



The Patient Safety
Education Program™
CANADA

Module 14: Medication Reconciliation

Emanuel LL, Taylor L, Hain A, Combes JR, Hatlie MJ, Karsh B, Lau DT, Shalowitz J, Shaw T, Walton M, eds. *The Patient Safety Education Program – Canada (PSEP – Canada) Curriculum*. © PSEP – Canada, 2014.

PSEP – Canada Module 14: Medication Reconciliation was created through a collaboration between the Canadian Patient Safety Institute (CPSI) and ISMP Canada. Acknowledgements to Margaret Colquhoun, ISMP Canada and Jennifer Turple, ISMP Canada for the writing of the module.

Acknowledgements to Joan Fernandez, Canadian Patient Safety Institute for review and editorial contributions of the module.

The PSEP – Canada curriculum received editorial contributions from Phil Hassen, International Society for Quality Assurance in Health Care, John Wade, Winnipeg Regional Health Authority, Paula Beard, Canadian Patient Safety Institute, Marie Owen, Canadian Patient Safety Institute, Julie Barré, Canadian Patient Safety Institute, Gordon Wallace, Canadian Medical Protectorate Society, Carolyn Hoffman, Alberta Health Services, Deborah Danoff, Canadian Medical Protectorate Society, Linda Hunter, The Ottawa Hospital, Jane Mann, Fraser Health, Wayne Millar, Eastern Health, Sherissa Microys, The Ottawa Hospital, Donna Davis, Patients for Patient Safety Canada, Elinor Caplan, Patients for Patient Safety Canada, Hugh MacLeod, Canadian Patient Safety Institute, Redouane Bouali, The Ottawa Hospital, Alan Baxter, The Ottawa Hospital, Lisa Calder, The Ottawa Hospital, Craig Bosenburg, Vancouver Island Health Authority, Susan MacKnak, Regina Qu'apelle Regional Health Authority, Annamarie Fuchs, Consultant, Anne Bialachowski, Community and Hospital Infection Control Association-Canada, Joanne Habib, Community and Hospital Infection Control Association-Canada, Deborah Simmons, University of Texas Health Science Center at Houston, and Lisa Little, Consultant.

Acknowledgements to Sandi Kossey, Canadian Patient Safety Institute, Erin Pollock, Canadian Patient Safety Institute, Ioana Popescu, Canadian Patient Safety Institute, and Morgan Truax, Canadian Patient Safety Institute for their work on the appendices, glossary, and Canadian reference list; to Hina Laeeque, Canadian Patient Safety Institute, for her contribution to the Canadian editing process; to Denise Sorel and Anne MacLaurin for their review and insight of content pertaining to the *Safer Healthcare Now!* program; to Julie Langlois, Accreditation Canada, for her work mapping the Required Organizational Practices and Standards.

Permission to reproduce PSEP – Canada *Core Curriculum* materials is granted for non-commercial educational purposes only, provided that the above attribution statement and copyright are displayed. Commercial groups hosting not-for-profit programs must avoid use of products, images or logos from the commercial entity with PSEP – Canada materials.

PSEP – Canada is a partnership between the Canadian Patient Safety Institute (CPSI) and the Patient Safety Education Program, which is housed at the Buehler Center on Aging, Health & Society at Northwestern University, Chicago, USA. The PSEP – Canada Curriculum is an adaptation of the PSEP Core Curriculum. PSEP has received support from the Jewish Healthcare Foundation, the Pittsburgh Regional Health Initiative, the Zell Center for Risk Research, California Healthcare Foundation, The Commonwealth Fund, and the Health Research and Education Trust in the form of the 2008 Edwin L. Crosby Fellowship that was awarded to Dr. Emanuel. PSEP is a not-for-profit educational program. It began as a collaboration among Linda Emanuel, Martin Hatlie, John Combes, and Joel Shalowitz.

Those who have become certified PSEP – Canada Trainers by taking a ‘Become a PSEP – Canada Trainer’ course that was provided by PSEP – Canada may use the title of PSEP – Canada Trainer, as well as template materials, such as fliers, that are provided by PSEP – Canada and also use the appropriate designated marks to hold educational seminars using the PSEP – Canada *Core Curriculum*. The Patient Safety Education Program in the US reserves the sole right to designate Master Facilitators who teach at ‘Become a PSEP – Canada Trainer’ conferences.

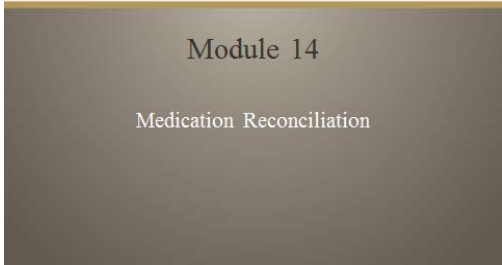
Visit www.patientsafetyinstitute.ca for further information.

Contact PSEP – Canada by e-mail at PSEPCanada@cpsi-icsp.ca

[Revised 2017]

Abstract

Slide 1



This module is about medication reconciliation (MedRec). MedRec, although seemingly simple in concept, is exceedingly complex to implement reliably. Effective medication reconciliation draws heavily on concepts described in many other PSEP – Canada modules including leadership, communication, medication safety, teamwork, technology, patients as partners, and others.

Keywords

Communication, transitions, admission, transfer, discharge, best possible medication history, reconciliation, adverse drug event, acute care, ambulatory care, long term care, home care, implementation

Teaching methods

Interactive lecture, role play

Objectives

Slide 2

Knowledge requirements

- An understanding of:
 - the available research and evidence to support the MedRec process,
 - the basic components of the MedRec process,
 - the MedRec process at all interfaces of care across the healthcare system, and
 - the key elements for successful implementation including an effective measurement and evaluation strategy.

Performance requirements

- Use a systematic approach to obtaining a Best Possible Medication History
- Implement MedRec at all interfaces of care
- Evaluate and measure the MedRec process
- Engage the consumer in the MedRec process

The learning objectives of this module are; to assist practitioners in understanding the current evidence for the importance of MedRec processes, the key components of MedRec processes at various transitions and in various sectors of care, and to appreciate the barriers and facilitators to successful implementation of MedRec.

Knowledge requirements

The knowledge elements include an understanding of:

- the available research and evidence to support the MedRec process,
- the basic components of the MedRec process,
- the MedRec process at all interfaces of care across the healthcare system, and
- the key elements for successful implementation including an effective measurement and evaluation strategy.

Performance requirements

The performance elements include the ability to:

- use a systematic approach to obtain a Best Possible Medication History (BPMH),
- implement MedRec at all interfaces of care,
- evaluate and measure the MedRec process, and
- engage the consumer in the MedRec process.

Clinical case on trigger tape

Slide 4

Trigger tape



Other examples

“A patient's Primidone (barbiturate for epilepsy) was discontinued during the patient's hospitalization and not renewed upon discharge to a skilled nursing facility. The patient later experienced 3 grand mal seizures while at the skilled nursing facility.”

Excerpt from “Medication Errors Involving Reconciliation Failures”
(Santell, 2006)

“A doctor wrote a prescription for the antibiotic moxifloxacin (brand name Avelox) and a pharmacist then prepared the medicine. However, the doctor and the pharmacist didn't know that the patient was already taking a product that contained multi-vitamins and minerals. Mineral supplements can keep the body from absorbing some drugs, including moxifloxacin. This means that the drugs can't do their jobs. In this case, the patient took all of the moxifloxacin exactly as the doctor instructed, but the pneumonia was not cured. When the doctor prescribed moxifloxacin again, the pharmacist told a family member that it was important to stop taking any minerals while taking moxifloxacin. The patient stopped taking the minerals while he was taking the moxifloxacin and the pneumonia was cured.”

Excerpt from “Minerals May Interact with Some Medicines
Don't Forget — Keep a List of Your Medicines!”
(ISMP Canada, 2010)

A 67-year-old woman with a regular general practitioner was prescribed several medications, including atenolol 50 mg daily, after a myocardial infarction. Six months later she saw a cardiologist for a review of her treatment. She was asymptomatic, but the cardiologist prescribed metoprolol 50 mg twice daily. The cardiologist did not have a complete list of her

medicines. As she was now taking two beta blockers, the patient subsequently developed symptomatic bradycardia.

Excerpt from “The importance of medication reconciliation for patients and practitioners” (Duguid, 2010)

Fundamentals

Slide 5

MedRec fundamentals

- Formal process
- Healthcare providers work together with patients, families and care providers to ensure communication across transitions of care
- Requires a systematic and comprehensive review of all the medications a patient is taking
- Will inform and enable prescribers to make the most appropriate prescribing decisions for the patient.

Definition

MedRec is a formal process in which healthcare professionals partner with patients to ensure accurate and complete medication information is communicated consistently at transitions of care. It requires a systematic review of all the medications a patient is taking (known as a Best Possible Medication History or BPMH) to ensure that medications being added, changed or discontinued are carefully evaluated. MedRec is a component of overall medication management and informs and enables clinicians to make the most appropriate therapeutic decisions for the patient (Safer Healthcare Now!, 2011).

The evolution of MedRec

Slide 6

Supporting organizations



The concept of MedRec was developed by a Wisconsin nurse as part of an Institute for Healthcare Improvement (IHI) initiative. In 2005, IHI included MedRec as one of six

interventions in the 100,000 lives campaign. This campaign focused on reducing morbidity and mortality in the healthcare system. Soon after, accrediting bodies in both the US and Canada adopted requirements for the implementation of MedRec within organizations.

Safer Healthcare Now!, the flagship program of the Canadian Patient Safety Institute (CPSI), included MedRec among its interventions aimed at reducing preventable harm in healthcare. Since 2005, CPSI has partnered with the Institute for Safe Medication Practices Canada (ISMP Canada) to help translate knowledge around MedRec processes and implementation in the acute, long term, home and ambulatory care settings.

In 2005, Accreditation Canada incorporated several MedRec requirements among the Required Organizational Practices (ROPs) in their accreditation Program. MedRec requirements continued in the 2008 Qmentum Program. In January 2013, Accreditation Canada announced increasing requirements for MedRec activities with a view to full implementation of MedRec across the continuum of care by 2022 (Accreditation Canada, 2013).

In 2006, IHI continued to promote the implementation of MedRec through its expanded call to action for safer and better quality of care in its 5 Million Lives campaign.

In 2008, the World Health Organization included a MedRec Standard Operating Protocol as one of the five initiatives included in the High5s project. ISMP Canada acts as the intervention lead for MedRec with the High 5s project.

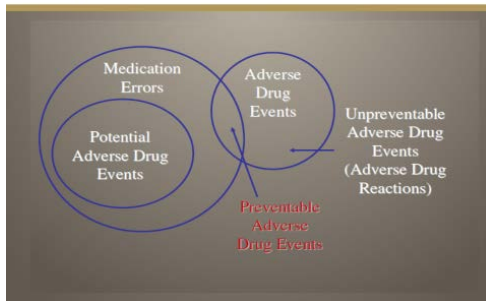
In 2012, thirteen national Canadian organizations endorsed the importance of effective communication of medication information through MedRec. These organizations included: Accreditation Canada, Canada Health Infoway, Canadian Medical Association, Canadian Nurses Association, Canadian Pharmacists Association, Canadian Society of Hospital Pharmacists, Patients for Patient Safety Canada, Royal College of Physicians and Surgeons of Canada, The College of Family Physicians of Canada, Canadian Association of Paediatric Health Centres, Canadian Medical Protective Association, Canadian Patient Safety Institute and the Institute for Safe Medication Practices Canada.

Many national health professional organizations have developed position statements on MedRec and numerous regulatory health professional bodies have incorporated MedRec concepts into their discipline-specific standards of practice.

Why MedRec processes are important

Slide 7

Why MedRec is important



The purpose of MedRec is to prevent specific adverse drug events that can result from poor collection of medication history information or from the incomplete use of this medication history when prescribing. A significant component of the MedRec process includes the need to effectively communicate changes to a pre-existing medication regimen to patients and healthcare providers within the patient's circle of care as patients transition throughout the healthcare system. It is important to note that not all medication errors will lead to harm (adverse drug events). However, without MedRec there is an increased opportunity for medication errors at the prescribing phase to result in adverse drug events.

Slide 8

Case study



MedRec processes can prevent harmful medication errors (adverse drug events) such as omissions of regularly used medication, dosing errors, duplications and drug-drug interactions. In the example above, without a MedRec process, the impact of an inadvertent omission of a regularly used medication, warfarin, may lead to the adverse drug event of a (preventable) stroke. When MedRec is effectively executed, it can intercept these medication errors before they lead to adverse drug events.

The case for MedRec: the evidence

Slide 9

Are MedRec processes needed? ...

- 7.5% of adults admitted to acute facilities experience an adverse event
- Approximately 25% of hospital prescribing errors are attributable to medication histories at the time of admission
- 54% of patients admitted to hospital have at least one unintentional discrepancy at admission
- 39% of these judged to have the potential to cause discomfort or clinical deterioration

Slide 10

... Are MedRec processes needed?

- Patients admitted are at increased risk for the unintentional discontinuation of chronic medication
- In one survey, 23% of the patients experienced adverse event (72% of these medication)
- On admission to home care, 45% of clients had at least one medication discrepancy
- Audit of patients on 4+ medications showed only 1 out of 86 EMR medication lists accurate

The need for MedRec processes has also been demonstrated in published literature in addition to anecdotes such as the previous example. Collectively, these justify the need for more rigorous processes to collect, utilize and communicate medication information at transitions throughout the healthcare system. Some relevant statistics that point to the need for MedRec processes are included below:

- 7.5% of adults admitted to acute facilities experience an adverse event. Drug or fluid related events were the second leading cause of the adverse events (Baker et al., 2004).
- Approximately 25% of hospital prescribing errors are attributable to incomplete or inaccurate medication histories at the time of admission (Dobrzanski et al., 2002).
- 54% of patients admitted to hospital have at least 1 unintentional medication discrepancy at admission and 39% of these were judged to have the potential to cause moderate to severe discomfort or clinical deterioration (Vira et al., 2006).
- Patients admitted to hospital are at increased risk for the unintentional discontinuation of chronic medication therapies as compared to controls. There is an even greater risk of unintentional discontinuation of these medications following an ICU admission. (Bell et al., 2011).
- In a population of patients discharged from an internal medicine service, 23% of the patients experienced an adverse event and 72% of these were medication

related. The majority of these were considered either preventable or ameliorable (Forster et al., 2004).

- On admission to home care, 45% of eligible clients had at least one medication discrepancy requiring clarification by a physician/primary care practitioner based on a sample of more than 600 clients (Victorian Order of Nurses Canada, CPSI, & ISMP Canada, 2010).
- A Canadian family health team office setting reported that when charts of patient on 4 or more medications were audited, only 1 of 86 EMR based medication lists was accurate when compared to a comprehensive patient interview/medication history collection (Barber et al., 2013).

Slide 11

Benefits of MedRec processes

- Reduction in actual adverse drug events (ADEs) caused by errors in admission orders
- Long-term care (LTC) residents less likely to have a discrepancy-related adverse event
- MedRec at discharge decreased medication discrepancies by 26%

There is emerging evidence that implementing MedRec processes can lead to improved patient safety through a reduction in potential or actual adverse drug events, and decreases in costs such as those associated with adverse drug events, re-admissions, and rework. Some of the key points of evidence are included below:

- A study of MedRec at admission found a 43% reduction in actual adverse drug events (ADEs) caused by errors in admission orders (Boockvar et al., 2011).
- Within three months the implementation of an admission MedRec process in an elective surgical population decreased potential ADEs by 80% (Michels et al., 2003).
- A study-based intervention that included MedRec at discharge decreased medication discrepancies by 26% as compared to a control group who did not receive the intervention (Walker et al., 2009).
- A study of a collaborative nurse-pharmacist led MedRec process was found to be highly efficient and cost-effective. Among the 563 patients included, the MedRec process was able to potentially avert 81 adverse drug events for every 290 patients. (Feldman et al., 2012).
- A review of published cost effectiveness analyses, found that pharmacist-led MedRec led to improved safety and lower costs as compared to no reconciliation (Etchells et al., 2012).

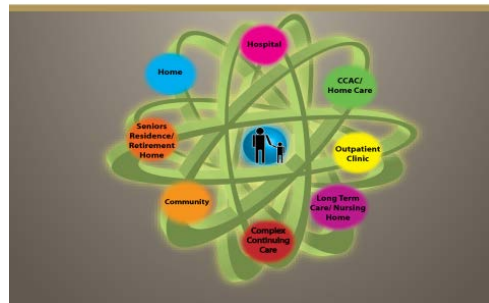
- A study of the implementation of MedRec processes found that nursing time was reduced by over 20 minutes per patient at admission and reduced pharmacist time by over 40 minutes per patient at discharge (Rozich et al., 2004).
- A study, with a pharmacist supported “bundle” that included MedRec at admission and discharge for patients aged 80 and older, showed significant decreases in hospital visits (both ED visits and readmissions) in a 12 month follow up period (Gillespie et al., 2009).
- Long-term care (LTC) residents, who had MedRec completed upon return to LTC from acute care, were less likely to have a discrepancy-related adverse event as compared to residents who did not have MedRec completed (Boockvar et al., 2004).

More detailed reviews of literature can be found in several systematic reviews located in the Tools and Resources section of this module.

Where do MedRec processes occur?

Slide 12

Care settings



MedRec processes may be warranted in any care setting where changes are made to medication regimens. However, the MedRec processes differ depending on the care setting. Further details on the specifics of MedRec processes by care setting can be found in Safer Healthcare Now! Getting Started Kits for acute care, long term care and home care (Safer Healthcare Now!, 2010, Safer Healthcare Now, 2010)

MedRec processes can take place in a variety of care areas including:

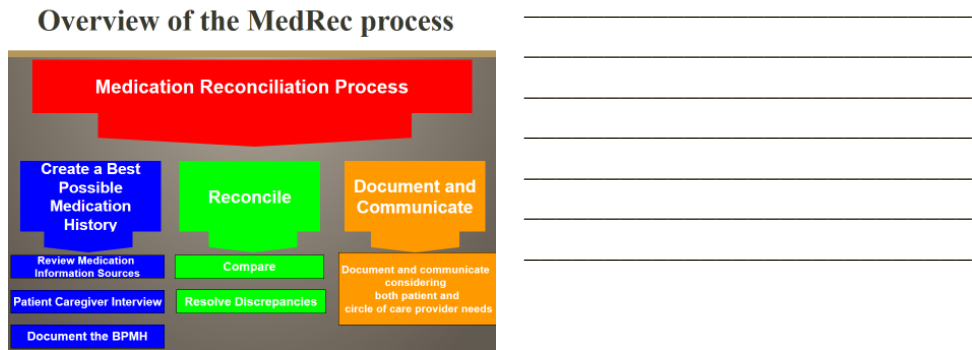
- Acute care (inpatient) and long-term care settings
- Outpatient settings, including:
 - Family Practice Settings
 - Community Pharmacies
 - Ambulatory/Specialist Clinics
- In the home (e.g. home care services)

The expectations for completion of MedRec processes in these various healthcare settings are mandated by Accreditation Canada and in some jurisdictions by provincial agencies. Accreditation Canada’s specific MedRec requirements or standards by care setting are

outlined in their Required Organizational Practices Handbook(s). The most current version of this document can be found on their website (www.accreditation.ca)

The MedRec process

Slide 13



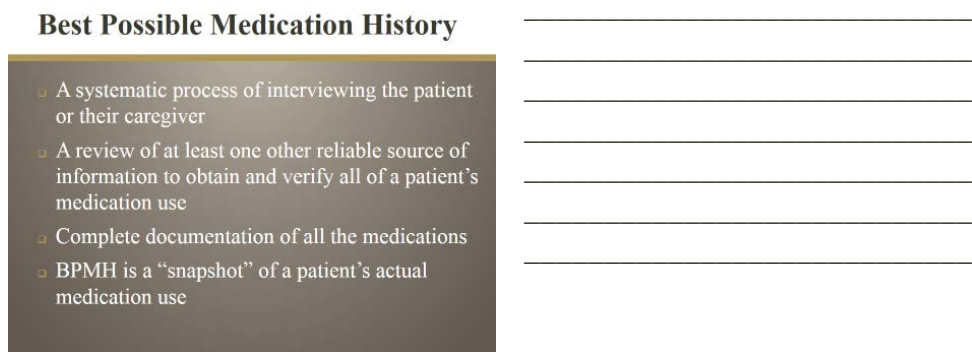
MedRec consists of three high level processes as defined by Safer Healthcare Now!:

1. Create a complete and accurate Best Possible Medication History (BPMH)
2. Reconcile Medications
3. Document and Communicate

Each of these high level processes then requires the execution of several distinct steps or sub processes.

1. Creating the Best Possible Medication History (BPMH)

Slide 14



Regardless of the care setting, a Best Possible Medication History (BPMH) is the first step and foundation of the MedRec process. This is because it serves as the list and comparator as a patient's medications are altered as they move throughout the healthcare system. Therefore, it is fundamental that this medication history actually be "the best possible".

A BPMH is defined as a medication history created using:

1. A systematic process of interviewing the patient or their caregiver;

2. A review of at least one other reliable source of information to obtain and verify all of a patient’s medication use (prescribed and non-prescribed), and;
3. Complete documentation of all the medications including name, dose, route and frequency.

The BPMH is more comprehensive than a routine primary medication history which is often a quick preliminary medication history which may not include multiple sources of information and/or a patient interview. According to Safer Healthcare Now!, the BPMH should include what the patient is actually taking not just what was prescribed.

Medication information sources

Slide 15

Medication information sources ...

- Patient’s own medication list
- Community pharmacy dispense records or medication review documents
- Provincial Drug Information Systems or Databases
- Medication vials or compliance/pill-packs
- Home care reconciled medication list
- Primary care provider medication list

Slide 16

... Medication information sources

- Previous admission records/discharge summary
- Prescriber referral/consultation notes
- Ambulatory clinic medication records
- Most current Medication Administration Record (MAR)
- Best Possible Medication Discharge Plan (BPMDDP)

There are various sources of medication information available for review when collecting a BPMH, although the availability of specific sources of information may vary by jurisdiction. Medication information sources can include:

- patient’s own medication list (hand-written or electronic);
- community pharmacy dispensed records or medication review documents;
- provincial drug information systems or databases (e.g CareNet (AB), Drug Profile Viewer (ON), DIS (PEI), PIP (SK), DPIN (MB), etc.);
- medication vials or compliance/pill-packs;
- home care provider medication list;
- primary care provider medication list;
- previous admission records/discharge summary;

- prescriber referral/consultation notes; and
- ambulatory clinic medication records.

For patients in a setting where medications are administered to the patient, the team needs:

- a complete and current medication list or Medication Administration Record (MAR), and
- a Best Possible Medication Discharge Plan (BPMDP).

The available sources of medication information vary in their usability. For instance, a patient-maintained list must be validated for its completeness and currency. Also, community pharmacy dispense records can be lengthy and cumbersome to sort through. Many of these information sources do not capture all of the necessary pieces of information required to effectively create a BPMH. Specifically and notably, the use of non-prescription products (e.g. herbals or over-the-counter preparations) is not captured in many medication information sources. Finally many of these information sources may capture what has been *prescribed* to a patient, but does not necessarily capture a patient’s actual medication use. ***This is why the next step, the patient or caregiver interview, is a critical component of a BPMH collection.***

Patient/caregiver interview

Slide 17

Patient interview



Interviewing a patient for the purposes of collecting a BPMH requires a structured approach in order to ensure the routine collection of the most accurate medication information. There are many tools available to assist care providers in conducting a structured BPMH interview. Some examples include:

- the Safer Healthcare Now! BPMH Patient Interview Pocket Guide,
- the Safer Healthcare Now! Top 10 Practical Tips Poster, and
- The Emmi® Program’s 9 minute YouTube video titled “Taking a Good Medication History”.

Links to these resources are available in the Resources section at the end of this module.

Challenges in BPMH collection

The accurate collection and documentation of a BPMH is vital to the MedRec process and yet creating a BPMH can be very challenging and time consuming. A 100% accurate medication list may not always be possible or realistic, and therefore the focus should always be “the best possible”.

It is important not to make assumptions about the accuracy and comprehensiveness of a BPMH for providers who have been conducting medication histories for some time. Even the most experienced staff may require training and/or certification in this more “rigorous” medication history collection process. For effective and reliable collection of a BPMH, organizations need to consider what barriers or “failure modes” may exist to collecting a BPMH and, where possible, attempt to remove any identified barriers/obstacles to design resilient processes that account for some of the inevitable challenges that care providers will face. Some of these challenges include:

<p>Patient/Care Provider or Healthcare provider-Related Challenges</p>	<ul style="list-style-type: none"> • Patient may not know all of the required information about their medications/ may not keep an accurate list of their medications • Patient is unable to effectively communicate medication information due to clinical scenario/medical condition or language barriers • Patient does not bring all medication products with them for a care encounter • Care providers lack education on how to conduct a BPMH/effectively communicate with patients
<p>System Related Challenges</p>	<ul style="list-style-type: none"> • Provider specific information technology (IT) systems do not maintain complete lists of a patient’s medication(s) in their records • When documented, medication information is not easily or reliably shared between care providers • Access to systems that exist to share medication information may be limited or information may only be available for a portion of the population or certain types of medications.

A video satire of some of these challenges by Trillium Health Centre in Ontario is available on YouTube at the following link: <http://www.youtube.com/watch?v=spqrcu4Wspc>

Many of the system related factors mentioned above take significant effort to influence and organizations can benefit greatly by engaging patients in this process. Patient

engagement will be discussed in further detail in the “Implementing a MedRec Process” section to follow. The PSEP – Canada Module 3: Communication: Building Understanding with Patients and Caregivers also provides additional information on effective communication with patients.

Documentation

Once the BPMH has been established, it must be clearly documented in a highly visible or centralized location of a patients’ chart or medical record. Each medication listed in the BPMH should contain complete information including drug name, dose, product strength (as needed for multi-strength medications), route and frequency. Whenever possible, time of last dose should also be included.

2. The reconciliation process

“To reconcile: To settle or resolve; to make consistent; to check against another for accuracy; to account for”

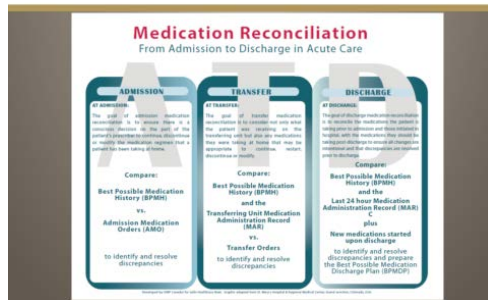
Merriam Webster Online Dictionary

These are all variations of the definition of the word “reconcile”. All of these definitions describe, very broadly, the next step of the MedRec process. Once the BPMH has been collected, it is then compared against medication orders for accuracy and/or to ensure that differences are appropriately accounted for. Where differences are identified, they should be settled and resolved.

Reconciliation in various settings

Slide 18

Process at acute care transitions



Discrepancies

- Unintentional discrepancy: prescriber unintentionally changed, added or omitted a medication – these are potential errors than can lead to ADEs
- Undocumented intentional discrepancy: prescriber made choice to add, change or discontinue a medication, but choice not clearly documented or communicated

In acute and long term care settings, the reconciliation step involves comparing the BPMH to medication orders at various transition points in care. In acute care environments, these transition points include admission, internal transfer and discharge. In a long term care setting, this reconciliation would take place at admission/re-admission and internal transfers (if applicable). Through the process of comparison, differences in the transition-specific medication information can be identified. Broadly these differences are referred to as “discrepancies”.

Any differences or discrepancies then require a process of resolution. This means that each difference must be accounted for by the prescriber in some way. There are two specific types of discrepancies that MedRec processes aim to decrease. These types of discrepancies are:

- **Unintentional discrepancy**
This is a discrepancy in which the prescriber unintentionally changed, added or omitted a medication the patient was taking prior to admission. These are medication errors than can lead to ADEs.
- **Undocumented intentional discrepancy**
This is a discrepancy in which the prescriber has made an intentional choice to add, change or discontinue a medication as part of the clinical care of the patient, but this choice is not clearly documented or communicated in the chart.

Undocumented intentional discrepancies are not medication errors and do not necessarily represent a serious threat to patient safety. However, without clearly understanding a prescriber’s intentions, there is no way of knowing if a difference was intended or in fact represents an unintentional discrepancy.

Using the example provided earlier in this module, if a patient was taking warfarin at home (and it is documented in the patient’s BPMH) but the admission orders do not contain an order for warfarin, there are several scenarios that might account for the difference:

- Scenario A- The prescriber has a clinical reason for not ordering the medication (e.g. a high INR, or an active bleed).

- If the prescriber clearly documents and acknowledges this omission based on this clinical rationale, this would represent a documented intentional discrepancy.
- If they did not include the documentation to support this omission, this would represent an undocumented intentional discrepancy.

The importance of the documentation to support this intentional choice is that it allows other care providers to effectively reconcile and understand such a discrepancy. Otherwise, care providers involved in the reconciliation process would need to clarify with the prescriber their intent to rule out a potential unintentional discrepancy.

- Scenario B- The prescriber has inadvertently omitted the warfarin. This would represent an unintentional discrepancy.

Reconciliation at admission

Slide 20

MedRec on Admission

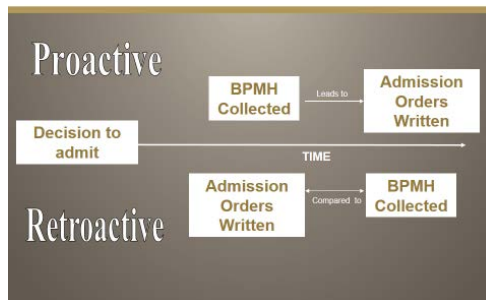


Two models have emerged to support the reconciliation of a BPMH and admission orders. These modules are described below.

Proactive model

Slide 21

Proactive and retroactive models



In this model, the BPMH is created first and it leads directly to the generation of admission medication orders. This is accomplished by having the BPMH documented on a “form” (whether electronic or paper) and having the admission medication orders generated directly from the BPMH listing (see figure 1 for example). The generation of

the admission orders is most often in the form of a selection by the prescriber of options such as “continue, discontinue, etc) for each medication listed in the BPMH. In this sense, the prescriber is “forced” through the form to account for/reconcile each of the medications as listed in the BPMH, with a prescribing action. Through this model, in theory, there should be no discrepancies created (i.e. everything that is documented that the patient takes at home is accounted for in the admission orders in some way). In electronic based or technology supported MedRec processes, the system may include soft and hard stops to facilitate the process.

Retroactive model

In a retroactive model, the prescriber writes admission orders and at a time following admission, a BPMH is collected. The BPMH and admission medication orders are then compared to identify discrepancies. It is very likely that discrepancies will be identified, as for example, is not common prescribing practice to explicitly document the discontinuation of a medication taken prior to admission. Once discrepancies are identified, there is a process whereby identified discrepancies are then resolved.

Figure 1: Examples of admission models from the Safer Healthcare Now!’s MedRec Community of Practice

**DOCTOR'S ORDERS
PRE-ADMISSION MEDICATION
DISCREPANCIES & OMISSIONS**

Attention MD/NP: The following medication discrepancies were noted between admission orders and usual home medications. Please clarify with respect to the patient's current clinical status.

DISCREPANCIES & OMISSIONS		PHYSICIAN'S INSTRUCTIONS To be completed by MD or NP						
Drug name	Dose/Route/Freq At Home	Dose/Route/Freq ordered on chart	Omission	Continue at Home	Continue at Home with adjustment	Hold	Discontinue	Other admission

Completed by: _____ Date/Time: _____

OTHER (for MD/NP use only): _____

Retroactive admission

**PREADMISSION MEDICATION LIST
PHYSICIAN ORDER FORM**

Facility: _____

Read this list with the Physician Orders

Allergy / Intolerance to Medication & Food
NO MEDICATIONS TO BE ADMINISTERED UNTIL THIS SECTION COMPLETED
 No Known Allergies
 Intolerant to latex (Pharmacy to tag on MAR)
 Allergies as follows (describe reaction): _____

Weight: _____ lbs. Check here if this is an admission to get revision of previously completed medication list
 Estimate Actual

Height: _____ inches
 Estimate Actual

* Note: These sections MUST be completed before the orders are sent to Pharmacy.*

All Home or Outpatient Prescription, Over the Counter (nonprescription), and Herbal Medications.
List all the patient's medication taken prior to admission. Medication will not be supplied on admission.

Medication Name <small>(include trade name)</small>	Dose	Interval	Route	Time of Last Dose	Physician Orders <small>for Inpatient Medications on Admission</small>
					Continue Stop Comments (change in specific)

No Pre-admission Medications

Initial: _____ Processed: _____ Faxed: _____ MAR
Please cross out Mark Date after processing to prevent additions
 continued on page 2
Comments / Concerns / Follow-up: _____

Obtained history: _____ (title) Date/Time _____ (signature)

PAC review on day of surgery: _____ (title) Date/Time _____ (signature)

Source of Medication List (check all that apply):
 Patient / Family MAR from other facility Medication vials or list Pharmacy Other: _____

Disposition of Patient's Medication on Admission
 Locked up in nursing unit brought to hospital. Sent home with: _____ Not brought to hospital

Prescribing Physician: _____ (print)

(signature)

Date: _____ Time: _____

Proactive admission

Reconciliation at transfer

Slide 22

MedRec at Transfer



The goal of transfer MedRec 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 at the time of transfer.

Internal transfer is an interface of care associated with a change in patient status where it is required for medication orders to be re-written according to facility policy (e.g. post-op, transfer from ICU, changes in responsible medical service, changes in level of care).

Reconciliation at discharge

Slide 23

MedRec at Discharge



The goal of discharge reconciliation is to reconcile the medications the patient was taking prior to admission (BPMH), and those initiated in the hospital, with the medications the patient should be taking post-discharge. This will ensure changes are intentional and discrepancies are resolved.

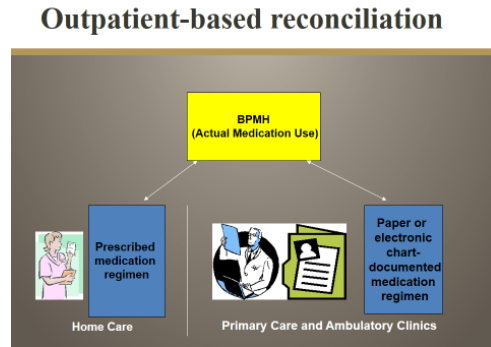
Discharge MedRec clarifies the medications the patient should be taking post-discharge by resolving identified discrepancies between:

- discharge orders,
- the patient’s BPMH, and
- the current Medication Administration Record.

Once this is complete, the healthcare provider can then generate a Best Possible Medication Discharge Plan (BPMDP). The BPMDP will be discussed further in the Documentation and Communication section of this module.

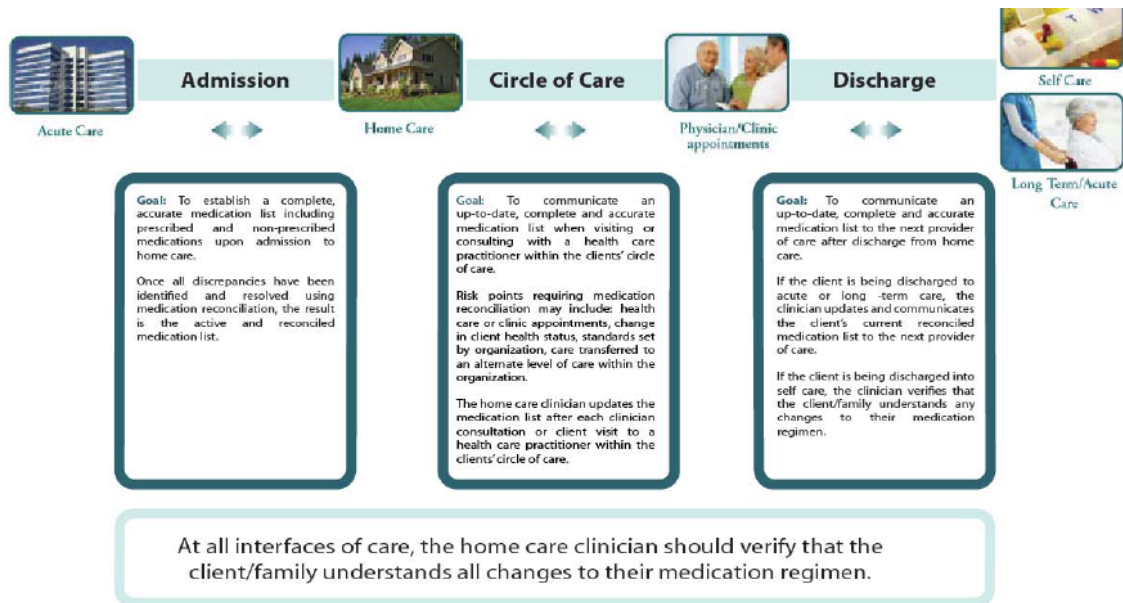
Reconciliation in other settings

Slide 24



The reconciliation step in settings such as home care, community pharmacy, ambulatory clinics and family practice environments involves a different process. Discrepancies in these settings are defined as differences between the list of medications in the medical record (referred to as recorded medications) and what a patient is actually taking, based on medication bottles and self-report (referred to as reported medications). The goal in these environments is to maintain an accurate medication list. The graphic below describes this process in the home care setting.

Figure 2: From Medication Reconciliation in Home Care Getting Started Kit, Safer Healthcare Now!



Created by ISMP Canada and VON Canada for the Safer Healthcare Now! campaign.

Ideally this process would take place at any time when modifications to medication regimens are being made with the goal of preventing adverse events that may result from lack of knowledge of actual medication use.

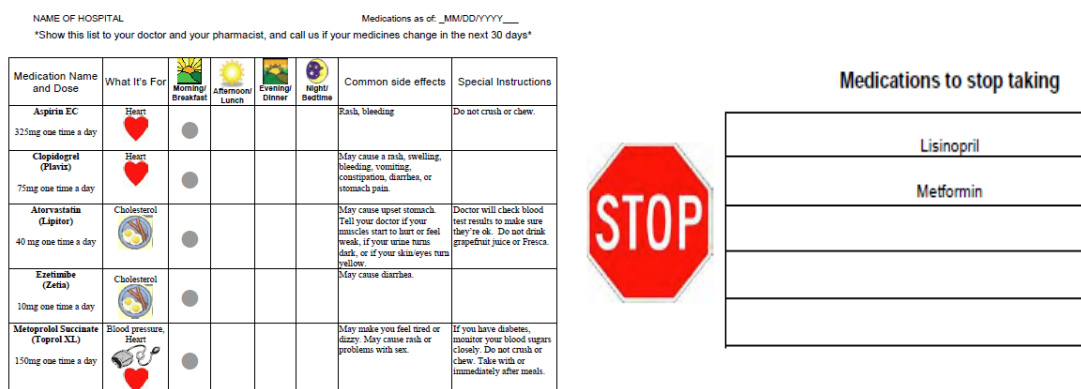
When discrepancies are identified, these should be resolved. Depending on the setting, this may be done by the person making the comparison or it may be done in consultation with a most responsible prescriber.

3. The process of communication and documentation

Once discrepancies have been identified and resolved, the communication and documentation of the resulting reconciled medication orders is the final step of the process. Effective communication and documentation should include both patients and other care providers in a patient’s circle of care. The extent of communication with the patient may depend on the specific transition point in care.

For example, at discharge from acute care to the home setting, communication and documentation of a patient’s finalized medication discharge plans should be provided to patients in a patient friendly format. The figure below is an example of a patient friendly medication calendar.

Figure 3: Patient friendly medication calendars from MARQUIS investigators



The documentation of the discharge medication plan should also be communicated with their community-based care providers. In the context of discharge MedRec, this documentation and communication tool is known as the Best Possible Medication Discharge Plan (BPMDP).

A BPMDP is a documentation and communication tool for care providers (see Figure 4 below for an example) that evaluates and accounts for:

- Discontinued medications (from BPMH)
- Adjusted medications (from BPMH) including Non-formulary/formulary adjustments made in hospital
- Unchanged medications that are to be continued (from BPMH)

- New medications started in hospital
- New medications to be started on discharge
- Medications that are on hold and need to be re-evaluated at a future point in time
- Additional comments as appropriate (e.g. herbals)

Figure 4: A Best Possible Medication Discharge Plan from Safer Healthcare Now!

Implementation of MedRec Processes

“Organizations that are working on this don’t do it just to meet national patient safety standards. They do it because it’s the right thing to do for patients. It is part of delivering good patient care. But that doesn’t mean it’s easy.”

-Frank Frederico, IHI on MedRec

“I don’t recall when we got permission to stop taking (medication) histories. So we have to be specific and blunt to do this. You will not find a board member or CEO that will tell you it is not important. But they will tell you they think it is being done. There is an assumption that this is occurring as part of the treatment plan.”

-Vickie Kaminski, President and CEO Eastern Health, Newfoundland and Labrador

The implementation of MedRec is complex and there are many models in practice that support the effective and reliable completion of MedRec processes. Because of the heterogeneity of healthcare practices across the country there is no “one size fits all” approach to an effective implementation. Differences in healthcare settings across the country include variations in:

- health professional legislation around MedRec related functions,

- formal (e.g. undergraduate training) and informal (e.g on the job training) MedRec education,
- availability of information technology support for MedRec functions,
- level of senior leadership support (i.e. provincially or within organization),
- patient safety culture,
- healthcare provider “mix” and availability of staff resources, and
- level of patient engagement.

National level implementation

Slide 25

National challenges ...

- Nine themes identified at the National Summit:
 - interprofessional engagement
 - leadership accountability
 - engagement of the public (consumers) and caregivers
 - physician roles
 - culture and human systems
 - education and training
 - information systems and technology
 - tools and resources
 - measurement
- Institute for Safe Medication Practices Canada, 2012

Slide 26

Key factors for implementation

- Senior executive support and leadership
- Measurement/data collection
- Process/workflow analysis and integration
- Education and training
- Multidisciplinary/frontline engagement and role definitions
- Patient engagement
- Use of information technology

In 2011, CPSI, ISMP Canada and Canada Health Infoway co-hosted a national summit with representatives from ten National organizations to better understand how to accelerate and optimize the implementation of MedRec processes in Canada. The attendees identified 9 main themes and made recommendations associated with each of these nine themes. See Tools and Resources for full report.

The nine themes were:

- leadership accountability,
- inter-professional engagement,
- engagement of the public (consumers) and caregivers,
- physician roles,
- culture and human systems,

- education and training,
- information systems and technology,
- tools and resources, and
- measurement.

See Tools and Resources section for more information on toolkits developed to guide organizations in the implementation of MedRec.

Local level implementation

Slide 27

Senior executive support/leadership

- Ensure MedRec is a specific strategic priority by:
 - developing an accountability framework
 - reporting progress and/or measures to the board
- Provide the necessary resources to allow for:
 - effective MedRec processes to be developed, executed and tested
 - the provision of MedRec related education to patients, staff and physicians

Slide 28

Strategies to engage leadership

- Provide quantitative and qualitative data to support need for and ongoing improvement of MedRec
- Demonstrate how MedRec aligns with organizational priorities/programs
- Review MedRec related accreditation or regulatory expectations
- Describe a business case for MedRec

Although there is no recipe to successfully implement MedRec, there are several key ingredients that have been identified by those who have been successful. This next section will focus on a selection of these ingredients.

“Medication reconciliation requires logistical and cultural change, and repeated process redesign at multiple levels which is why leadership is so important.”

-Dr. Eric Apler, Patient Safety Officer at UMass Memorial Medical Center

“Senior leadership commitment is critical to ensuring MedRec is implemented successfully across an organization. It is essential to dedicate resources to support the achievement of an ambitious plan of action, and include MedRec as a strategic priority with goals, timelines, accountability for

implementation, evaluation and progress reporting. Accountability must rest with the CEO with clear reporting expectations at the board level.”

-Optimizing Medication Safety At Care Transitions: A National Summit

Without organizational senior leadership support, implementation of MedRec is unlikely to be successful. In a 2012 survey of Canadian MedRec Practice Leaders, “securing senior leadership commitment and support” was among the top three factors that practice leaders identified as contributing to their success.

Given the significant change involved in implementing MedRec, the significance of leadership is also supported in change management literature and by change management experts. Some of the vital functions of leadership relating to MedRec implementation may include:

- ensuring MedRec is a specific strategic priority and setting explicit expectations, and
- providing the necessary resources and removing barriers.

A Canadian publication titled “Implementation of Admission Medication Reconciliation at Two Academic Health Sciences Centres: Challenges and Success Factors” describes two organization’s self-identified success factors (Coffey et al., 2009)

A recorded presentation on the role of leadership and change management in an effective implementation of MedRec at London Health Sciences Centre (ON) is available online. A link can be found in the Resources section of this module.

To garner both initial and ongoing leadership support for MedRec activities, consider the potential role of the each of following to facilitate senior leadership engagement:

1. Reporting of qualitative and quantitative data

Slide 29

Use of patient stories

“At the monthly management meeting of a large urban hospital, the head of patient safety announces: “We had a critical incident last week. A patient was readmitted two days after discharge with severe hypoglycemia. The treating team discharged the patient on a new insulin regimen without realizing that the patient also had insulin 30/70 at home. The patient continued to take both her previous regimen as well as the new one, and was found unresponsive by her husband. She’s in ICU and will probably have permanent neurological deficits.” After various sighs and exclamations from the executives around the table, the chief medical officer asks incredulously, “Why didn’t this get picked up by medication reconciliation?” Before anyone can answer, the executive adds: “We had that other case six months ago in which a patient was discharged without restarting his Coumadin, and he ended up having a stroke. We implemented medication reconciliation a year ago. Why is this still happening?”

Fernandes et al. HealthCare Quarterly, 2012

The provision of qualitative “data” through patient stories/description of incidents of MedRec failures can be an effective engagement strategy. An excerpt from a 2012 Healthcare Quarterly article describes such a “story” (Fernandes et al, 2012):

“At the monthly management meeting of a large urban hospital, the head of patient safety announces: “We had a critical incident last week. A patient was readmitted two days after discharge with severe hypoglycemia. The treating team discharged the patient on a new insulin regimen without realizing that the patient also had insulin 30/70 at home. The patient continued to take both her previous regimen as well as the new one, and was found unresponsive by her husband. She’s in ICU and will probably have permanent neurological deficits.” After various sighs and exclamations from the executives around the table, the chief medical officer asks incredulously, “Why didn’t this get picked up by medication reconciliation?” Before anyone can answer, the executive adds: “We had that other case six months ago in which a patient was discharged without restarting his Coumadin, and he ended up having a stroke. We implemented medication reconciliation a year ago. Why is this still happening?”

Regular reporting of quantitative data on key MedRec related measures/metrics will engage leadership in organizational performance both at baseline (without MedRec) and as implementation or process changes are implemented. More detailed discussion on this can be found in the “Measurement/Data” section to follow.

2. The review of MedRec related accreditation or regulatory expectations

Accreditation Canada’s Qmentum standards (effective January 2014) include a leadership ROP, titled “Medication Reconciliation as a Strategic Priority”. It describes that the following must be demonstrated by organizations upon accreditation survey.

- The organization has a medication reconciliation policy and process to collect and utilize accurate and complete information about client medication at transitions of care.
- The organization defines roles and responsibilities for completing medication reconciliation.
- The organization has a plan to implement and sustain medication reconciliation that specifies services/programs, locations and timelines.
- The organizational plan is led and sustained by an interdisciplinary coordination team.
- There is documented evidence that the organization educates staff and physicians responsible for medication reconciliation.
- The organization monitors compliance with the medication reconciliation process, and makes improvements when required.

Refer to the Accreditation Canada website for the most up-to-date information on MedRec requirements.

3. The business case for MedRec

Adverse drug events have been estimated to cost between \$4,500 to \$38,000 USD (Bates et al, 1997, Evans et al., 1992). There are an increasing number of publications that demonstrate that effective implementation of medication reconciliation can be cost-effective for organizations. For example, a Canadian study that reviewed published literature for economically attractive patient safety improvement strategies found that pharmacist-led MedRec led to improved safety at a lower cost than when compared to no MedRec strategy (Etchells et al, 2012). Notably, many business cases focus on the cost benefits derived from the prevention of an adverse drug event (ADE). However, additional potential benefits of MedRec should also be considered such as:

- Decrease in readmissions or visits to the Emergency department,
- Decrease in legal costs associated with ADEs,
- Increased efficiencies due to streamlined processes,
- Increased patient engagement and potentially patient satisfaction, and
- Increased staff satisfaction.

An Excel spreadsheet template to calculate a MedRec Return on Investment (to justify MedRec related FTEs) as well as business cases to support dedicated MedRec FTEs can be found in the Resources section of this module.

4. How MedRec aligns with organizational priorities/programs

Implementing and continuously improving MedRec processes may align well with various organizational priorities or programs such as:

- providing of safe/ quality care,
- providing patient/family-centred care,
- releasing time-to-care, and
- reducing re-admissions.

Measurement and data collection

Slide 30

Measurement/data collection

- Examples of commonly used measures:
 - unintentional medication discrepancies
 - intentional undocumented discrepancies
 - % of patients reconciled
 - % of patients with outstanding discrepancies
- Emerging measures include:
 - those captured through patient and care provider survey

“Data provides direction, but emotion provides movement”

-Dan Heath

“You can’t manage what you can’t measure”

- an old management adage

As organizations consider implementing MedRec, an effective MedRec measurement strategy must be a part of their implementation strategy. Measurement provides information through data contributing to quality improvement and decision support. Measurement can also serve to bring awareness and encouragement to staff around the scope of the problem that MedRec processes are trying to address. Organizations are encouraged to incorporate their measurement strategy into a model for improvement approach (e.g. the “study” phase of Plan-Do-Study-Act cycles).

There are many approaches to measurement and data collection for MedRec. Evidence in published literature continues to emerge around the beneficial clinical, economic and humanistic outcomes that result from the implementation of MedRec processes.

As of the time of publication of this module, there are no standardized or specified mandatory measurement requirements around MedRec by a National Canadian organization. Various international organizations including the World Health Organization-High 5s initiative and the Institute for Healthcare Improvement (IHI) have suggested several MedRec related measurement strategies. Safer Healthcare Now! also promotes various measures in its Getting Started Kits. Participation in any of these international/national programs is voluntary. As such, MedRec measurement is ultimately at the discretion of organizations. Many organizations have developed “in-house” measurement strategies. These strategies are often tailored to align with provincial quality/patient safety measure submission requirements where they exist (e.g. by local Ministries/Departments of Health)

Many organizations collect “baseline” information to both demonstrate that without MedRec processes in place that medication discrepancies (and potential adverse drug events) are common throughout a patient’s healthcare journey and to establish a starting point against which future measures can be benchmarked against. There is a large body of evidence now to support that without MedRec there are ongoing opportunities for harmful drug related events. However, local data, from your own area/organization, on the prevalence of medication discrepancies or the harmful consequences of these discrepancies can be a powerful motivator to demonstrating the local need for MedRec. It also provides a “baseline” to which you might compare as you implement various MedRec processes.

Examples of commonly used measures in MedRec include:

- number (or mean number) of unintentional medication discrepancies, and
- number (or mean number) of undocumented intentional medication discrepancies.

These types of “counts”/means are particularly helpful in measuring the impact of the implementation of a MedRec process (i.e. measured at baseline pre-MedRec implementation and then measured again post MedRec process implementation).

- Percentage of Patients Reconciled (at Admission, Transfer, and Discharge)
- Percentage of Patients with One or More Outstanding Discrepancies

Slide 31

Focus on MedRec process quality

□ Another emerging measure is to “score” the quality completion of the various steps of the MedRec process.
 □ A tool to support this measurement

Newer measurement strategies focus on measuring the quality or accuracy of the BPMH collection and documentation. This type of evaluation is an important quality assurance exercise for organizations to assess their overall approach to BPMH collection or to assess individual staff member performance or competence in BPMH collection (e.g. certification).

Safer Healthcare Now! has developed a measurement tool for organizations to assess the overall quality of their established admission MedRec processes in acute and long term care settings. Using a “checklist” approach, this tool allows organizations to audit individual patient charts to assess whether the steps of the MedRec process have led to the desired outcomes. For example, the auditor would review a chart to see if all medications listed in the BPMH have been accounted for in the admission orders. For example, the lingering presence of an unintentional discrepancy despite the completion of the MedRec process indicates that the process, as established, requires process improvement. Through aggregation of this data, organizations can also identify specific aspects (e.g. process of collection of a BPMH) of the overall admission process where they are doing well and others that require organizational attention (e.g. process for resolution of identified discrepancies). An example of a leadership report that might include organization specific measurement results is shown in figure below.

Figure 5: Example Leadership report

MedRec to Go! Leadership Report

Month of Report: _____

Name of Organization: _____

Executive Sponsor: _____ Project Lead: _____

What are we trying to accomplish? → Include: Improvement Aim, core measures, Change idea(s) being tested

How will we know that a change is an improvement? → Attach run charts to this report. Do any run charts show signals of improvement as per run chart rules? Circle improvement(s) in red directly on run charts (where applicable)

What changes can we make that will result in improvement? → See "Next Steps"

• Overall Impression of Progress to Date: (Please circle one)

Initiative is On Track Progress Slower than Anticipated Initiative needs Course Correction

• Comments: (Please describe project milestones which require Executive Sponsor support this month)

• Next Steps (include date of next meeting):

Slide 32

Reporting incidents

REPORT a Medication Incident Practitioner Reporting
https://www.ismp-canada.org/err_report.htm

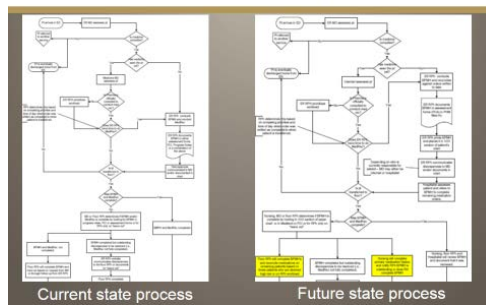
SafeMedicationUse.ca Consumer Reporting
www.safemedicationuse.ca/

In addition to measurement, collection of MedRec related patient safety incidents and the subsequent analysis of these incidents can provide meaningful insight into aspects of the existing MedRec process that require either alternate or more reliable processes. These stories of MedRec “failures” can serve as powerful motivators for individual and/or organizational change. Organizations are encouraged to share their MedRec related incidents through the various anonymous medication incident reporting channels available through the ISMP Canada website (www.ismp-canada.org). ISMP Canada may then analyze these incidents and provide shared learning and recommendations to assist in the mitigation of MedRec related incidents.

Process/ workflow analysis and integration

Slide 33

Process/workflow analysis



“What the team learns from drawing and discussing a map of the current process can be surprising as well as motivating. Self-discovery can uncover waste, duplicated efforts, lack of consensus on current process, hidden complexities and opportunities to streamline or simplify.”

-MARQUIS Investigators

An important aspect to implementing MedRec processes is the determination of how implementation of MedRec will change existing or current state processes of care such as, medication history collection, order writing and documentation practices, and handoffs or communication of medication information. Mapping out current and future state process can be a very useful tool in better understanding the scope of change, and may also assist in the identification of current process owners/ key stakeholders and may inform future educational needs.

Notably, studies have shown that effectively designed MedRec processes can positively impact workflow (decreased nursing time by over 20 minutes per patient at admission and decreased pharmacist time by over 40 minutes per patient at discharge). To facilitate care provider engagement and lessen the burden of change, MedRec processes should be embedded into existing workflow.

Mapping workflow/processes

There are a variety of approaches to workflow or process mapping. The MARQUIS investigators’ The Multi-Center Medication Reconciliation Quality Improvement Study (MARQUIS) Medication Reconciliation Implementation Manual provides guidance on how to map MedRec processes. The following is an excerpt from this manual:

Each of the overall steps in the MedRec process should be mapped out and within each overall step you should determine:

1. What steps are being performed?
2. Who is performing those steps?

3. When are these steps being performed (in relation to the patient's hospitalization and relative to the other steps in the process)?
4. Which steps are dependent on previous steps and which are not (e.g., what steps are performed serially and which can be done in parallel)?
5. When is information or responsibility being transferred from one person to another?
6. Are there branch points that depend on certain situations or decisions?

Figure 6: A current state admission workflow chart from AHRQ Medications at Transitions and Clinical Handoffs (MATCH) Toolkit

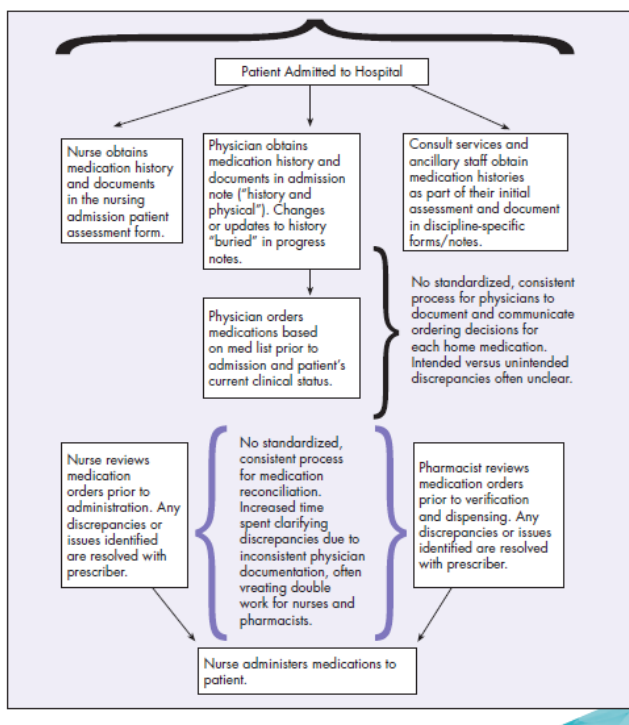
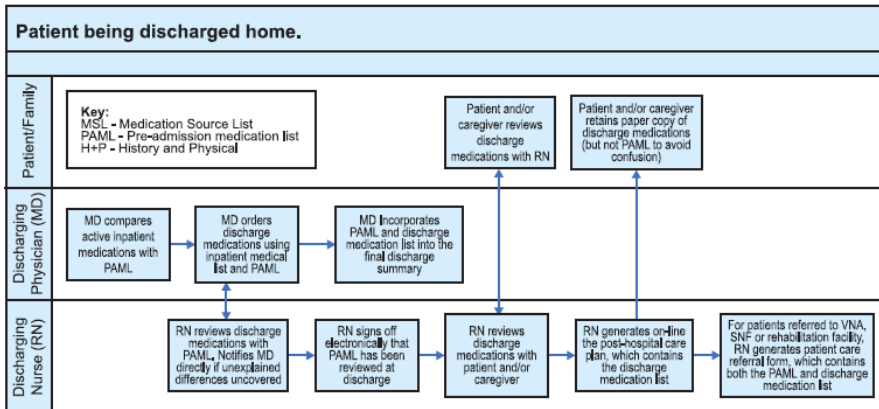


Figure 7: A future state discharge process map from MARQUIS investigators



Adapted from Poon E., et al. *J Am Med Inform Assoc.* 2006;13:581–592. DOI 10.1197/jamia.M2142.

Education and training

Slide 34

Education and training



As highlighted in the previous section, implementation of MedRec processes may represent a significant shift in usual practices for many health care providers. It is vital that stakeholders involved in these new processes understand the rationale for completing MedRec, the organization-specific policies and procedures for completing MedRec, and any new skills required to complete specific MedRec procedures (e.g. collection of BPMH), the measurement/auditing process. Education and training should be tailored to meet specific health care providers' needs.

E-learning modules are frequently used to educate the many people engaged in MedRec activities. Many of these learning modules are developed within organizations and describe both high level concepts in MedRec and provide specific training on the organization-specific operationalization of MedRec (e.g. use of a specific form).

Examples of some open access MedRec educational modules available online include:

- Sunnybrook Health Sciences Centre's Learning Modules,
- Queen's University's Online Modules,
- Alberta Health Services e-Learning Modules, and

- The Emmi® Program - Taking a Good Medication History.

Formalized MedRec education is growing within the various care provider specific faculties of health professions across Canada. Additionally many continuing education programs/formalized training opportunities exist to supplement/replace knowledge deficits. Examples include:

- RxBriefcase.com’s online module “Medication Reconciliation: Doing It Because It Is The Right Thing To Do”,
- ISMP Canada’s BPMH Training for Pharmacy Technicians, and
- The Patient Safety Education Program (PSEP) Canada module.

Multidisciplinary engagement/role definition

Slide 35

Multidisciplinary engagement

MedRec is a multi-disciplinary process most commonly involving medical, nursing and pharmacy staff. While it is beneficial to have multiple disciplines involved, it is also important for these disciplines to understand their specific role in or contribution to MedRec processes. This is crucial to streamline work, reduce confusion, increase buy-in and ultimately improve patient safety. The extent of MedRec related activities by each discipline may be subject to jurisdiction specific scope of practice regulations as well as the local availability of these various disciplines.

Many national/international organizations have developed position statements describing the role of specific health care providers in MedRec. Examples include:

- The Canadian Society of Hospital Pharmacists - Medication Reconciliation Statement on the Role of the Pharmacist, and
- The American Medical Association - The physician’s role in medication reconciliation.

Moreover, many healthcare provider regulatory/licensing bodies have included statements relating to MedRec in their respective standards of practice or regulations. Examples include:

- College of Nurses of Ontario - Practice Standards: Medication, and

- National Pharmacy Regulatory Authorities - Model Standards of Practice for Canadian Pharmacists.

Front-line staff engagement

In addition to being trained to perform their role in MedRec, front line staff should be engaged in the planning and revision of MedRec processes and procedures in order to garner further front line engagement. Without multidisciplinary front line engagement, organizations may experience greater resistance to MedRec related change. This can have a significant impact on successful MedRec implementation.

To facilitate front line staff engagement, Alberta Health Services have developed a series of discipline specific “What’s in it for me?” documents. They are:

- What’s In It For Me - Benefits for Nurses,
- What’s In It For Me - Benefits for Pharmacists, and
- What’s In It For Me - Benefits for Physicians.

Patient engagement

Slide 36



Slide 37



Patients are often the only constant as they move throughout the healthcare system. As such, given the lack of common centralized health information such as an electronic health record, patients remain best positioned to provide up-to-date information about the medications they take. Examples of ways patients are being engaged are found below.

1. Ongoing education on the importance and need to keep an up-to date list of medications (and/or to bring medications to care encounters) through:
 - posters (e.g. MARQUIS modifiable poster templates),
 - brochures (e.g. London Health Sciences Centre’s MedRec patient information brochure),
 - newsletters/articles (e.g. SafeMedicationUse.ca newsletter) ,
 - videos (e.g. Canada Health Infoway video), and
 - medication “bags” designed to encourage patients to bring medications with them when accessing healthcare (e.g. United Kingdom’s National Health System “My Medicines” green bag)
2. Tools to support patient self- directed maintenance of medication lists such as:
 - medication list templates (e.g. a modifiable PDF format medication list),
 - medication lists “apps” (e.g. “MyMedRec” app for Apple products),
 - web-based patient accessible charts or medical records (e.g. Sunnybrook Hospital’s MyChart),
 - self-service automated medication history collection kiosks (e.g. The Automated Patient History Intake Device (APHID), and
 - healthcare provider facilitation (e.g. provincially funded community pharmacy-based medication review)

Patients should also be engaged in other steps of the MedRec process (beyond the BPMH collection). As changes are made to a patient’s medication regimen, it is important that they have a clear understanding of what has occurred with their medications and how to take them on a go-forward basis. Therefore at interfaces such as discharge from acute care (to home) and ambulatory care visits where medications have been modified, patients should be provided with counseling and patient friendly written information on the updated medication regimen. Assessing a patient’s understanding of their discharge medication plan, is an example of how the patient experience can inform required improvements to the discharge MedRec process.

Technology’s role in MedRec

Slide 38

Technology’s role in MedRec

- ▣ Provincial Drug Information Systems/Provincial Drug Databases
May facilitate BPMH collection and communication
- ▣ Electronic Medical Records and Electronic Hospital Information Systems (with CPOE)
May facilitate reconciliation and communication
- ▣ Provincial Electronic Health Record
May facilitate reconciliation and communication

As is the case in other aspects of healthcare, well-implemented information technology (IT) systems can also support the effective and efficient completion of MedRec activities. In the broad medication safety context, computerization and automation are promoted as being a high leverage strategy in the mitigation of risk or error. IT supported systems can:

- facilitate the maintenance and use of medication history information,
- facilitate the appropriate reconciliation of medications through decision support and forcing functions,
- reduce transcription and streamline the processes of documentation, and communication of medication information (through paper or electronic “outputs”)
- create overall process efficiencies.

The role of drug information systems

“A drug information system is a tool that enables authorized healthcare providers to access, manage, share and safeguard patients' medication histories. A component of an electronic health record (EHR) system, a drug information system supports the storage and retrieval of patient prescription and medication information, and may provide application services supporting dispensing activities such as drug-usage evaluation.”

In Canada, many provinces and territories have databases or systems in place that store medication information based on medications dispensed in community pharmacy settings. Across Canada, there is wide variation in the stages of implementation of such systems. Many of these systems are used as a source of medication information although many require re-transcription of the medication information seen via a “viewing portal”. Some provinces, have designed paper-based MedRec forms that are populated with information found in such databases. More recently, some organizations have begun to electronically transfer medication information from a drug information system directly to hospital information systems or electronic medical record.

More information on the use of drug information systems in MedRec can be found in the McGill Story webinar noted in the Resources section of this module.

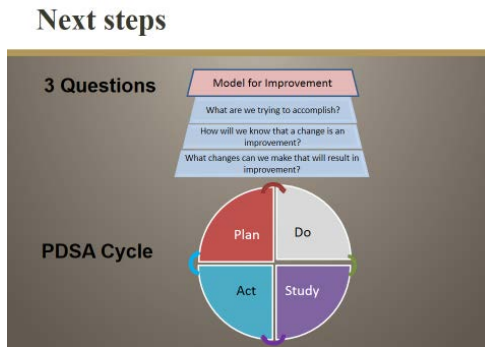
Many organization’s information systems offer functionality within their systems to support MedRec processes. A toolkit designed to help organizations move from paper to electronic-based MedRec processes is available

at <http://www.saferhealthcarenow.ca/EN/Interventions/medrec/Pages/Paper-to-Electronic-MedRec-Implementation-Toolkit.aspx> . This will be valuable to many organizations which currently use paper based processes for MedRec related tasks but wish to support their processes through the integration of information technology.

More information on the use of information systems can be found in the MedRec Not Med Wreck webinar in the Resources section of this module.

Next steps

Slide 39



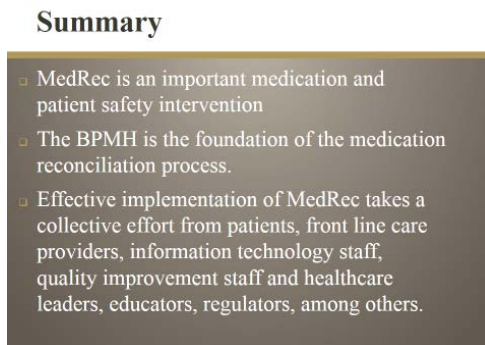
The previous sections described some of the components that contribute to successful implementation of MedRec. All of these components can be integrated into an overall quality improvement initiative. Using the Model for Improvement tool can assist in accelerating your quality improvement efforts, including MedRec. The Model for Improvement is comprised of two parts:

1. guide improvement teams by:
 - setting clear aims,
 - establishing measures that will tell if changes are leading to improvement, and
 - identifying changes that are likely to lead to improvement.
2. Using the Plan-Do-Study-Act (PDSA) cycle to test small-scale test of change (Insitute for Healthcare Improvement, 2011).

See the Tools and Resources sections of the module for many quality improvement resources. As well, the PSEP – Canada Module 9: Methods for Improving Safety is another resource to support the role of quality improvement in patient safety.

Summary

Slide 40



MedRec is an important medication and patient safety intervention. The BPMH is the foundation of the medication reconciliation process. Effective implementation of MedRec

takes a collective effort from patients, front line care providers, information technology staff, quality improvement staff and healthcare leaders, educators, regulators, among others.

Potential pitfalls

Slide 41

Potential pitfalls

- ❑ Lack of understanding the complexities of the MedRec process
- ❑ Failing to obtain adequate leadership support
- ❑ Do not assume that an implemented MedRec process is achieving the desired goals in day to day practice

1. Lack of understanding the complexities of the MedRec process
2. Failing to obtain adequate leadership support
3. Do not assume that an implemented MedRec process is achieving the desired goals in day to day practice

Pearls

Slide 42

Pearls

- ❑ MedRec is an important medication safety initiative and has a role in many healthcare settings.
- ❑ MedRec is an overall process that consists of many sub-processes that differ depending of the care setting and/or transition point.
- ❑ Implementation of MedRec is challenging, but can be facilitated through application of both change management and QI principles.

1. MedRec is an important medication safety initiative and has a role in many healthcare settings.
2. MedRec is an overall process that consists of many sub-processes and these processes differ depending of the care setting and/or transition point.
3. Implementation of MedRec is challenging, but can be facilitated through application of both change management and quality improvement principles.

Accreditation

- **Required Organizational Practices Handbook, Accreditation**
Canada: [http://www.accreditation.ca/uploadedFiles/ROP-Handbook-en\(1\).pdf](http://www.accreditation.ca/uploadedFiles/ROP-Handbook-en(1).pdf)
<http://www.accreditation.ca/uploadedFiles/ROP-Hanbook-fr.pdf>
- **Supplement to the 2013 ROP Handbook: Changes to the Medication Reconciliation and Medication Use ROPs for 2014:** http://www.accreditation.ca/uploadedFiles/News_and_Publications/Publications/ROP_Handbook/SupplementROP-06-2013_en.pdf

Toolkits

- **High 5s Medication Reconciliation Program: Assuring Medication Accuracy at Transitions in Care, World Health Organization (WHO):** https://www.high5s.org/pub/Manual/AssuringMedicationAccuracyAtTransitionsInCare/Med_Rec_Volume_4_The_Getting_Started_Kit.pdf
- **The IHI 2011 How To Guide: Prevent Adverse Drug Events (Medication Reconciliation):** <http://www.ihl.org/knowledge/Pages/Tools/HowtoGuidePreventAdverseDrugEvents.aspx>
- **MARQUIS Implementation Manual, Multi-center Medication Reconciliation Quality Improvement Study:** http://tools.hospitalmedicine.org/resource_rooms/imp_guides/MARQUIS/marquis.html
- **Medication Reconciliation in Acute Care Getting Started Kit, Safer Healthcare Now!:** [http://www.saferhealthcarenow.ca/EN/Interventions/medrec/Documents/Acute%20Care/MedRec%20\(Acute%20Care\)%20Getting%20Started%20Kit.pdf](http://www.saferhealthcarenow.ca/EN/Interventions/medrec/Documents/Acute%20Care/MedRec%20(Acute%20Care)%20Getting%20Started%20Kit.pdf)
- **Medication Reconciliation in Long Term Care Getting Started Kit, Safer Healthcare Now!:** [http://www.saferhealthcarenow.ca/EN/Interventions/medrec/Documents/Long%20Term%20Care/Med%20Rec%20\(Long%20Term%20Care%20\)%20Getting%20Started%20Kit.pdf](http://www.saferhealthcarenow.ca/EN/Interventions/medrec/Documents/Long%20Term%20Care/Med%20Rec%20(Long%20Term%20Care%20)%20Getting%20Started%20Kit.pdf)
- **Medication Reconciliation in Home Care Getting Started Kit, Safer Healthcare Now!:** <http://www.saferhealthcarenow.ca/EN/Interventions/medrec/Documents/Home/Medication%20Reconciliation%20in%20Home%20Care%20Getting%20Started%20Kit.pdf>
- **The AHRQ Medications at Transitions and Clinical Handoffs (MATCH) Toolkit:** <http://www.ahrq.gov/professionals/quality-patient-safety/patient-safety-resources/resources/match/index.html>

- **Medication Safety Reconciliation Kit, North Carolina Center for Hospital Quality and Patient Safety:** <http://www.ncqualitycenter.org/wp-content/uploads/2013/01/MRToolkit.pdf>
- **Paper to Electronic MedRec Implementation Toolkit (2014):** <http://www.saferhealthcarenow.ca/EN/Interventions/medrec/Pages/Paper-to-Electronic-MedRec-Implementation-Toolkit.aspx>

Resources

Systematic reviews of MedRec primary literature

- Mueller SK, Sponsler KC, Kripalani S, Schnipper JL. Hospital-based medication reconciliation practices: a systematic review. *Arch Intern Med.* 2012 Jul 23;172(14):1057-69. <http://archinte.jamanetwork.com/article.aspx?articleid=1203516>
- Kwan JL, Lo L, Sampson M, Shojania KG. Medication reconciliation during transitions of care as a patient safety strategy: a systematic review. *Ann Intern Med.* 2013 Mar 5;158(5 Pt 2):397-403. <http://annals.org/article.aspx?articleid=1656444>
- Chhabra PT, Rattinger GB, Dutcher SK, Hare ME, Parsons KL, Zuckerman IH. Medication reconciliation during the transition to and from long-term care settings: a systematic review. *Res Social Adm Pharm.* 2012 Jan-Feb;8(1):60-75. <http://www.rsap.org/article/S1551-7411%2810%2900169-5/abstract>

Quality improvement resources

- **IHI Model For Improvement You Tube Video, Clip 1 & 2:** <http://www.youtube.com/watch?v=SCYghxtioIY> & <http://www.youtube.com/watch?v=6MIUqdulNwQ&feature=relmfu>
- **IHI PDSA Cycle You Tube Video, Clip 1 & 2:** http://www.youtube.com/watch?v=_ceS9Ta820&feature=youtu.be & http://www.youtube.com/watch?v=eYoJxjmv_QI&feature=relmfu
- **Quality Improvement Tools and Resources, Health Quality Ontario:** <http://www.hqontario.ca/quality-improvement/tools-and-resources>

Other resources

- **A Snapshot of Medication Reconciliation in Canada, Margaret Colquhoun and Marie Owen:** <http://www.accreditation.ca/uploadedFiles/Complimentary%20Article%20QQ%20Aug%202012%20-%20Medication%20Management.pdf>
- **Medication Reconciliation in Canada: Raising the Bar. Progress to Date and the Course Ahead.** Accreditation Canada, the Canadian Institute for Health

Information, the Canadian Patient Safety Institute: http://www.cihi.ca/cihi-ext-portal/pdf/internet/med_reconcil_en

- **Knowledge is the Best Medicine website, Rx & D:** www.knowledgeisthebestmedicine.org
- **Cross Country MedRec Check-Up:** <http://www.ismp-canada.org/medrec/map/>
- **Medication Reconciliation Network Facebook Group:** <https://www.facebook.com/MedicationReconciliation>
- **Safer Healthcare Now! Medication Reconciliation Community of Practice:** <http://tools.patientsafetyinstitute.ca/Communities/MedRec/default.aspx>
- **Safer Healthcare Now! Patient Safety Metrics System:** <https://shn.med.utoronto.ca/metrics/Login.aspx>
- Greenwald JL, Halasyamani L, Greene J et al. *Making inpatient medication reconciliation patient centered, clinically relevant and implementable: A consensus statement on key principals and necessary first steps*. Boston: Wiley; 2010.
<http://onlinelibrary.wiley.com/doi/10.1002/jhm.849/pdf>
- **Transitions Quality Improvement Roadmap - Quality Compass:** <http://qualitycompass.hqontario.ca/language/en-us/home/subtopics/transitions/overviewcdec.html?topic=Transitions>
- **The Physician's Role in Medication Reconciliation:** <http://www.ama-assn.org/resources/doc/cqi/med-rec-monograph.pdf>
- **Safer Healthcare Now! BPMH Patient Interview Pocket Guide:** available for purchase at the Safer Healthcare Now! online store
- **Safer Healthcare Now! Top 10 Practical Tips Poster:** [http://www.saferhealthcarenow.ca/EN/Interventions/medrec/Documents/home/Top%2010%20Practical%20Tips%20-%20How%20to%20Obtain%20an%20Efficient%20Comprehensive%20and%20Accurate%20Best%20Possible%20Medication%20History%20\(BPMH\).pdf](http://www.saferhealthcarenow.ca/EN/Interventions/medrec/Documents/home/Top%2010%20Practical%20Tips%20-%20How%20to%20Obtain%20an%20Efficient%20Comprehensive%20and%20Accurate%20Best%20Possible%20Medication%20History%20(BPMH).pdf)
- **London Sciences Center: The role of leadership and change management in an effective implementation of MedRec:** <http://www.gowebcasting.com/events/cpsi-virtual-forum/2012/10/31/implementing-medication-reconciliation-in-an-acute-care-multi-site-academic-hospital-success-through-leadership-and-change-management/play>
- **An Excel spreadsheet template to calculate a MedRec Return on Investment (to justify MedRec related FTEs):** http://www.ashp.org/Import/PRACTICEANDPOLICY/PracticeResourceCenters/PatientSafety/ASHPMedicationReconciliationToolkit_1/MedicationReconciliationBasics.aspx
- **Business cases to support dedicated MedRec FTEs:**

<http://tools.patientsafetyinstitute.ca/Communities/MedRec/Shared%20Documents/Forms/All%20Documents.aspx?RootFolder=%2FCommunities%2FMedRec%2FShared%20Documents%2FImplementation%20Tools%20and%20Resources%2FBusiness%20Cases>

- **Sunnybrook Health Sciences Centre’s Learning**
Modules: <http://sunnybrook.ca/content/?page=education-bpmh-training>
- **Queen’s University’s Online**
Modules: <https://meds.queensu.ca/central/assets/modules/mr/1.html>
- **Alberta Health Services e-Learning Modules:**
<http://www.albertahealthservices.ca/8171.asp>
- **The Emmi® Program- Taking a Good Medication History:**
<http://www.youtube.com/watch?v=Dop6bzrnwKo>
- **Medication Reconciliation: Doing It Because It Is The Right Thing To Do:** http://rxbriefcase.com/Apps/ProgramViewer/Default.aspx?section=mp&program_id=1846
- **What’s In It For Me- Benefits for Nurses:** <http://tools.patientsafetyinstitute.ca/Communities/MedRec/Shared Documents/Staff Training and Education/All Clinical Disciplines/Benefits for Nurses - FINAL.pdf>
- **What’s In It For Me- Benefits for Pharmacists:**
<http://tools.patientsafetyinstitute.ca/Communities/MedRec/Shared Documents/Staff Training and Education/All Clinical Disciplines/WIIFM - Pharmacist Final 2013-03-04.pdf>
- **What’s In It For Me- Benefits for Physicians:**
<http://tools.patientsafetyinstitute.ca/Communities/MedRec/Shared Documents/Staff Training and Education/All Clinical Disciplines/Benefits for Physicians - FINAL.pdf>
- **MARQUIS modifiable poster templates:** http://tools.hospitalmedicine.org/resource_rooms/imp_guides/MARQUIS/marquis.html
- **SafeMedicationUse.ca**
newsletter: http://www.safemedicationuse.ca/newsletter/newsletter_BPMH.html
- **Canada Health Infoway**
video: http://www.youtube.com/watch?v=wK5FueL_mho
- **United Kingdom’s National Health System “My Medicines” green bag** <http://www.patientsafetyfederation.nhs.uk/Other-Workstreams/no-needless-medication-errors/-my-medicines--green-bag.aspx>
- **Medication list templates:** www.knowledgeisthebestmedicine.org
- **MyMedRec:** <https://itunes.apple.com/ca/app/mymedrec/id534377850?mt=8>
- **Sunnybrook Hospital’s**
MyChart: <http://sunnybrook.ca/content/?page=mychartlogin-learnmore>

- **The Automated Patient History Intake Device (APHID):** <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2732234/>
- **Provincially funded community pharmacy-based medication review programs:** http://www.health.gov.on.ca/en/public/programs/drugs/medscheck/medscheck_original.aspx
- **Improving Efficiencies in Medication Reconciliation- The McGill Story:** <http://www.saferhealthcarenow.ca/EN/events/NationalCalls/2013/Pages/Improving-Efficiencies-in-Medication-Reconciliation---The-McGill-Story.aspx>
- **MedRec Not Med Wreck: North York General’s MedRec Implementation Journey:** <http://www.saferhealthcarenow.ca/EN/events/NationalCalls/2011/Pages/MedRec%20Not%20MedWreck%20%20North%20York%20General%20Hospital%27s%20MedRec%20Implementation%20Journey.aspx>

References

- Accreditation Canada. *Required Organizational Practices Handbook*. Ottawa: Accreditation Canada; 2013. Available at: <http://accreditation.ca/publications-menu>. Accessed: March 17, 2014.
- Agency for Healthcare Research and Quality. *Medications at Transitions and Clinical Handoffs (MATCH) Toolkit for Medication Reconciliation*. Rockville, MD: AHRQ; 2012. Retrieved from: <http://www.ahrq.gov/professionals/quality-patient-safety/patient-safety-resources/resources/match/index.html> Accessed: March 17, 2014.
- American Medical Association. *The physician’s role in medication reconciliation*. Chicago: AMA; 2007.
- Bates DW, Spell N, Cullen DJ, et al. The costs of adverse drug events in hospitalized patients. Adverse Drug Events Prevention Study Group. *JAMA*. 1997 Jan 22-29; 277(4):307-11.
- Bell CM, Brener SS, Gunraj N, Huo C, Bierman AS, Scales DC, Bajcar J, Zwarenstein M, Urbach DR. Association of ICU or hospital admission with unintentional discontinuation of medications for chronic diseases. *JAMA*. 2011 Aug 24;306(8):840-7.
- Boockvar KS, Blum S, Kugler A, et al. Effect of admission medication reconciliation on adverse drug events from admission medication changes. *Arch Intern Med*. 2011 May 9;171(9):860-1.
- Canada Health Infoway. Drug Information Systems. Canada Health Infoway website. Available at: <https://www.infoway-inforoute.ca/index.php/programs-services/certification-services/what-infoway-certifies/drug-information-systems-dis>. Accessed: March 17, 2014.
- Canadian Society of Hospital Pharmacists. *Medication Reconciliation-Statement on the Role of the Pharmacist*. Canadian Society of Hospital Pharmacists; 2009 Available

at: <http://www.cshp.ca/members/dmsgetfile.asp?file=%7BDF28B7FA-79EE-48BC-B383-3B4CC7D5E406%7D>. Accessed: March 17, 2014.

Coffey M, Cornish P, Koonthanam T, Etchells E, Matlow A. Implementation of admission medication reconciliation at two academic health sciences centres: challenges and success factors. *Healthc Q*. 2009;12 Spec No Patient:102-9.

College of Nurses of Ontario. *Practice Standards: Medication*. College of Nurses of Ontario; 2008 Available at: http://www.cno.org/Global/docs/prac/41007_Medication.pdf. Accessed: March 17, 2014.

Diguid M. The importance of medication reconciliation for patients and practitioners, *Aust Prescr*. 2012; 35(1): 15-9.

Dobrzanski S, Hammond I, Khan G, Holdsworth H. The nature of hospital prescribing errors. *Br J Clin Govern*. 2002; 7:187-93.

Etchells E, Koo M, Daneman N, et al. Comparative economic analyses of patient safety improvement strategies in acute care: a systematic review. *BMJ Qual Saf*. 2012 Jun;21(6):448-56.

Evans RS, Pestotnik SL, Classen DC, Bass SB, Burke JP. Prevention of adverse drug events through computerized surveillance. *Proc Annu Symp Comput Appl Med Care*. 1992:437-41.

Feldman LS, Costa LL, Feroli ER Jr, Nelson T, Poe SS, Frick KD, Efird LE, Miller RG. Nurse-pharmacist collaboration on medication reconciliation prevents potential harm. *J Hosp Med*. 2012 May-Jun;7(5):396-401.

Fernandes O. Medication reconciliation in the hospital: what, why, where, when, who and how? *Healthc Q*. 2012 Apr;15 Spec No:42-9.

Gillespie U, Alassaad A, Henrohn D, et al. A comprehensive pharmacist intervention to reduce morbidity in patients 80 years or older: a randomized controlled trial. *Arch Intern Med*. 2009 May 11;169(9):894-900.

Institute for Safe Medication Practices Canada. *Minerals May Interact with Some Medicines Don't Forget — Keep a List of Your Medicines!*. Institute for Safe Medication Practices Canada; 2010. Available at: http://www.safemedicationuse.ca/newsletter/newsletter_minerals.html. Accessed: March 17, 2014.

Society of Hospital Medicine. *MARQUIS Implementation Manual*. Society of Hospital Medicine; 2012. Available at: http://tools.hospitalmedicine.org/resource_rooms/imp_guides/MARQUIS/marquis.html. Accessed: March 17, 2014.

Michels RD, Meisel SB. Program using pharmacy technicians to obtain medication histories. *Am J Health Syst Pharm*. 2003 Oct 1;60(19):1982-6.

National Pharmacy Regulatory Authorities. Model Standards of Practice for Canadian Pharmacists. National Pharmacy Regulatory Authorities; 2009. Available

at: http://napra.ca/Content_Files/Files/Model_Standards_of_Prac_for_Cdn_Pharm_Marc_h09_Final_b.pdf. Accessed: March 17, 2014.

Rozich JD, Howard RJ, Justeson JM, Macken PD, Lindsay ME, Resar RK. Standardization as a mechanism to improve safety in health care. *Jt Comm J Qual Saf*. 2004 Jan;30(1):5-14.

Institute for Safe Medication Practices Canada. *Identifying Practice Leaders for Medication Reconciliation in Canada*. Institute for Safe Medication Practices Canada; 2012. Available at: http://www.ismp-canada.org/download/MedRec/Identifying_Practice_Leaders_for_Medication_Reconciliation_in_Canada.pdf. Accessed: March 17, 2014.

Institute for Safe Medication Practices Canada. *Medication Reconciliation in Acute Care Getting Started Kit*. Institute for Safe Medication Practices Canada; 2011. Available at: http://www.ismp-canada.org/download/MedRec/Medrec_AC_English_GSK_V3.pdf. Accessed: March 17, 2014.

Institute for Safe Medication Practices Canada. *Medication Reconciliation in Home Care*. Institute for Safe Medication Practices Canada; 2010. Available at: http://www.ismp-canada.org/download/MedRec/Medrec_HC_English_GSK.pdf. Accessed: March 17, 2014.

Institute for Safe Medication Practices Canada. *Optimizing Medication Safety at Care Transitions: Creating a National Challenge*. Institute for Safe Medication Practices Canada; 2011.

Santell JP. Reconciliation failures lead to medication errors. *Jt Comm J Qual Patient Saf*. 2006 Apr;32(4):225-9.

Vira T, Colquhoun M, Etchells E. Reconcilable differences: correcting medication errors at hospital admission and discharge. *Qual Saf Health Care*. 2006 Apr;15(2):122-6.

Walker PC, Bernstein SJ, Jones JN, et al. Impact of a pharmacist-facilitated hospital discharge program: a quasi-experimental study. *Arch Intern Med*. 2009 Nov 23;169(21):2003-10.

Principal message

The single most important message your audience should come away with is that securing senior leadership is key to the organizational implementation of medication reconciliation (MedRec). Through the last nine years of the Safer HealthCare Now! Campaign, the most significant factor for success is the commitment of leadership support to allocate adequate resources to MedRec on many levels. MedRec is a team effort requiring a multidisciplinary, systematic approach and must include the involvement and engagement of the patient and their caregivers.

Module overview

Medication Reconciliation (MedRec) is a formal process in which healthcare professionals partner with patients to ensure accurate and complete medication information is communicated consistently at transitions of care. It requires a systematic review of all the medications a patient is taking (known as a Best Possible Medication History or BPMH) to ensure that medications being added, changed or discontinued are carefully evaluated. MedRec is a component of overall medication management and informs and enables clinicians to make the most appropriate therapeutic decisions for the patient.¹

This module outlines the available research and evidence to support the MedRec process, and the basic components of the MedRec process. It gives an overview of the MedRec process at all interfaces of care across the healthcare system and discusses the key elements for successful implementation including an effective measurement and evaluation strategy.

This module focuses on using a systematic approach to obtain a Best Possible Medication History (BPMH), the cornerstone of MedRec. It also outlines how to implement MedRec at all interfaces of care, and discusses the importance of evaluation and measurement of the quality of MedRec process. Finally, this module will address how to engage the consumer in the MedRec process.

Preparing for a presentation

1. Assess the needs of your audience

Choose from the material provided in the syllabus according to the needs of your expected participants. It is better for participants to come away with a few new pieces of information, well learned, than to come away with a deluge of information from which they can remember little or nothing. This module is easily broken up into three separate learning sessions.

2. Presentation timing

Allow sufficient time to collect participants' demographic data and complete the pre-test.

The suggested timing for each part of this module is:

Introduction	2-3 minutes
Trigger tape & discussion	5-7 minutes
Presentation	30 minutes
Debrief about teaching methods	5 minutes
Summary	2-3 minutes
<u>Post-test & Evaluation</u>	<u>5 minutes</u>
Total	49-53 minutes

3. Number of slides: 42

4. Preparing your presentation

The text in the syllabus was not designed to be used as a prepared speech. Instead, the text provides material you may want to use. The slides have been designed to trigger your presentation. Although the slides closely follow the text of the syllabus, they do not contain all of the content. Their use presumes that you have mastered the content.

You may want to make notes on the slide summary pages to help you prepare your talk in more detail and provide you with notes to follow during your presentation.

Remember that you can adjust the slides to suit your presentation content, your style, and to make it feel fully familiar and your own.

Practice your presentation using the slides you have chosen, and speaking to yourself in the kind of language you expect to use, until it is smooth and interesting and takes the right amount of time. The most accomplished presenters and teachers still practice prior to a presentation; don't miss this step.

5. Preparing a handout for participants

The syllabus text and slides in the **Participant's Handbook** were designed to be reproduced and provided to participants as a handout. Take the portion you need; they can be used in their entirety, module by module, or for just one specific topic. Please include the following in each set of handouts:

- **PSEP - Canada Front Cover Page;**
- **PSEP - Canada Acknowledgment Pages** (to acknowledge the source of the material);
- syllabus and slides for **your topic**; and

- appendix material as relevant.

6. Equipment needs

- Computer, slide projector and screen
- Whiteboard and/or flipchart and markers for recording discussion points

Test your equipment beforehand to ensure that it works.

Have a back-up plan so that if there is any equipment failure you can move without panic to your back-up plan. For instance, have in mind that:

- if the computer/projector fails, you can read the vignette of the trigger tape story;
- if the slides cannot be shown, you can refer to the hand out slides;
- if flipcharts and markers are not available, you can have participants list items on their hand outs that you would have written up for all to see.

Making the presentation

1. Introduce yourself

If you have not already done so, introduce yourself. Include your name, title, and the organization(s) you work for. Briefly describe your professional experience related to the information you will be presenting.

2. Introduce the topic

Show the title slide for the module. To establish the context for the session, make a few broad statements about the importance of topic as a patient safety matter. Tell participants the format and time you will take to present the session. Identify the teaching styles that you intend to use.

3. Review the session objectives

Show the slide with the session objectives listed. Read each objective and indicate those that you are planning to emphasize.

4. Show the trigger tape

After reviewing the objectives for the session, show a trigger tape. It should engage the audience and provide an appropriate clinical context for the session. It is not necessary to demonstrate an ideal interaction, but to “trigger” discussion. Keep in mind that the facilitator may choose to use any one of a number of trigger tapes, see the Resources section of the PSEP – Canada Module 14: Medication Reconciliation.

A teachable moment: discussion after the trigger tape

After the trigger tape, ask the participants for their comments about the issues and the interaction they have just seen. To affirm what they contribute, consider recording the important points on a flipchart or overhead projector.

If the discussion is slow to start, you may want to ask more direct questions, like:

- Has a patient ever had something like this happen in your institution? Share your story. What did you / your colleagues do?
- What might some consequences be for patients who may have had a similar experience?
- What kinds of things can be done to prevent this from happening in the future?

Use the discussion to set the stage for the material to follow. Do not let the discussion focus on a critique of the technical quality of the trigger tape or how “real” the players seemed. If the participants do not like something that was said or done in the trigger tape, acknowledge that there is always room for improvement and ask them how they would do it themselves.

Setting limits to discussion time

It is usually best to limit discussion of the trigger tape to no more than five minutes, then move on to the presentation. To help move on if the discussion is very engaged, try saying something like:

- let’s hear two last points before we move on, and
- now that you have raised many of the tough questions, let’s see how many practical answers we can find.

For the more advanced facilitator who is very confident of both the patient safety material and his or her pedagogic skills, it is possible to use the trigger tape as a form of case-based teaching and to facilitate the discussion to draw out the teaching points of the module. The hazard of this approach is that the discussion will not yield the desired teaching points. Feel free to return to the slides if this happens. If this approach is used, it is essential to write up the points on a flip chart as they arise, to fill in any gaps and to summarize at the end. Again, use this method with caution and only if you are really ready.

5. Present the material

Recommended style: Interactive teaching

An interactive lecture will permit you to engage your audience, yet cover your chosen material within the time.

Ask the participants about their major concerns regarding their communications with patients and caregivers and to give you a case from their institution or experience. Once you find a case that resonates with the group, you may choose a focus. Have a back up case from your own experience in case you there are reasons to not go into the ones from the audience. Choose the focus so that you can deliver specific content you have prepared.

Interactive exercise

Use the [Safer HealthCare Now Getting Started Kit](#) 2011 – Section on Implementing the SHN MedRec Intervention (page 38-40). (Please note that this is only a suggested toolkit, you may use any toolkit from the list provided at the end of the module.) The Getting Started Kit toolkit contains information on how to implement medication reconciliation in the institution.

Ask participants to work in small groups and have the participants:

- discuss the steps they would take to implement MedRec within their institution
- develop key messages they would take to their senior leaders. When the groups have completed the task, invite them to comment on what they discussed.

Alternative style BPMH role play

Use the case below as a guide to delivering key teaching points from the MedRec module and the BPMH interview guide. To help participants feel involved and invested, you may invite them to share a MedRec success or failure story from their institution or experience. It is usually best to use the given case to draw out analytic points for teaching since the case is known to you.

Roles

Divide the participants into small groups of three. Assign each of the participants the role of patient, clinician and observer. The clinician is asked to perform a best possible medication history on a recently admitted patient in the ER using the information they learned from the module and a systematic approach. The observer is to record their observations of the interaction. Provide the patient, clinician and observer notes to each of the members of each group.

The purpose of this exercise is to emphasize the importance of using a systematic process when creating a BPMH.

Patient Notes and Instructions

A clinician will be interviewing you to obtain a Best Possible Medication History. It is important for you to read the entire set of instructions before allowing the clinician to proceed.

1. Be a difficult patient or pretend that you do not speak English well. Have fun with it!
2. When asked about your medications, say that you take a blue and white pill in the morning, a diabetes pill and a sleeping pill at night. But you cannot remember their names. (Apo- something or other.) You left your pills at home, but Bill your neighborhood pharmacist knows all your medications.
3. If asked specifically if you have a medication list, say 'Oh yes, it is in my pocket.' and tear off the bottom of this sheet.
4. If they ask you 'Is there anything else you are taking?' feel free to say **NO** confidently.
5. You have a drug allergy to **penicillin**. The last time you had it, your throat closed up and you ended up in the hospital. (**anaphylaxis**)
6. Be vague about specific details about your medications unless prompted specifically about the 'strength, dose, route and frequency'. Do not offer to give information about the puffer or eyedrops unless asked specifically about them.
7. If the clinician asks specifically about **non-prescription/over-the counter drugs/eyedrops/inhalers** you may tell them that you are on the following:

Enteric Coated Aspirin[®] 81 mg once a day.

Salbutamol (Ventolin[®]) puffer 1 puff every four hours as needed.

Latanoprost (Xalatan[®]) 0.005% eyedrops 1 drop in each eye at bedtime for glaucoma.

**Please tear off the bottom of this page and give it to the clinician ONLY if they ask you for your medication list.*

-----tear off here-----

MY MEDICATION LIST

Ramipril (Altace[®]) 10 mg capsule once a day.

Metformin (Glucophage[®]) 500 mg tablet twice a day with breakfast and supper.

Zopiclone (Imovane[®]) one 7.5 mg tablet as needed for sleep

Clinician Notes and Instructions

Patient is admitted to your care.

Your job is to create a BPMH through a patient interview using a systematic approach.

(Available resources might include: family member, drug store list, BPMH Interview guide, patient)

When you think you have created a BPMH, let the observer score your history.

Observer Notes and Instructions

Observe the interaction between the clinician and patient. At the end of the interview, you will be asked to score the history taken by the clinician and comment on the effectiveness of the clinician's approach and what you may have done differently.

2 points - Introduce self and reason for the interview

2 points - Allergies: Penicillin (Anaphylaxis)

2 points - If they ask the patient for their medication list

Medication List:

(1 point for each **correct** medication name (either generic or brand name will be allowed), dose, route and frequency)

Enteric coated aspirin (ECASA) 81 mg tablet by mouth once day (4 points)

Ramipril (Altace[®]) 10 mg capsule by mouth once a day (4 points)

Metformin (Glucophage[®]) 500 mg tablet by mouth twice a day (4 points)

Salbutamol (Ventolin[®]) puffer 1 puff by inhalation every four hours as needed. (4 points)

Latanoprost (Xalatan[®]) 0.005% eyedrops 1 drop in each eye at bedtime for glaucoma(4 points)

Zopiclone (Imovane[®]) 7.5 mg tablet as needed for sleep (4 points)

Clinician's Score = _____ out of total of 30 points

Resources: BPMH Interview guides may be ordered from the [SHN! online shop](#)

Medications: More Than Just Pills

Prescription Medicines

These include anything you can only obtain with a doctor's order such as heart pills, inhalers, sleeping pills.

Over-The-Counter Medicines

These include non-prescription items that can be purchased at a pharmacy without an order from the doctor such as aspirin, acetaminophen, laxatives, other bowel care products, **herbs** like garlic and Echinacea or **vitamins** and **minerals** like calcium, B12 or iron.

DON'T FORGET THESE TYPES OF MEDICATIONS



Eye/Ear Drops



Inhalers



Nasal Spray



Patches



Liquids



Injections



Ointments/Cream

Prompt the patient to include medicines they take **every day** and also ones taken **sometimes** such as for a cold, stomachache or headache.



Adapted from Vancouver Island Health Authority

www.SaferHealthcareNow.ca



Prevent Adverse Drug Events through Medication Reconciliation

www.SaferHealthcareNow.ca

Introduction

- Introduce self and profession.
- I would like to take some time to review the medications you take at home.
- I have a list of medications from your chart/file and want to make sure it is accurate and up to date.
- Would it be possible to discuss your medications with you (or a family member) at this time?
 - Is this a convenient time for you? Do you have a family member who knows your medications that you think should join us? How can we contact them?

Medication Allergies

- Are you allergic to any medications? If yes, what happens when you take (allergy medication name)?

Information Gathering

- Do you have your medication list or pill bottles (vials) with you?
- Use *show and tell* technique when they have brought the medication vials with them
 - How do you take (medication name)?
 - How often or When do you take (medication name)?
- Collect information about dose, route and frequency for each drug. *If the patient is taking a medication differently than prescribed, record what the patient is actually taking and note the discrepancy.*
- Are there any prescription medications you (or your physician) have recently stopped or changed?
- What was the reason for this change?

Community Pharmacy

- What is the name and location of the pharmacy you normally go to? (*Anticipate more than one.*)
 - May we call your pharmacy to clarify your medications if needed?

Over the Counter (OTC) Medications

- Do you take any medications that you buy without a doctor's prescription? (*Give examples, i.e., Aspirin.*) If yes, how do you take (OTC medication name)?

Vitamins/Minerals/Supplements

- Do you take any vitamins (e.g. multivitamin)? If yes, how do you take (vitamins name(s))?
- Do you take any minerals (e.g. calcium, iron)? If yes, how do you take (minerals name(s))?
- Do you use any supplements (e.g. glucosamine, St. John's Wort)? If yes, how do you take (supplements name(s))?

Eye/Ear/Nose Drops

- Do you use any eye drops? If yes, what are the names? How many drops do you use? How often? In which eye?
- Do you use ear drops? If yes, what are the names? How many drops do you use? How often? In which ear?
- Do you use nose drops/nose sprays? If yes, what are the names? How do you use them? How often?

Inhalers/Patches/Creams/Ointments/Injectables/Samples

- Do you use inhalers?, medicated patches?, medicated creams or ointments?, injectable medications (e.g. insulin)? For each, if yes, how do you take (medication name)? *Include name, strength, how often.*
- Did your doctor give you any medication samples to try in the last few months? If yes, what are the names?

Antibiotics

- Have you used any antibiotics in the past 3 months? If so, what are they?

Closing

This concludes our interview. Thank you for your time. Do you have any questions?

If you remember anything after our discussion please contact me to update the information.

Note: *Medical and Social History, if not specifically described in the chart/file, may need to be clarified with patient.*

Adapted from University Health Network

Continue the interaction for ten minutes. Then, in their groups, ask each participant to comment to his or her partners about one another's handling of the interaction (total of five minutes). The following questions may help to guide the feedback:

- What did it feel like to be the patient or the clinician?
- What were some of the challenges the clinician faced when performing the medication history?
- How were the challenges overcome?
- What approach was used and was it helpful?
- How confident did the clinician feel that they got the Best Possible Medication History?
- What other sources of information would you access to verify the patient's medication information obtained through the interview? (e.g Call Bill's pharmacy, access provincial database, talk to family members)

After the small group discussion (total 15 minutes), lead the larger group in a discussion of their experiences. Ask for comments first from the clinicians and then from the patients and observers. Use the flipchart or overhead projector to capture the important discussion points. Use the discussion to interweave the key take-home points from the syllabus.

6. Key take-home points

1. Securing senior leadership support for organizational implementation of medication reconciliation is a key success factor
2. MedRec requires a multidisciplinary approach –educating, and engaging front-line clinicians including students, nurses, pharmacists, pharmacy technicians, and physicians.
3. A Best Possible Medication History is the foundation of MedRec
4. Ensuring that MedRec quality is maintained, is crucial to the success of MedRec across the organization. Doing it right, not just for the sake of doing it
5. Engage Patients in MedRec - Patients are often the only constant as they move throughout the healthcare system. As such, given the lack of common centralized health information such as an electronic health record, patients remain best position to provide information about the medications they take.

7. Summarize the discussion

Briefly, review each part of the presentation. Recap two or three of the most important points that were discussed.

8. Debrief about the teaching method

Tell the group that it is time to consider the teaching method used, how it worked and what its limitations were. Ask them what other methods might work, and what methods would work best *for the topic* in their home institutions. Ask them to consider what method would work best *for themselves as facilitators* and for their *target audience*.

9. Post-test/evaluation

Ask the participants to complete the post-test questions for this module and evaluate the session.

¹ *Safer Healthcare Now!* Medication Reconciliation in Acute Care Getting Started Kit Version 3, 2011. <http://www.ismp-canada.org/medrec/> (Accessed June 20, 2013)