Ontario Primary Care Medication Reconciliation Guide

About the Guide

The intent of this guide is to provide quality improvement based strategies and best practice ideas for implementing, sustaining and measuring medication reconciliation in primary care practice settings in Ontario. Primary care practice settings can include individual practitioner or interprofessional team based settings. The applicability of parts of this guide may depend on the resources available, processes already established and geographical location of individual practice sites in Ontario. Sites are encouraged to review the entire guide and determine which aspects best suit the individual needs of their site. For the purposes of this guide the term 'primary care provider' refers to the main healthcare practitioner who is responsible for the patient and has prescribing authority (i.e., family physician or nurse practitioner). The term 'patient' refers to the person that is receiving care and is intended to be synonymous with client, resident and consumer.

Contents

Acknowledgments

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Advisory Committee

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- eHealth Ontario
- Health Quality Ontario
- Institute for Safe Medication Practices
- Nurse Practitioners' Association of Ontario
- Ontario Medical Association
- Ontario Association of Community Care Access Centres
- Ontario Ministry of Health and Long-Term Care
- Ontario Pharmacists Association
- Queen's Family Health Team
- Registered Nurses' Association of Ontario
- South East Local Health Integration Network
- Sunnybrook Health Sciences Centre

Expert Panel

We would also like to acknowledge the members of the expert panel who provided their expertise in medication reconciliation in primary care practice settings in the review of this guide.

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Executive Summary

Medication reconciliation (also known as "MedRec") is a patient safety intervention that was introduced to improve communication about patients' medication information as they transition through the healthcare system. It is targeted at both the patient and the patient's healthcare providers and is designed to help prevent adverse drug events. The need for effective MedRec processes has been well established. Without effective processes in place, failures in communication about a patient's medications can result in harm to the patient, can unnecessarily burden the healthcare system, and can affect society at large.

MedRec processes should be implemented within each healthcare sector, but for this intervention to be most effective, linkages across sectors are needed. The primary care sector has a pivotal role in creating these linkages. Primary care is often the setting where patients receive most of their healthcare, and it often functions as the coordinating centre for the rest of the patient's care. Developing implementation strategies, leveraging available resources, and identifying and overcoming barriers can assist with establishing MedRec in primary care.

Completing MedRec in primary care involves 4 main activities:

❖ **Collecting** and documenting an accurate and up-to-date medication list (the Best Possible Medication History [BPMH])

❖ **Comparing** the BPMH with information in the patient's chart and identifying discrepancies (i.e., differences between various sources of medication information)

❖ **Correcting** the discrepancies as appropriate through discussion with the primary care provider and the patient and then updating the BPMH with the resolved discrepancies, thereby creating a reconciled list

❖ **Communicating** the resulting medication changes to the patient and verifying the patient's understanding of his or her medication regimen

To implement MedRec reliably and consistently within a particular primary care setting, the roles and responsibilities of each team member should be established early on. In rare circumstances, MedRec is carried out by one individual, but the process generally requires input from various members of the healthcare team. Integral to the process is the patient. The patient or the patient's caregiver is best positioned to accurately convey exactly how the person takes his or her medications in the home environment. Ascertaining actual medication use from the patient is the most crucial step of the MedRec process.

Several sources of medication information are available for use in creating a comprehensive medication list. These sources often do not contain all the necessary information; for example, they may not include vitamins, supplements, and nonprescription medications. However, they can serve as a starting point in obtaining the BPMH. The information collected from these sources must then be verified with the patient to confirm actual medication use.

Establishing effective MedRec processes in the primary care sector can be particularly challenging. Many primary care providers do not have the infrastructure supports, time, or resources necessary to complete this complex intervention. However, MedRec can usually be introduced into a practice setting in a phased approach, which may help to integrate the new workflow into existing processes at the practice site without overwhelming the team or disrupting processes that are already functioning well. For example, focusing initial efforts on high-risk patients (e.g., those recently discharged from hospital or those who are taking a high number of medications) may be a worthwhile approach.

Within the primary care sector in Ontario, many different players provide healthcare. Understanding their unique contributions and the outputs of their respective MedRec processes can make the process smoother for everyone. For example, the community pharmacist can assist by performing a comprehensive medication review (i.e., MedsCheck) with the patient and documenting all prescription and nonprescription medications that the patient is taking. At a minimum, the community pharmacist should be able to provide a printout of all medications dispensed at that particular pharmacy.

This guide, developed through consultation with an advisory committee and expert panel, is directed toward healthcare practitioners working in primary care. It provides an overview of MedRec as a system-integration intervention, describes the benefits of MedRec in reducing potential adverse events, and outlines strategies for implementing MedRec in a variety of primary care practice settings.

Joan's Story

Joan is a 78-year-old woman whose husband died over a year ago. Soon after, her family doctor diagnosed Joan with depression and anxiety and prescribed citalopram 40 mg orally once a day and lorazepam 0.5 mg orally every 6 hours as needed. Joan has been taking these medications for the past year. She has also been experiencing muscle cramps in her legs while sleeping. Her family doctor referred her to an orthopedic surgeon to assess the leg cramps, and the surgeon prescribed quinine to treat the cramps. Joan took the prescription to her regular pharmacy, but the pharmacist told her that the medication was not covered by her insurance plan. The pharmacist then called the surgeon to ask that the medication be switched to one that was covered. The surgeon decided to prescribe chlordiazepoxide at bedtime instead. The pharmacy filled the prescription, but 2 days after starting the medication, Joan mentioned to her daughter that she was feeling somnolent well into the daytime hours and that she did not feel comfortable driving. Joan's daughter searched for information about the medication on the internet and found that Joan was probably experiencing an interaction between the new medication and the citalopram and lorazepam. Joan's daughter recommended that she stop taking the medication and follow up with her family doctor right away.

In this story, there were several opportunities when actions could have been taken to prevent Joan's ill effects (i.e., the adverse drug event). Many of these opportunities relate to appropriate communication of a patient's current medication regimen.

- ❖ In the referral letter to the surgeon, did Joan's family doctor include a complete list of all the medications that Joan was taking?

- ❖ During the visit did the surgeon ask Joan about all the medications she was taking?

- ❖ When requesting an alternative therapy, did the pharmacist list for the surgeon all the medications that Joan was taking and/or did the surgeon ask the pharmacist for the list of medications?

- ❖ Did the pharmacist ask the Joan if there had been any recent changes to her medications before dispensing the new medication?

Introduction

Primary care is healthcare that is provided in the community. In the primary care setting patients can go for treatment of newly diagnosed conditions and for treatment and prevention of chronic disease. It often serves a coordinating function for all of a patient's care and is pivotal in ensuring continuity of care. In Ontario, primary care is offered in a wide range of practice settings, including individual practitioners' offices, community health centres, family health teams, and other team-based practices. Similarly, many different providers may be involved in delivering primary care, including family physicians, nurse practitioners, nurses, pharmacists, dietitians, and social workers.

An important component of providing and coordinating care for patients involves managing their medications. To do this effectively (i.e., to optimize benefit and minimize harm), both providers and patients must play active roles. For any given patient, each provider should be aware of all medications prescribed by other providers, as well as medications that the patient has initiated, including alternative therapies that may have pharmacologic effects. Providers should also clarify how a patient is actually using each product, which may differ from the prescribed use (given that patients often do not fully adhere to instructions for their medications). In addition, the individual who is responsible for managing the patient's medications, either the patient or a caregiver, must be educated about each medication in the regimen and the importance of communicating about all medications to every member of the healthcare team.

Unfortunately, managing patients' medications can be particularly challenging in the primary care sector. Primary care providers often do not have the necessary tools and resources to easily generate a list of a patient's medications. Any medication lists that do reside with primary care providers are often incomplete and may not reflect how patients are actually taking their medications in their home environments.[1-3] Many primary care providers do not have enough time to complete thorough medication histories, because they have only periodic or infrequent contact with the patient and do not receive complete information about medications from other healthcare providers.[4-6] In addition, patients may be unaware of the importance of conveying information about their medications to various healthcare providers, they may have limited health literacy, they may be unable to accurately communicate information about their medications, or they may assume that all of their primary care providers have access to a complete medication list. One unintended, though often preventable, consequence of incomplete medication information is an adverse drug event.[7-11]

Medication reconciliation (also known as "MedRec") is a patient safety intervention that was introduced to improve communication about patients' medication information as they transition through the healthcare system. It is targeted at both the patient and the patient's healthcare providers and is designed to help prevent adverse drug events. MedRec takes into account all of the medications that a patient is taking and ensures that this information is communicated consistently and accurately during transitions of care.[12] In Ontario and elsewhere, MedRec is already well defined in other sectors of care (e.g., acute care and long-term care) but is less well defined for primary care. This resource document is intended to advance the practice of MedRec in primary care in Ontario by providing implementation

strategies, identifying the levers and barriers that already exist, suggesting approaches to close the gaps among various primary care providers, and providing strategies for measuring performance.

To assist in achieving the main goal of MedRec in primary care (i.e. the prevention of adverse drug events), providers should take the following actions,:

- ❖ *Aim to obtain and maintain a complete and accurate list of the medications that a patient is taking, to optimize safe, effective, and appropriate drug therapy.*

- ❖ *Encourage and empower patients to become more involved in managing their medications by giving them the necessary information and resources to do so.*

- ❖ *Strive to accurately communicate information about a patient's medications among all members of the patient's healthcare team.*

An Overview of Medication Reconciliation

Medication reconciliation is a formal process in which healthcare providers work together with patients, families, and other care providers to ensure that accurate and complete medication information is communicated consistently across transitions of care. MedRec requires a systematic and comprehensive review of all the medications a patient is taking to allow careful evaluation of any medications that are being added, changed, or discontinued.[12]

Completing MedRec in primary care involves 4 main activities:

❖ Collecting and documenting an accurate and up-to-date medication list (the Best Possible Medication History [BPMH])

❖ Comparing the BPMH with information in the patient's medical records and identifying discrepancies (i.e., differences between various sources of medication information)

❖ Correcting the discrepancies as appropriate through discussion with the primary care provider and the patient and then updating the BPMH with the resolved discrepancies, thereby creating a reconciled list

❖ Communicating the resulting medication changes to the patient and verifying the patient's understanding of his or her medication regimen

> *...making sure the right information is communicated about a patient's medications each time the patient moves throughout the healthcare system*

The cornerstone of MedRec is a comprehensive medication list known as the **BPMH**. Collection of the BPMH requires a structured process of interviewing the patient or a caregiver to ascertain all medications that the patient is taking (both prescribed and nonprescribed), confirming the patient's **actual medication use,** and verifying that information against other sources of medication information for the patient. The BPMH can serve as the foundation for all future medication-related decisions, i.e., the starting point of medication management.

Medication management is an overarching concept that describes the delivery of patient-centred care to optimize safe, effective, and appropriate drug therapy. This care is provided through collaboration with patients and their healthcare teams.[13]

Figure 1: The role of MedRec within context of medication management

Medication Management

Medication management is defined as patient-centred care to optimize safe, effective and appropriate drug therapy. Care is provided through collaboration with patients and their health care teams[1]

Clinical Medication Review

Addresses issues relating to the patient's use of medication in the context of their clinical condition in order to improve health outcomes[2]

Medication Reconciliation

A formal process in which healthcare providers work together with patients to ensure accurate and comprehensive medication information is communicated consistently across transitions of care[3]

Best Possible Medication History

A complete and accurate list of all the medications a patient is taking created using at least 2 sources of information including a client and/or family interview[4]

1. Developed collaboratively by the Canadian Pharmacists Association, Canadian Society of Hospital Pharmacists, Institute for Safe Medication Practices Canada, and University of Toronto Faculty of Pharmacy, 2012.
2. www.health.gov.bc.ca/pharmacare
3. ISMP Canada. Medication Reconciliation in Acute Care: Getting Started Kit. 2011
4. ISMP Canada. Medication Reconciliation in Acute Care: Getting Started Kit. 2011

Adapted from Fraser Health, Providence Health Care, Provincial Health Services Authority, Vancouver Coastal Health

The Case for MedRec

The overarching goal of MedRec is to **prevent adverse drug events** from occurring by collecting an accurate and comprehensive medication list and using this list to make appropriate prescribing decisions for a patient. A critical step of the MedRec process is to communicate to the patient and to all the healthcare providers involved in the patient's care any changes made to a patient's pre-existing medication regimen. Accurate communication about a patient's medication information is especially critical at transition points within the healthcare system (e.g., hospital discharge to home). Effective communication can reduce the chance of causing or perpetuating adverse drug events.

An **adverse event** is an unexpected and undesired incident that is directly associated with the care or services provided to a patient. When the event involves injury from a medication or lack of an intended medication, it is called an **adverse drug event (ADE)**. This term encompasses adverse drug reactions and harm from **medication incidents**. [14]
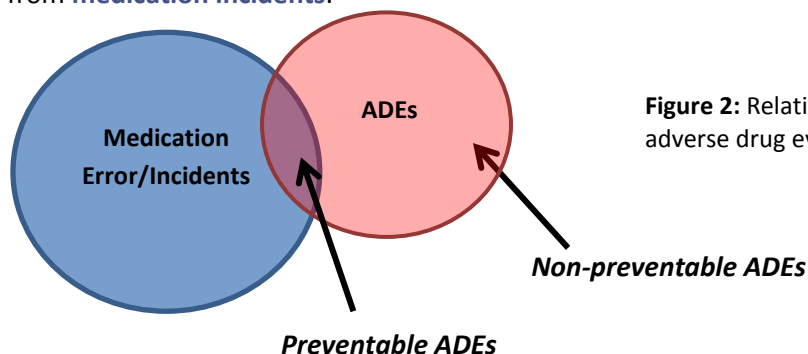
Figure 2: Relationship between medication errors and adverse drug events[15]

A **medication error or incident** is any preventable event that may cause or lead to inappropriate medication use or patient harm while the medication is in the control of the healthcare professional, patient, or consumer. Medication incidents may be related to professional practice, drug products, procedures, and systems, and include problems that occur during prescribing, order communication, compounding, dispensing, distribution, administration, education, monitoring, and use of a medication or problems with product labelling and packaging or with drug nomenclature.[16]

Several methods are available to report medication incidents. Reports of medication incidents are confidential, but analysis of and learning from these reports helps in designing safer systems and preventing similar mistakes from happening in similar situations.

Practitioners:
Healthcare Professional - (e.g., nurse, pharmacist, physician)

General Public:
Preventing harm from medication incidents is a responsibility of health professionals. **Consumers like you** can also play a vital role.

[Practitioner Reporting](#) [Consumer Reporting](#)

The Need for MedRec

- A comparison of recorded medications in physicians' records and reported medication use by patients showed discrepancies in 76% of cases.[17]

- The rate of adverse drug events in ambulatory care was estimated at 27.4 per 100 patients, and 13% of these events were classified as serious.[18]

- More than 1 in 9 emergency department visits are due to drug-related adverse events, 68% of which are thought to be preventable.[19]

- A comparison between patients' electronic medical record (EMR) lists and a pharmacy's medication fill histories found

  - an average of 6 discrepancies per patient

  - 41% of patients with an inactive medication recorded on their EMR profile[2]

- A sample of more than 600 clients admitted to home care showed that 45% of eligible clients had at least one medication discrepancy requiring clarification by a physician or other primary care practitioner.[20]

- In one Canadian family health team office, an audit of charts of patients taking 4 or more medications showed that only 1 of 86 EMR-based medication lists was accurate when compared with a comprehensive medication list based on a patient interview and collection of a medication history.[21]

The Benefits of MedRec

- MedRec conducted in a primary care clinic significantly reduced (from 26% to 6%) the proportion of visits with missing medication lists and reduced prescription medication errors by more than 50%.[9]

- In 4 academic primary care clinics, completeness of medication lists improved from 20.4% to 50.4% ($p < 0.001$) after a MedRec intervention was implemented. Patient participation in the MedRec process increased from 13.9% to 33% ($p < 0.001$).[11]

- Among patients who received MedRec 3 to 7 days post discharge, there was a statistically significant decrease in readmission rates at days 7 and 14.[22]

MedRec across the System

MedRec is a system-level approach to reducing harm. To be most effective, MedRec should be implemented in all care settings where changes may be made to patients' medication regimens. The processes implemented in the various care settings will differ, but the aim of reducing the potential for harm remains consistent.

MedRec should take place in the following settings:

- hospitals
- long-term care homes
- patients' homes (via home care services)
- ambulatory clinics
- family physician and nurse practitioner offices
- community pharmacies

Refer to Appendix 1 for MedRec processes in other healthcare sectors.

The inputs to and outputs from each sector or healthcare setting can serve as the basis for MedRec in the next care setting. For example, a medication review (e.g., MedsCheck) completed by the community pharmacy may serve as the basis for a BPMH in the hospital.

> *Every institution's discharge is another's admission*
> *-Author unknown*

Transitions and Interfaces of Care

Transitions of care are points in the trajectory of care with vulnerability to adverse drug events. Such vulnerabilities arise because as patients transition from one healthcare setting to another, the responsibility to ensure safe medication use is transferred from one healthcare provider to another.[11,23,24]

Examples of transitions of care include:

- Admission to hospital from the patient's home environment

- Transfers between facilities (e.g. hospital to long-term care)

- Discharge from hospital to the patient's home

- Referral for homecare services from the primary care provider

- Admission to long-term care from the patient's home

- Interactions within primary practice settings (e.g., visits to family medicine practice, walk-in clinic, or a specialist)

Each transition of care is an opportunity for MedRec and an opportunity to improve communication about the patient's medications to enhance medication safety.

Figure 3: Transition points within primary care settings
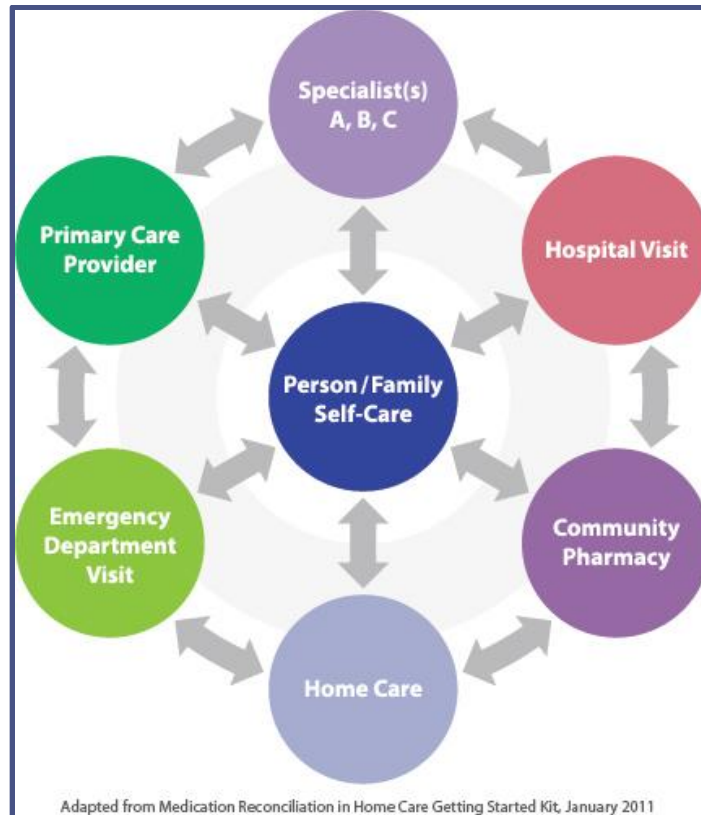
Adapted from Medication Reconciliation in Home Care Getting Started Kit, January 2011

Primary care may occur in a variety of settings. For example, a patient may receive care at home, with medication management support by a home care organization and intermittent visits to the family physician, nurse practitioner, or outpatient clinic. If changes to medications are not clearly communicated back to the patient and/or the receiving organization, the potential for medication-related adverse events may exist.

> ❖ *16% of primary care physicians say hospitals send them information needed for follow-up care within 48 hours of a patient being discharged*
>
> ❖ *26% say they always receive a comprehensive report from specialists who have seen their patients, and 11% of them say these reports are timely*
>
> *How do Canadian primary care physicians rate the health system?*
> *Health Council of Canada, 2013*

Support for MedRec

Accreditation Canada has been incorporating MedRec standards into its Required Organizational Practices (ROPs) since 2005 and has been increasing and expanding requirements across sectors. Currently, Accreditation Canada requires MedRec to be completed (to varying degrees) in acute care, long-term care, home care, and primary care.

Refer to [Accreditation Canada's Required Organizational Practice Handbook](#) for a complete list of requirements.

The **Ontario Ministry of Health and Long Term Care** (MOHLTC) vision of system-wide quality improvement identifies MedRec as a priority by including metrics related to MedRec and integrated care across patient care settings in the quality improvement plan program and through support of the [Health Links](#) program.

The MOHLTC provides overall vision, strategy, and direction on QIPs. Click on this MOHLTC link (http://health.gov.on.ca/en/pro/programs/ecfa/legislation/quality_improve.aspx) for more information on:

- [Quality Improvement Plan (QIP): Guidance Document for Ontario's Health Care Organizations](#)
- [Indicator Technical Specifications](#)

Health Links were created by the Ontario MOHLTC in 2012 to serve the small segment (approximately 5%) of the population that uses about 66% of healthcare resources. The focus of this program is on improving coordination of care and the overall patient experience for seniors and others with complex medical conditions.

Health Links will encourage greater collaboration between existing local healthcare providers, including primary care practitioners, specialists, hospitals, long-term care facilities, home care agencies, and other community supports. With improved coordination and information-sharing, patients will receive faster care, will spend less time waiting for services, and will be supported by a team of healthcare providers at all levels of the healthcare system. MedRec has been identified as one of the leading evidence-informed practices supporting many of these improvements at both the patient and the system level.

Health Quality Ontario has demonstrated support of MedRec through its [primary care measurement framework](#), [quality improvement compass,](#) and support of Health Links.

Figure 4: Medication Communication Failures Impact Everyone!

©2012 Developed by ISMP Canada for the National MedRec Strategy [Available for download here](#)

Medication reconciliation is not just for doctors working in institutions. Family doctors have an ongoing relationship with their patients and are often the custodian of the medication list. In this way, medication reconciliation may be viewed as an ongoing process (e.g. whenever the patient visits, when the pharmacy calls, when incoming records from other specialists are received) involving family doctors and other key stakeholders within the patient's circle of care.

[The Canadian Medical Protective Association](#)

MedRec Process in Primary Care Practice Settings

Medication reconciliation is a multi-step process that is best accomplished through an interprofessional approach.[25,26] It can be applied to a variety of practice settings, although adaptations may be required to ensure the process meets the needs of individual practice settings.

Before a MedRec process for primary care is developed and implemented, it is important to determine who will perform each step. The entire process could be carried out by the individual primary care provider or, ideally, at least some of the steps would be carried out by others working in the practice (e.g., nurse, pharmacist, clerical staff).

The first step of the MedRec process is to collect the BPMH and to compare it with the information in the patient's chart. Differences or discrepancies between these two sources of information are identified and resolved. The crucial next step involves updating the patient's chart with the reconciled list and communicating this reconciled list to the patient and others involved in the circle of care. The nature of primary care also necessitates that the current medication list be reviewed and updated at all subsequent patient visits.

❖ **Select the patients who will undergo MedRec**

Ideally, MedRec will be performed for all patients within a practice. However, given the resource-intensive nature of this intervention, completing MedRec for all patients may be challenging. As such, it may be more practical to establish criteria to determine which patients within a practice are most likely to benefit from MedRec.

The following patient groups might be selected for MedRec: [19,27,28]

- patients who have recently been discharged from hospital
- patients who are taking more than a threshold number of medications
- patients who are older than a threshold age (i.e., 65 years old)
- patients who are taking high-risk medications
- patients who are new to the practice setting
- patients with diagnosis of an **ambulatory care sensitive condition**
- patients who meet certain eligibility criteria as defined for the particular practice setting
- patients who are scheduled for annual physical examination

Consider involving administrative staff to assist in identifying patients who meet the criteria for MedRec. For example, when a patient calls to schedule an appointment following discharge from hospital, the administrative assistant can flag the chart to indicate that MedRec will be required.

❖ Collect the Best Possible Medication History (BPMH)

The first step of the MedRec process in any care setting, including primary care, is to **collect** the BPMH.

Obtaining the BPMH involves gathering information about the patient's medication regimen from various sources and interviewing the patient or a caregiver.

Gather information about a patient's medication regimen from the various sources in advance of the interview. Having the information ahead of time can facilitate a smoother interview process.

Sources of medication information that may be available for review include the following:

- medication vials or blister packs
- medication list from community pharmacy
- **MedsCheck** records from community pharmacy
- **Ontario Drug Benefits drug profile viewer**
- hospital discharge summary
- BPMH prepared by **Rapid Response Nurses**
- **Community Care Access Centre (CCAC)** report
- specialist's consultation report

Each of these sources of information has benefits and limitations. Even sources that are not 100% accurate or complete may convey valuable information. (Refer to the section Sources of Medication Information for more details.)

Interview the patient or caregiver using a systematic process to establish the complete list of medications (including name, dose, route, and frequency) that the patient is taking. Here, it is important to determine the patient's actual medication use, especially if it differs from the prescribed use.

Actual medication use refers to how a person routinely takes his or her medications, which may differ from instructions provided by a healthcare professional or directions on the medication label. The actual medication use should be a more accurate representation of what medications the patient is consuming and how those drugs are being consumed. (*Refer to Appendix 2 for the Top 10 Tips for Interviewing Patients*)

The medication list should include ***all*** types of medications that the patient is taking, including the following:

- prescription medications
- nonprescription medications
- vitamins and supplements
- natural and herbal products
- traditional medications
- medications taken on an as-needed basis
- any other type of medication

> *Actual Medication Use is key to ensuring that an accurate history is obtained and will assist in the prevention of adverse drug events*

Document the BPMH. For each medication, state the name, dose, route, and frequency. If it is determined that the patient is taking one or more of the medications differently from how it was prescribed, clearly document the actual medication use and note that it differs from the prescriber's original intent. *(Refer to Appendix 3 for more tips on how to document a BPMH)*

Bear in mind that it may be difficult to achieve an absolutely complete and accurate list of the medications that a patient is taking. Several attempts may be needed to obtain the list, and in some cases it may be impossible to get the complete list. The goal is to obtain the "best possible" list.

Before prescribing a drug, physicians must have current knowledge of the patient's clinical status. This can only be accomplished through a clinical assessment of the patient. The assessment must include:

a) An appropriate patient history, including the most complete and accurate list possible of drugs the patient is taking and any previous adverse reactions to drugs. A physician may obtain and/or verify this information by checking previous records and databases, when available, to obtain prescription and/or other relevant medical information; and if necessary…

Prescribing Drugs, Policy #8-12. December, 2012. College of Physicians and Surgeons of Ontario

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❖ **Compare the BPMH with the patient's chart**

Compare information contained in the BPMH with information in the patient's chart held by the primary care provider.

Identify any discrepancies between these two sources of information. This can be done during the interview or later, after the interview is complete.

Discrepancies are differences in medication details that are identified by comparing different sources of information about a patient's medications (including the patient himself or herself). Discrepancies may take various forms, such as the following:

- differences between what the patient is actually taking (actual use) and what is recorded in other sources of information (e.g., patient's chart, community pharmacy profile)
- differences between the list of medications that the patient was taking in one healthcare sector and the list of medications ordered or recorded in the next healthcare sector

The following are examples of specific discrepancies:

- absence from the list of a medication that the patient is currently taking (omission)
- presence on the list of a medication that the patient is no longer taking (commission)
- incorrect or missing details about a medication (e.g., dose, route, or frequency)

The following factors have been identified as predictors of discrepancies: [17]

- older patient age
- certain physician specialties
- participation of another physician in the patient's care
- long duration of relationship between the physician and the patient
- large number of recorded medications

MedRec processes can decrease the potential for discrepancies leading to adverse drug events. They help healthcare providers to ensure that changes in medications are intentional and that discrepancies are identified, resolved, and documented.

Table 1: **Examples of Harm Resulting from an Unreliable MedRec Process**

Source of Potential Harm to Patient	Examples of Specific Harms
Incomplete or inaccurate collection or documentation of patient's actual medication use	- omission of regularly used medications - addition of a medication no longer used - differences in a medication's dose or frequency
Unintentional changes to patient's medication regimen as medications are prescribed at transitions in care	- inadvertent omission of regularly used medications from hospital discharge orders - inadvertent inclusion of a medication no longer in use in consultation request to a specialist - inadvertent changes to a medication's dose or frequency in hospital admission orders
Ineffective use of medication information to guide safe medication management	- erroneous medication duplication - interacting medications - non-use of intended medications
Ineffective communication with patient and care providers about changes made to patient's medication regimen	- erroneous medication duplication - non-use of intended medications - use of unintended medications

❖ Correct the discrepancies identified

Correct the discrepancies as appropriate through discussion with the patient or caregiver. Contact the original prescriber or the community pharmacy for additional information, if necessary. Depending on who is completing the BPMH, it may be possible to resolve or correct some or all of the discrepancies during the interview process.

Determine the cause of the discrepancy, as this information will assist with appropriate resolution of the problem. The following questions point to potential causes of a discrepancy:

- Did the patient not understand how to take the prescribed medications properly?
- Did a clerical error lead to the discrepancy?
- Did the patient intentionally choose to take the medications differently than prescribed, because of a side effect, on the advice of a friend, or on the basis of information found on the internet?
- Did the prescriber who initiated the medication not fully appreciate the other medications that the patient was taking?

Once the cause has been determined, engage in discussion with the patient, the caregiver, the community pharmacist, or the original prescriber to determine the best course of action. The following courses of action may be considered:

- If the patient prefers to take the medication as he or she sees fit and is unwilling to change, update the patient's chart to reflect that change.
- If the patient was unclear on how to take the medication but is willing to start taking the medication as prescribed, document this information in the chart.
- If there was a prescribing error and a change in medications is necessary to correct the error, change the prescription and document the change in the patient's chart.

The most important aspect in resolving discrepancies is to involve the patient in the process and to obtain his or her agreement on the appropriate course of action. If the patient is not in agreement, the discrepancy will be perpetuated once the patient leaves the office. Document any actions taken to resolve discrepancies.

Once the discrepancies have been resolved, update the BPMH to accurately reflect the patient's current medication regimen. This updated list becomes the **reconciled list**. It should serve as the most up-to-date and accurate version of the patient's medication list. **Document** the reconciled list in a clearly visible and easily accessible place in the chart.

❖ Communicate the reconciled list

Communicate any medication changes to the patient and **verify** the patient's understanding of the updated medication regimen. **Convey** to the patient the importance of keeping an up-to-date medication list. (*Refer to Appendix 4 for patient resources).*

Provide the reconciled list to the patient's community pharmacist and others involved in the patient's circle of care. On the reconciled list, convey to providers the rationale for any changes that have been made.

At each patient visit, ask the patient specifically about medication changes that may have occurred since the last visit. Ask about all medications that the patient is taking, not just medications related to the reason for the visit.

When a patient's medication regimen is modified, the changes should be reflected in the medication list maintained in the medical records of the primary care setting. Conversely, if no changes in the medication regimen have occurred, that should also be documented.

Such changes may occur when

- new prescriptions are added, discontinued, or modified by the primary care provider

- medication changes are made by a specialist or other physician (e.g., physician at a walk-in clinic)

- medication changes are recommended by another care provider (e.g., community pharmacist, nurse practitioner, dentist)

- a patient makes changes to the medication regimen of his or her own accord

The patient should be given an updated medication list, reminded to discard old lists, and educated on the importance of maintaining the medication list and making providers aware when medication changes occur.

The reconciled list should serve as the basis for any decisions to optimize safe and effective drug therapy and should follow the patient as he or she transitions throughout the healthcare system.

Depending on the resources available, the patient population, and other individual characteristics at each practice setting, the steps outlined above may not occur in the order presented here; in addition, in some situations, there may be a need to go back to an earlier step before proceeding to the next step. The most important outcome is an accurate and comprehensive medication list that is communicated to the patient, with verification of the patient's understanding of the regimen.

Figure 5

Medication Reconciliation
in Primary Care

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Step 1

1

Collect - *Collect the Best Possible Medication History (BPMH)*

- Gather sources of information (e.g, community pharmacy list, discharge summary, medication vials, drug information system list, etc.).
- Interview the patient using a systematic process to determine actual medication use by the patient.
- Document the BPMH.

Step 2

2

Compare - *Identify discrepancies*

- Compare the BPMH with information contained in the patient's primary care chart.
- Document the differences (discrepancies) that need clarification.

Step 3

3

Correct - *Resolve discrepancies*

- Correct the discrepancies as appropriate through discussion with the primary care provider and the patient.
- Update the BPMH with the resolved discrepancies; this becomes the *reconciled list*. Document the reconciled list in the primary care chart.

Step 4

4

Communicate - *Ensure continuity of medication information*

- Communicate any medication changes to the patient and verify the patient's understanding of their medication regimen.
- Convey to the patient the importance of keeping an up-to-date medication list.
- Provide the reconciled list to the patient's community pharmacist and others involved in the patient's circle of care.

At subsequent patient visits, update the reconciled list with any recent medication changes made to the patient's medication regimen.

MedRec within the Patient's Circle of Care

Requesting Referrals

When a patient requires services additional to those offered by the primary care provider (e.g., referral to specialist, initiation of CCAC services), a complete and up-to-date list of medications should be provided in the referral request, including the following details:

- all prescription and nonprescription medications recorded in the patient's chart (not only those medications that may seem relevant to the receiving provider)
- complete details about every medication (name, dose, route, frequency)
- medication allergies

Any medication changes that result from the referral should be reflected in the patient's chart held by the primary care provider on receipt of the information.

Receiving Referrals

Many other players in the primary care sector in Ontario have made MedRec a priority, including the following:

- Rapid Response Nurses
- telehomecare nurses
- home care pharmacists
- other CCAC workers
- community pharmacists who perform MedsCheck

The process of completing MedRec in these settings may necessitate involvement of the primary care provider. If discrepancies are identified, the primary care provider may be contacted for assistance in their resolution. In addition, the reconciled list that results from completion of MedRec in any of these settings should be sent to the primary care provider, and ideally, the patient's chart held by primary care provider will be updated accordingly. *(Refer to Appendix 5 for an overview of primary care providers in Ontario)*

Primary Care Practice Settings

Variations among primary care practice settings, (e.g., in terms of resources, staffing, billing models, geographic location), does not allow for one model of MedRec to be easily applied to all settings. Completing MedRec in a solo practitioner practice setting may be more of a challenge than performing the same task in a team-based practice setting. In any setting, incorporating various change ideas into the process can assist practitioners with implementing and sustaining this intervention.

Table 2: Examples of Change Ideas to Facilitate Medication Reconciliation (MedRec)

Quick improvements you can start today:
- Use screening tools to direct MedRec efforts toward high-risk patients
- Develop a form or a specific section in the chart to document BPMH and the reconciled medication list
- Print medication lists from electronic medical record or patients' charts for patients to review in the waiting room before their appointments (for self-identification of discrepancies)
- Encourage patients to bring all of their medications to all visits
- Use teach-back method to verify patients' understanding of their medication regimens

Improvements you can start within a couple of months:
- Complete MedRec within 14 days of a patient's discharge from hospital
- Complete MedRec after an emergency department visit
- Complete MedRec after a specialist visit
- Involve the team pharmacist in the MedRec process
- Provide community pharmacists with initial reconciled list
- Provide patients with tools to record and update their medication lists
- Liaise with community pharmacist to complete BPMH or MedsCheck
- Ask office administration assistant to call patients in advance of their appointments reminding them to bring their medication lists and medications
- Include a review of patients' medications in the intake process completed by nursing staff

Longer-term process improvement goals:
- Use technology to facilitate and improve MedRec
- Initiate formal MedRec process during annual "check-up" visit
- Build MedRec into the documentation workflow (e.g., review of specialists' notes for any medication changes or discrepancies, with such changes or discrepancies prioritized for review and resolution or update, as appropriate)
- Conduct MedRec for all patients in the primary care practice setting

Refer to Appendices 6 to 8 for further information on implementation strategies, measurement and quality improvement resources.

Table 3: Challenges to Completing Medication Reconciliation (MedRec) in Primary Care Practice Settings

Patient or Provider Level	System Level
Responsibility for medication management (rests largely with the patient)	Limited access to information sources
Limited health literacy on part of patient	Unreliability or incompleteness of information sources or existence of multiple conflicting sources
Language and cultural barriers	Difficulty of sharing information among providers
Patient's lack of awareness of importance of bringing medications and up-to-date medication lists to primary care visits	Poor design of electronic medical record systems used in primary care offices (insufficient to fully support MedRec requirements)
Patient's use of multiple pharmacies	Lack of availability of fully integrated provincial health record
Infrequent or periodic contact with primary care provider	
Lack of time for provider to complete MedRec	
Lack of training about conduct how to conduct systematic, comprehensive medication histories and reconciliation processes	
Effort and dedication required for frequent modification of list	

Figures 6 and **7** depict processes that could be implemented in primary care practice settings to facilitate MedRec. Not all of these processes (or steps within an individual process) will make sense in all settings. It is best to use small tests of change to determine what will work best in a particular setting. In addition, attempting to identify potential barriers to a given process in advance of its implementation may lead to smoother implementation. Even so, several attempts may be needed before the best process is fully elucidated. For example, determine your 10 most frequent patients and schedule a dedicated block of time to collect a BPMH from them, and then review the process: How receptive were the patients? How did the staff find the sources of medication information? How many discrepancies were identified?

Figure 6

Potential Future State Process Map for MedRec in Primary Care – Team Based Practice Settings

Appointment is scheduled with the patient

The administrative assistant determines if the patient meets the MedRec selection criteria

Potential Selection Criteria:
New patient
Annual checkup
Recent discharge from hospital

Yes / **No** — Is the appointment scheduled enough time in advance that the patient can have a MedsCheck completed by their community pharmacy and/or do they qualify for a MedsCheck?

Patient visits community pharmacist to have MedsCheck completed

The administrative assistant reminds the patient to bring in their medications, medication list and/or MedsCheck to the scheduled appointment

The administrative assistant schedules the patient to see the nurse or pharmacist 30 min before their appointment with the primary care provider (PCP)

The patient arrives for their appointment and the administrative assistant prints the patient's medication list as recorded in the chart

The patient reviews the medication list and identifies if there are any differences between what is recorded on the list and what they are actually taking

The nurse or pharmacist prepares for the interview by reviewing the various sources of information available to them

The nurse or pharmacist interviews the patient using a systematic process

The pharmacist or nurse documents the BPMH

The nurse or pharmacist compares the BPMH to the recorded list in the chart and identifies discrepancies

The patient conveys any differences they identified from the recorded medication list and what they are actually taking

The nurse or pharmacist resolves discrepancies as appropriate within their scope of practice and documents on the BPMH the outstanding discrepancies to be resolved by the PCP. The nurse or pharmacist may include recommendations for the resolution of discrepancies for the PCP to consider

The PCP is provided the documented BPMH and outstanding discrepancies to be resolved

PCP sees and assess the patient as appropriate.

The PCP and the patient review the outstanding discrepancies and determine an appropriate resolution

The PCP updates the BPMH with the appropriate medication changes, if any. This becomes the reconciled list.

The patient is provided a copy of the reconciled list and their understanding of the updated medication list is verified. The patient is encouraged to keep their medication list up to date.

The reconciled list is communicated to the community pharmacist and others in the circle of care for the patient.

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Figure 7

Potential Future State Process for MedRec in Primary Care – Solo Practitioner Practice Settings

Appointment is scheduled with the patient.

The administrative assistant determines if the patient meets the MedRec selection criteria.

Potential Selection Criteria:
New patient
Annual checkup
Recent discharge from hospital

Yes / **No** — Is the appointment scheduled enough time in advance that the patient can have a MedsCheck completed by their community pharmacy and/or do they qualify for a MedsCheck?

Patient visits community pharmacist to have MedsCheck completed.

The patient arrives for their appointment and the administrative assistant prints the patient's medication list as recorded in the chart.

The patient reviews the medication list and identifies if there are any differences between what is recorded on the list and what they are actually taking.

The primary care provider (PCP) prepares for the interview by reviewing the various sources of information available to them.

The PCP interviews the patient using a systematic process.

The PCP documents the BPMH.

The PCP compares the BPMH to the recorded list in the chart and identifies discrepancies.

The patient conveys any differences they identified from the recorded medication list and what they are actually taking.

The PCP and the patient review the discrepancies and determine an appropriate resolution.

The PCP updates the BPMH with the appropriate medication changes, if any. This becomes the reconciled list.

The patient is provided a copy of the reconciled list and their understanding of the updated medication list is verified. The patient is encouraged to keep their medication list up to date.

The reconciled list is communicated to the community pharmacist and others in the circle of care for the patient.

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Potential Players in the MedRec Process

Many healthcare organizations and regulatory bodies support the involvement of their members as essential players in the MedRec process:

- Canadian Medical Protective Association: [Action for Safer Medical Care: Medication Reconciliation](#)
- College of Nurses of Ontario: [Practice Standards: Medication](#)
- National Association of Pharmacy Regulatory Authorities: [Model Standards of Practice for Canadian Pharmacists](#)
- Ontario College of Pharmacists: [Best Possible Medication History Guidelines for Medication Reconciliation](#)
- Registered Nurses' Association of Ontario: [Best Practice Guidelines – Care Transitions](#)

Below describes how various players can contribute to or be involved with performing MedRec.

Patient/Caregiver

The patient and/or their primary caregiver are vital in the MedRec process. To ascertain an accurate and complete BPMH, that clearly captures actual medication use by the patient, an interview with the patient and/or their caregiver must occur.

It is also critical to ensure that the patient and caregiver are given appropriate information and education about any new medications prescribed, any changes to existing medications, and the reasons for discontinuing any medications. A valuable strategy in verifying patients' understanding of the medical information they have been given is to use the ['teach-back'](#) method, (refer to [teachbacktraining.org](#) for more information).

Patients should be encouraged to record their own medication information and should be given appropriate tools to do so. They should be informed of the importance of documenting *all* medications that they are taking (including prescription and nonprescription medications, vitamins, and natural products) and to record actual medication use if it is different from prescribed use. The importance of communicating the up-to-date medication list with all members of the healthcare team should also be conveyed to patients. (*Refer to Appendix 4 for a list of patient resources*)

Physician, Nurse Practitioner, Primary Care Provider

The primary care provider is an essential player in completing MedRec and may have several roles in the MedRec process. This person can be involved in interviewing the patient and collecting the BPMH, can

assist in identifying and resolving discrepancies, and/or can communicate to the patient and other relevant players any changes that have been made to the patient's medication regimen.

Ideally, however, the primary care provider will not be involved in *all* aspects of the MedRec process but instead will focus on certain key aspects, as noted above, relying on other team members for other aspects of the process.

The primary care provider can also act as the patient's coordinator of care, helping the patient to compile and interpret treatment decisions made during a hospital stay, as well as decisions made by specialists and by others caring for the patient.

Team Pharmacist

Much evidence suggests that the involvement of a pharmacist has a positive impact on the MedRec process.[26, 29-31] As a member of a healthcare team or a team of care providers in another primary care practice setting, a pharmacist can complete many aspects of the MedRec process. Pharmacists are well suited to interview patients and collect BPMHs, identify discrepancies and initiate their resolution, communicate to patients any changes to their medication regimens, and provide education to patients about their medication regimens.

Nurse

As a member of a health team or a team of care providers in another primary care practice setting, a nurse can initiate the MedRec process. Nurses can interview patients and collect BPMHs, identify discrepancies, and communicate to patients any changes made to their medication regimens.

Community Pharmacist

The community pharmacist can assist with the MedRec process by completing a comprehensive medication review (i.e., MedsCheck, if the patient is eligible), including an interview and documentation of all medications that the patient is taking. During this process, the community pharmacist can also communicate to the primary care provider any discrepancies identified.

If a comprehensive medication review is not completed (e.g., patient is not eligible for MedsCheck or review is not required at the time), the community pharmacist can provide a list of medications that have been dispensed for the patient from that particular pharmacy, to assist with the MedRec process. However, such a list will not include medications dispensed at other pharmacies, over-the-counter medications, natural products, etc.

Administrative Assistant/Clerical staff/Office Manager/Non-professional/Non-regulated office workers

The administrative assistant in a primary care setting can assist with the MedRec process by reminding patients ahead of their scheduled appointments to bring in their medications and/or up-to-date medication lists. The assistant can also ask patients who are waiting for their appointments to check the current medication list on file and to identify any changes in their regimens. Finally, the assistant can help to identify patients that would be appropriate for MedRec.

Include patients as active partners in their care to educate them about their medications and error avoidance:

- Provide patients with relevant information about the recommended drug therapy before they receive an initial dose.
- Make sure patients receive up-to-date, written information about the drugs they are prescribed.
- Encourage patients to ask questions about the medication they are receiving.
- Inform patients about the potential harm for error with those drugs that have been known to be problematic (e.g., warfarin, etc.) and are provided with strategies to help prevent such an occurrence.
- Ask patients about all medications they are taking, especially after hospitalization, since medications may have changed and patients might not have received sufficient information upon hospital discharge.
- Instruct patients to carry a complete list of their medications at all times, including over-the-counter medications.

A Practical Guide for Safe and Effective Office Based Practices, May 2012. The College of Physicians and Surgeons of Ontario. Toronto, ON.

Sources of Medication Information

In Ontario there are various potential sources that can contain patients' medication information. These sources of information can be used to help inform and complete a BPMH for a patient.

To best utilize the information these sources have to offer there should be a clear understanding of the benefits and limitations of each of these sources and how best to apply the information when completing a BPMH. Many of the sources of information might not be a complete list of all medications the patient is on (e.g., may only contain prescribed and not over-the-counter medications) and may only be as up to date as the last interaction with the patient.

Unfortunately a common missing element of most sources of medication information is the inability to record actual medication use of the patient; most sources capture prescribed use only.

These sources should be used as a starting point or a prompting tool to help frame the BPMH interview, but should not be used as the single source of truth. Verification about how a patient actually takes each medication should occur.

Table 4: Benefits and Limitation of Sources of Medication Information

Benefits and Limitations of Sources of Information

Patient/Caregiver Interview	
Benefits	▪ Interview can assist with determining actual medication use by the patient and accuracy of information from other sources of information
	▪ Can provide an opportunity to assesses the patient's / caregiver's understanding of medication regimen
Limitations	▪ Information may be based solely on patient / caregiver recall
	▪ Focus on determining how the patient actually uses their medication; not just how the medications were prescribed

Primary Care Provider Electronic Medical Record / Patient Chart	
Benefits	▪ Easily accessible
	▪ May include indications for medications
Limitations	▪ May not include nonprescription medications, vitamins, natural products etc.
	▪ May not include medications prescribed by other practitioners (e.g., specialists, dentists etc.)
	▪ May not reflect actual medication use by patient
	▪ May only be as current as last visit with patient

Patient's Own Lists	
Benefits	▪ May include all the medications a patient is taking (i.e., those prescribed by multiple prescribers and dispensed at multiple pharmacies)

Limitations

- Will likely only contain information that the patient has remembered to record or deemed appropriate to record
- May not reflect recent changes
- May not include nonprescription medications, vitamins, natural products etc.
- May be difficult to distinguish whether the list reflects actual use or prescribed use

tip

- Determine who wrote the list
- Confirm the date it was last updated
- Inquire if the directions written represent how the medications were prescribed or how the patient actually takes the medications
- Determine if the patient is taking medications that are not recorded on the list

Medication Vials / Packages

Benefits

- Usually includes complete medication details (medication name, dose, route, frequency and prescriber information)
- Clinician is able to assess contents of the vial / package
- Patient can visualize the medication which may cue their memory on how they actually take the medication

Limitations

- Information on the label may only reflect prescribed use and not actual use by the patient

tip

- Check the patient's name and date on the vial
- Open the vials to ensure the medication inside the vial matches the label
- Determine if any changes have been made to the patient's medications since the vials were last dispensed
- Ask the patient how they are taking their medications and compare this to the directions on the vial
- Be aware that directions on medication vials may not accurately reflect medications that are: taken on "as needed" basis, have fluctuating doses (e.g., warfarin, prednisone)

Blister/Compliance Packs

Benefits

- Usually includes complete medication details (e.g. medication name, dose, route, frequency and prescriber information)
- Clinician is able to assess contents of the blister pack
- Patient can visualize the medication which may cue their memory on how they actually take the medication

Limitations

- Information on the label may only reflect prescribed use and not actual use by the patient
- May not contain all the medications a patient is taking

tip

- Check the patient's name and date on the blister pack
- Determine if any changes have been made to the patient's medications since the blister pack was last filled

- Ask the patient how they are taking their medication and compare this to the directions on the bister pack
- Ask about medications that cannot fit inside the pack (e.g. inhalers, patches, eye/ear drips, refrigerated medications, injections, liquid medications)
- Be aware the blister pack may not include medications that are: taken on an "as needed" basis, have fluctuating doses (e.g., warfarin, prednisone), nonprescription medications, vitamins, natural products etc.

Community Pharmacy Lists

Benefits
- Usually includes complete medication details (i.e., medication name, date, dose, route, frequency and prescriber information)
- Able to retrieve one year of past medication information or longer

Limitations
- Only reflects medications dispensed from that particular community pharmacy; if the patient goes to multiple pharmacies, a single list containing all medications from all pharmacies may not be available
- May not include nonprescription medications, vitamins, natural products etc.
- May only reflect prescribed directions and not actual medication use by patient

- Determine if the patient frequents more than one pharmacy
- Confirm actual medication use with the patient
- Confirm with the patient if they are taking any other medications (e.g., medications dispensed from other pharmacies, samples from prescribers, nonprescription medications, vitamins, natural products etc.)
- Confirm allergies that the community pharmacy has on record

Meds Check / Provincially Funded Community Pharmacy Medication Review

Benefits
- Should include all the medications a patient is taking including prescription and nonprescription medications, vitamins, natural products etc.
- Should also include medications dispensed at pharmacies other than the pharmacy performing the MedsCheck
- Should include complete medication details (i.e., name, dose, route and frequency for each medication)

Limitations
- Information is only as accurate as the day of the review
- Appearance / format can vary from pharmacy to pharmacy

- Check the date on the list and confirm if there are any other changes to the patient's medications since the time the medication review was done
- Verify if the review shows actual medication use or only prescribed directions
- Not all patients may be eligible for a MedsCheck
- Bear in mind that a pharmacy profile printout does not qualify as a medication review (i.e., MedsCheck)

Ontario Drug Benefits Drug Profile Viewer (ODB DPV) / Provincial Drug Information System

Benefits
- A record of all ODB medications that are dispensed
- Provides name and number of prescriber and community pharmacy for each medication that is listed.
- Able to retrieve one year of past medication information
- Indicates if a MedsCheck was completed
- As current as last medication dispensed
- Patient's consent to access the information is implied

Limitations
- Only records what was dispensed by community pharmacies and may not reflect actual use by the patient
- Does not include complete medication details (i.e., does not include exact dose or frequency)
- Patients may choose not to have any of their medications appear on the ODB DPV or only to have certain classes of medications appear
- Does not record if medications were discontinued
- Does not include medications not covered by ODB such as:
  - Nonprescription and/or non-provincial formulary medications
  - Medication samples
  - Investigational / clinical trial medications
  - "Specialty" medications (e.g. immunosuppressants, chemotherapeutic agents & vaccines)

Best Possible Medication Discharge Plans (BPMDP)

Benefits
- Should include complete medication details (i.e., medication name, dose, route, frequency)
- Should include information about what medications were started, stopped or modified during the patient's previous hospital stay

Limitations
- Information may only be as current as a the date of discharge
- Information provided on BPMDP reflects how the medications were prescribed which may not always reflect how the patients is actually taking the medications

tip
- Check the date on the discharge plan
- Confirm if there are any other changes to the patient's medications since the time of discharge
- Determine actual medication use by the patient after discharge from hospital
- Be aware of medication adjustments due to auto-substitution policies and medication adjustments due to formulary restrictions
- Original prescriber information may become lost (i.e., prescriber will appear as discharging physician and not original prescriber)

Hospital Discharge Summaries

Benefits
- May provide an explanation of changes made to medications during hospital visit

Limitations
- May not account for all medications the patient is taking
- May not provide complete medication details (i.e., medication name, dose, route, frequency)
- There may be a delay in the primary care provider receiving the discharge summary
- Medications may be changed due to auto-substitution policies in hospitals

Specialist / Consult Notes

Benefits
- May include rationale for medications added or changed

Limitations
- May not include complete information (i.e., medication name, date, dose, route, frequency)
- May not account for all medications the patient is taking
- May be a delay in the primary care provider receiving the information

Rapid Response Nurses Best Possible Medication History

Benefits
- BPMH completed by rapid response nurses should reflect changes made to medications in hospital. Patients are seen within 24-48 hours post-discharge from hospital
- Should include complete medication details (i.e., medication name, dose, route, frequency)
- Should include all the medications a patient is taking including prescription and non-prescription medications, vitamins, natural products etc.

Limitations
- Rapid response nurses may not have been provided with complete discharge information

Ontario Telemedicine Telehomecare Program Medication Lists

Benefits
- Should include complete medication details (i.e., medication name, dose, route, frequency)
- Should include all the medications a patient is taking including prescription and nonprescription medications, vitamins, natural products etc.
- Nurses completing a medication history for patients enrolled in the program have weekly appointments with the patients providing them with many opportunities to confirm the patient's actual medication regimen

Limitations
- Service not available in all LHINs

Appendix 1: Medication Reconciliation Processes in Other Sectors

Acute Care

Medication Reconciliation
From Admission to Discharge in Acute Care

ADMISSION

AT ADMISSION:

The goal of admission medication reconciliation is to ensure there is a conscious decision on the part of the patient's prescriber to continue, discontinue or modify the medication regimen that a patient has been taking at home.

Compare:

Best Possible Medication History (BPMH)

vs.

Admission Medication Orders (AMO)

to identify and resolve discrepancies

TRANSFER

AT TRANSFER:

The goal of transfer medication reconciliation is to consider not only what the patient was receiving on the transferring unit but also any medications they were taking at home that may be appropriate to continue, restart, discontinue or modify.

Compare:

Best Possible Medication History (BPMH)

and the

Transferring Unit Medication Administration Record (MAR)

vs.

Transfer Orders

to identify and resolve discrepancies

DISCHARGE

AT DISCHARGE:

The goal of discharge medication reconciliation is to reconcile the medications the patient is taking prior to admission and those initiated in hospital, with the medications they should be taking post-discharge to ensure all changes are intentional and that discrepancies are resolved prior to discharge.

Compare:

Best Possible Medication History (BPMH)

and the

Last 24 hour Medication Administration Record (MAR) C

plus

New medications started upon discharge

to identify and resolve discrepancies and prepare the Best Possible Medication Discharge Plan (BPMDP)

Developed by ISMP Canada) for *Safer Healthcare Now!*. Graphic adapted from St. Mary's Hospital & Regional Medical Center, Grand Junction, Colorado, USA.
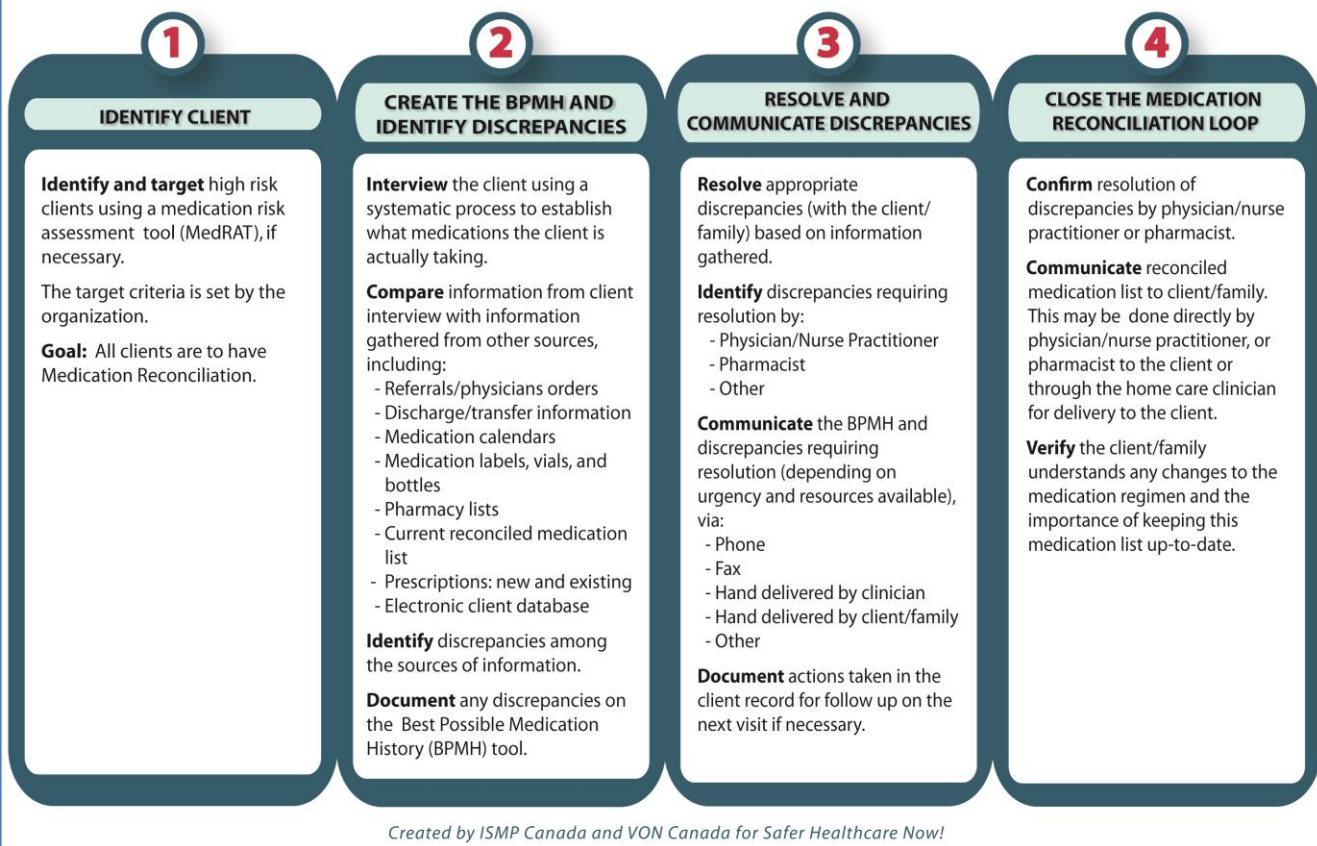
Poster is available for download http://www.ismp-canada.org/medrec/

Long-Term Care

Poster is available for download http://www.ismp-canada.org/medrec/

The Medication Reconciliation Process in Home Care

① IDENTIFY CLIENT

Identify and target high risk clients using a medication risk assessment tool (MedRAT), if necessary.

The target criteria is set by the organization.

Goal: All clients are to have Medication Reconciliation.

② CREATE THE BPMH AND IDENTIFY DISCREPANCIES

Interview the client using a systematic process to establish what medications the client is actually taking.

Compare information from client interview with information gathered from other sources, including:
- Referrals/physicians orders
- Discharge/transfer information
- Medication calendars
- Medication labels, vials, and bottles
- Pharmacy lists
- Current reconciled medication list
- Prescriptions: new and existing
- Electronic client database

Identify discrepancies among the sources of information.

Document any discrepancies on the Best Possible Medication History (BPMH) tool.

③ RESOLVE AND COMMUNICATE DISCREPANCIES

Resolve appropriate discrepancies (with the client/family) based on information gathered.

Identify discrepancies requiring resolution by:
- Physician/Nurse Practitioner
- Pharmacist
- Other

Communicate the BPMH and discrepancies requiring resolution (depending on urgency and resources available), via:
- Phone
- Fax
- Hand delivered by clinician
- Hand delivered by client/family
- Other

Document actions taken in the client record for follow up on the next visit if necessary.

④ CLOSE THE MEDICATION RECONCILIATION LOOP

Confirm resolution of discrepancies by physician/nurse practitioner or pharmacist.

Communicate reconciled medication list to client/family. This may be done directly by physician/nurse practitioner, or pharmacist to the client or through the home care clinician for delivery to the client.

Verify the client/family understands any changes to the medication regimen and the importance of keeping this medication list up-to-date.

Created by ISMP Canada and VON Canada for Safer Healthcare Now!

Poster is available for download http://www.ismp-canada.org/medrec/

Appendix 2: Top 10 Practical Tips for Interviewing Patients

Top 10 Practical Tips
How to Obtain an Efficient, Comprehensive and Accurate Best Possible Medication History (BPMH)

1 **Be proactive.** Gather as much information as possible prior to seeing the patient. Include primary medication histories, provincial database information, and medications vials/ lists.

2 **Prompt questions about non-prescription categories:** over the counter drugs, vitamins, recreational drugs, herbal/traditional remedies.

3 **Prompt questions about unique dosage forms:** eye drops, inhalers, patches, and sprays.

4 **Don't assume patients are taking medications according to prescription vials** (ask about recent changes initiated by either the patient or the prescriber).

5 **Use open-ended questions:** ("Tell me how you take this medication?").

6 **Use medical conditions as a trigger** to prompt consideration of appropriate common medications.

7 **Consider patient adherence with prescribed regimens** ("Has the medication been recently filled?").

8 **Verify accuracy:** validate with at least two sources of information.

9 **Obtain community pharmacy contact information:** anticipate and inquire about multiple pharmacies.

10 **Use a BPMH trigger sheet** (or a systematic process / interview guide). Include efficient order/optimal phrasing of questions, and prompts for commonly missed medications.

Adapted with permission from O. Fernandes PharmD, University Health Network, 2008

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Poster is available for download http://www.ismp-canada.org/medrec/

Appendix 3: Medication Reconciliation Documentation Tips

It is important to develop guidelines for documentation, for both electronic and paper charting, to ensure that documentation is comprehensive and standardized between practitioners in the same setting.

Table 5: Recommendations for Medication Reconciliation (MedRec) Documentation

BPMH Section	Reconciliation Section
Date history is taken	Discrepancies identified
Medication allergy and reaction information	Actions taken to resolve discrepancies
Community pharmacy name and number	Updated reconciled list (medication name, dose, route, frequency, start date, stop date, indication, prescriber name)
Medication management information (e.g., self-administration or caregiver administration; use of compliance packs)	Name of person that completed the reconciled list
Sources of information used to complete BPMH	
Name (generic name preferred)	
Dose	
Route	
Frequency	
Start date	
Indication	
Prescriber name	
Comments (additional information that would provide value in establishing the patient's medication regimen e.g., average number of as-needed medications consumed in a week, prescribed medication use if different than actual medication use)	
Name of person that completed the BPMH	

Figure 8 depicts how the elements listed may be incorporated into a MedRec form for paper charting and data fields on a screen for electronic charting.

Figure 8

FRONT SIDE

MEDICATION RECONCILIATION FORM

ismp CANADA
Institute for Safe Medication Practices Canada
L'Institut pour l'utilisation sécuritaire des

Ontario
Health Quality Ontario
Qualité des services de santé Ontario

This is a schematic representation of potential elements of a MedRec form for use in paper or electronic charts.

Date:

BEST POSSIBLE MEDICATION HISTORY

Sources of Information Use to Complete History:

- ☑ (please check all that apply)
- ☐ Patient interview
- ☐ Caregiver interview
- ☐ Medication vials / boxes
- ☐ Blister packs
- ☐ Patient's own list
- ☐ Community pharmacy profile
- ☐ MedsCheck
- ☐ Ontario Drug Benefits Drug Profile Viewer
- ☐ Specialist letter
- ☐ Hospital Discharge Summary
- ☐ Best Possible Medication Discharge Plan
- ☐ Rapid Response Nurse BPMH
- ☐ Ontario Telemedicine Network BPMH
- ☐ Other: _____

PATIENT'S NAME:

COMMUNITY PHARMACY NAME:
Phone Number:

Medication Management:
- ☐ Self-administration
- ☐ Caregiver administration

Compliance packs:
- ☐ No
- ☐ Yes   If yes, ☐ Pharmacy filled blister pack ☐ Personal dosette

Medication Allergies:
Reaction:

Medication Name	Dose	Route	Frequency	Indication	Start Date	Prescriber	Comments

Determine practice documentation guidelines (e.g., brand names v. generic names, combination products etc.)

Include additional information that would provide value in establishing the patient's medication regimen

Are there differences between the BPMH compared to what is documented in the patient's chart?

Recommendations by the nurse or pharmacist to PCP on possible options for resolution of the discrepancy

▶ **BPMH completed by:**

RECONCILIATION PLAN

Discrepancies Identified	Suggested Resolution Plan	Reconciliation Decision

▶ **Reconciliation completed by:**

RECONCILED MEDICATION LIST FLOWSHEET

Medication Name	Dose	Route	Frequency	Indication	Prescriber	Date/Initials	No Change	Modify
							☐	☐
							☐	☐
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The reconciled list should be the current and accurate medication list that is updated at each subsequent patient visit

Table 6: Tips for Documenting Medications

Tips for Documenting Medications
Record the generic medication name where possible (but remember that patients may be more familiar with the brand name).
Determine a convention for recording combination products, e.g., as two generic medication names with their respective dosages. e.g., Coversyl Plus = perindopril 4 mg and indapamide 1.25 mg or by brand name only.
Record how the patient is actually taking the medication. If actual use differs from how the medication was prescribed then also record the original intent of the prescriber (i.e., prescribed use).
For liquid or injectable medications – record both the concentration and the total number of mg/mcg/units to be taken.
Be aware of medications that are in mcg vs. mg (e.g., thyroid, fentanyl patches, inhalers).
Ensure the proper formulation of the medication is documented especially long acting vs. short acting (CR, SR, XR, ER, LA).
For medications dispensed as partial tablets record the actual mg dose and not the dose as a proportion of the tables (e.g., metoprolol 12.5mg orally twice a day; NOT metoprolol 25mg 0.5 tablet orally twice a day)
Avoid using dangerous abbreviations, identified as easily misinterpreted or involved in medication incidents leading to harm
Pay particular attention to "High Alert" medications (e.g., anticoagulants, insulin, opioids, methotrexate)
Avoid using Latin abbreviations if the BPMH leads to a medication list for the patient.

Do Not Use

Dangerous Abbreviations, Symbols and Dose Designations

The abbreviations, symbols, and dose designations found in this table have been reported as being frequently misinterpreted and involved in harmful medication errors. They should NEVER be used when communicating medication information.

Abbreviation	Intended Meaning	Problem	Correction
U	unit	Mistaken for "0" (zero), "4" (four), or cc.	Use "unit".
IU	international unit	Mistaken for "IV" (intravenous) or "10" (ten).	Use "unit".
Abbreviations for drug names		Misinterpreted because of similar abbreviations for multiple drugs; e.g., MS, MSO$_4$ (morphine sulphate), MgSO$_4$ (magnesium sulphate) may be confused for one another.	Do not abbreviate drug names.
QD QOD	Every day Every other day	QD and QOD have been mistaken for each other, or as 'qid'. The Q has also been misinterpreted as "2" (two).	Use "daily" and "every other day".
OD	Every day	Mistaken for "right eye" (OD = oculus dexter).	Use "daily".
OS, OD, OU	Left eye, right eye, both eyes	May be confused with one another.	Use "left eye", "right eye" or "both eyes".
D/C	Discharge	Interpreted as "discontinue whatever medications follow" (typically discharge medications).	Use "discharge".
cc	cubic centimetre	Mistaken for "u" (units).	Use "mL" or "millilitre".
µg	microgram	Mistaken for "mg" (milligram) resulting in one thousand-fold overdose.	Use "mcg".

Symbol	Intended Meaning	Potential Problem	Correction
@	at	Mistaken for "2" (two) or "5" (five).	Use "at".
> <	Greater than Less than	Mistaken for "7"(seven) or the letter "L". Confused with each other.	Use "greater than"/"more than" or "less than"/"lower than".

Dose Designation	Intended Meaning	Potential Problem	Correction
Trailing zero	x.0 mg	Decimal point is overlooked resulting in 10-fold dose error.	Never use a zero by itself after a decimal point. Use "x mg".
Lack of leading zero	.x mg	Decimal point is overlooked resulting in 10-fold dose error.	Always use a zero before a decimal point. Use "0.x mg".

Adapted from ISMP's List of *Error-Prone Abbreviations, Symbols, and Dose Designations 2006*

ISMP Canada July 2006

Report actual and potential medication errors to ISMP Canada via the web at https://www.ismp-canada.org/err_report.htm or by calling 1-866-54-ISMPC. ISMP Canada guarantees confidentiality of information received and respects the reporter's wishes as to the level of detail included in publications.

ISMP
CANADA
Institute for Safe Medication
Practices Canada
Institut pour l'utilisation sécuritaire
des médicaments du Canada

Permission is granted to reproduce material for internal communications with proper attribution. Download from: www.ismp-canada.org/dangerousabbreviations.htm

Appendix 4: Patient Resources

Patient/family-maintained medication lists

- Fillable PDF template

- Paper booklet

- Smartphone app

- knowledgeisthebestmedicine.org

Patient information on the importance of keeping and communicating medication lists

- 'One Simple Solution for Medication Safety' – DocMikeEvans Video

- When It Comes to Your Medicines, Don't Rely on Memory!

- Medication Reconciliation Can Help to Reduce the Chance of Errors with Medicines!

- Good Communication Can Help Prevent Harmful Mistakes with Medicines!

- An Important Question - Does this new medicine replace one of my current medicines?

Patient focused medication websites

- safemedicationuse.ca
- knowledgeisthebestmedicine.org

Appendix 5: Primary Care Providers in Ontario

Interprofessional, team-based primary care models:

Aboriginal Health Access Centres (http://aohc.org/aboriginal-health-access-centres)
Total # = 10

Aboriginal Health Access Centres (AHACs) are Aboriginal community-led, primary healthcare organizations. They provide a combination of traditional healing, primary care, cultural programs, health promotion programs, community development initiatives, and social support services to First Nations, Métis and Inuit communities.

Community Health Centres (http://aohc.org/community-health-centres)
Total # = 75

Community Health Centres (CHCs) deliver primary care services in health promotion and community development programs. CHCs focus on keeping people - and the communities where they live - in good health. If health problems are caused by social and environmental issues, health teams work with community members and develop programs to reduce them.

Family Health Teams (http://www.afhto.ca/)
Total # = 185

Family Health Teams (FHTs) provide primary healthcare services in a team approach which brings together your family physician with other healthcare providers in order to provide to you the best possible care. The focus is on keeping you and your family healthy, not just treating you when you are sick.

Nurse Practitioner-Led Clinics (http://aohc.org/nurse-practitioner-led-clinics)
Total # = 25

Nurse Practitioner-Led Clinics (NPLCs) are primary healthcare models in which Nurse Practitioners work collaboratively with an interprofessional team, including a consulting physician, to provide comprehensive, accessible, and coordinated family healthcare services to people who formerly did not have access to a primary care provider (i.e. unattached patients).

Community Care Access Centre (CCAC) Services

Rapid Response Nurses (http://oaccac.com/innovation/Pages/rapid-response-nurses.aspx)
Rapid Response Nurses (RRN) act as a bridge to support vulnerable patients with high care needs. Nurses connect with patients within the first 24 hours after the patient is discharged home from the hospital, ensuring the patient is connected to a physician or nurse practitioner and has an appointment within the next seven days.

Rapid Response Nurses help patients:

- understand their illness and symptoms
- understand their hospital discharge plan
- understand how to take prescribed medications
- arrange for follow-up medical appointments or tests
- connect with their primary care providers, ensuring everyone has necessary information about each step of the patients' journey
- receive appropriate home supports as quickly as possible so that they have everything they need to stay at home safely.

Telehomecare Program (http://telehomecare.otn.ca/)

Telehomecare (THC) is a patient self-management program that engages patients as partners in their care plan - right in their home. Telehomecare nurses teach, coach and remotely monitor a patient's health status through the use of technology. The patient's primary care provider is kept informed with ongoing updates. It's a new way to manage chronic disease and a catalyst for changing how healthcare is delivered. The goal is to inspire individuals to manage their own health at home. Patients with Chronic Obstructive Pulmonary Disease (COPD), Heart Failure (HF) and associated comorbidities are eligible for project enrollment.

For additional services offered by CCACs please visit http://oaccac.com/

Individual Practitioners:

Solo Family Doctor Practices (www.ocfp.on.ca)
Family physicians practicing without the support of other healthcare providers.

Community Pharmacists (www.pharmacists.ca)

Community pharmacists are medication management experts. They collaborate with patients, their families and other healthcare providers to benefit patients. In addition to traditional dispensing, and patient counseling activities, pharmacists deliver a range of services, including medication reviews, chronic disease management, immunization services and wellness programs.

MedsCheck program (www.medscheck.ca)

The MedsCheck program is a one-on-one interview between the community pharmacist and the patient to review the patient's prescription and nonprescription medications. The MedsCheck medication review will encourage patients to better understand their medication therapy and help to ensure their medications are taken as prescribed and that patients are getting the most benefit from their medications. MedsCheck should be available to all eligible patients in any community pharmacy in Ontario.

Appendix 6: Implementation Strategies

Provider Perspectives

An advisory committee of key players involved in MedRec in primary care or those who may be affected by implementing new MedRec processes was held. Below is a summary of their perspectives on the current state of MedRec in Ontario and what they hope to gain from a more standardized approach to MedRec.

At present, there is variability in the extent to which MedRec is performed in the primary care setting. Much of this variability depends on the availability of resources in various practice settings - for example many FHTs and CHCs have pharmacists on staff to help with MedRec. Some primary care providers find it challenging to fit MedRec into practice, as well as timely updating of patients' charted medication lists, while still addressing patients' primary medical concerns. Primary care providers without hospital privileges do not have access to the Ontario Drug benefit Drug Profile Viewer and feel that this would be a useful source of information when doing MedRec. While it is important for specialists to participate in MedRec, care providers agree that in primary care, MedRec should be the responsibility of primary care providers and community pharmacists. To facilitate MedRec referral forms received by specialists should include a complete and up to date medication list, and consultation notes sent from specialist to primary care providers should include details on any changes made to medications.

Collaboration with community pharmacists is perceived as a leverage point that could help primary care providers increase capacity for MedRec. A complete, accurate medication list generated by community pharmacists, possibly through the MedsCheck program, could help primary care providers in the MedRec. This may require improved infrastructure, training, and standards with respect to MedRec /MedsCheck in community pharmacies. At present, financial incentives are not aligned to promote primary care providers' involvement in MedRec; while pharmacists are paid for MedsCheck, there are no MedRec specific primary care billing codes for primary care providers.

Healthcare providers recognize the important role patients can play in the MedRec process. Through consultation with their providers, patients must be made aware when changes are made to their medication regimens and understand the indication for each medication they take. Importantly, patients should be engaged whenever changes to their medications are made, and assume ownership of their medication regimens, for example by maintaining an up to date medication list. Patients can also engage in the medication reconciliation process by bringing their medication vials to appointments to help facilitate the collection of BPMHs.

Make it Meaningful

Demonstrate that implementing a more structured process for collecting medication histories is needed. It is important to communicate that implementing MedRec is not implementing a completely new concept but that it is providing more structure to an existing process. Be mindful that the messaging doesn't imply that previously people were doing something wrong, but only that improvements are necessary. Show where the deficiencies are in the old process and what the potential impact of those deficiencies could result in.

Provide evidence from a global context and from a local context.

> ❖ *Discrepancies were identified in 74% patients, with 32% having two or more discrepancies, in a comparison conducted between patient self-reported medication lists and medications listed in an EMR in ambulatory care setting. (Stewart, 2012)*
>
> ❖ *31% of patients did not fill their prescriptions 9 months after the date they were issued (Tamblyn, 2014)*
>
> ❖ *Queen's Family Health Team found that only 1 out of 86 medication lists documented in their EMR reflected accurately reflected what the patient was taking*
> *(http://www.saferhealthcarenow.ca/EN/events/NationalCalls/2013/Documents/2013-02-12%20-%20MedRec/EN%20Handouts%20MedRec%20Primary%20Care.pdf, accessed on December 1st, 2014)*

To clearly contextualize the deficiencies in individual practice settings, complete a baseline audit of patient charts in your practice setting.

- Audit 100 patient charts on patients who are on X or more medications

- Set up appointments with each patient and ask them to bring in all of their medications or a current medication list

- Compare what the patient brought in with the prescribed medication list on the patient's chart

> *Consider hiring a medical, nursing or pharmacy student to assist with this process*

Assemble a Team

No one person can make this happen all on their own. To be successful, a QI initiative needs the support of the whole team — from office managers and administrative staff, to physicians and other healthcare providers.

Identify a leader who is respected and has credibility among peers. Be open to including constructive skeptics who have legitimate concerns but are open to change.

Consider choosing team members from outside your service group who may be interdependent with the processes that you implement (e.g. a community pharmacist in your area, a patient).

Consider the following checklist when forming a team:

- Have we included a representative from each discipline that touches the work?

- Have we considered including non-registered staff who might also support the work?

- Have we identified a team leader?

- Do we have a physician champion on the team?

- Should we include a constructive skeptic on our team?

- Do we have someone with QI skills to facilitate our progress?

- Should we consider an external stakeholder?

Define the Aim:

Clearly state what it is that you are trying to accomplish. A good aim statement will be clear, set specific time parameters, define a stretch goal and ensure that there is value added to patients.

What is the goal of implementing MedRec? How do you want to accomplish this? Over what time period?

Based on the resources available (e.g., pharmacist available, an electronic medical record) and the number of patients on your roster may influence what the goal of MedRec implementation is for your practice.

Ideally, a formalized process for MedRec would be available to all patients, however this may not be feasible or may take a long time to accomplish for certain settings. Decide what is practical for your setting, defining an over ambitious aim may set yourself up for failure and in turn lose buy-in from the team.

In an effort to implement MedRec in a manageable approach consider selecting a subset of patients first, for example:

- Patients recently discharged from hospital

- Patients on greater than X number of medications

- Patients who are new to the practice setting

- Patients who are diagnosed with Ambulatory Care Sensitive Conditions

- Patients who meet eligibility criteria predefined by the practice setting

- Patients who are scheduled for annual physical exam

> *For more information on quality improvement methodology, refer to HQO's Quality Improvement Guide*

If resources permit expand to other lower risk subset of patients. By using a stratified approach and expanding slowly over time a goal of 100% of patients receiving MedRec may be attainable. Complete medication reconciliation within 14 days of patient being discharged from hospital.

Example aim statements:

"We will implement MedRec for all patients in our clinic in a step-wise approach. We will accomplish this within 2 years and decrease the number of discrepancies in patients' charts by XXX."

OR

"We will perform MedRec within 7 days of discharge for 90 % of patients recently discharged from hospital by June of 2015."

Clearly communicate the aim. Ensure everyone being affected by the change understands that a new process is being implemented and believes in the potential benefit of it. Use the aim statement to create buy-in.

Determine Measures:

To determine if the MedRec process that you are implementing will be successful define specific measures to capture the impact of MedRec.

QI initiatives should use three types of measures to help create targets and achieve their aims:

- **Outcome measures** – capture the "voice of the patient or customer"; clinical outcomes and or system performance

- **Process measures** - track whether the system is working as planned

- **Balancing measures** – measures to ensure that changing one part of the system does not cause new problems in other parts of the system

Refer to Appendix Five for more information on measures in primary care MedRec.

Define Best Practice Change Ideas

Change ideas – are actionable, specific changes that focus on improving specific steps of a process. They are practical ideas that can be readily tested.

Change ideas can come from research, best practices, or from other organizations that have recognized a problem and have demonstrated improvement on a specific issue. Change ideas can be tested to determine whether they will result in improvement and are often revised as a result of these tests.

When beginning to implement a new process it may be easiest to begin with change ideas that you have the most influence or control over and then move to change ideas that require more resources to implement or are dependent on factors outside of your control. Below are examples of change ideas that may be helpful in implementing a sustainable MedRec model.

If possible test change ideas that have been validated in the literature or are recommended by experts. For examples of change ideas refer to table on page 24.

Before implementing change ideas try to envision what possible barriers might impede successful implementation. Barriers could include both structural and organizational barriers.

Examples of barriers based on change ideas above could include:

- Configuration of waiting room doesn't allow for patient to easily compare medication lists with the medications they bring in to self-identify discrepancies
- Not enough administrative resources to call patients to remind them to bring in medications or lists
- Staff members unwilling to embrace change

Moving from Choosing Change Ideas to Testing Ideas

Once there is a clear understanding of the opportunities for improvement, teams can begin brainstorming and testing ideas through Plan-Do-Study-Act (PDSA) cycles. This is an exciting phase that provides teams the opportunity to exercise creativity and challenge the status quo by trying different improvement ideas. The PDSA approach allows teams to try ideas on a small scale. Testing ideas on a small scale allows teams to smooth out any concerns in the process before sharing the success or failure of the tried change more widely. It builds confidence in the change process and creates buy-in by involving individuals that are truly affected by the proposed changes. (*Refer to Appendix Eight for Health Quality Ontario Quality improvement resources*)

Appendix 7: Potential Primary Care MedRec Measures

Measurement in quality improvement offers the ability to determine current performance (or baseline), set goals for future performance, and monitor the effects of changes as they are made. Successful measurement is a cornerstone of successful improvement. Measurement does not have to be difficult or time-consuming. The key is to pick the right measures that allow you to see results quickly and are able to adapt their interventions accordingly, putting less strain on resources and more focus on outcomes. For more information on effective measurement for quality improvement initiatives refer to Measurement for Quality Improvement.

The measures that are selected should ensure that the outcome of the intervention is being measured, in addition to ensuring that the process implemented is functioning as intended.

Based on the current infrastructure and documentation practices in the primary care setting easily extracting the data necessary (e.g., a list of patients who are eligible for MedRec or have had MedRec completed) for more meaningful measures may be quite challenging.

Counts of the number of patients that have participated in various aspects of the MedRec process might be the most straightforward way to measure this multi-faceted intervention with limited resource supports. It can provide a sense of the gains that are being made with implementing and spreading this intervention throughout the practice setting.

> **For example:**
> - **# of patients booked for a MedRec visit in 1 month**
> - **# of patients that bring in an up to date medication list / medications with them to an appointment in 1 month**

Ideally, if better resources were available then measures that provided more context on the how the process is functioning and if it is achieving the desired outcome would be collected.

> **For example:**
>
> **% of patient charts with a reconciled list** = $\dfrac{\text{# of patients with a reconciled list}}{\text{Total # of eligible patients}} \times 100$
> **documented**

In order for this measure to be meaningful clear definitions of the numerator and denominator are necessary. Depending on the practice setting the definitions could vary making it difficult to compare one practice setting to another.

For example:

Numerator: # of patient charts with a reconciled list documented

How to determine if a reconciled list was documented?

- Does it require the provider to specifically document 'MedRec completed'?

- Is it based on a chart review and if a reconciled list can easily be identified?

Denominator: Total # of eligible patients

What constitutes an 'eligible patient'?

- Patients on X number of medications

- Patients who have a diagnosis of an Ambulatory Care Sensitive Condition

- Patients who have been discharged from hospital 7 days ago

The measures below are potential measures, relating to the goals of MedRec that could be used to determine if the MedRec processes implemented are functioning as intended and whether or not the desired outcome of the processes is being achieved.

Goal	Aim to have a complete and accurate list of the medications a patient is taking to optimize safe, effective and appropriate drug therapy.
Process Measure(s)	% of patients whose medications were reconciled on or within 7 days of discharge = $\dfrac{\text{# of patients discharged within 7 days with MedRec documented}}{\text{# of eligible patients}} \times 100$
Corresponding Change Ideas	- Use screening tools to focus MedRec efforts towards high-risk patients - Complete MedRec on all patients discharged from hospital within one week of discharge - Print medication lists from EMR or patient's chart for patients to review in waiting room before their appointment to self-identify discrepancies - Develop form or specific section in chart to document BPMH and update reconciled list
Goal	Encourage/empower patients to become more involved in managing their medications by providing them with the necessary information and resources to do so.
Process Measure(s)	% of patients who bring up-to-date med list/meds to appointment = $\dfrac{\text{# of patients with up-to-date med list / meds}}{\text{# of patients who had MedRec performed}} \times 100$ % of patients that come in with a MedsCheck = $\dfrac{\text{# of patients with a MedsCheck}}{\text{# of patients eligible MedRec patients who were referred for MedsCheck}} \times 100$ % of patients that are provided with an up-to-date medication list in the last 12 months = $\dfrac{\text{# of patients that have documented in chart medication list provided in last 12 months}}{\text{# of eligible patients}} \times 100$
Corresponding Change Ideas	- Have receptionist call patients in advance of their appointment to remind them to bring with them their med lists / meds - Encourage eligible patients to have a MedsCheck completed by their community pharmacy - Print medication lists from EMR or patient's chart for patients' to review in waiting room before their appointment to self-identify discrepancies - Provide up to date medication lists to patients - Provide patients with tools to record and update their medications lists - Use teach-back method to verify patients' understanding of their medication regimen

Goal	Strive to accurately communicate about a patient's medications amongst the patient's healthcare team
Process Measure(s)	% of referrals with current med list documented on it =

<div>

# of patients with referrals with a current med list   X 100
# of patients with referral who had MedRec

% of patients with medication changes clearly communicated in consult note and accurately reflected in patient chart of PCP

# of patients with medication changes clearly communicated and accurately reflected in patient chart of PCP   X 100
# of patients with consult report in chart with medication changes listed

</div>

Corresponding Change Ideas	- Provide community pharmacists with initial reconciled list - Liaise with community pharmacist to complete MedsCheck - To develop standard referral form that has current medication list section

Health Quality Ontario's Primary Care Performance Measurement Framework contains the following MedRec related measures:

- Percentage of patients who report that, in the past 12 months, they had a review and discussion with their primary care provider of prescription medications they are using

- Percentage of patients who report that, in the past 12 months, a healthcare provider explained the potential side effects of any medication that was prescribed

- Percentage patients who, in the past two years, were not sure what a new prescription medication was for or when or how to take it

For technical information on these measures refer to the Technical Appendices: Report of the Steering Committee for the Ontario Primary Care Performance Measurement Initiative: Phase One.

Appendix 8: Health Quality Ontario Quality Improvement Resources

To facilitate quality improvement initiatives in Ontario HQO has developed a comprehensive **Quality Improvement Framework** that brings together the strengths of several QI science models and methodologies, such as the Model for Improvement from the Institute for Healthcare Improvement (IHI), and traditional manufacturing quality improvement methods like Lean and Six Sigma. HQO grounded their framework in Deming's System of Profound Knowledge to ensure a system-wide view of improvement would be applied to any quality improvement initiative, in any healthcare sector.
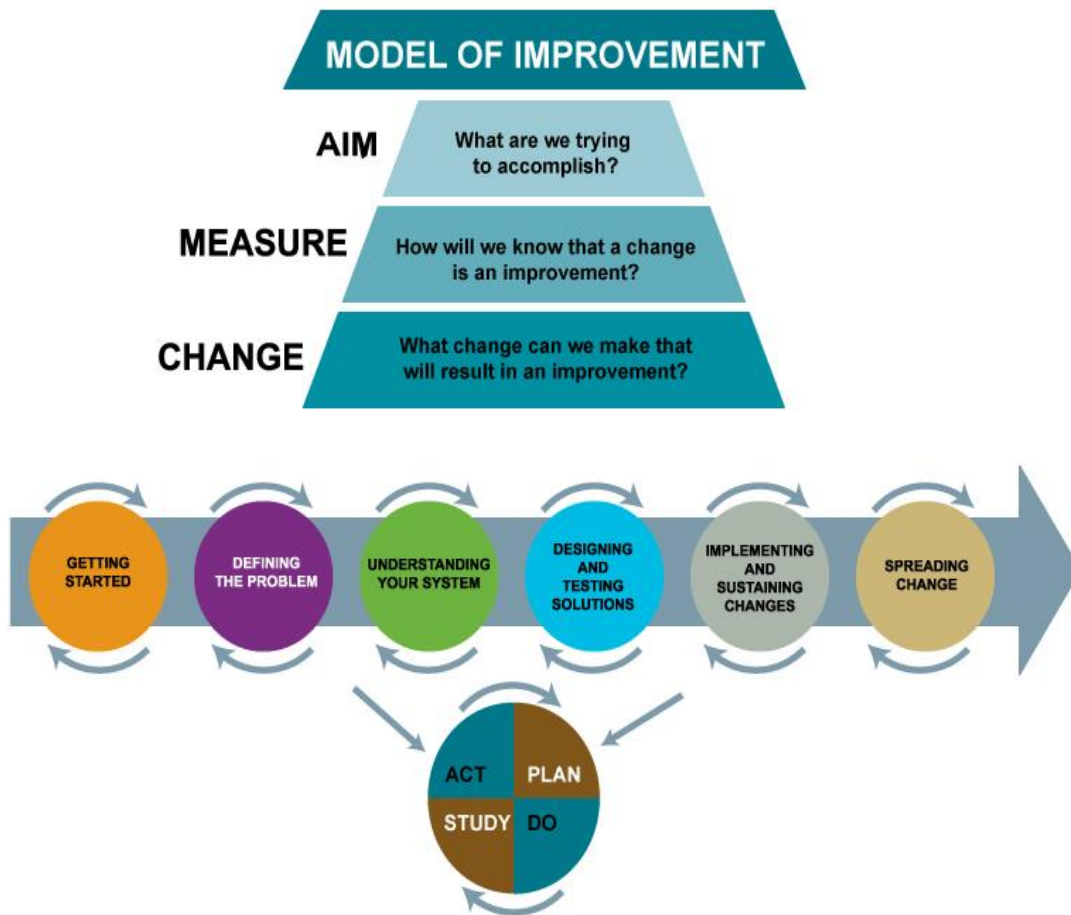
Quality Improvement Primers

In addition to the above noted framework, HQO has developed Quality Improvement Primers to give healthcare teams and organizations in Ontario easy access to well-established QI tools. Each primer is designed to support the steps of your QI journey.

- **Quality Improvement Science**
  A systematic approach to making changes that lead to better patient outcomes and stronger health system performance. This approach involves the application of QI science, which provides a robust structure, tools and processes to assess and accelerate efforts for the testing, implementation and spread of QI practices.

- **Quality Improvement Team Development**
  A well-designed QI initiative includes frontline, interprofessional teams that are empowered to: set goals for improvement, identify causes of poor system quality, conduct tests of change, and collect and analyze data to determine whether a change led to improvement.

- **Voice of the Customer**
  The 'Voice of the Customer' is the idea that the wants and needs of the customer are central to any business or service. This concept can be seen in several QI science models and methodologies such as Lean and Six Sigma.

- **Measurement**
  Measurement in quality improvement allows a Quality Improvement (QI) team to demonstrate current performance (or baseline), set goals for future performance, and monitor the effects of changes as they are made.

- **Change Concepts and Ideas**
  There are many kinds of change that will lead to improvement. Change concepts stimulate critical and creative thinking, which lead to inventive and specific improvement ideas. Many change concepts come from the manufacturing industry, but are also applicable to the healthcare system.

- **Change Management**
  This primer addresses the principles and practices of change management and its application to quality improvement. It is intended to be used as a guide for the design and implementation of successful change efforts, and to better understand how individuals, teams and organizations shift or change from a current state to a future state.

- **Implementing and Sustaining Changes**
  This primer will focus on strategies for the successful implementation of your improvements and address concepts for ensuring their sustainability.

- **Spread**
  After QI teams have made it through the first five phases of HQO's QI Framework, they are ready to 'spread' the improvements that they have made.

Quality Compass is an evidence-informed web-based tool to promote the uptake of best practices to help support healthcare leaders and providers make sustainable improvements to transform Ontario's healthcare system.

It provides access to evidence informed best practices and change ideas, indicators and targets, measures, and success stories, contextualized to Ontario designed to inform action and improve care in priority health care areas.

Information related to MedRec in the various healthcare sectors is available on the Quality Compass.
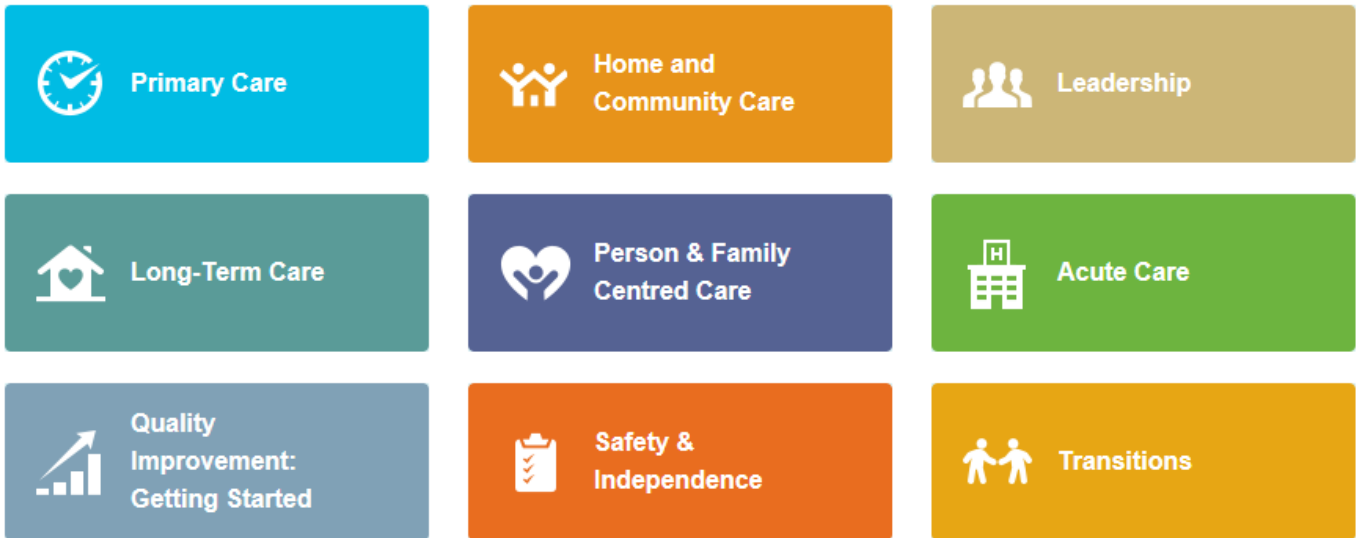
Appendix 9: Glossary of Terms

Actual Medication Use refers to how a person is routinely taking their medications regardless of the instructions from a healthcare professional or directions on the medication label.

Adverse Drug Event is an injury from a medicine or lack of an intended medicine. Includes adverse drug reactions and harm from medication incidents. (ISMP Canada)

Ambulatory Care Sensitive Conditions (ASCS) conditions are medical conditions for which a substantial proportion of cases should not advance to the point where hospitalization is needed if they are treated in a timely fashion with adequate primary care and managed properly on an outpatient basis.

bestPATH is an initiative that facilitates more coordinated, person-centered care for seniors and others with complex chronic illnesses. It is designed to be an integral support to Health Link communities as they work to smooth the gaps between sectors, improve access to care, reduce avoidable emergency room visits and hospital re-admissions, and improve the experiences of patients as they make their way through the health system. Ref: www.hqontario.ca/bestpath

Best Possible Medication Discharge Plan (BPMDP) is the most appropriate and accurate list of medications the patient should be taking after discharge from a medical facility. This should be completed by a qualified staff member from the discharging facility Ref: ISMP Canada. Medication Reconciliation in Home Care: Getting Started Kit. 2010

Best Possible Medication History (BPMH) is a history created using 1) a systematic process of interviewing the client/family; and 2) a review of at least one other reliable source of information to obtain and verify all of a client's medication use (prescribed and non-prescribed). 3) Complete documentation includes medication name, dosage, route and frequency. The BPMH is more comprehensive than a routine primary medication history which may not include multiple sources of information. Ref: ISMP Canada. Medication Reconciliation in Acute Care: Getting Started Kit. 2011

Discrepancy is an identified difference between what the client is actually taking versus the information obtained from other source of information (e.g., community pharmacy profile, hospital discharge summary etc.) Ref: ISMP Canada. Medication Reconciliation in Home Care: Getting Started Kit. 2010

Electronic Health Records (EHRs) contain individual information registered with healthcare providers (e.g., family doctor, specialist, healthcare team) and the provincial healthcare plan.

Electronic Medical Records (EMRs) computer software used by primary care providers to collect, manage and store patient's health records.

Health Links is a program sponsored by the Ontario Ministry of Health and Long-Term Care that delivers a new model of care at the clinical level where all providers – including primary care, hospital and community care – are charged with coordinating plans at the patient level. The initial focus is on improving patient care and outcomes for people with complex health conditions, while delivering better value for investment.

High Alert Medications are medications that bear a heightened risk of causing significant patient harm when used in error. Ref: www.ismp.org/Tools/highalertmedications.pdf

Intentional Discrepancies occurs when a prescriber makes a deliberate decision to add, change or discontinue a medication that the patient was taking in the prior healthcare setting

Medication Management is defined as patient-centred care to optimize safe, effective and appropriate drug therapy. Care is provided through collaboration with patients and their healthcare teams. Ref: Developed collaboratively by the Canadian Pharmacists Association, Canadian Society of Hospital Pharmacists, Institute for Safe Medication Practices Canada, and University of Toronto Faculty of Pharmacy, 2012.

Medication Reconciliation (MedRec) is a formal process in which healthcare providers partner with clients to ensure accurate and complete medication information transfer at interfaces of care. It involves a systematic process for obtaining a medication history, and using that information to compare to medication orders in order to identify and resolve discrepancies. It is designed to prevent potential medication errors and adverse drug events. In the home care environment, the process starts and ends with the client. The end result is the reconciled medication list which is verified with the client in a manner to support clear understanding by the client/family and/or caregivers. Ref: ISMP Canada. Medication Reconciliation in Home Care: Getting Started Kit. 2010

Medication Review addressing issues relating to the client's use of medication in the context of their clinical condition in order to improve health outcomes. (Ref: www.healthgov.bc.ca/pharmacare)

MedsCheck program is a one-on-one interview between the community pharmacist and the patient to review the patient's prescription and nonprescription medications. The MedsCheck medication review will encourage patients to better understand their medication therapy and help to ensure their medications are taken as prescribed and that patients are getting the most benefit from their medications. MedsCheck should be available to all eligible patients in any community pharmacy in Ontario (Ref: www.medscheck.ca)

Ontario Drug Benefits Drug Profile Viewer is a secure, web-enabled application that provides healthcare providers with patient prescription drug information for Ontario Drug Benefit and Trillium Drug program recipients. (http://www.ehealthontario.on.ca/en/initiatives/view/drug-profile-viewer)

Prescribed Medication Use assumes the patient is taking their medications as instructed by their healthcare professional or directions on the medication label.

Rapid Response Nurses care for patients with complicated health needs in consultation with care coordinators, community nurses and other community health providers by providing care at home within the first 24 hours after the patient is discharged home from the hospital.

Reconciled Medication List is the reconciled BPMH and is the end of the MedRec process where are all discrepancies are identified and resolved. It is the most up to date accurate medication list for the client. Ref: ISMP Canada. Medication Reconciliation in Home Care: Getting Started Kit. 2010

Sources of Information refers to the various resources that may house or have knowledge of a client's medication information, including the client themselves

Unintentional discrepancies occur when a prescriber unintentionally adds, changes or discontinues a medication that a patient was taking prior to admission. This type of discrepancy can potentially lead to adverse drug events and cause harm.

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