ So everybody uses the information in different ways. So from an engineering perspective it could be said that the same information could be printed out in different formats that suits different people for their different purposes.⁷⁹ At Toronto Western Hospital they are running approximately 6500 to 7000 BPMHs in a quarter. , which may not be %80 of their admissions. They are really struggling to improve their numbers in different groups and teams because it highly varies between different teams. One of the most important advantages of the discharge lists is that maybe a patient was on a specific medication before being admitted to a hospital and that medication was discontinued while in the hospital, but the patient has to continue taking that after being discharged. So the clinicians are not going to write any prescriptions for that because the patient was already taking it before admission. It's just important to remind the patient that although a new prescription is not written for it but the patient has to take that afterwards, and this could be done by providing the discharge list for the patients and their family physicians and etc. Moreover, sometimes community pharmacists or physicians say that they are not just looking for a list to show them what to continue and what to discontinue, rather they want to know why there has been such changes and what has happened to their patients in the hospital.⁸⁵ So they want a more detailed letter that indicates all treatments being done for their patients.

At their hospital they have a MedRec Task Force that they meet every four months to evaluate their electronic system and assess its practicality and effectiveness. The task force comprises of people from all different disciplines and professions in the hospital. They always review the accreditation standards in their meetings to decide about how to proceed. Also they are not just waiting for the accreditation changes, they are more dealing with real life problems and they struggle to find solutions for them.^{SF21}

There is a relatively recent project by the ministry to look at "all drugs all people", in which many different committees are involved and they are asking people what they want rather than just picking one system. So they are tapping into research from everyone and they have right people leading that project.⁸⁰

He suggests starting conversations and meaningful dialogues between different professions in the community and in hospitals. There should be some strategic committees that carry out these sorts of meetings. Actually these types of conversations have been done in smaller communities like Hamilton, so they meet as a group and talk about their issues. This is a little bit harder for a big city like Toronto, but still it's not impossible. Therefore in these meetings and committees pharmacists from hospitals, from community pharmacies, and other areas will talk and point out their expectations and demands from each other.⁵²⁰

Another fact is that patients should be part of these dialogues as well.⁷¹ They should understand the real value of such services. Patients are playing an important role in the community and they are sort of facilitators of such conversations and communications. They are actually the most accurate source of information.

B.15. Summary 15 - MedsCheck

MedsCheck is being conducted inconsistently due to two reasons. One is due to lack of able bodies to run those MedsCheck reviews,⁸ because there are usually one pharmacist in a pharmacy and there is no overlap between the pharmacists schedules so that they can manage conducting those medication reviews, and they are mostly busy with dispensing tasks. Secondly its underutilization is due to the conception of pharmacists. Right now most of the pharmacists (%80 of them) do not see MedsCheck as a new revenue stream within their profession.¹³ Most of the pharmacists are still relying on the revenues that come from dispensing drugs, rather than looking at MedsCheck as a start of a new revenue stream. So, she thinks that cutting the professional allowances has been a great mistake,⁴⁴ because it resulted in downsizing the pharmacy staff which has direct impact on the conduct of the MedsCheck program.

She believes that community pharmacists were somehow left alone for conducting such services.³ She says there is no support from organizations and ministry to help them increase the number of MedsCheck reviews they are carrying out. She identifies two supports in this regard. One is the software programs available for running MedsCheck, which of course depends on the pharmacy system being used at the pharmacy, and the other is the educational programs. There are some educational programs around MedsCheck and how to make it happen in your stores.^{5F1} So these programs help pharmacy practitioners to implement and operationalize this MedsCheck initiative in their pharmacies. About the amount of investment needed for the software programs, she believes that this amount of money is not a huge burden not to make it happen, and it more depends on the intent of the pharmacy owner rather than financial issues.⁵²

She thinks that MedsCheck itself if utilized in the most optimized way is indeed helpful for the health and safety of the patients.¹² At their community pharmacy they usually communicate with other health provider organizations through fax. She herself has never received any feedbacks from physicians and other health practitioners regarding those MedsCheck reports sent out.⁵⁵ She doesn't have any ideas whether physicians and other health practitioners are actually using those reports.

In order to improve the quality of the service and the way it's being conducted, she says that it should be done several times so that we can figure out what is the best way to do that.⁵³ So

repetition is an important factor for developing it. Also, she says that you should not really ask patients whether they want to have the MedsCheck review, you should pretend that this is not a voluntary program, because if you ask them they would certainly refuse to have that because they cannot see any value in that,⁵⁴ but if you don't ask and just review their medications in MedsCheck review, they'll find it really helpful and they would like it.³⁴ So increasing the public awareness around this initiative is really critical as well. And here is where we have not done a very good job at it.⁵⁵

She thinks that standardization is really necessary,²⁷ as long as it is clear what criteria should be documented in the forms (whatever that has been identified in BPMH requirements of OCP). It is too difficult to cross the dispensary system and processes incorporations in a community pharmacy with standards.

She does not know what really motivates pharmacists anymore,¹⁰ financial value and professional satisfaction associated with it, and understanding that the patients for whom you will do a MedsCheck will become potentially your loyal customers and do not tend to change their pharmacy and who they visit with.⁴¹ I think the approach that pharmacist could be happy is multi-factorial. She also believes that the approach of the manager and the pharmacy owner is totally different from the pharmacists, because the pharmacy staffs by and large do not get any more money by doing MedsCheck and it's the owner of the store that gets the money. So for those pharmacies that are not paying any extra money or bonus to their pharmacists to run MedsCheck, you can imagine what would be the reaction of the pharmacists to conduct of MedsCheck, because they have to add this task to their other dispensary tasks for no money and that does not really look good to them. So the approach to the pharmacist should be different from the one the owner of the pharmacy in terms of motivation.

She says that personally she would prefer to sit down and talk with one patient for half an hour to do the MedsCheck review rather than dispensing ten prescriptions during that period. So, the MedsCheck itself is an interesting task to do by the pharmacists, unless they have assigned a specific time in their shifts for that, not in parallel to other tasks and responsibilities.

She as a community pharmacist has not seen even once a patient discharged from a hospital to have a summary of his medications or discharge list from hospital while visiting their pharmacy.⁴² Regarding the collection of medication information from hospital, she says that it's easy if you know who to contact at which section of the pharmacy services.

B.16. Summary 16 - MedsCheck

All the Pharmasave pharmacy stores are independently owned and are not chain. So their store owners have the ability to do whatever they think is best for them, and their programs aren't corporately run. So their role at the office is to support those pharmacies and help them with what they need to do and provide them with programs and resources they need.

All their pharmacies are providing the MedsCheck service for their patients, which is providing the Meds review and the list of their medications to the patients.⁴³ He says that currently the identification of drug problems and resolving them is not included in the MedsCheck service

required by the government. Second part of the MedsCheck service is to go through all the discrepancies identified during the meds review and then trying to resolve those issues, and if necessary communicating with physicians and pharmacists at the hospitals or other health providing organizations. Now pharmacists are not paid for doing the second phase of the MedsCheck review.⁶⁵ Right now the amount of time allocated by the ministry for the MedsCheck is fifteen to thirty minutes, in that span of time pharmacists cannot do the second part of the MedsCheck. What pharmacists are really looking forward to is the launch of the phase two of the MedsCheck service that provides the ability for the pharmacists to spend the additional time necessary to resolve those kinds of problems.⁵²¹ There is currently no evaluation of what happens when the patients receive a list of their medications. When phase two of the MedsCheck is launched a sort of evaluation is certainly needed. So there is not any good study in this field so far. There are some assessments by the pharmacies of the number of discrepancies they have identified and the amount of time spent for the MedsCheck, but not a comprehensive study.

He thinks that pharmacies cannot make profit with running MedsCheck considering the time spent by the pharmacist for providing that service.¹³ There has been an increase in the number of MedsCheck being carried out in the last couple of years. One reason is that pharmacists have become more comfortable in providing such service, they understand it better and they are more successful in integrating it in their other pharmacy operations.⁵³ Another reason for that is the government's cutback,⁴⁴ so pharmacists are looking to expand their models to gain other revenue sources, and MedsCheck is one of those opportunities for revenue sources. There is a broad range of the number of MedsCheck reviews that are done by the pharmacies. Some pharmacies are doing lots of them and are high achievers and are investing time and staff to make that happen and also it highly depends on the number of patients coming in.⁵²

Putting aside the factor of time as one of the major hindrances for administration of the MedsCheck,⁸ how pharmacists should integrate the service into their day to day operations,³ if there is a need for an extra pharmacist to take over the dispensing and counseling responsibilities and the other pharmacist just focus on the MedsCheck service. What if a patient does not show up, what if the patient cancels the appointment, all of these bring cost to the pharmacy that should be taken into consideration while deciding about whether or not to recruit an extra pharmacist. Identifying the patients eligible for the service and getting them understand the value of the MedsCheck service.⁵⁵ A lot of patients they are not sure what MedsCheck is because they have not been exposed to that before, and they don't know whether they need it or not.⁵⁴

In order to increase public awareness, Pharmasave is supporting its pharmacies in promoting the MedsCheck service for their patients by using posters and fliers.^{SF1} Secondly, Pharmasave has pharmacy operations teams that are on the road and goes to their pharmacies and works hands on with their stores to help them integrate MedsCheck into their pharmacy operations.^{SF2} So they walk in as business and pharmacy consultants, and each of them are responsible for a group of stores.

He believes that there is huge opportunity for ongoing investment in public awareness and marketing for the MedsCheck. Another suggestion is putting systems in place that drive the need in partnership with physicians and hospitals that are beneficiaries of such a service. For example it's

good if physicians and hospitals promote their patients to bring in their MedsCheck reviews when admitted.⁵⁸

It's difficult to evaluate the quality of the MedsCheck reports, as they highly vary between different settings.³⁷ Also there is not any standard in place that one can compare the MedsCheck reports against them.²⁷ So the challenge is that people have to check where is the MedsCheck report coming from and how much they can trust on that, so they have to somehow evaluate each report before using that.¹⁹

The inter-communication between different settings also varies. In some situations the relationships are truly good usually in smaller communities where everyone know each other. And in urban settings it becomes more difficult and still there is a lot of room for improvement to reach a seamless care relationship. If we put aside the electronic medication record which is being developed right now and that we are not sure when it will be launched,²² the challenge in facilitating a fluent communication between settings takes changes in people's attitude,⁵² people's ability to communicate with each other, and everybody has his own best of interest. Even having a standardized form for these sorts of communication may be a solution but still people have to adopt them and they need to be designed in the way to enable people to adopt them.³²

Registered pharmacy technicians should play more active role in facilitating that uptake of the MedsCheck service. There is a huge potential lying there.⁴⁶

B.17. Summary 17 – The link

Regarding the roundtables that take place every now and then, she thinks that they are truly helpful in understanding what's going on in the community, and it helps people from different professions and backgrounds to understand each other's problems and challenges. But the fact that should be kept in mind is that findings of such roundtables should be followed up by some organizations to see if they are really implemented and considered in real work or not.⁵² Many times it happens that people reach positive results in their meetings, but due to lack of follow ups they are not helping to more effective outcomes in the community and in hospitals and other health care provider settings. People who attend those kinds of roundtables usually come from different arenas so they can bring in different perspectives which may result in finding better solutions for current problems.^{SF1} As mentioned earlier, it's really important to take the findings of such meetings and make changes to practice. It is difficult for the individual practitioners in the community to put in place those findings, and there is this possibility that such findings do not reach those individual practitioners. It's really important that practice changes take place at the ministry level and then from that channel reach all practitioners in the community. These roundtables are helpful in recognition of the problems and finding solutions for them, but not for making changes in the practice level. They also stimulate additional research.

Regarding the acceptance of the MedsCheck service by the patients, she believes that once patients understand the real value of it they do come back for it.³⁰ She states that pharmacy practitioners must be educated that MedsCheck is not only a list of the medication, rather it is more about giving counseling to the patients regarding their meds.⁴³ It should be considered as a check point to see whether the meds are safe and effective for the patient and if they are the best prescription for the

patients. It's not just about creating a list and promoting adherence to that. Adherence to a wrong drug is dangerous and may cause more problems. This is where we can realize the vitality of having standards for MedsCheck operations.²⁷ Although MedsCheck is not a thorough assessment of the patient's medications, it is a good start. This is the first time that patients go into conversations with their pharmacists in such depth about their medications and it's a good opportunity to increase these sorts of conversations. Overall, MedsCheck is a valuable service but it's not enough.³⁴

Regarding the type of communication between different settings, she says that there are no systems available for such communications,⁶¹ and most of the time they are carried out via phone and fax, which may result in waste of time and lack of proper and accurate information while needed.¹⁶ You should know the right person to call to and ask for information of the patient and many times it happens that patient's physician is not at the office when his involvement is necessary.⁶⁹ One of the problems with the paper-based discharge lists of the hospitals is that they are written in a bad handwriting or they are using carbon-copy which is not easy to read, so in either case you'll need to call back the hospital and ask for those items that are not readable.⁴⁸

She thinks that right now MedRec is not being conducted at the physicians' offices all the time. Informal comments reveal that physicians are happy with MedsCheck reports and they have found them useful.⁶⁸

In academia, MedsCheck and MedRec are being taught in a couple of different types of courses, from policy wise to practice level. The change is going to be implemented in their curricula by which courses related to MedsCheck and MedRec are going to be taught in the first year in order to make the students become quite efficient in these operations. So the curricula have been changed significantly and the emphasis is on medication reviews. Medication review has a broad meaning of working with patients, what kind of information is needed, how to assess drug therapy, what to do when encountering drug therapy problems, how to work with team members. So the curriculum is structured the way that students learn these early on throughout their studies.

In their practice management courses, concepts of pharmaceutical industry are being taught, within which new models of practice are offered because it seems that the pharmacy industry is changing. So they teach ideas like what it means to develop a business plan and what factors should be taken into consideration. Patient care practice is also being taught which is totally different from pharmacy practice, and is not about dispensing medications, rather is about doing things like MedsCheck and other assessments. So these changes have been incorporated in the curricula.

In terms of the eHealth project in Ontario, academia is considering offering electronic documentation in their curricula to teach the students as early as possible. They have a central and remote pharmacy computer lab in which they have software systems which at a current time they are more related to dispensing. They are in the process to see if there is any good clinical software for electronic clinical documentation.

It is correct that community pharmacists and hospital pharmacists do have different cultures and due to their businesses their priorities are different as well. It's been tried to put the patient care as the main goal of the students no matter where they are going to work in the future. If they

understand that patient is the central goal those wrong cultures should be put away and everyone should try to contribute across the continuum of care. Good interactions between hospital and community pharmacists are usually in smaller areas where people get to know each other better. Otherwise it's difficult because each person has its own busyness and own way of doing things. In Canada there are a number of ongoing approaches, in terms of seamless care where they are looking at how to make the transitions smoother and how to work together. Some of that certainly goes back to the common definition of patient care and a common way of providing patient care consistently regardless of which site you are working at. And in terms of practice rotation students are sent to both sites cause they need to be exposed to as many sites as possible and know that it doesn't matter where you are working, it's all about patient care.

She believes that right now we really need to work close with the patients. Patient can be that effective connection between practitioners.⁷¹ If we know the patient through him we can know who their community pharmacist is, because we are all providing healthcare services to the same patient, and therefore we can communicate easier with them. In this way that wrong culture in the society would also be changed. It should be noticed that whenever changes are mandatory they happen very slowly.⁸⁶ For example, MedsCheck program although it has reimbursement system, the uptake was not significant and it's not now where it could be. So the incentive for whatever reason has not been there for pharmacists to do that.¹⁰ She thinks that the system is going to change soon with pharmacy technicians coming on board as regulated health professionals,⁴⁶ therefore pharmacists will take that opportunity to have more time to spend with patients. So from academic point of view in order to increase the communication in community we need to better teach these things in site. We should also emphasize inter-professional education, which will help students to better understand other professions and disciplines and their roles and values in providing care for the patients.⁵²³ In this way all students from different disciplines will figure out what other professions bring to the table of patient care. Changes take years and years to happen.⁵³

Electronic health record is the ultimate key for nowadays problems.²²

B.18. Summary 18 – MedRec and the link

Medisystem pharmacy is a pharmacy that only services nursing homes and retirement homes. They have started by providing services only to one nursing home, but now they cover all over Ontario. The issue of medical information becomes very important at the transition points of the patients. Patients usually come in nursing homes and retirement home from community settings (homes), hospitals, and other nursing homes. Looking at the medication information transfer, she believed the biggest hurdle is that every setting has its own system,²⁴ and that these systems don't talk to each other.⁶¹ Even the settings within one certain organization (such as Shoppers) their systems are the same, but they cannot talk to each other. So what they are relying on right now is mostly paper-based communication. One thing that was looked at in last year's roundtable was that obviously while dispensing medications due to the fact that most of the patients are elderly and are included in Ontario Drug Benefit (ODB) program, so all their medication information will flow into their ODB profiles, and all different settings are feeding that ODB system. The question here is that as the community pharmacists are not able to talk to each other through their systems, and that we all have something in common that we all have access to it which is ODB profiles, is it possible that we

build on that and utilize it more robustly. Because currently there is this ODB profile viewer link for the emergency departments within hospitals so that physicians can see that, but it is limited and you'd better have pharmaceutical knowledge to figure out how useful it is in fact.⁷² Therefore, we can see a huge potential in this ODB profile viewer and we think there should be this possibility to input information regarding all drugs and not only those covered by Ontario Drug Benefit program, so by reviewing that profile we can get better picture about the given patient.

Probably a more complicated solution is to better utilize the MedsCheck review reports. So again in MedsCheck pharmacies are taking their information and printing them on paper and creating their own version of that MedsCheck form.⁵ We have done a large number of MedsCheck reviews in our nursing homes as well, so what we do is that we pull the information from our system, and then print it on paper and obviously we follow-up with physicians if there is any information that is needed to be added and if there is something we need to let the people know about it, we ensure that information is communicated correctly to the nursing staff and physicians so that we can update all the profiles, but again there is no mechanism for that information to go back into the system. So she thinks that everyone can create their own way of doing it,²⁷ but ideally for the long-term you want a sort of a system that everyone is feeding that information into a central place where people within the circle of care can have access to it and review it.²²

One of the biggest challenges they get in terms of information coming in to them is that most of the time medication information of the patients comes to them through CCAC, so what they do most of the time is that they go in and review the resident before they are admitted to the nursing home. These case managers from CCAC are not necessarily pharmacists, they are mostly social workers and they don't have a healthcare background necessarily, so they are most of the time completing these medication lists. So, when CCAC case manager goes to the resident's house, there is a section in their forms where the case manager takes the vials and writes the information down. This information is incorrect most of the time. So when the nursing home gets the list and they look at that, they use it as a part of their information that they have received, but it is very confusing because they can potentially cause someone taking that information and causing a discrepancy. So, the nursing home staffs once again goes through all the information and review everything and sort of audit all the information they receive. It is clear that the information from CCAC is consistently incomplete and not accurate or they might be old.²⁹ Sometimes they are six or eight months old, so it's almost like that you are producing a potential risk for error because of that information.

There is at homes program that even a pharmacist working at nursing homes can go to the patients' homes prior to their admittance to the nursing homes and run a MedsCheck, in this way you can be sure that this information is complete and timely,^{s24} and that the same pharmacist that has gone to the patient's home will get that information when the patient comes in the nursing home. So, it would be ideal if the nursing home could be informed which patient would come in, we could arrange for conducting MedsCheck at their homes (if a community MedsCheck report is not available) and we can claim for that MedsCheck.^{s25} When the patient is resided in their nursing homes, they can run MedsCheck quarterlies and can claim for them as well. It has not been yet taken place, but as their pharmacists are already on the road when they have to visit different nursing and retirement homes, so this option could be considered as an extension to their routine

tasks. So the nursing home is ready to provide such service if they could be informed ahead of time which patient is going to come in, they can manage that. Of course it is not always logistically possible, as there are emergency cases and unpredictable cases.

So looking at the MedsCheck that is happening right now in the community pharmacies, the biggest challenge is that it is not electronically and it is printed in a page.²² It is helpful if the resident and the patient has that information while coming in. In that case we have another source of information to review on admissions. But the problem is that as a manager of a nursing home pharmacy, she has never seen even one MedsCheck report from a patient at all.¹⁸ Part of that problem is that the people who really need this service are not able to go to their pharmacies to receive a MedsCheck review. Because they need so much care, you are probably not seeing them at the community level.⁷³ They might not even take their meds themselves. She knows that there are some groups that the pharmacist is a part of the health team and actually there is a pilot project in which a pharmacist goes into the homes of the patients and reviews the medications. Those are the organizations that probably see people that need more care than potentially going to the community pharmacies for having their MedsCheck done.

The other biggest challenge that we have is for the time that someone goes to the hospital and then comes back. Right now, due to the Accreditation Canada requirements most of the hospitals focus on admission MedRec and their discharge processes is not that much good.⁴⁸ Recently Accreditation is asking for discharge processes as well, and as every hospital has its own system,²⁴ the forms that we get are highly different in terms of the format and type of information available on them,⁵⁸ and these systems can sometimes potentially create some problems, when in some forms due their marginal limitations some of the information is cut off (if it's a long combination medication). And discrepancy can happen when a nurse receives that cut off information and that they don't know all products. We have tried to work out those issues with hospitals so that hopefully they'll change their programs.

There is a group of hospitals in the Brampton area, where these groups of hospitals got together with CCAC, some community pharmacists, some long-term pharmacists, and hospital pharmacists, and talked about this flow of information, they reviewed each other's forms, and they were trying to find some areas to improve the system.^{SF22} Again the challenge is that every hospital has its own system, and there are obviously some resource issues to have more comprehensive systems.⁸ So when their patients are discharged, most of the time the discharge processes and reports are paper-based. Another challenge is that at nursing homes and retirement homes they need both prescriptions and discharge lists from the hospitals. Some hospitals print only one of them and believe that they can be used instead of each other, which is not true. The prescription is used to provide the medications for the patients and the discharge lists are giving more information about what has happened to the patient while staying in the hospital and is more comprehensive. The reason behind this inconsistency is their systems that not all of them are capable of generating those required information. Therefore, it happens sometimes that their discharge lists are not as complete as they should be.⁴⁸ Another issue is that many times they change products because of their formulary. So it's useful if they say that this certain med was started in hospital but you don't need to continue this afterwards. So it's not only about the name and the standings of the patient's

meds, they need more information and instructions regarding those meds, that it's not needed to be continued, this was changed to another med, and this one was intentionally stopped. That's where that reconciliation needs to happen, and that's why sometimes it's confusing what the intents are.

Another problem is that these systems are not capable of printing those standardized formats suggested by regulatory organizations. It is certainly useful if they could provide a template and say that the ideal report should contain these parameters,³ but it is not possible to enforce application of those forms because of many different systems that are being used by different organizations.⁸⁶

Medisystem is using an ePen technology, which transforms whatever is written on paper with that specific pen to digital format. So it can be used to save time instead of faxing and at the same time it reduces the reading and hand-writing mistakes. So the physicians and nurses at nursing homes and retirement home write the prescriptions and other stuff with that technology, and the information is transferred directly and digitally to the pharmacy services. But still at the pharmacy they have to re-type all that information in their pharmacy system, since those systems cannot talk to each other right now. So its application has been fairly limited so far, due to the reason mentioned above and that usually physicians' hand-writings are not readable with that digital pen, so it limits the usability of that technology. eMar is another technology being used by Medisystem pharmacy, which is electronic medication administration record as is used in many hospitals. In community pharmacy and nursing homes and retirement homes, due to the current regulations electronic medication orders by physicians are not accepted and therefore, even if they enter all orders in their systems and those are available digitally, they still have to print them and sign them so that it can be used by the pharmacists in the community. But in hospitals, as they are following different regulations, at first doctors place orders in CPOE systems this information goes into the pharmacy system of the hospital digitally. After that pharmacists have validated the physicians' orders in their pharmacy systems, that information would automatically be populated into medication administration record (MAR) system of the nursing staff. So, in hospitals three separate systems are talking to each other and it's actually very effective. But the problem occurs when no information could be transferred from one hospital to the other, as they are all using their own systems. Therefore, although hospitals have created useful systems locally, in the larger scale these systems are limited to their own hospitals and are not talking to the systems of other hospitals. So overall, they are all doing the same work in different hospitals, which is duplication and waste of resources.⁸ So it's necessary to create a central system where everyone is feeding into that, and then create interfaces for all of these systems available in different settings.²²

The reason for such duplications originates from the time that you want to have control on which system to buy, and have control in terms of customization and ability to adjust what you are doing within your own organization. But the other option is that government says that this is the system that we are going to pay for to whoever is using this system, that would be a better option probably in the long run in terms of cost, but probably it would be a slow implementation for any changes to happen, and it would be very difficult because a lot of people would do things this way or that way, and if you have a system that everyone has to use it you should either allow some customization on it at the hospital level,⁸⁰ and she thinks that it may take a long time for the changes to happen,⁵⁶ because they have to see if everyone is having this change. So there is a lot of inherent risks with

one option or another. In order to make the use of a certain system government has to make the decision and pay for it, which is the real issue here in Canada. Also there are so many systems out there in the market right now; it's really difficult to select one of them. Also it's very important to plan for it and see that if everyone knows what is going to happen in the close future,⁵⁶ but globally she believes that there is not a clear direction for the development of technology and that what's the short-term and long-term plan in Canada for all of this. She states that she doubt if anyone knows what the plan really is. And as a result, everyone is doing their own things. Which can be okay, as long as we know that in five years our systems should have certain interfaces and should contain certain information.⁵ So as long as people know that they can use their systems but in five year your systems have to be compatible with certain requirements in that case it works.

In close future hopefully there will be electronic medical records for everyone, but she is not sure that if right now they are aware of what requirements are in order to be able for their systems to talk to that central database. The only clear fact is that all their systems are built in HL7 messaging system.

MedsCheck is actually an effective program in nursing homes,³⁴ and they are conducting this sort of medication reviews every quarterly. They have devised some implementation strategies to reduce the time spent by the pharmacist or a nurse to collect information. And it is carried out electronically in their own system, and is somehow linked to their pharmacy system in the way that they pull medication information from their pharmacy system into their MedsCheck system in order to create the initial list of meds, so that the pharmacist doesn't have to create the list by themselves, which can be a cumbersome and time consuming task. The MedsCheck is carried out physically at the nursing homes. Whatever recommendation made for the patient is certainly documented in the system for further reference. At retirement homes we do conduct more community based MedsCheck review. The only problem in carrying out MedsCheck is that as it is a voluntary program not all the patients and residents would like to have MedsCheck and they see no value in having that.⁵⁴ Retirement homes are considered as the patients' homes, so sometimes they are hesitant to those settings and providing such information. But at the same time as it's happening in their homes, pharmacists have the luxury of checking how they are restoring their drugs and check for the vials and etc. And sometimes we are trying to make it mandatory for the patients to have MedsCheck, and we say that you are admitted and we need to review your medications and then we do that.⁵⁵ Definitely from their perspective, as their pharmacists (Medisystem) are strictly doing clinical services they have the luxury of being focused and doing MedsCheck. And they are not being poled to doing dispensing, so in the setting that they are in they really focus to do that.

Hospitals should really understand the other settings' requirements and try to have concise and clear information to them.⁵¹ It's really helpful if they know where the patient is going after being discharged from their hospitals.⁴² Of course having access to DPV would certainly be helpful. Every community pharmacist should have access to it which is a quick hit. Also, government knows how practical it is if they open some fields in the ODB that contains all medical information of the patients including all drugs and vitamins that are not covered by ODB program. So that everyone

can see and have access to that. It has a great potential to facilitate the communication between settings.⁷²

B.19. Summary 19 - MedsCheck

A pharmacist at a family health team in Cambridge is working with 22 physicians. Her role is clinical evaluation of patients and counseling patients. She is always doing medication reviews whenever she meets with patients, and since she is not working in a community pharmacy she cannot bill for MedsCheck, but she basically does a full BPMH for each patient. She is trying to outreach the community pharmacies, as they are eligible to bill for the MedsCheck, so why doesn't she refer the patients to them to have the MedsCheck done, the community pharmacy can be reimbursed for the service¹² and then give the family health team pharmacist the information, and then she can take a look at the lab information and all whatsoever that the community pharmacist doesn't have access to them, in order to make a good decision that's best for the patient. But sadly, she is having a limited success so far, because the community pharmacists really just don't understand the family health team pharmacist's role²⁶ and they think that they are stepping on their territories and things like that. So there is this issue in their culture that is not understandable²⁶. So she is trying to put through a proposal to a medication management team in Cambridge, hopefully to find a pharmaceutical company to fund her bringing in a student to try and link all these facets together better, so that all the pharmacists in community and hospitals and family health teams get together and consider that we need to manage this profile and this medication management process, so we need to communicate amongst ourselves because we should be the gatekeepers of this information and work together as a team^{SF22}. So this is her hope to achieve in Cambridge.

So, back to her point on the current state of the communication between community pharmacists and the family health team pharmacist, what community pharmacists say is that we will not fax the MedsCheck reports to you (family health team pharmacist) and we will fax them to the patients' physicians. She thinks that if it is the patients' privacy issue⁴⁹ she has access to all patients' data and even in this way she will get that information through patients' physicians. So what's the point of this resistance to not providing such service and information for the family health team pharmacist?

When she first started working with physicians in the family health team, physicians were not really paying attention to the MedsCheck reports and they were not using them⁶⁴ even if those small numbers of MedsCheck reports were faxed to them from community pharmacies¹⁸. But right now, due to unknown reason those same physicians are actually starting using the information from MedsCheck reviews⁶⁸, so it's really interesting to see that having a family health team pharmacist can really help bridge that gap, by having those MedsCheck reports as the patients come in and basically say that by looking at the clinical picture in the labs and based on this information and everything else that recommendation makes sense. Since physicians are not updating the patients charts in their family health team, so the preconception that the patients' profile would always be accurate at their physicians' office is not true and it's a nightmare, so again here is another place where a pharmacist can come in and input all information including over the counter drugs and the herbals and vitamins into the patients' chart, and now patients have the most full and

complete history at the physicians' office, which could be used for a time that a patient is going to visit a specialist or is going to be admitted at the hospital.

Regarding the sort of the culture that exists right now between people from the same profession of pharmacy but working in different organizations like hospitals, community pharmacies, and other health care settings it is really meaningless to this pharmacist at the family health team. From the physicians were not really paying attention to the MedsCheck reports and they were not using them⁶⁴ even if those small numbers of MedsCheck reports were faxed to them from community pharmacies.¹⁸ But right now, due to unknown reason those same physicians are actually starting using the information from MedsCheck reviews

Regarding the fact that hospital pharmacists are not being paid for conducting MedsCheck reviews, so they are not that much interested in passing the patients to the community pharmacies, and ask them to provide MedsCheck for their patients.⁶⁴ It is a wrong belief because pharmacists at hospitals and family health teams are already paid for providing such services.

Regarding the practicality and effectiveness of the current MedsCheck reports, she thinks that they are not of good quality³⁷ and due to the fact that there is no standardization.²⁷ Every MedsCheck from different pharmacies highly vary in terms of the software system that is used by the pharmacy and the sort of information available on their forms.⁵ She states that one of the biggest problems by the government when launching the MedsCheck program was that they didn't provide any standardized format⁵ or an electronic format that they could populate so that other people could have access to it.²² Currently hospital pharmacists can go into Ontario Drug Benefit profile and see the medications of the patients that are ODB patients, and they have to submit a billing number, so she thinks that by submitting that billing number they should also submit a MedsCheck report so that hospital pharmacists could have access to that information.⁷² So she identifies standardization and ease of having access to information as the two major problems.

The problems with the standardized formats suggested by ISMP Canada and OPA are that first of all they are paper-based, and secondly they are not user-friendly formats.⁷⁹ Community pharmacists prefer to use their pharmacy system reports for their MedsCheck because they automatically pre-populate the MedsCheck review report. In this way they don't have to hand-write or type every single drug from scratch. Considering this reason, it should be noted that it's not impossible for the computer software vendors to produce and design their final reports the same as the standardized formats suggested by OPA. The problem is that the government has not mandated community pharmacies to utilize one certain format.⁵

As a family health team pharmacist, she has the least access to the patient's medical information. In this circle of care, hospital pharmacists have the most access, and after them community pharmacists have more access to this information, in comparison to family health team pharmacist.

She says that besides eHealth, she is not aware of any other plan to support the pharmacist to gain more access and better communication among their profession. At the same time she agrees that we should not wait until eHealth is launched because it's not clear at all when it could happen. She

states it's not correct to sit back and say that when eHealth starts all these problems would be solved, and why we should waste our time trying to solve them now.

Regarding the discharge process from a family health team, she mentioned that there is this application in place that a physician can refer a patient to the family health team pharmacist post-discharge, but that has never happened to her. Here is where she can see a huge potential for the role of community pharmacists. Because patients usually refer to community pharmacies to fill their prescriptions, if the community pharmacist runs a MedsCheck post-discharge for that given patient and then automatically send that report to the family health team pharmacist, then she can update the patients' profile and could do reconciliation on their profile if necessary.

Her suggestion for improving the communication between the settings, other than having standardized forms and the eHealth, is that patient's MedsCheck and other medication information should be carried electronically in a USB device. So that it could be accessed after getting their permission by the clinicians and would be updated and modified in each setting that they visit, either a surgeon's office or a community pharmacy that would be the best solution.^{s26}

She thinks that her role becomes critical for those complex patients that assessing their medical status is more than just having a med history. In this way, she thinks that more regular and straight-forward cases can be done by the community pharmacists and she as a family health team pharmacist can assist physicians in more complex cases and check for physicians' recommendations and see based on all information from labs and patients' charts and MedsCheck reviews from community pharmacies whether physician has made the best decision. She says that actually right now, physicians are asking for more help of this kind from her, rather than a simple med history. And here is where the role of community pharmacists becomes vital also, because she make her decisions based on the latest and the most updated medication information of the patient from the community pharmacies through their MedsCheck reviews. Because as a family health team pharmacist she does not meet with patients always, and she has to make her decisions based on all information available. So, here we can easily see the need for education on how pharmacists from different perspectives are the gatekeepers and managers of that information.³¹

There is more collaboration happening and more inter-disciplinary learning and stuff like that is taking place in academia in order to change the culture that exists between physicians and pharmacists that limits their cooperation and productivity.^{s23} Therefore, I can say that younger physicians are more aware of the role of pharmacists, but in general they cannot figure it out until they work with a pharmacist.

B.20. Summary 20 - MedsCheck

College of pharmacists is a licensing regulatory body that enforces the standards of practice and ensures safe and effective application of pharmacy practices in Ontario. Regarding the role of the universities in MedsCheck initiative it should be mentioned that it's quite limited. In academia students are being trained to be competent enough to conduct MedsCheck, figure out how MedsCheck integrates in the body of the healthcare services in Ontario. There has not been any formal MedsCheck professional development training programs for pharmacists.

MedsCheck has been misunderstood both by pharmacists and by public. It's generally under-utilized or when it is utilized it is not to the optimized potential. The cut of the professional allowances has caused pharmacies and big chains to look at MedsCheck as a new way to re-cooping money that was taken out of their pockets.⁴⁴ Therefore, that strong corporate of financial interest in MedsCheck "I fear maybe skewing the actual utility of the whole enterprise". When it's looked at as a way to earn money rather than a way to optimize patient care the quality and the integrity of the process all will start to suffer. These are not based on any data, and are just his understanding from the current situation.

In the financial respect, he believes that MedsCheck has not been as successful as many hoped,¹³ because there is fairly a very strong resistance on the part of the pharmacists to actually engage in MedsCheck, and barriers have been identified such as time, space, their own comfort levels, competencies.⁸ In fact one of the issues has been that many pharmacists that have been in practice for quite a while are afraid what if they find something out during the MedsCheck process, what are their legal, ethical, and professional responsibilities in that case, and they prefer not to know, which is also another barrier to the real uptake of the MedsCheck.³¹

One of the issues that is difficult to quantify and detect in the system, and it's mainly sort of insider in the field while talking to pharmacists that discomfort they have with the additional responsibility that MedsCheck introduces into their day-to-day life coupled with the fact that if you are a salaried pharmacist, you will have these additional responsibilities while your salary is not increased. So why would you want to do this. So there is a sort of a subversion of both government aims and employer objectives.⁸⁷

A cynic in me says that the real objective of ministry in doing that was not to achieve any healthcare outcome, but to throw a bone to the professional pharmacy and say that look we cut on the one hand, but we are going to give this on the other hand. It was actually a cheaper quid pro quo for them, and it should be mentioned that these are all suppositions, but he thinks that real objective around MedsCheck was less for quality therapeutic outcomes⁸⁸ and that is a sincere hope, but the real objective is that it's a quick way to show professional pharmacy that we support you, and that we respect your authorities.¹²

Regarding the standards that are suggested by ISMP and OPA, it is believed that they are simultaneously too low and too high. They are too low to actually achieve valuable therapeutic outcomes, and too high for the large number of average pharmacists who have practiced for a long time. So there is a disconnection considering the very large untapped professional need to support pharmacist who might want to do this but are afraid to do it.³

There are many complicated issues to be solved to support the pharmacists, because within the profession of pharmacy there are many forces impacting on the day-to-day lives of the pharmacists. For several pharmacists the general responses have been more of subversion. What they are trying to do is to hang on to a model of practice, that was very technically focused, that was a lot of hard work frankly, but a lot of hard work within a certain comfort zone. In order to try to incentivize people to move forward from that comfort zone into the unknown is really complicated,¹⁰ not only for pharmacists, but in any professions. And it is believed that not enough attention has been paid

to actual change management piece of this process.³² Right now there are many marks that we are not going to give you any money, and you are going to be broke, unless you stick to the MedsCheck program. The marks to actually incentivize people to change practice, around education, and other sorts of incentives are not in place yet. Many pharmacists claim that the money given for MedsCheck does not even cover the cost of doing it,¹³ especially if you have to do a lot of follow-ups. So why would you do something that you are losing money on that. The ministry has retort to that by saying that of course it's not enough but still it's money and it's a way of compensating for these loses. There is a lot of toing and froing that masks the real underlining issue around change management needs, and there is a lot of irritation between government and the profession right now in terms of who should be doing what and who should be paying for what.

If a pharmacist refuses to fill a prescription they're going to be compensated for \$15 for completing a report why something is not therapeutically appropriate. Programs like this one that are focused on one activity rather than a large and ambiguous ones like MedsCheck might be better.⁵²⁷ This will change with time and that's part of the process that we should be patient,⁵³ because simply offering a program doesn't mean that overnight everyone will take it over. Students should be graduated and people become more confident in it and as employers start to pushing it other ways to employees to do them. Right now we are in the transition period and over time we'll reach all positive outcomes. The concept of MedsCheck is believed to be a good one,³⁴ but the execution of it has not been the best.³ Currently pharmacists that are conducting MedsCheck haven't connected it to the broader health care system needs. No one has shown them how to do that, no one has incentivized them to do that. There has not been any receptivity on the other side of the equation especially family physicians who may not have understood what it is.⁶⁴ There are a lot more system pieces that must be put together, MedsCheck itself is useful just as it is, but its real value come in when it's connected to a broader EMR,²² broader inter-professional collaboration, broader communication between physicians and prescribers and pharmacists.⁴⁰

According to MedRec processes, they are evaluated as highly variable. At some instances it's done extraordinary well and effective and in other cases it's not.⁴⁸ There isn't a lot of standardization and quality assurance of the process,²⁷ and in that environment this variability starts to diminish the quality of the whole program, and because of such a variability it really seems to be based on the individual skills and motivation of the pharmacists that are engaged in it, that variability undermines the broader attempts to have this as an appropriate part of the system.

There is usual barrier around time and competence,⁸ and the responsibility that what if I find something, how I am going to fix it. The lack of ability of the pharmacists to fix the problems they find themselves, for them it's like you are opening the Pandora's box, let sleeping dogs lie, and there is a lot of legitimacy to that as well, what if it takes longer than it was supposed to, how am I going to be reimbursed,⁶⁵ in case you are chasing down prescribers, chasing down pharmacists, and once you've found something most pharmacists feel ethical responsibilities to do something about it, but if they don't know there would be no such ethical responsibility for them. So there is a lot of that ambivalence sense for the system is that they are not compensated correctly and fairly for the potential risk they are taking and starting this whole process.

For improving the MedRec processes there is much emphasize on efforts around continuing education and around continuing professional development,^{s28} second issue is perhaps a model of certification based on the level of quality assurance and some kind of billing mechanism that recognizes sometimes MedRec is complicated. Right now the model is a one-size-fits-all model which is a sort of real tension for pharmacists. In some cases time is a precious commodity and it should assess that if MedRec is suitable for all situations. Therefore it needs to be a joint effort by all stakeholders to identify what do we want from this process to really do and what are the processes and outcomes that we to be expected to be delivered.

It is going to take a generation for the relation and communication between community pharmacists and hospital pharmacists to be improved.⁵³ Partly it's just because they are different worlds and different silos have been emerged, partly it's due to lack of seamless systems that facilitates the transfer of information.²⁴ The lack of centralization of databases,²² right now it means that people are just talking to each other on the phone and that's time consuming and it's not easy to find people on the phone, so there are many issues with that.^{16, 61}

There are lots of legitimate and lots of less legitimate reasons that highly politicized process, it's a big process, there's privacy issue,⁴⁹ but there are provinces the same size and scale that have been able to do that and politically aware of all these issues, there is at some levels physicians' subversion of the process because if all the information becomes available that also impacts some of their control. If other provinces like B.C and Alberta have been able to solve the issue of privacy of the patients, it should not be a real issue here in Ontario either.⁵⁶

Putting aside the eHealth project, the ideal system is something like what is available within hospitals, where there is a sort of repository of patients' medication histories, medical conditions, laboratory data, and CPOE kind of systems. If there could be a kind of community CPOE system that people could tap into appropriate programs that would be an ideal model.

It's important to see what has been the stated intent of a program and the real intents of them. But it's important to consider that there are some political expediency that needs to be looked up very closely. When looking at these grandiose policies and grandiose programs implementation is always the weak leg, which is exactly a good example of that MedsCheck, and there is a difference and disconnect between what the leaders and professionals say and what employees actually do. These are the gaps that should be investigated closely so that the implementation would be facilitated by solving them.

B.21. Summary 21 - MedsCheck

She has done two studies regarding MedsCheck. One of them is the pilot study conducted in Hamilton in which they looked at the pharmacists' perspectives regarding the MedsCheck program and its process. The second study is exactly the same as the first one but with a larger sample of all people across the Ontario province, in which they surveyed 600 pharmacists and asked them about the MedsCheck. The results from the second study are strikingly pretty much similar. The main difference was in the amount of time taken for conducting MedsCheck. In the second study this time period is longer, considering the time needed for preparation and the wrap up of the medication

review afterwards. It took an average of 50 minutes for the pharmacists to carry out MedsCheck, versus the average of 30 minutes in the previous study.

About the current state of the MedsCheck program she said that there are a number of pharmacies that are doing well in MedsCheck, but the number of missed opportunities is much higher. When MedsCheck was first initiated, it was the only funded service for the pharmacies,¹² and looking at this from a systems perspective we can notice a lot of challenges for the pharmacies to incorporate such a service in their routine work flows.³ But since last September that other options were also added to the MedsCheck service (menu of service), such as follow-up MedsCheck, Diabetes MedsCheck, LTC MedsCheck, and so forth (and more to come), it gives better opportunities for the pharmacies to include them in their routine workflows, and they can find the best service that best suits their facilities and equipment. That allows them to look across their patient population in more ways than just one MedsCheck.⁸⁹ Dispensing related services, services that occur while prescriptions are being dispensed, which are more in line with their workflows, pharmaceutical opinions, and the like that pharmacists can then bill for them? So, because of the menu, there are more patients that are applicable for the services, so there is actually quite an opportunity for the pharmacists to look across their patients lists and see who is eligible for which service.

Unfortunately there has not been any study that shows if running the MedsCheck program is financially viable, neither is there any study that shows it is not.⁸² Therefore, we have to have more financial modeling done, to try to figure out the financial aspects. You know there are pharmacies that do not know how to do it, and the beginning is always the hardest part of any initiative. If you are trying to find something that everyone is able to do that, you will never find it. There are some pharmacies that are running the MedsCheck and some that are not. For those pharmacies that are already feeling confident and competent it offers them great opportunities. There are some pharmacies that are taking advantage of it, and some pharmacies that are not, and a lot of that has to do with culture, corporate issues, the kind of store you have. Through this research it should be recognized that there are pharmacies that are in large retail environments, pharmacies that are in chains and in medical centers, so there are a lot of aspects that we can help people to run their business.⁴

Looking at the stats from the last year, we can realize that the funds provided by the government are being used, and actually utilization of such funds have increased. For the current year, we have passed the original 50 million dollars mark for the year.⁷⁰ With the new services, actually there has been an increase in the number of bills and claims for the general MedsCheck together with other services in the menu. Roughly saying, in the first week 30% of the pharmacies have billed for one of the services, which shows a high uptake of the programs. It should be considered that it's totally new for the uptake to happen right away, and from systems management and business workflows it actually takes time for the new initiatives to be set in place.⁵³

Thinking about the nature of the MedsCheck program, she believes that MedsCheck is not beneficial for the patients' health.⁸⁸ But that was not the reason why MedsCheck was brought up. It was brought up for a host of reasons. I pointed out that the fact mentioned in the last sentence can be a reason why MedsCheck is not very well received by other medical settings such as hospitals and other caring organizations, She stated that the MedsCheck itself which is about creating the list of

the medications is not a very complex task, and it is not supposed to involve sub-injective therapies for the patients, therefore its impact on the patients' health is going to be minimum. It's just about reconciling a list; it's a MedRec in the community. It's not really different from MedRec.

Concerning the physicians' feedback, they believe having the most up-to-date list of the medications is a key, and it's one of the most important things they want to have.⁶⁸ But they don't really want lots of faxes from pharmacies, and lots of communications back and forth from the pharmacy because it takes up a lot of their time, so overall physicians seem to have valued the most updated list of medications, and they would really like to have them. This is why we can see right now many of the family health teams have a system that orders a MedsCheck review for their patients prior to their physical visit to their offices. In this case, both the family health team physician and the community pharmacist can see the value of that because the information is there right at the time that it's needed.^{SF23} But still physicians don't want a lot of paper work back and forth with community pharmacies. It's important to understand from a physician's perspective, it not that they are not interested in having accurate information, but they recognize that they are also responsible for reviewing the information that comes in.⁵¹

She says that I always tell physicians and pharmacists, that pharmacists you don't know what it is like unless you've been there in a family physicians' office and see their work flows, and physicians if you are to go and work in the pharmacy you'll have a hard time too. So, it's on both sides.

There is a change from a few weeks ago, Ministry in conjunction with other organizations such as OPA have come up with some standard forms and it's become mandatory for the pharmacies to use them. There is a time delay for it to be used by everyone. So the concept was originally to see how pharmacies figure it out, but now pharmacy council has recommended one single format for the forms.²

Beside what is happening in corporates that they are trying to see how to incorporate the MedsCheck processes in their workflows, such as Rexall is doing and Shoppers is doing and etc., there has been an education program called ADAPT, which is run by CPhA (Canadian Pharmacists Association) and it's more about skills developments. So one of the great barriers for the pharmacists to take on these new services is confident and competency, so they have done an online distance education in this regard, and the feedback has shown that people were satisfied with the program and has found it helpful. OPA is developing their own business [...] program for November that hopefully will address some change management processes.

Regarding the culture between community pharmacists and hospital pharmacists, she accepts there is a wrong culture where hospital pharmacists feel superior to the community pharmacists.¹⁹ It's not that they are not interested to communicate well with each other, and rather it's more of a systems level issue, She says that both hospital pharmacists and community pharmacists have complicated tasks to do and due to shortage of the staff both in hospitals and community pharmacies,⁸ it's difficult to find them and ask for more information regarding a given patient.¹⁶ There is not any mechanism or system in place to facilitate the communication between these two groups.⁶¹ Pharmacists in the hospitals tempt to feel that community pharmacists are stopping them from whatever they should do in their hospitals, so it's not about their desire and willingness,

rather it's more due their nature of jobs and responsibilities. The note about the quality of the MedsCheck reports and that they are not accepted by hospital pharmacists due to this reason originates from this wrong cultural issue.³⁷

Less reliance on dispensing and want the pharmacists to focus on more critical issues which give more value to the patient's health and the rest of the clinical and medical team.⁵²⁹ She believes that after a while the value of services like MedsCheck would be recognized more by other clinicians, we should just give it some time.⁵³

She strongly identified IT solutions as a key for today's operations, and that's what is needed right now. The most promising and effective way to insure that medication lists are transferred correctly and that each patient has its own medication profile, and it gets updated and changed by different places and different people. So she believes there must be a sort of database somewhere and then different clinicians enable them to access that and change the information, and that a reconciliation process happens in the central database.²²

She believes that it's important to identify where the positives are and what the negatives are. That's the sort of study which would be helpful. The success stories are really valuable. We need more impacts.

B.22. Summary 22 – MedRec and the link

There are several routes at the entry point to the homecare services. People might come from hospital, from home, from long-term care services, and resident care. So at this point patient is introduced to case management of CCAC. There are different levels of case management. There is the office case manager who does the telephone assessment and can implement services right there. There is the home visiting case manager that has to go and do a complete overall assessment at client's home. So the office case manager receives the call that a patient needs homecare. This call might be from a physician's office, patient's home by one of the family members, or hospital. Usually they only receive calls from hospitals on the office hours when their hospital office care managers are fully staffed. As far as getting a medication list everything is a little bit loosey-goosey here. Case managers are reluctant to just take a verbal listing from for example a family member. Sometimes if it's the doctor's referring they ask the doctor to fax them patient's medication list from their patient's chart. If the referral is coming from hospital they might ask for hospital patient's profile or the patient's discharge medication list or prescriptions, which may not be a correct list. Not all hospitals have good intake process³⁵ and most hospitals have poor discharge plans.⁴² When it comes to medications just a handful are actually reconciling medications with the pharmacists involved. She is aware that at some settings they are educating nurses and physicians to do MedRec, but based on her experience doctors and nurses are not good in that at all.⁴⁸ In her suggestions physicians often are conducting MedRec operations in a hurried manner⁴⁸ and not necessarily going back to see why they have started a specific medication. So for the time of admission there is also a potential for a MedsCheck to be shared with the case manager.

There is a new process at Toronto Central CCAC that they are working on it to put it in place that when a patient is admitted to homecare, the case manager in his initial visit to the patient's home asks the patient to bring all their medication lists and vials, and case managers have to enter it into

their database named “RAI” Resident Assessment Instrument that is a standardized assessment tool used by all CCACs.^{SF24} At their group (Central CCAC) the case manager brings up an e-form to request for MedsCheck.^{SF25} So this form gives the community pharmacy some information regarding the patient’s medication regimen and requests for a home MedsCheck review by the community pharmacy. Or that we are recommending a MedsCheck for this patient upon his visit to your pharmacy. So the request form will be faxed (paper-based)⁶¹ to the pharmacy that the patient goes to (assuming that there is only one pharmacy).⁸⁴ This is where we run into variations in practice.²⁷ So when the community pharmacy receives the MedsCheck request form some would just look at that and throw it out, specifically when we ask them to go to the clients’ homes most of the problems rise, one of which is lack of time and lack of pharmacist.⁸ And it is very much based on their relation with their patient. If they know the patient very well they’ll certainly do that.²¹ So disregarding how and when the MedsCheck is done, patient will receive a copy of the generated list, and they’ll hopefully fax the list to the office of CCAC so that it would be filed properly under the client’s chart when the case manager reviews it. The other option is that if the patient’s case is a disaster and there is too much complicated problems and it’s a two hour work for the pharmacist, since the community pharmacist is going to be paid for only \$150 which is not covering their wages at all, so this hesitation is logical if we look from their perspectives.⁶⁵ So in that fax request they have mentioned that if they found too many issues to deal within their time frame, they can send whatever information they have gathered to CCAC and request that her team to go in.^{S30} So that’s how they have tried to loop things. We do know that there are some clients with circumstances that really need far more intensive investigations and follow-ups. So her program deals with the patients that aren’t easily fixed in thirty minutes. So her program’s goal is to cover 1600 cases for the year, which is about %4 of all Central CCAC clients.

All their team members are registered pharmacists and over half of them are licensed geriatric pharmacists, so they have specialty training, and more than half of her team members are hospital trained pharmacists. So they are very familiar with happenings of the hospitals and homecare and all the miscommunications. So they are a fairly advanced team for doing MedRec in complicated homecare. In a previous trial by CCAC in which nurses were involved in doing MedRec, results were not satisfactory at all, and nurses didn’t really like the MedRec operations, and we should understand that MedRec is not their field of interest actually. MedRec was really challenging for those nurses in the trial. So they ended up having staffing problems and retention and difficulties in getting things reconciled. Literally it should be mentioned that physicians have much lower response rate than the one from pharmacists towards those physicians.⁶⁹

MedRec is just reconciling the lists and making sure that medications are consistent with medication patterns, whereas the next level is Medication assessment which means to make sure that the patient is taking the right drug at the right time and that the medication is correct for the patient. Her team is deeply involved with medication assessment as well.

At discharge, patients may be readmitted to a hospital, long-term care, or reintegrate back to the community because they are better. According to Accreditation Canada requirements from homecare agencies, providing a MedRec review list at admission and discharge is mandatory.⁵ Unfortunately, homecare institutions don’t have good processes for their discharges and such lists

are not provided at this moment,⁴⁸ they are struggling actually. Currently Central CCAC is working on the transfer to LTC piece to work smoother, and focusing on the clients to be admitted within three months, the case managers are mandated to ensure that the list they have on the record is up-to-date. So those case managers may refer those patients to her program or to community pharmacies to do a MedsCheck. But the discharge processes are really loosey-goosey.⁴⁸ Regarding discharge general consensus is that case managers would refer clients to community pharmacies to run a MedsCheck review for them. One of the biggest challenges in homecare is for a time that a patient visits hospital while receiving homecare services, and then goes back to homecare, especially if the patient goes to a hospital other than the one that had communicated client's information to CCAC.⁶¹

Biggest problem here is lack of central database to put all information into that,²² and we are still all working on the paper-based systems,²⁶ which is terrible. It's a poor tracking system currently.²⁶

They already have a database that they put all their MedRec information in their computerized systems. But here is a matter of time, once you have discharged a client and it's done, you cannot go back to that database and access that information. You have to start all over again. So they cannot just go back to that client's file and make modifications and update that list, and they should start from scratch. It's useless this way.³¹ Also lack of link between their systems with other institutions' and physicians' systems is another barrier.⁶¹ Physicians do not show very interested in medication information of the patients, and this is not surprising to her, because she believes that physicians' responsibilities are different. Their focus should be on diagnosing, and that is so much of their training.³⁹ So this is not really their priority and we should respect that. As long as everyone respects everyone else's niche it's not a problem.⁵¹ So to her technology and lack of proper technology is putting a stump to their progress.²² So the ability to modify and update and a tracking component with that are essential.³¹

In eHealth project they are focusing on a way to make all different systems that are being used in healthcare by different organizations talk to each other. Somehow developing a kind of hub in the middle that can translate whatever machine and program is talking to it to a one common language.⁸⁰ So the hope is that within two years they'll release a program something like DPV but more complete than that and the more groups and professions can have access to that.⁷² As patients do not always take whatever is prescribed for them, so it's necessary to put back the patient's perspective in that systems as well.⁷¹ The most accurate list is the one that shows all the medications that a patient is actually taking, not the ones that have been prescribed and dispensed.

Another challenge is that every time we embark on designing some sort of databases or a new system, it costs hundreds of thousands of dollars.⁹⁰

Regarding the MedsCheck review reports, first of all public awareness about that is awful,⁵⁴ because even when CCAC can check in their DPV and find out that they have done that at a community pharmacy, patient's themselves do not know what are they talking about.⁵⁵ Secondly they have seen very few reliable MedsCheck reports that are truly comprehensive and of good quality.³⁷ But most of the MedsCheck reports are just a computer print of a patient's profile and nothing on that has really been reviewed. There are many cases that are referred to CCAC for medication

assessment and they can see that MedsCheck has failed to do the deed and has not resolved the patient's problems.³⁷ MedsCheck is now more funding opportunities for the pharmacists, now they have got the opportunity to bill for some of their recommendations.⁸⁸ Perhaps after a while their MedsCheck becomes better.⁵³ Regarding the standards she says that unless those standards are not mandatory for pharmacies to be used, they are not going to be effective.⁵ Another problem with MedsCheck is that ultimately there is no way to measure the quality of the MedsCheck reports.³⁷ There should be a sort of patient satisfaction survey go out for the service that pharmacists are billing for. Ministry should be interested to know how the service is being delivered. They should start collecting some tangible hard core results regarding their service they're paying for. Although the first intention of having MedsCheck was more to reimburse the money that was cutback (professional allowances),⁴⁴ they should have an expert body that has designed the process and assessed its feasibility for implementing into the busy work settings, they should have allowed pharmacy managers to have training to understand how to change their stubborn patterns to accommodate this flow of the new business.³ All they are doing right now is just counting the number of MedsCheck that has been done. Not even the number of discrepancies that have been identified and resolved. The number of medication related problems they have identified and resolved.³² If there was standardized software that came with MedsCheck²⁴ then the pharmacists didn't have to re-invent them themselves,⁶ and the result is that everybody is making their own forms, and nobody is coding anything, nobody is working on the same form.⁵

Appendix C – Medication reconciliation Supplementary Documents

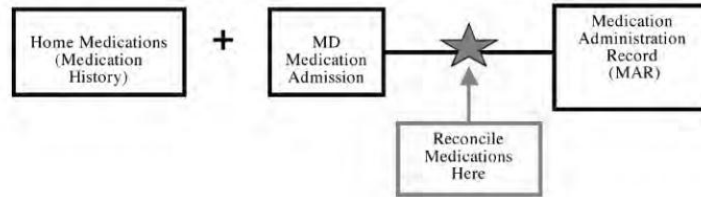
C.1. Accreditation Canada Required Organizational Practices (ROPs)

REQUIRED ORGANIZATIONAL PRACTICES	
<p>Our objective of guiding our clients toward safe and quality health care is strengthened by Required Organizational Practices.</p> <p>ROPs that came into effect in 2009 are indicated with a ✨.</p> <p>ROPs that will come into effect in 2011 are indicated with a ★.</p>	<p>SAFETY CULTURE</p> <ul style="list-style-type: none"> ▪ Adverse events disclosure ▪ Adverse events reporting ▪ Client safety as a strategic priority ▪ Client safety quarterly reports ▪ Client safety-related prospective analysis
	<p>COMMUNICATION</p> <ul style="list-style-type: none"> ▪ Client and family role in safety ▪ Dangerous abbreviations ✨ ▪ Information transfer ▪ Medication reconciliation at admission ▪ Medication reconciliation at referral or transfer ▪ Surgical checklist ★ ▪ Two client identifiers ▪ Verification processes for high-risk activities
	<p>MEDICATION USE</p> <ul style="list-style-type: none"> ▪ Concentrated electrolytes ▪ Drug concentrations ▪ Heparin safety ✨ ▪ Infusion pumps training ▪ Narcotics safety ✨
	<p>WORKLIFE/WORKFORCE</p> <ul style="list-style-type: none"> ▪ Client safety plan ▪ Client safety: roles and responsibilities ▪ Client safety: education and training ▪ Preventive maintenance program ▪ Workplace violence prevention ★
	<p>INFECTION CONTROL</p> <ul style="list-style-type: none"> ▪ Hand hygiene audit ✨ ▪ Hand hygiene education and training ▪ Infection control guidelines ▪ Infection rates ▪ Influenza vaccine ▪ Pneumococcal vaccine ▪ Sterilization processes
	<p>RISK ASSESSMENT</p> <ul style="list-style-type: none"> ▪ Falls prevention strategy ▪ Home safety risk assessment ★ ▪ Pressure ulcer prevention ✨ ▪ Suicide prevention ✨ ▪ Venous thromboembolism (VTE) prophylaxis ★

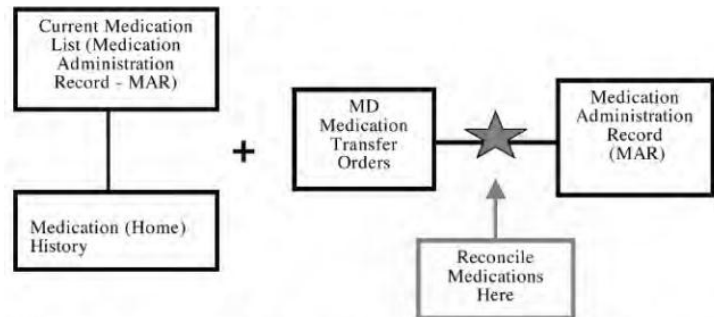
© Accreditation Canada 2010

C.2. Medication reconciliation at transition points

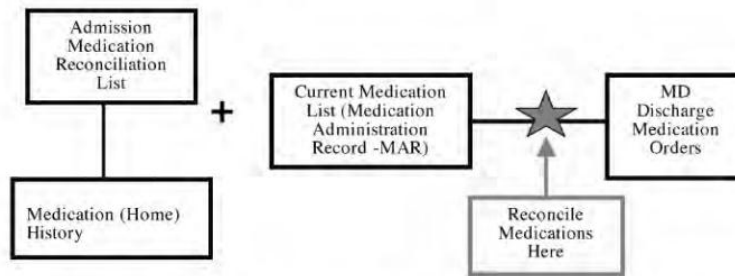
Admission:



Transfer:

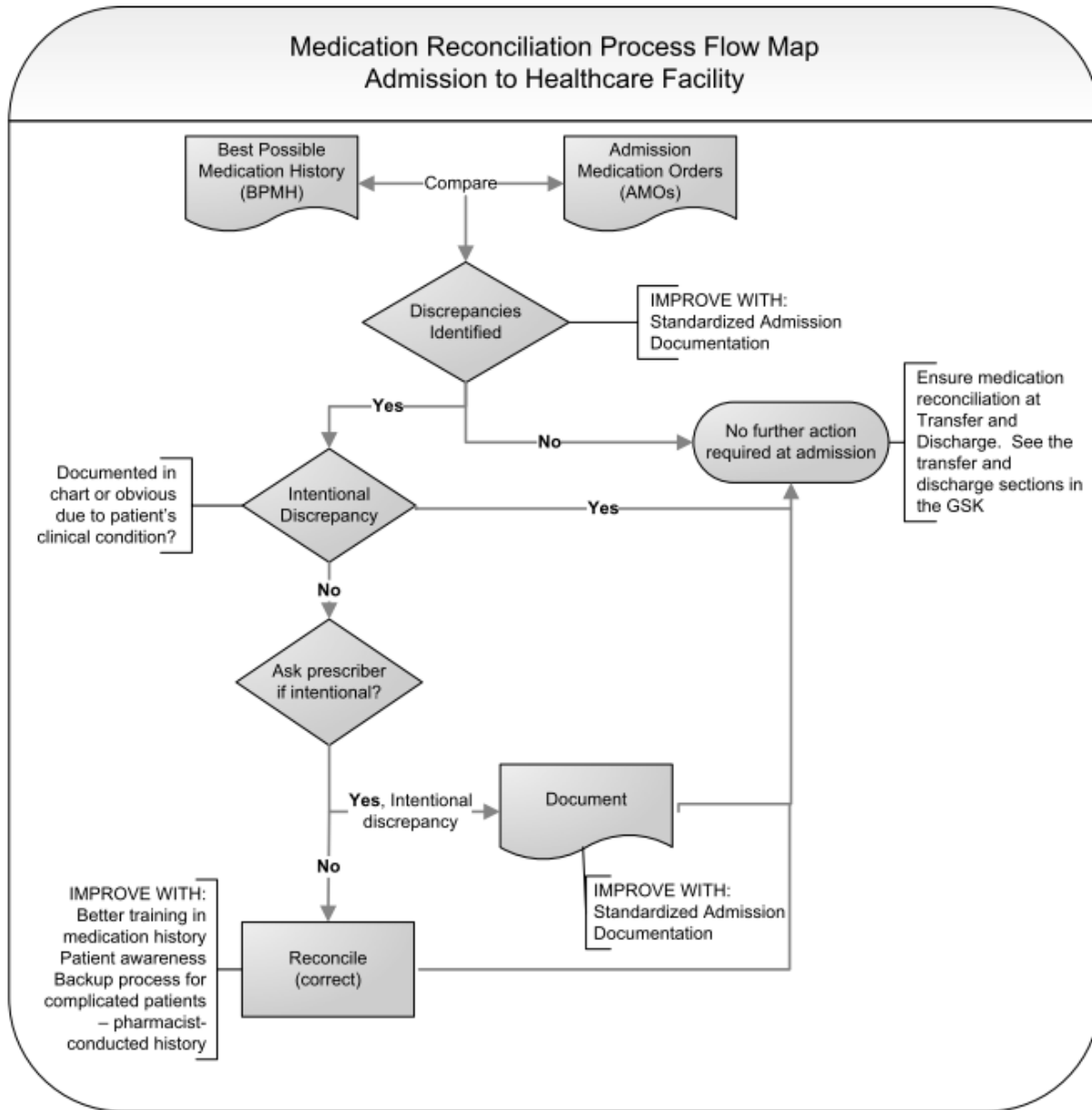


Discharge:



Reference: (Edson 2006)

C.3. Medication reconciliation process map at admission to healthcare facility




Reference: (Safer Healthcare Now campaign 2007)

C.4. Medication reconciliation form at admission to healthcare facility

Page 1 of _____

DATE _____ HSC NO. _____
 PATIENT _____
 DOB _____
 PROV HCF _____
 DOCTOR _____
 CLINIC/UNIT _____ LOCN _____

 **ADMISSION MEDICATION RECONCILIATION FORM** Draft 10

On No Medications at Home
 Unable to obtain medication history: Reason: _____

Allergies: Yes No Known Allergies

Medications/food/environment	What is the reaction?	How long ago?	Has the child tried it since and how did he/she tolerate it?

Weight _____ kg Height _____ cm BSA _____

Any other medications that are not taken by the child due to adverse effects? no yes (list) _____
 Any street drug use? no yes (list) _____

HOME MEDICATIONS ON ADMISSION							Physician Medication Reconciliation against admission orders					
<input type="checkbox"/> OTCs <input type="checkbox"/> inhalers <input type="checkbox"/> injectables <input type="checkbox"/> tube feeds <input type="checkbox"/> patches <input type="checkbox"/> prescriptions <input type="checkbox"/> Herbals <input type="checkbox"/> eye/ear drops <input type="checkbox"/> nasal mists <input type="checkbox"/> creams/ointments												
Drug (generic name preferred) How does the child like/tolerate the medication?	Dose	Route	Freq.	Tablet or Liquid (concentration) (special prep)	Last Taken (Date/Time)	Reason for medication	Current Dose mg/kg/day or mg/kg/dose etc	Dose acceptable (please check)	CONTINUE	CHANGE	DO NOT ORDER	REASON FOR CHANGE/DO NOT ORDER
1												
2												
3												
4												
5												
6												

Source: (Circle all used): Chart Patient Parent Medication List Bottles DPIN Transfer Sheet Pharmacy: Name: _____ Number: _____

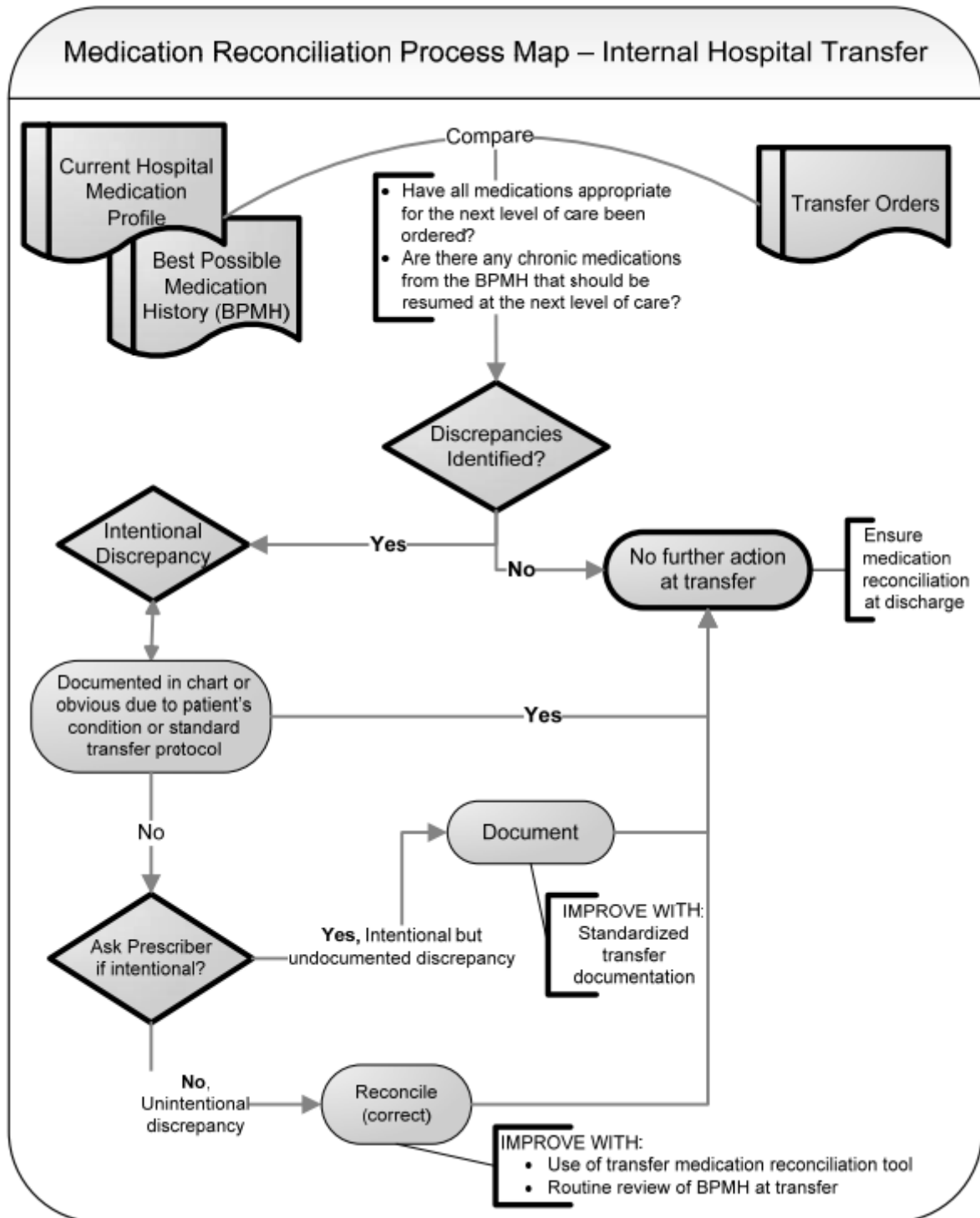
Medication History Recorded by: _____
 Date: _____

Physician signature: _____
 Date: _____
 FAXED TO PHARMACY

COMPLIANCE AND ASSESSMENT OF EDUCATION NEEDS	
How often do you miss a dose? <input type="checkbox"/> Seldom <input type="checkbox"/> 2-3times/week <input type="checkbox"/> 4 or more times/week	
Why do you forget? Side effects, timing cost	
Have you stopped/started/changed any drugs in the past month? <input type="checkbox"/> no <input type="checkbox"/> yes	
Who gives (administers) the medications?	
Do you keep a medication list? <input type="checkbox"/> no <input type="checkbox"/> yes	
Do you bring your medications to all doctor's appointment? <input type="checkbox"/> no <input type="checkbox"/> yes	

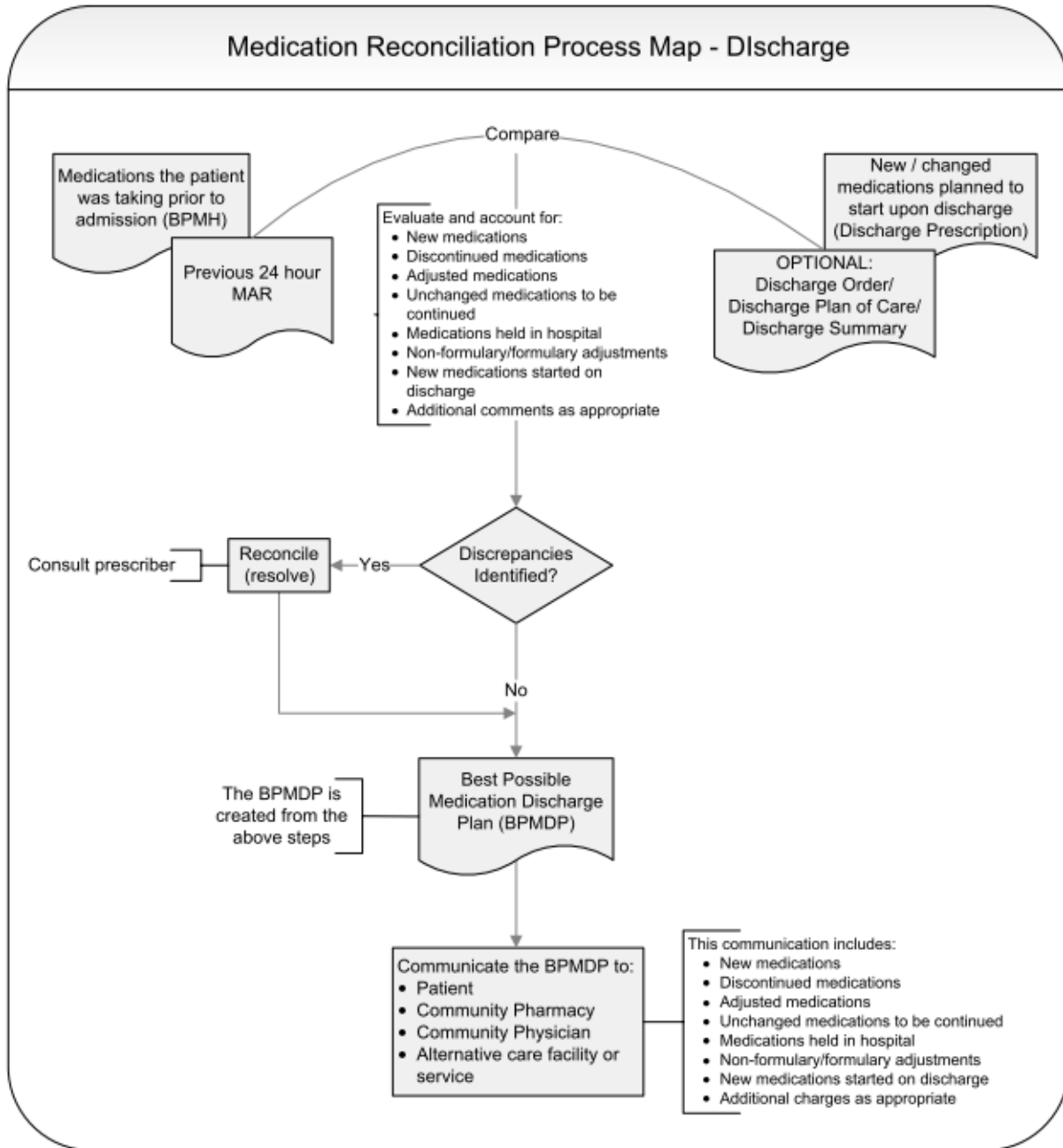
Reference: (Safer Healthcare Now campaign 2007)

C.5. Medication reconciliation process map at transfer inside healthcare facility




Reference: (Safer Healthcare Now campaign 2007)

C.6. Medication reconciliation process map at discharge from healthcare facility



Reference: (Safer Healthcare Now campaign 2007)

C.7. Medication reconciliation form at discharge from healthcare facility



University Health Network
Toronto General Hospital Toronto Western Hospital Princess Margaret Hospital

Date: 15-November-2005
 Patient Name: Fork, Knife
 Patient Address: 123 Some Street, Toronto, ON, M5B 2R4
 Patient Phone #: (416) 555-1234

Hospital Discharge Prescriptions

#	Medication	Dose	Route	Frequency	Qty	Rpts	LU code
1	Ferrous Gluconate	300mg	PO	TID	90	0	
2	Omeprazole	40mg	PO	Daily	30	1	295
3	Ciprofloxacin	500mg	PO	BID	14	0	336

Qty= Quantity Rpts= Repeats LU code= Limited Use code

Physician Name: _____
 CPSO Number: _____
 Physician Phone #: _____
 Physician Signature: _____

Please contact family physician for repeats.

Summary of Medication Allergies:
 Penicillin - Hives

Summary of Medication Changes Since Admission:

New Medications:

- Ferrous Gluconate 300mg PO TID
- Omeprazole 40mg PO daily
- Ciprofloxacin 500mg PO BID

Discontinued Medications:

- Aspirin 81mg PO daily
- Meloxicam 7.5mg PO daily

Adjusted Medications:

- Atorvastatin increased to 40mg PO QHS
- Calcium carbonate increased to 1000mg elemental calcium PO TID CC
- Metoprolol increased to 50mg PO BID

Unchanged Medications to be Continued:

- Calcitriol 0.25mcg PO daily
- Darbepoetin 60mcg SC qFriday
- Docusate sodium 100mg PO BID
- Ramipril 5mg PO daily
- Acetaminophen 325 - 650mg PO q4h PRN


Additional Comments:

E.g. Section 8 filled for xxx drug.

An inpatient pharmacist helped to prepare this prescription.

Reference: (Safer Healthcare Now campaign 2007)

C.8. Best possible medication history form (BPMH)



Best Possible Medication History

(Include all current and relevant past prescription medications, OTCs, and complementary medicines)

Name:

MEDICATIONS

Start Date	Name of Medication	Strength	How to take this medication				Purpose	Comment	Prescribed By
			Quantity?	Route?	Frequency?	Food?			
dd/mm/yyyy	Brand and Generic name (If available)								

Whenever you see a doctor, including your primary care physician and any specialists, review and update this medication list.
After any hospitalization, check with your doctor or pharmacist to review this medication list.

ALLERGIES

Agent	Reaction

Pharmacy:

Pharmacist:

Telephone #:

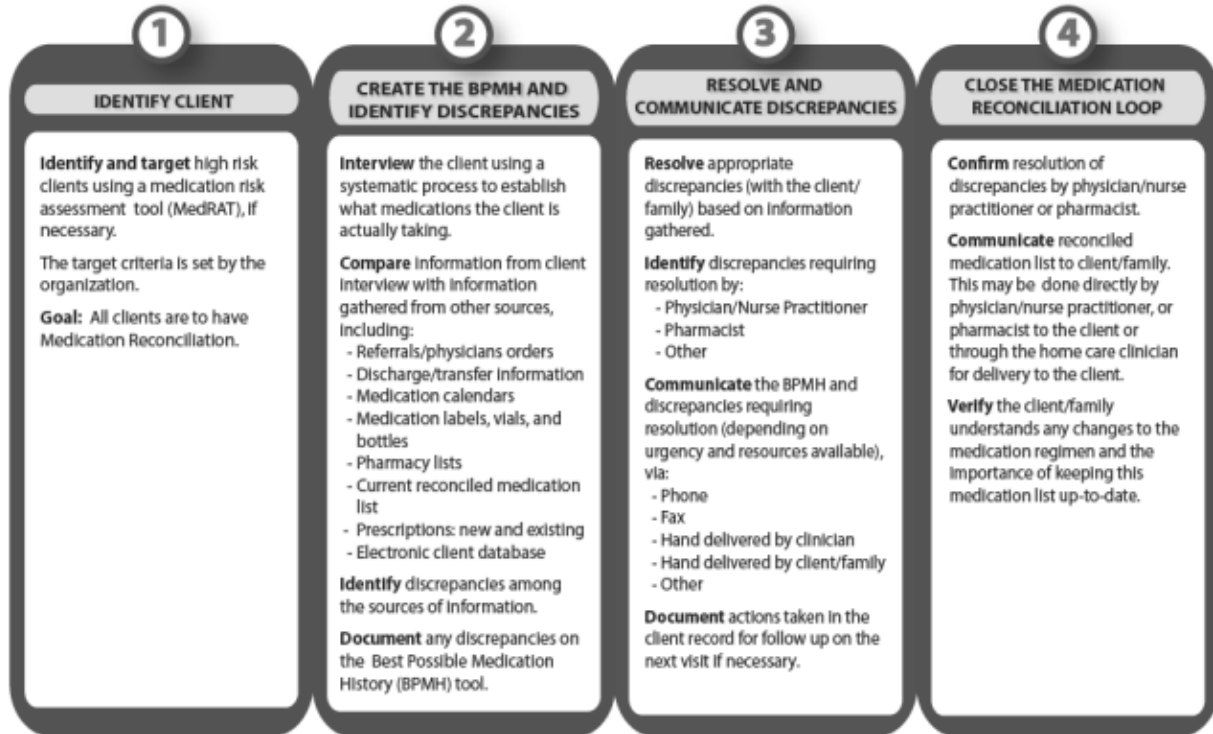
Date last reviewed:

March 2007

Resource: (Ontario College of Pharmacists)

C.9. Medication reconciliation process in home care

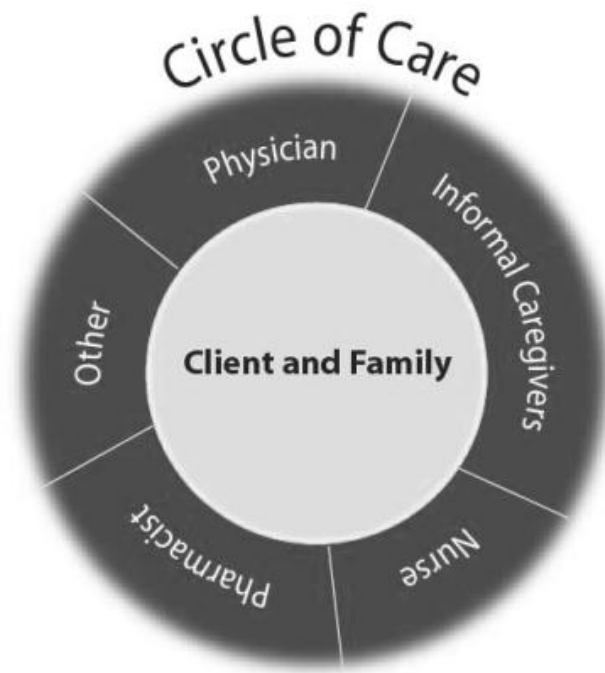
The Medication Reconciliation Process in Home Care



Created by ISMP Canada and VON Canada for the Safer Healthcare Now! campaign. Graphic adapted from St. Mary's Hospital & Regional Medical Center, Grand Junction, Colorado, USA.

Reference: (Safer Healthcare Now campaign 2010)

C.10. The client's circle of care in home care



Reference: (Safer Healthcare Now campaign 2010)

C.11. Elements of successful transitional care model



Reference: (Corbett et al. 2010)

Appendix D – MedsCheck Supplementary Documents

D.1. MedsCheck payment fees

Professional Service	PIN	Payment	Information
MedsCheck Annual for patients taking a minimum of 3 chronic Rx medications			
MedsCheck Annual ODB recipients	93899979	\$60 per year	Valid Pharmacist ID with claim codes – PS: professional services
MedsCheck Annual Non-ODB recipients	93899979	\$60 per year	Valid Pharmacist ID Patient’s Ontario Health card Patients Date of Birth Gender (‘F’ female; ‘M’ male) Intervention codes: <ul style="list-style-type: none"> - PS: Professional services - ML Established eligibility coverage (i.e., 1 day of the Plan ‘S’ coverage) - Carrier ID: ‘S’ (plan code for non-ODB MedsCheck Service plan)
MedsCheck Follow-up for patients taking a minimum of 3 chronic Rx medications			
Hospital Discharge	93899981	\$25	Using valid PIN and as per ODB or non-ODB claims criteria noted above
Pharmacist Decision	93899982	\$25	
MD/RN(EC)Referral	93899983	\$25	
Hospital Admission	93899984	\$25	
MedsCheck Long-Term Care Home Residents - (Legislated requirement)			
Annual Payment per patient	93899985	\$90 once per year	Valid Pharmacist ID with claim codes – PS: professional services
Quarterly Monitoring per patient	93899986	\$50 up to 4 per year	Valid Pharmacist ID with claim codes – PS: professional services
MedsCheck at Home Assessment Summary – frail/elderly/isolated; not able to attend pharmacy			
Annual Payment per patient	93899987	\$150 per year/patient	Using valid PIN and as per ODB or non-ODB claims criteria noted above
MedsCheck for Diabetes for Ontarians living with type 1 or type 2 diabetes			
Annual Assessment Summary	93899988	\$75 per year/patient	Using valid PIN and as per ODB or non-ODB claims criteria noted above
Diabetes Assessment Follow-up	93899989	\$25	

Reference: (Ontario Ministry of Health and Long-term care)

D.2. MedsCheck statistics

MedsCheck Annual/MedsCheck Follow-up	Year 4	Year 3	Year 2	Year 1	Total
	Apr 1, 2010 - Mar 31, 2011	Apr 1, 2009 - Mar 31, 2010	Apr 1, 2008 - Mar 31, 2009	Apr 1, 2007 - Mar 31, 2008	
Ontario residents who received a MedsCheck (Annual/Follow-up)	432,613	258,764	204,545	195,772	Approx. 891,000 distinct recipients
Total Government Cost (what was paid to pharmacies) - Million Dollars	\$24.9	\$13.0	\$10.5	\$12.9	\$61.3
Transition payment to pharmacies in the first year of program: \$950 with first claim to 95% of ON accredited pharmacies (out of ~ 3200) - Million Dollars				2.9	
Total # of MedsCheck claims	432,613	275,808	216,678	201,101	Approx. 1.2 Million

(Ontario MOHLTC)

MedsCheck

PERSONAL MEDICATION HISTORY

Whenever you see a doctor, including your primary care physician and any specialists, review and update this medication list.

After any hospitalization, check with your doctor or pharmacist to review this medication list.

Patient _____

Primary Physician (Phone) _____

Pharmacist and Pharmacy (Phone) _____

Date Prepared _____

Start Date dd/mm/yy	Name of Medication Brand and Generic name (if available)	Strength	How to take this medication Quantity	Route	Frequency	Food	Purpose	Comment	Prescribed by

ALLERGIES: No known allergies

Agent	Reaction

Pharmacist signature _____ Patient Signature _____



Reference: (Ontario Ministry of Health and Long-term care)