MEDICATION RECONCILIATION
IN LONG-TERM CARE

Getting Started Kit
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This Getting Started Kit has been written to help engage interprofessional/interdisciplinary teams in a dynamic approach for improving quality. The Getting Started Kit represents the most current evidence, knowledge and practice, as of the date of publication and includes what has been learned since the first kits were released in 2005. We remain open to working consultatively on updating the content, as more evidence emerges, as together we make healthcare safer in Canada.

Note:

The Getting Started Kit is available in both French and English.

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This Medication Reconciliation in long-term care kit has been prepared by ISMP Canada and contains materials, documents and experiences of medication reconciliation teams across Canada customized to the long-term care setting. The insight and contributions of the Canadian Medication Reconciliation expert panel are gratefully acknowledged.

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The Goal of the Getting Started Kit: Medication Reconciliation

The Getting Started Kit provides support to start the process on small numbers of residents, make changes, and gradually develop, implement and evaluate medication reconciliation broadly using quality improvement processes. This updated Getting Started Kit includes current evidence for medication reconciliation on admission, readmission and external transfer.

In this Getting Started kit the following icons will be used:

Guiding Principles   **Reminders**   **Tips**   **Frequently Asked Questions**

Glossary of Terms

Admission Medication Orders (AMOs): Physician-recorded medication orders documented within 24 hours from the time admission to healthcare facility. A time frame of 24 hours is allowed for clarification of admission medication orders (i.e., permitting normal processes of care to correct problems occurring at the time of admission). These normal processes would include clinical pharmacists clarifying unclear admission medication orders.

Adverse Drug Event (ADE): An injury from a medicine or lack of an intended medicine; includes adverse drug reactions and harm from medication incidents.[1]

Best Possible Medication History (BPMH): A BPMH is a history created using:
1) a systematic process of interviewing the resident/family; and

2) a review of at least one other reliable source of information to obtain and verify all of a resident's medication use (prescribed and non-prescribed).

Complete documentation includes drug name, strength (if applicable) dosage, 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.[2]

Best Possible Medication Discharge Plan (BPMDP): Accounts for the medications that the resident was taking prior to admission (BPMH), the most current MAR, and any new medications planned to start upon discharge. The best possible medication discharge plan (BPMDP) should be communicated to the resident, community physician, community pharmacy and alternative care facility or service. This may include:

- ❖ An up-to-date and accurate list of medications the patient should be taking on discharge.
- ❖ A medication information transfer letter to the next care provider which includes rationale for the medication changes.
- ❖ A structured discharge prescription to the next care provider or community pharmacist
- ❖ A patient medication schedule and/or wallet card.

Intentional Discrepancy: An <u>intentional</u> discrepancy is one in which the physician has made an intentional choice to add, change or discontinue a medication and their choice is clearly documented. This is considered to be 'best practice' in medication reconciliation.

LTCF RAI – stands for Long-Term Care Facility Resident Assessment Instrument, which consists of a core screening and assessment instrument known as the Minimum Data Set (MDS) and 18 resident assessment protocols (RAPs) and includes information about medications the resident has been on.

Medication Management: is an overarching concept that describes the delivery of resident-centred care to optimize safe, effective and appropriate drug therapy. Care is provided through collaboration with residents and their healthcare teams.[1]

Medication Reconciliation: A formal process in which healthcare providers work together with residents, families and care providers to ensure accurate and comprehensive medication information is communicated consistently across transitions of care. Medication reconciliation requires a systematic and comprehensive review of all the medications a resident is taking to ensure that medications being added, changed or discontinued are carefully evaluated. It is a component of medication management and will inform and enable prescribers to make the most appropriate prescribing decisions for the patient.

Most Current Medication List – The most recent list of medications (name of medication, strength if applicable, dose, route and frequency) currently taken by the resident. This list is communicated to the next care provider and provides the starting point for the BPMH at the next facility or hospital.   Examples of the **most current medication list** include: a comprehensive medication profile or a Medication Administration Record (MAR), which includes medications given weekly, monthly and every three months.

Prescribed Medication: 'Prescribed medication' will be used for 'prescription medication', as prescription is a term defined differently by each provincial pharmacy act.   Prescribed medications may include some OTC medications (e.g., ASA).   Organizations should decide which Over the Counter (OTC) medications are relevant in their setting and should be counted as prescribed medications.

Primary Medication History (PMH): An initial medication history taken at the time of admission, generally by a physician or nurse. Various sources of information may be used to obtain the PMH, including resident/family interviews, review of medication lists/vials, or follow-up with the community pharmacy or family physician.[2]

Readmission: Refers to a resident returning to the same long-term care facility after an admission to an acute care hospital or other short-term stay facility

Seamless Care: The desirable continuity of care delivered to a resident in the healthcare system across the spectrum of caregivers and their environments.[3]

Senior Leadership: A senior leader is a person who can remove obstacles and allocate resources.

Transfer: Transfer is an interface where orders need to be reviewed and rewritten according to facility policy. These may include: change of service, change in level of care, transfer between units because of availability of beds.

Undocumented Intentional Discrepancies: An *undocumented intentional discrepancy* is one in which the physician has made an intentional choice to add, change or discontinue a medication but this choice is not clearly documented. *Undocumented intentional discrepancies* are a failure to document. They are not medication errors and do not usually represent a serious threat to resident safety. *Undocumented intentional discrepancies* may however lead to confusion, require extra work and may lead to medication errors. They can be reduced by standardizing the method for documenting admission medication orders.

Unintentional Discrepancy: An *unintentional discrepancy* is one in which the physician unintentionally changed, added or omitted a medication the resident was taking prior to admission. *Unintentional discrepancies* are medication errors than can lead to ADEs. They can be reduced by ensuring good training of nurses/physicians/pharmacists at obtaining in-depth medication histories and by wisely involving clinical pharmacists to identify and reconcile these discrepancies. In institutions without access to clinical pharmacists, reconciliation of discrepancies can be assigned to other healthcare professionals.

Introduction

This Getting Started Kit is a step-by-step guide to assist healthcare professionals working in long-term care facilities across Canada to implement medication reconciliation. Medication reconciliation is designed to reduce the number of adverse drug events and potential resident harm associated with changes in medication information as residents transfer from one care setting to another.

In recognition of the importance of this initiative, the implementation of medication reconciliation is required by Accreditation Canada. Please visit their website (www.accreditation.ca) for more information on Accreditation Canada Required Organizational Practices.

This Getting Started Kit is intended to assist long-term care facilities meet this resident safety goal by using quality improvement processes and will address the unique challenges of implementing medication reconciliation in a long-term care facility.

Although this kit is intended to be used by long-term care facility staff, its application may be extended to rehabilitation hospitals, palliative care/hospice units, complex continuing care facilities, mental health institutions and homes for children.

What is meant by the term Long-Term Care in this kit?

In general, long-term care facilities provide living accommodation for people who require on-site delivery of 24-hour, seven days a week supervised care, including professional health services, high levels of personal care and services. They accommodate varying health needs with on-site supervision for personal safety.[2] Long-term care is governed by provincial and territorial legislation.

Across the country, jurisdictions offer a different range of services and cost coverage. Consequently, there is little consistency across Canada in what facilities are called. (BC – Residential care facility, AB – Continuing Care Centre, SK – Special Care home, MB – Personal Care home, ON – Long-term Care Home, QC - Community Health Division Centre hospitalier et d'hébergement de soins de longue durée (CHSLD), CHSLD privés, NB – Nursing Home, PEI - Government Manor home, Private Manor home, NS - Nursing Home or Home for the Aged, NL - Nursing Home, YK - Residential Continuing Care Facility, NT - Personal Care Facility, NU - Group Living Environment for Dependent Elderly.)[4] For the purposes of this kit, we will use 'long-term care'.

Long-term care, when compared with acute care, is characterized by higher resident to nurse or RPN/LPN ratios and on-site pharmacist/physician services that vary from daily to weekly or monthly basis. The acuity of long-term care residents, while usually less than acute care residents has been increasing steadily, but long-term care residents are typically in more stable condition, except in specialized programs. Therefore, changes to a resident's care or medication regimen occur less frequently than in acute care. Residents in long-term care are often prescribed multiple medications and are usually serviced by a community or in-house pharmacy with multi-dose packaging.

Overview of Medication Reconciliation

What is Medication Reconciliation?

Medication reconciliation is a formal process in which healthcare providers work together with residents, families and care providers to ensure accurate and comprehensive medication information is communicated consistently across transitions of care.

Medication reconciliation requires a systematic and comprehensive review of all the medications a resident is taking to ensure that medications being added, changed or discontinued are carefully evaluated. It is an essential component of medication management and will inform and enable prescribers to make the most appropriate prescribing decisions for the resident. An understanding of the resident's actual medication use is a pre-requisite to safe medication management.

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

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

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

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

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

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

The Case for Medication Reconciliation

Literature about medication reconciliation in long-term care is building. Some studies show that a systematic approach to reconciling medications is reducing errors leading to adverse drug events and improved efficiency in the medication system. Studies involving long-term care facilities indicate that improvements in access to accurate and timely information are needed. Recent articles refer to LTC specific issues. These include:

- "Increased collaboration between nursing home registered nurses and licensed practical nurses staff could improve resident care." The March 2012 study stated that "Researchers estimate nearly 800,000 preventable adverse drug events may occur in nursing homes each year. Many of these incidents could be prevented with safety practices such as medication reconciliation, a process in which healthcare professionals, such as physicians, pharmacists and nurses, review medication regimens to identify and resolve discrepancies when residents transfer between healthcare settings. In nursing homes, both registered nurses and licensed practical nurses often are responsible for this safety practice. A recent study by a University of Missouri gerontological nursing expert found, when observed, these nurses often differed in how they identified discrepancies. Recognizing the distinct differences between RNs and RPNs could lead to fewer medication errors and better resident care.[5] [Level VI]

- 2011 cross-sectional analysis by Desai et al, examined medication error incidents and found that 11 per cent of errors involved a resident transferring into a nursing home from the community or other facility.   These errors had a higher odd of resident harm. Staff communication, order transcription, medication availability, pharmacy issues, and name confusion were particularly important contributors to medication errors during transitions.[6] [Level VI]

- 2007 survey by Earnshaw et al. - Surveyed 218 continuing care nurses and pharmacists from Alberta about the quality of medication information received for new admissions transferred from acute care hospitals. Only 25 per cent reported medication information was "always" legible and complete with medication name, dose, frequency and route. Only 10 per cent of respondents reported that there was "always" enough information to tell if the prescribed medications were appropriate for the resident's diagnoses. Sixty percent of respondents reported medication information arrived the same day as the resident's admission. Overall, their perspective of medication information received was incomplete or inaccurate.[7] [Level VI]

- 2007 survey by Boockvar - Only 68 per cent of responding long-term care administrators indicated that staff often or always received all the information required to care for residents transferred from the hospital, 53 per cent indicated they received a readable and easily understood post-hospital plan of care, and 38 per cent indicated they received information about the purpose and diagnosis of each prescribed medication. Fourteen percent (14 per cent) also reported incidences of

resident harm caused by inadequate communication of health information from hospital to a long-term care facility.[8] [Level VII]

- In a 2007 Institute of Medicine Report, it was noted that components of the medication use system operate in silos with ineffective means of sharing important information across the continuum of care. The report recognized the need to improve continuity of resident care through the implementation of medication reconciliation between hospital and community providers. An estimated 60 per cent of medication errors occur during transitions of care, with the most common errors attributed to poor communication.[9] [Level VII]

- A 2015 systematic review by Ensing et al. found that multifaceted intervention programs where medication reconciliation alone is performed is likely insufficient in reducing post-discharge clinical outcomes and should be combined with active resident counselling and a clinical medication review during admission. An extensive pharmacist presence and close collaboration with other health care providers at all stages of care may help reduce clinical outcomes such as hospital readmission. Comprehensive post-discharge follow-up was found to be successful when performed by pharmacist equipped with the resident's previous medical history.[10] [Level I]

- A 2013 study identified medication discrepancies across 3 transitions of care including discharge from an acute care facility to a skilled nursing facility (SNF); thereafter from the SNF to long-term care or home. Of the 132 records reviewed, all residents had medication discrepancies identified across the continuum, with 86 per cent having at least one unintentional discrepancy. They concluded "Outcomes of the current reconciliation process need to be revisited to insure safe delivery of care to the complex geriatric resident as they transition through healthcare systems".[11] [Level VI]

The Impact of Medication Reconciliation

Adverse events due to medication changes occur most often upon transfer from hospital to nursing home

- 2004 study by Boockvar - the incidence of adverse drug events caused by medication changes upon transfer between facilities was 20 per cent. Adverse events due to medication changes occurred most often upon transfer from the hospital back to the nursing home. Incomplete or inaccurate communication between facilities was identified as a potential factor in these occurrences. Their recommendation was to implement an intervention, like medication reconciliation, at the time of admission back to the long-term care facility.[12] [Level VI]

MedRec reduces discrepancy-related adverse events for residents transferred back to long-term care

- 2006 study by Boockvar - The possibility of having a discrepancy-related adverse event was less likely in the group of residents who had medication reconciliation by a pharmacist (with physician communication) upon transfer back from acute care to

long-term care, compared with the group that did not. The pharmacist compared the medications ordered upon transfer back to the long-term care facility to the medications taken before hospitalization. The most common discrepancies were omissions followed by additions and dosage changes. The most common adverse drug event was pain due to the omission of analgesics, and the most common causes of discrepancy-related ADEs were antibiotics and analgesics.[13] [Level III]

Systematic review of MedRec during transition to and from long-term care indicates more research needed

- In a 2012 systematic review, seven studies were included in the meta-analysis review of medication reconciliation during transition to and from long-term care. (1,452 residents, range 41 to 521 residents). All of the studies found some lower risks with the intervention using a variety of outcome measures but the studies each had methodological flaws, which limited the ability to draw conclusions about the effectiveness of these interventions. The inconclusive data shows the need for more research in this area.[14] [Level I]

Levels of Evidence[15]	
Level I	Evidence from a systematic review of all relevant randomized controlled trials (RCT's), or evidence-based clinical practice guidelines based on systematic reviews of RCT's
Level II	Evidence obtained from at least one well-designed Randomized Controlled Trial (RCT)
Level III	Evidence obtained from well-designed controlled trials without randomization, quasi-experimental
Level IV	Evidence from well-designed case-control and cohort studies
Level V	Evidence from systematic reviews of descriptive and qualitative studies
Level VI	Evidence from a single descriptive or qualitative study
Level VII	Evidence from the opinion of authorities and/or reports of expert committees

Medication Reconciliation Process in Long-Term Care

Medication reconciliation should be performed at all transitions of care. For long-term care, this involves both admission (e.g. from acute care, community, another long-term care facility) or readmission to the facility (e.g. a resident has been absent from the facility for a defined number of days during which their bed was held), and at discharge or external transfer.

Medication reconciliation in the long-term care setting is a multi-step process:

1. **Create a complete and accurate Best Possible Medication History (BPMH)** of the resident's medications including name, dosage, route and frequency. This includes:

    ❖ a systematic process of interviewing the resident/family, and

    ❖ a review of at least one other reliable source of information;

2. **Reconcile medications:** Use the BPMH to create admission orders or compare the BPMH against the resident's admission, re-admission or discharge medication orders; identify and resolve all differences or discrepancies; and

3. **Document and communicate** any resulting changes in medication orders to the relevant providers of care and resident or family member wherever possible.

 Medication reconciliation is a process that can minimize potential prescribing errors at transitions of care.

STEP 1 - Creating the Best Possible Medication History (BPMH)

Studies have found the majority of unintentional discrepancies which may lead to medication errors originated in obtaining residents' medication histories. The process relies heavily on clinicians' interview skills, residents' ability to participate, and access to the residents' medication list or community pharmacy dispensing records.[16] This section will help clinicians understand how to use a systematic process to obtain the BPMH.

Definition

A **Best Possible Medication History (BPMH)** is a history created using 1) a systematic process of interviewing the resident/family; and 2) a review of at least one other reliable source of information to obtain and verify all of a resident's medication use (prescribed and non-prescribed). Complete documentation includes drug name, strength (if applicable), dosage, route and frequency that a resident is currently taking, even though it may be different from what was actually prescribed. 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. At each interface in care when the resident is being transferred from one healthcare facility/service to another, the most current medication list should be compared to the resident's new medication orders. **The BPMH is the cornerstone of the medication reconciliation process.**

BPMH versus a Primary Medication History

Primary Medication History is often:	BPMH is:
Created quickly to capture a list of medications (e.g. at triage)	Created using a systematic process and is a more thorough medication history (e.g. at admission)
Created using only a single source of information e.g. resident interview only, electronic provincial medication record only	Created by interviewing the resident (where possible) and using at least one additional source of information e.g. electronic medication dispensing record, medication vials, referring healthcare facilities MAR, community pharmacy records
Missing necessary and/or essential elements of medication information. This can be unsafe to use when creating medication orders	A **complete and accurate** list of medications that reflects medication use prior to admission which can be used to safely create (and later re-assess) medication orders

Several tools have been created to ensure care providers obtain the BPMH in the most efficient manner. These tools can be accessed using the following links:

- Best Possible Medication History (BPMH) Interview Guide

See **Appendix C**: Sample Tools and Resources, **Appendix E**: Tips for Creating a BPMH, **Appendix F**: Tips To Remember When Interviewing Residents, and **Appendix G**: Resident and Family Role in the Medication Reconciliation Process.

What medications should be included in the BPMH?

In general, a resident's current regularly used or as needed (prn):

- Prescribed drugs (may include prescribed over-the-counter (OTC) medications)
- Non-prescribed drugs which may include over-the counter (OTC) medications, vitamins, herbal/natural health products, or recreational drugs.

Organizations should define what will be included in the BPMH as is relevant in their setting. In general, blood products, medical gases, nutritional supplements, vaccinations, and IV solutions are excluded from the BPMH.

The BPMH is a 'snapshot' of the resident's actual medication use, which may be different from what is contained in their records. This is why the resident involvement is vital.

When should the Best Possible Medication History (BPMH) be obtained?

Once the resident has been admitted, it is recommended that the BPMH be completed as soon as possible. In general, the entire medication reconciliation process should be completed within 24 hours of admission. However, teams will need to determine their own timeframe.

Who should obtain the Best Possible Medication History (BPMH)?

The person collecting the Best Possible Medication History should be a healthcare professional (e.g. doctor, nurse, nurse practitioner, or pharmacist) whose scope of practice includes this activity and who:

1. Receives training on how to create a Best Possible Medication History;
2. Follows a systematic process such as a BPMH interview guide where possible; and
3. Are conscientious, responsible and accountable for conducting the medication history process.

Collection of the BPMH may be delegated to other healthcare providers (e.g. pharmacy technicians) provided the organization maintains a training and quality assurance program to support this activity.

How to complete a BPMH

Flow Map for Creating a BPMH

Developed by ISMP Canada for the Canadian Patient Safety Institute
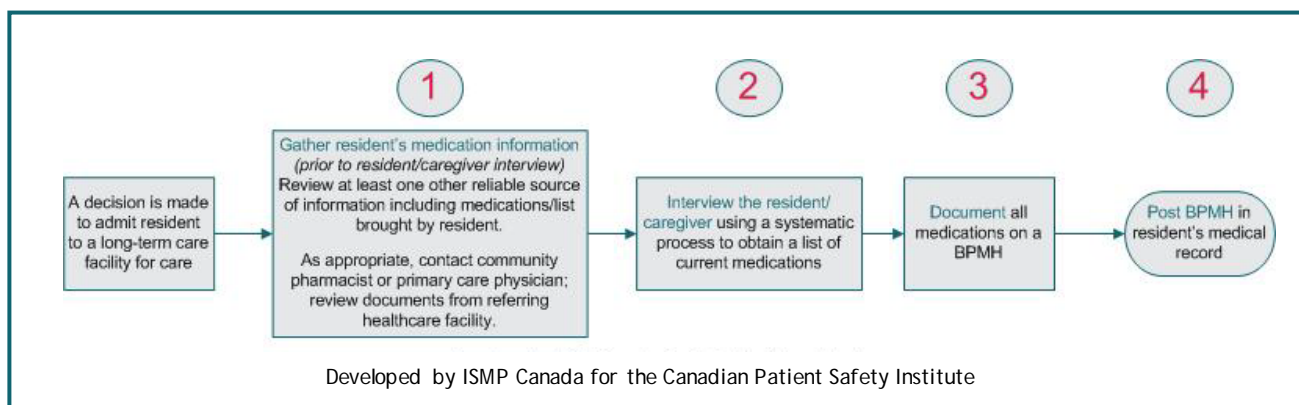
① *Gather resident's medication information.* Not all sources of information are equally useful. Consider the limitations and potential benefits of each source that you use. The sources of information used to obtain the BPMH differ with the specific types of admission to long-term care. (Refer to **Table 1**) Synthesizing the data from multiple sources of information will help ensure the Best Possible Medication History (BPMH). (Refer to FAQ: What are the potential benefits and limitations of the sources of information for the BPMH?)

Table 1: Sources of Information to Obtain the Best Possible Medication History (BPMH)

Type of Admission	Sources of Information
From Acute Care Hospital	• Most Current Medication List (MAR or medication profile) • Best Possible Medication Discharge Plan (BPMDP)*/Discharge Medication information • Transfer Orders/Discharge Prescriptions **Pre-Acute Care Medications** (if medication reconciliation was not clearly documented at the former facility) • Review the resident's "home medication list" or the admission BPMH completed by the acute care hospital. • BPMDP/Discharge summary from previous hospital admissions

Type of Admission	Sources of Information
	• Interview resident/family/to confirm medications and dosages • Review medication vials, containers, blister pack medications • Review community pharmacy profile, provincial electronic health record or drug information systems (e.g. PIP, Drug Profile Viewer, PharmaNet) • Review family physician records, home care records
From Community or Assisted Living	• Review the "home medication list" • Interview family/resident, check medication vials, blister pack medication lists • Review community pharmacy profile, provincial electronic health records or drug information systems (e.g. PIP, Drug Profile Viewer, PharmaNet) • Community pharmacist medication review program (e.g., MedsCheck) • Review family physician records, home care records (RAI-HC)**
Rehabilitation/ Complex Continuing Care facility (Rehab/CCC)	• Most Current Medication List (MAR or medication profile) • Best Possible Medication Discharge Plan (BPMDP)*/ Discharge Medication information • Discharge Prescription from the facility **Pre-Rehab/CCC medications** • Acute care facility transfer orders • Admission BPMH completed by acute care facility • Review the "home medication list" • Interview family/resident to confirm medications and dosages • Review medication vials, blister pack medications • Review community pharmacy profile, provincial electronic health records or drug information systems (e.g. PIP, Drug Profile Viewer, PharmaNet) • Review family physician records, home care records
From Another Long-Term Care facility	• Most Current Medication List (MAR or e-MAR or medication profile) • Resident Assessment Instrument (RAI)** – Section U **Pre-long-term care medications** • Interview family/resident to confirm medications and dosages

Type of Admission	Sources of Information
	• Review community pharmacy profile, provincial electronic health records or drug information systems (e.g. PIP, Drug Profile Viewer, PharmaNet)
Re-admission to LTC from Acute Care Hospital or Rehab facility (resident's bed was "on hold")	• Most Current Medication List (MAR or medication profile) • Discharge Medication orders • Best Possible Medication Discharge Plan (BPMDP) • Transfer orders, discharge prescriptions **Pre-Acute Care Medications** • Resident's most current long-term care MAR prior to hospital transfer • Interview family/resident to confirm medications and dosages

The **Resident Assessment Instrument (RAI) is not a complete medication profile and therefore should not be used as a sole source of information.

Facilities may choose to define a timeframe within which the admission BPMH or "home medication list" will be considered as a source of information (e.g. if the resident was in hospital less than three months).

Using the Best Possible Medication Discharge Plan (BPMDP) as a source of information

Using the most current medication list and the BPMH as references, the BPMDP is created by evaluating and accounting for:

- New medications started in a healthcare facility
- Adjusted and discontinued medications (from BPMH)
- Unchanged medications that are to be continued (from BPMH)
- Medications on Hold in hospital
- Non-formulary/formulary adjustments/auto-substitutions made in hospital
- New medications started upon discharge
- Additional comments as appropriate. Example: status of herbals or medications to be taken at the resident's discretion.

See **Appendix C** - Sample Tools and Resources

When reviewing community medication records, how far back in the medication history do you look?

It is recommended that for community pharmacy and other electronic records that clinicians review the records from **at least the last six months**. The purpose of the BPMH is to capture what the resident was taking just prior to the admission, but you may need to look back six months to understand the history of medication changes and the resident's unique prescription filling habits.

Residents will often use more than one pharmacy to obtain their medications. Ask about multiple pharmacies.

2 *Interview the resident/caregiver* using a *systematic process* to identify resident's **actual** use of medications not simply what has been identified in the initial sources. For example, if the medications are on-site, open each vial and ask the resident "How do you take/use these?" During this process, compare and verify the information from this interview with at least one additional source of information.

In situations when the resident or family caregiver is not able to provide information (e.g. delirium, coma, low level of health literacy, language barrier) it is prudent to use as many additional sources of information as possible. Notify the prescriber that actual medication use could not be verified and document this in the residents' health record.

The BPMH Interview Guide is designed to include questions needed to take a complete and accurate medication history, using open and close ended questions. It is a comprehensive list of questions to ask the resident. The back cover uses effective prompts such as visual aids to support the interview process. Copies of the guide are available from the Canadian Patient Safety Institute and ISMP Canada.

What if there are differences within the sources of medication information?

The most common situation where this may arise is where residents are non-adherent to a prescribed medication. We suggest the following approach:

- **Discuss** these identified differences with the resident/caregiver and/or investigate further.

- **Communicate** the specific nature of the differences to facilitate resolution by the most responsible prescriber. This communication

may be done directly through conversation with the prescriber, through a chart note to the prescriber or through use of a "comments" section on a BPMH form.

- **Document** on the BPMH what the resident is actually taking to help the prescriber make an informed decision based on what is best for the resident.

> When residents are admitted from long-term care or another facility where they are not usually responsible for their own medication administration, the facility MAR or medication profile should be used to create the BPMH. In situations where the MAR documentation is in question, the facility or the long-term care pharmacy would be an appropriate alternative source of information.

3 *Document* all medications including drug name, strength (if applicable), dosage, route, and frequency on the BPMH.

It is up to the organization to adapt or develop BPMH tools/forms to support the medication reconciliation process. *Keep the BPMH* **in a highly visible, central location in the residents' chart** (whether electronic or paper-based) for all healthcare professionals to access.

> An up-to-date and accurate medication list is essential to ensure safe prescribing in any setting.

STEP 2: Reconciling the Medication

STEP 3: Documenting and Communicating

Medication Reconciliation at Admission

Medication reconciliation at admission is the foundation of a successful reconciliation process.

The goal of reconciliation on admission is to ensure there is clear communication about decisions the prescriber makes to continue, discontinue, or modify the medication regimen upon admission that the patient has been taking prior to admission. *This next section will describe in detail the various models used to complete the reconciliation process at admission.*

Admission medication reconciliation processes generally fit into two models: **proactive process** and **retroactive process**.

The **proactive process** occurs when the BPMH is created **first** and is used to write admission medication orders (as shown graphically below). Imagine a resident being admitted to long-term care from an acute care hospital. A practitioner creates a BPMH by reviewing several sources of information. For this example, this may include the MAR or the medication profile, and as available a BPMDP, transfer orders, or discharge prescriptions.

NOTE: If medication reconciliation was not clearly documented at the previous facility, then pre-acute care medications should be reviewed. In cases where it may be difficult for the practitioner in LTC to assess whether changes were intentional, consultation with the acute care physician or hospital pharmacist is recommended.

Proactive Medication Reconciliation Process

1. **Create** the BPMH using a systematic process of interviewing the resident, family/caregiver and a review of at least one other reliable source of information;

2. **Create** admission medication orders (AMOs) by assessing each medication on the BPMH;

3. **Compare** the BPMH against the AMOs ensuring all medications have been assessed; **identifying and resolving** all discrepancies with the most responsible prescriber.

Step 1

BPMH LEADS TO

Step 2

Admission Medication Orders (AMOs)

Step 3

Verify every medication in BPMH has been assessed by prescriber

Developed by ISMP Canada for the Canadian Patient Safety Institute

A **retroactive process** occurs when a BPMH is created and medications are reconciled **after** admission medication orders are written (as shown graphically below).

Retroactive Medication Reconciliation Process

1. **Create** a primary medication history (PMH);

2. *Generate* the admission medication orders (AMO's) from PMH

3. **Create** the Best Possible Medication History (BPMH) using a systematic process of interviewing the resident, family/caregiver and a review of at least one other reliable source of information;

4. **Compare** the BPMH against the AMOs ensuring all medications have been assessed; **identifying and resolving** all discrepancies with the most responsible prescriber.

Developed by ISMP Canada for the Canadian Patient Safety Institute

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It is suggested that medication reconciliation occur within 24 hours of admission, however each facility will need to determine what is best practice for them. Medication reconciliation will identify and resolve _unintentional_ discrepancies (medication errors) and _undocumented intentional_ discrepancies (errors in documentation). Prompt reconciliation means potential harm is averted and not perpetuated. **If during information gathering a serious discrepancy is detected, the pharmacist or nurse would contact the physician immediately.** In order to decide whether discrepancies in orders are _intentional_ or _unintentional_, ask the prescriber who wrote the admission orders.

Example of _Unintentional_ Discrepancy at Admission

A resident with Parkinson's disease was admitted from home. Based on information on the resident's medication vial, Sinemet 200/50 (200 mg/50 mg) PO BID was ordered on admission. A few days later, the resident's family commented that the resident's Parkinson's disease appeared to be worsening. Further investigation revealed that the resident had been told by his neurologist last week to increase his Sinemet dosage to 200/50 PO TID. The physician was informed and the Sinemet dosage was corrected.

Example of _Undocumented Intentional_ Discrepancy at Admission

A resident who was on gliclazide MR 60 mg PO daily at home is admitted to long-term care on gliclazide MR 30 mg daily due to recent dizzy spells and hypoglycaemia.

However, the reason for reducing the dose was not documented in the medical record. Discussion with the physician reveals this was an _intentional discrepancy._

Working with community partners (e.g. community pharmacist) can improve the efficiency of the medication reconciliation process (for planned community admissions). For example, asking residents who are being admitted to the long-term care facility from home to obtain a medication review from their community pharmacist just prior to admission can help ensure timely access to accurate medication information.

Improving Admission Medication Orders

Many facilities are proactively improving the admission medication orders and reducing unintentional discrepancies by making improvements to the way the primary medication history is gathered.

Getting the BPMH First

Many successful teams created forms intended for use at admission when initial orders are written. This form provides space for the BPMH to be collected and documented by a practitioner and then gives the prescriber an opportunity to assess each medication and indicate whether it should be continued, discontinued, held or modified. This way, the BPMH leads directly to accurate orders.

Once forms have been developed, tested, modified and are embedded into the system, the frequency of discrepancies between the BPMH and the AMOs is reduced. See Appendix C : Sample Tools and Resources.

Improving the Primary Medication History

If a full BPMH cannot be done prior to admission orders, there are many other opportunities to improve the process of gathering the primary medication history. Improving the primary medication history will help reduce the number of unintentional discrepancies. Examples: Training staff to use more than one source of information, providing educational hands-on sessions to improve medication history taking and engaging the resident and their families in the process.

The quality of the BPMH affects _unintentional discrepancies and the use of a form improves documentation and reduces undocumented intentional discrepancies._ If the BPMH cannot be completed prior to admission orders being written, reconciliation still reduces potential resident harm.

Figure 1: Medication Reconciliation on Admission to Long-Term Care

Medication Reconciliation Process Flow Map
Admission to Long-Term Care Facility
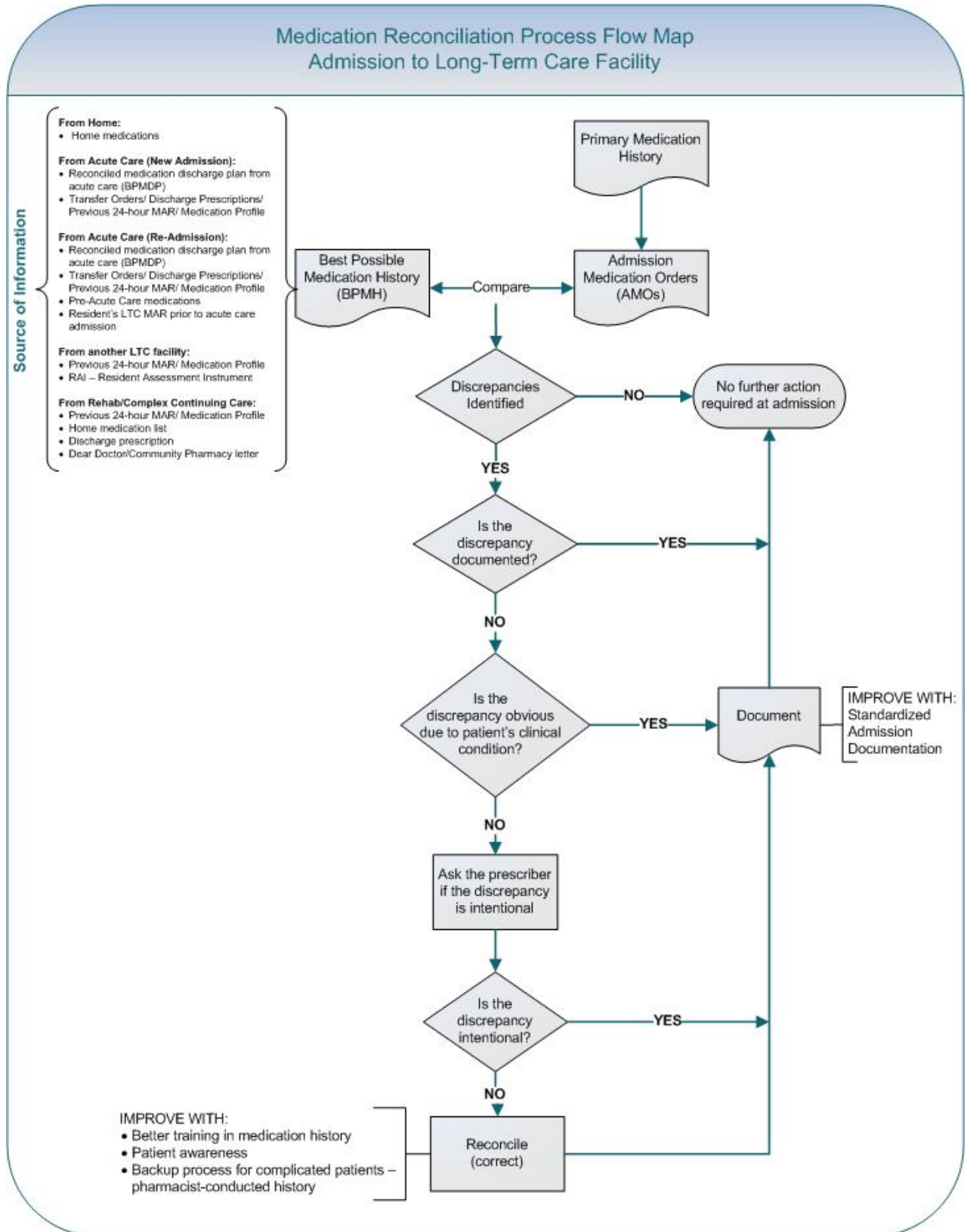
Medication Reconciliation at Readmission

For residents who have been readmitted after being absent from the facility for a defined number of days (e.g. following a brief hospital admission), the MedRec process differs slightly from the admission process. At readmission, the Best Possible Discharge Plan (BPMDP)/discharge medication information provided by the sending facility is assessed and compared to the most current LTC medication list (e.g. MAR , medication profile) and discrepancies are identified. If the rationale for changes to the resident's medications is not clearly documented, a conversation with the discharging health care team may be needed to determine whether or not discrepancies were intended. Intentional changes and all discrepancies are then communicated to the prescriber for assessment, resolution and documentation.

At readmission, all medications that were on the LTC medication list (MAR or medication profile) prior to the acute care admission must have an order to continue, discontinue or hold.

Orders to "continue medications from hospital" should not be accepted.

Medication Reconciliation at Discharge or External Transfer

Long-term care residents are sometimes **transferred externally** to acute care for a medical intervention. This intervention may be either for short term treatment (e.g. dialysis) in which medications are usually the same with the addition of very specific treatment for the acute condition or admitted to an acute care bed for further assessment and treatment where the length of stay may vary. According to the policy of the facility, (e.g. if the length of stay in acute care is longer than 21 days or if the resident is not expected to return) the external transfer may become a **discharge.**

Long-term care discharges to other long-term care facilities or to the community, while not common, do occur particularly in facilities with specialized programs such as a transition unit, convalescent or respite care.

If a good process for medication reconciliation has occurred during admission, then the 'most current medication list' is the Best Possible Medication History. The **'most current medication list'** and the **recent changes** to the list, preferably electronically generated, including new medication orders, adjusted doses and discontinued medications, make up the Best Possible Medication Discharge Plan (BPMDP) or discharge medication documentation. The BPMDP should be clearly and legibly communicated to the next provider of care and to the resident or family member where feasible. The information should be sent in a timely manner and where possible, be transferred along with the resident to the receiving facility. Medication reconciliation will occur promptly after transition to the new setting of care.

The rationale for any recent changes to medications should be documented on the BPMDP and communicated to the patient and the next healthcare provider(s).

Recent changes to the 'most current medication list' can be communicated to the next provider of care by either sending 7-10 days of previous MARS or a comprehensive medication profile dated back 7-10 days or more.

It is helpful, to include the rationale for the recent medication changes, expected goals and monitoring recommendations particularly for important medications such as antibiotics, anti-psychotics, anti-depressants, analgesics.

Cross-Sectoral Collaboration

Residents may experience care in multiple settings with multiple providers over extended periods of time. Health care teams are recognizing the need to work together to design collaborative MedRec processes (e.g. involving acute care, primary care, long-term care) that enhance inter-team relationships and facilitate the timely communication of medication information as residents move through the healthcare system. For more information see National webinars and resources below:

- Redesigning the Transition Experience: Co-ordinating Resident Focused MedRec Across All Sectors
- Your Discharge is Someone's Admission

Enhancing Resident Engagement

Engaging with residents and families involves creating effective partnerships that support them to be actively involved in their own healthcare.[17] It is important to partner with them so that they have the information and tools needed to play an active role in their healthcare.

Before they leave the long-term care facility, they should receive information about their medications and any changes that have been made, and have an opportunity to ask questions. Residents and families should be provided with an up-to-date medication list that is arranged in a way they can easily understand. They should be encouraged to share this list and request that it is reviewed with them during encounters with healthcare professionals.

For a tool to support residents and healthcare professionals to have a discussion about their medications, see "5 Questions to Ask About Your Medications".

For information and tools to assist residents to keep an up-to-date medication list, see "Keep a List of Your Medicines".

See **Appendix G**: Resident and Family Role in the Medication Reconciliation Process for more information.

Measuring the MedRec Process

Long-term care organizations are encouraged to assess how they are performing the basic steps of the MedRec process. Routine measurement will enable you to evaluate the quality of and compliance with your established MedRec process, identify opportunities for improvement, and monitor your performance over time. We recommend that you measure your MedRec processes on a monthly or quarterly basis to help you on your journey to improve the delivery of safe and effective care for residents.

Note: Accreditation Canada's MedRec Required Organizational Practices includes a test for compliance in which organizations are required to monitor compliance with their medication reconciliation process, and make necessary improvements.

Recommended Measures

Measuring MedRec performance and improvement involves measuring both the quality of and compliance to established MedRec processes. To measure the **quality** of your MedRec process consider each of the following components:

At admission

- The BPMH was created using greater than one source of information (e.g., resident interview and at least one additional source).

- Actual medication use was verified by interviewing the resident or caregiver source

- Each medication has drug name, strength (if applicable), dose, route, frequency on BPMH and admission orders.

- Every medication in the BPMH is accounted for in the admission orders.

- Prescriber has documented rationale for added, changed and/or discontinued medications Discrepancies have been communicated, resolved and documented.

At readmission

- Each medication on the best possible medication discharge plan (BPMDP)/discharge medication information provided by the sending facility is accounted for on the LTC readmission orders.

- All medications that were on the LTC medication list prior to the acute care admission have an order to continue, discontinue, or hold.

- There are no outstanding discrepancies between the BPMDP/discharge medication information, current LTC medication list and the LTC readmission orders.

At discharge

- All medications on the current medication list are accounted for on the BPMDP/discharge medication documentation.

- There are no outstanding discrepancies between the current LTC medication list and the BPMDP/discharge medication documentation.

- Each medication on the BPMDP/discharge medication documentation has drug name, strength (if applicable), dose, route, and frequency.

- The prescriber has documented rationale for added, changed and/or discontinued medications on the BPMDP/discharge medication documentation.

- The BPMDP/discharge medication documentation has been provided to and reviewed with the resident/caregiver as appropriate.

- The BPMDP/discharge medication documentation has been communicated to the next healthcare provider(s).

To measure **compliance** with MedRec processes, evaluate the following:

Percentage of residents reconciled at admission

The percentage of residents reconciled at admission is a process measure to determine the degree to which medication reconciliation is performed and evaluates if the system is performing as planned. This measure is aligned with the Accreditation Canada performance measure.

$$\text{Percent of Residents Reconciled at Admission} = \frac{\text{Number of residents reconciled}}{\text{Number of residents admitted}} \times 100$$

Goal: 75% of eligible residents reconciled at admission

Percentage of residents reconciled at readmission

The percentage of residents reconciled at readmission is a process measure to determine the degree to which medication reconciliation is performed

$$\text{Percent of Residents Reconciled at Re-admission} = \frac{\text{Number of residents reconciled}}{\text{Number of residents re-admitted}} \times 100$$

Goal: 75% of eligible residents reconciled at readmission

Percentage of residents reconciled at discharge

The percentage of residents reconciled at discharge is a process measure to determine the degree to which medication reconciliation is performed, a resident receives BPMDP/discharge medication documentation and evaluates if the system is performing as planned.

$$\text{Percent of Residents receiving a BPMDP at Discharge} = \frac{\text{Number of residents in the sample for whom a BPMDP was created}}{\text{Number of residents in the sample}} \times 100$$

BPMDP = Best Possible Medication Discharge Plan

Goal: increase (as close to 100% of eligible residents as possible)

See **Appendix B**: Measurement Resources for more information.

Don't give up!! If measures do not reflect improvement, your team should investigate why (e.g. non-compliance to MedRec processes and/or gaps in quality of MedRec processes etc.) and make any necessary improvements. See Appendix A: Implementing Medication Reconciliation for more information.

Additional Measures

The following measures may be useful to teams in assessing the effectiveness of medication reconciliation and other impacts on the system as it is implemented.

- Percentage of residents with at least one unintentional discrepancy
- Unplanned readmissions to hospital within 30 days of discharge
- Time it takes to conduct a BPMH
- Time from admission to reconciliation
- Resident and staff satisfaction with the MedRec process

Summary

Medication reconciliation will take time and resources to implement across an organization. A national focus on sharing experiences and success stories will facilitate implementation of medication reconciliation in Canada across the continuum of care with the goal of reducing potential adverse drug events, improving the healthcare of residents and saving lives from preventable medication errors.

Medication reconciliation is intended to decrease medication errors however, unless we hear about them, we will not understand the contributing factors and be able to identify opportunities for system-wide improvement.

If a medication reconciliation incident occurs in your organization, report it to ISMP Canada, a key partner in the Canadian Medication Incident Reporting and Prevention System (CMIRPS):
http://www.ismp-canada.org/err_index.htm

Encourage your residents to report medication reconciliation incidents to Safe Medication Use at:
http://www.safemedicationuse.ca/report/

MEDICATION RECONCILIATION IN LONG-TERM CARE

Implementing Medication Reconciliation

Appendix A

Appendix A: Implementing Medication Reconciliation

Getting Started with Implementing Medication Reconciliation in Long-Term Care

The following key steps for getting started in medication reconciliation include:[18]

1. **Secure Senior Leadership Commitment**

2. **Form a Team**

3. **Use the Model of Improvement to Accelerate Change by:**

   A. Set Aims (Goals and Objectives)

   B. Establish Measures

   C. Select Changes

   D. Test Changes

4. **Implement Changes**

5. **Spread Changes**

For additional information about implementing Medication Reconciliation see **Appendix H**: Keys to Successful Implementation of Medication Reconciliation, and **Appendix I**: Lessons Learned: the Canadian Experience.

Note: It is recommended to use the Model for Improvement when implementing medication reconciliation in your organization.

1. Secure Senior Leadership Commitment

Implementing a successful medication reconciliation process requires clear commitment and direction from the highest level of the organization. Visible senior leadership support can help to remove obstacles and allocate resources enhancing the ability of teams to implement medication reconciliation.

Actively engage senior leadership by building a business case for medication reconciliation and demonstrating the need for ADE prevention and reductions in work and rework. Present progress to senior leadership monthly: present data on errors prevented by the medication reconciliation process; identify resources needed to be successful. Sharing qualitative stories is important especially for teams with small numbers and less reliable quantitative data.

2. Form a Team

"Including the right people on a process improvement team is critical to a successful improvement effort. Teams vary in size and composition. Each organization builds teams to suit its own needs".[20]

A team approach is needed to ensure medication reconciliation is completed successfully. To lead the initiative we recommend the organization identify a multidisciplinary site coordination team to organize implementation of medication reconciliation and to conduct tests of change in that facility.

Some organizations may have different teams (e.g. a management team to guide the process and provide support; a frontline team to implement and refine the process.)

Representation of the site coordination team could include:

- Senior Administrative leadership (executive sponsor)
- Clinical leaders representing physicians, nursing and pharmacy staff
- Front line caregivers from key settings of care, and from all shifts
- Representatives from other work units or committees whose responsibilities/mandates include the improvement of resident safety (e.g., Resident Safety Officer, representatives from Quality Improvement/Risk Management, Resident Representatives, Pharmacy and Therapeutics committee)
- Clerical support
- Educator – ongoing staff training
- Resident and/or family member

On a resident care unit, a small 'unit team' is helpful to coordinate and initiate tests of change (Plan-Do-Study-Act [PDSA] cycles) and provide comments to the site coordinating team. Team members could include: unit based physician, nurse manager, frontline nurse, pharmacist and resident. Team members can communicate in a variety of methods including short stand-up meetings on the unit.

3. Use the Model for Improvement to Accelerate Change

The *Model for Improvement*, developed by Associates in Process Improvement, is a simple yet effective tool not meant to replace change models that organizations may already be using, but rather to accelerate improvement." This model has been "used very successfully by hundreds of healthcare organizations in many countries to improve many different healthcare processes and outcomes" [20]

The model has two parts:

1. **Three fundamental questions, which can be addressed in any order.**

   a. What are we trying to accomplish?

   b. How will we know that a change is an improvement?

   c. What changes can we make that will result in improvement?

2. **The Plan-Do-Study-Act (PDSA) cycle to conduct small-scale tests of change in real work settings. – by planning a change, trying it, observing the results, and acting on what is learned.**[20]

"After testing a change on a small scale, learning from each test, and refining the change through several PDSA cycles, the team can implement the change on a broader scale" [20] — for example, test medication reconciliation on admissions first.

Langley G; Nolan KM, Nolan TW, Norman CL, Provost LP. The Improvement Guide: A Practical Approach to Enhancing Organizational Performance.

Set Aims

Improvement requires setting aims. The aim should be time-specific and measurable; it should also define the specific population of residents that will be affected.

Establish Measures

Teams use quantitative measures to determine if a specific change actually leads to an improvement.

Select Changes

All improvement requires making changes, but not all changes result in improvement. Organizations therefore must identify the changes that are most likely to result in improvement.

Test Changes

The Plan-Do-Study-Act (PDSA) cycle is shorthand for testing a change in the real work setting — by planning it, trying it, observing the results, and acting on what is learned. This is the scientific method used for action-oriented learning.

A. Set Aims (Goals and Objectives)

"Improvement requires setting aims. An organization will not improve without a clear and firm intention to do so. The aim should be time-specific and measurable; it should also define the specific population of residents that will be affected. Agreeing on the aim is crucial; so is allocating the people and resources necessary to accomplish the aim." [20] Setting an aim can assist teams to focus on what they are hoping to achieve when implementing medication reconciliation.
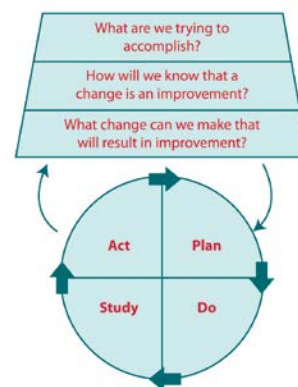
The following are examples of aims at the organizational level:

1. Reduce the number of _unintentional_ discrepancies by 75 per cent on a stated number of units by June 2017.

2. Reduce the number of _undocumented intentional_ discrepancies by 75 per cent on a stated number of units by June 2017.

3. Conduct a BPMH and reconcile discrepancies on 100 per cent of admissions within 24 hours of admission.

As teams work on different points in the resident care process, the aims should be specific to what it is they are hoping to achieve at that point.

B. Establish Measures

"Measurement is a critical part of testing and implementing changes; measures tell a team whether the changes they are making actually lead to improvement. Measurement for improvement should not be confused with measurement for research." [20] This difference is outlined in this chart:

	Measurement for Research	Measurement for Learning and Process Improvement
Purpose	To discover new knowledge	To bring new knowledge into daily practice
Tests	One large "blind" test	Many sequential, observable tests
Biases	Control for as many biases as possible	Stabilize the biases from test to test
Data	Gather as much data as possible, "just in case"	Gather "just enough" data to learn and complete another cycle
Duration	Can take long periods of time to obtain results	"Small tests of significant changes" accelerates the rate of improvement

Institute for Healthcare Improvement – Science of Improvement: Establishing Measures.
http://www.ihi.org/resources/Pages/HowtoImprove/ScienceofImprovementEstablishingMeasures.aspx

Three Types of Measures

Use a balanced set of measures for all improvement efforts:

1. **Outcome Measures (voice of the resident):**
   How is the system performing? What is the result?
   - Mean number of _unintentional discrepancies_ per resident

2. **Process Measures (the workings of the system):**
   Are the parts/steps in the system performing as planned?
   - Percentage of admitted residents reconciled.

3. **Balancing Measures (looking at a system from different directions/dimensions):**

Are changes designed to improve one part of the system causing new problems in other parts of the system?

- Rate of resident readmission to acute care within 30 days of discharge

Measuring for improvement in medication reconciliation starts with collecting baseline data to determine the seriousness of the problem to help motivate stakeholders. Then, collect data regularly to track the effectiveness of change over time. See **Appendix B**: Measurement Resources for more details.

C. Select Changes

"While all changes do not lead to improvement, all improvement requires change. The ability to develop, test, and implement changes is essential for any individual, group, or organization that wants to continuously improve. There are many kinds of changes that will lead to improvement, but these specific changes are developed from a limited number of change concepts." [20]

A change concept is a general notion or approach that has been found to be useful in developing specific ideas for changes that lead to improvement. Combining these change concepts with knowledge about medication reconciliation can help generate ideas for tests of change. After generating ideas, use Plan-Do-Study-Act (PDSA) cycles to test the change or group of changes on a small scale first to see if they result in improvement.[23] "If they do, expand the tests and gradually incorporate larger samples until you are confident that the changes should be adopted more widely."[2]

See **Appendix J**: Examples of Change Concepts

D. Test Changes

"Once a team has set an aim, established its membership, and developed measures to determine whether a change leads to an improvement, the next step is to test a change in the real work setting. The Plan-Do-Study-Act (PDSA) cycle is shorthand for testing a change — by planning it, trying it, observing the results, and acting on what is learned. This is the scientific method used for action-oriented learning." [20]

Reasons to Test Changes

- To increase your belief that the change will result in improvement.

- To decide which of several proposed changes will lead to the desired improvement.

- To evaluate how much improvement can be expected from the change.

- To decide whether the proposed change will work in the actual environment of interest.

- To decide which combinations of changes will have the desired effects on the important measures of quality.

- To evaluate costs, social impact, and side effects from a proposed change.

- To minimize resistance upon implementation. [20]

Steps in the PDSA Cycle

Step 1: Plan
Plan the test or observation; include a plan for collecting data.

- State the objective of the test.

- Make predictions about what will happen and why.

- Develop a plan to test the change. (Who? What? When? Where? What data need to be collected?)

Step 2: Do
Try out the test on a small scale.

- Carry out the test.

- Document problems and unexpected observations.

- Begin analysis of the data.

Step 3: Study
Analyze the data and study the results.

- Complete the analysis of the data.

- Compare the data to your predictions.

- Summarize and reflect on what was learned.

Step 4: Act
Refine the change, based on what was learned from the test.

- Determine what modifications should be made.

- Prepare a plan for the next test. [20]

Example of a Test of Change (Plan-Do-Study-Act Cycle)

"Depending on the aim, teams choose promising changes and use Plan-Do-Study-Act (PDSA) cycles to test a change quickly on a small scale, see how it works, and refine the change as necessary before implementing it on a broader scale." [2020] The following example shows how a team can start with a small-scale test.
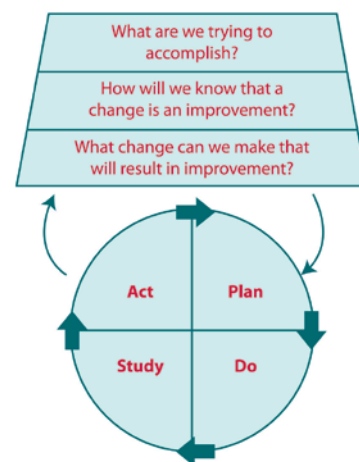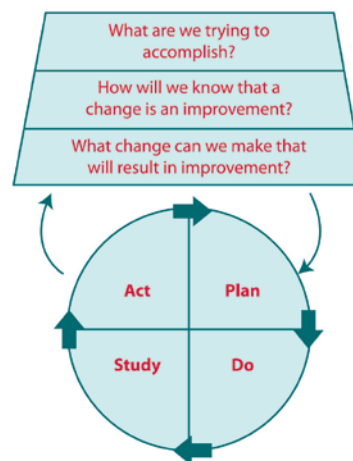
Implementing a Medication Reconciliation Form in a Long-Term Care facility

Plan :	Test a draft of a medication reconciliation form used to collect the Best Possible Medication History (BPMH).
Do :	Test the form for 3-5 new residents with two nurses.
Study :	Obtain specific feedback via a questionnaire from the 2 nurses on the format of the form, ease of use, etc.
Act:	Make modifications to the form where needed.

1. Implement Changes

"After testing a change on a small scale, learning from each test, and refining the change through several PDSA cycles, the change is ready for implementation on a broader scale-for example, for an entire pilot population or on an entire unit. Implementation is a permanent change to the way work is done and, as such, involves building the change into the organization. It may affect documentation, written policies, hiring, training, compensation, and aspects of the organization's infrastructure that are not heavily engaged in the testing phase. Implementation also requires the use of the PDSA cycle." [20]

Example

Testing a change: Three nurses on different shifts use a new medication reconciliation form; feedback on ease of use, format of the form etc. is obtained and the form is revised as needed.

Implementing a change: All 10 nurses on the pilot unit begin using the new medication reconciliation form.

Example of Implementing a Medication Reconciliation Process on Select Unit

a. Initially implement a medication reconciliation process on a smaller scale with select groups of residents, on select units or during a specific point in the continuum of care to develop forms and tools that work in your organization and to gain expertise in the medication reconciliation process.

b. Use a simple process flow diagram to outline the current process in place. Note: keep this process simple, its purpose is to identify the sequence of events, who is doing

what and where opportunities exist for change and/or how medication reconciliation would 'fit-in'.

c. Adapt and test a medication reconciliation form. Specific sample forms are available. See **Appendix C**: Sample Tools and Resources. Create forms that integrate with the medication order computer systems to minimize recopying medication orders.

d. The purpose of these forms is to aid in the collection of a Best Possible Medication History (BPMH), to share the information with prescribers, and to facilitate reconciliation (the documentation of prescriber decisions about medication orders). Many institutions adapt a physician's order form for this purpose and a number of forms have been developed by different organizations. The forms will require modifications before use in your institution. As with any changes you make, our recommendation is to test the form first on a small scale and modify as needed.

Embed the medication reconciliation process into normal processes of care and work towards reconciliation forms that result in orders.

2. Spread Changes

"Spread is the process of taking a successful implementation process from a pilot unit or pilot population and replicating that change or package of changes in other parts of the organization or other organizations. During implementation, teams learn valuable lessons necessary for successful spread, including key infrastructure issues, optimal sequencing of tasks, and working with people to help them adopt and adapt a change." [20]

"Spread efforts will benefit from the use of the PDSA cycle. Units adopting the change need to plan how best to adapt the change to their unit and to determine if the change resulted in the predicted improvement." [20]

As experience develops and measurement of the success of your medication reconciliation process reflects sustained improvement the process can be implemented for more residents in more areas. Evaluate at each new step before adding more units to the process. Retest the pilot process on new units in order to identify any revisions that may be needed. The roll-out across an organization requires careful planning to move through each of the major implementation phases.

"A key factor for closing the gap between *best* practice and *common* practice is the ability of healthcare providers and their organizations to spread innovations and new ideas." [24] The IHI's 'A Framework of Spread: From Local Improvements to System-Wide Change' will assist teams to "develop, test and implement a system for accelerating improvement by spreading change
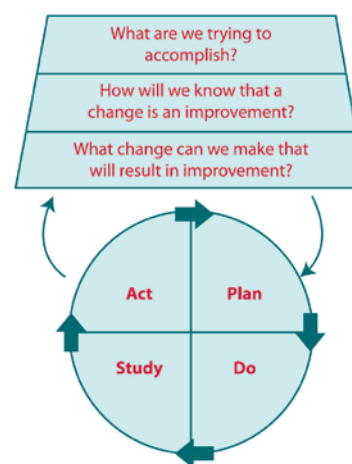
ideas within and between organizations."[19] This paper will assist teams to "prepare for a spread; establish an aim for spread; and develop, execute, and refine a spread plan."[19] Some issues to address in planning for spread include training and new skill development, supporting people in new behaviours that reinforce the new practices, problem solving, current culture regarding change, degree of buy-in by staff, and assignment of responsibility.

Further information on sustaining and spreading improvements can be accessed using the following link:

- [A Framework for Spread White Paper (IHI)](#)[19]

Example: If one to five nurses on a pilot unit successfully implement a new medication reconciliation order form, then spread would involve replicating this change in all nursing units in a step-wise fashion throughout the organization and assisting the units in adopting or adapting the change.

MEDICATION RECONCILIATION IN LONG-TERM CARE

Measurement Resources

Appendix B

Appendix B: Measurement Resources

Measuring Performance and Improvement
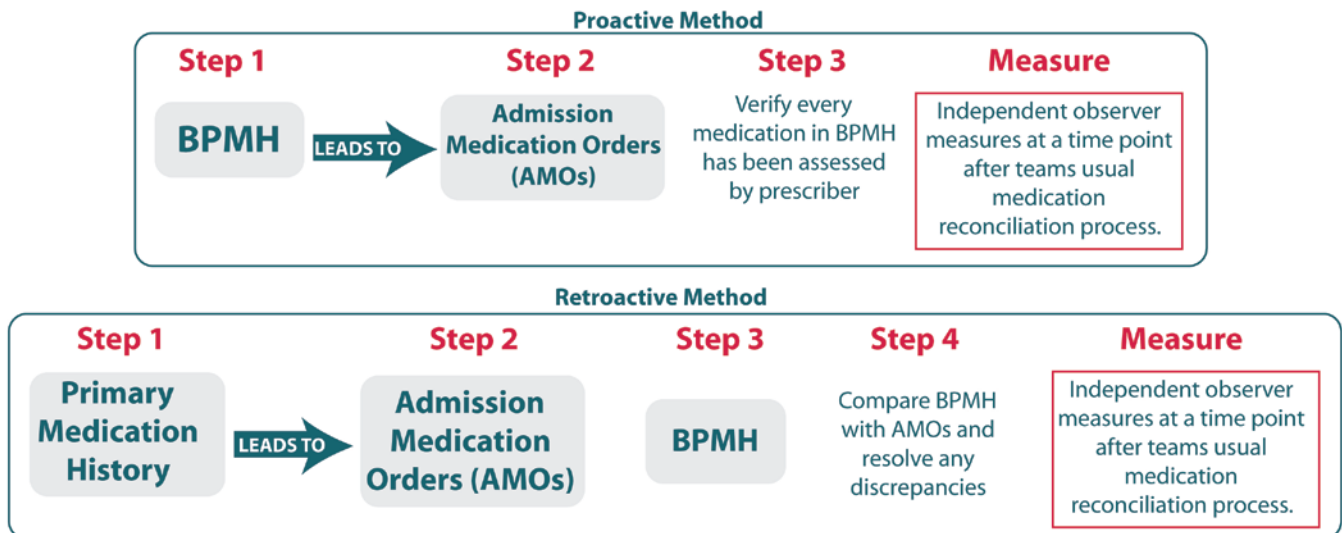
Who should measure?

Measurement should be conducted by an *independent observer* who is familiar with the medication reconciliation process and how to obtain the BPMH. The purpose is to ensure all medication discrepancies have been identified and resolved or in the process of being resolved.

The role of the independent observer is to compare the BPMH to existing orders and any readily available sources of medication information to ensure all discrepancies have been identified and resolved or are in the process of being resolved. The independent observer may be a nurse, pharmacist, pharmacy technician, nurse practitioner, physician or quality improvement staff member who is not responsible for routine operations in the clinical area under review.

When should measurement occur?

It is important to emphasize that measurement should occur as soon as possible <u>after</u> the usual medication reconciliation process has occurred. The concurrent method of data collection should be used. Concurrent audits identify patients "at risk" while they are "at hazard" and immediate actions for improvement can be made. They also make it easier to distinguish intentional from unintentional discrepancies than does a retrospective chart audit. The following example illustrates when to measure your process on admission.

When to Measure - Proactive vs. Retroactive Process

Proactive Method

Step 1		Step 2	Step 3	Measure
BPMH	LEADS TO	Admission Medication Orders (AMOs)	Verify every medication in BPMH has been assessed by prescriber	Independent observer measures at a time point after teams usual medication reconciliation process.

Retroactive Method

Step 1		Step 2	Step 3	Step 4	Measure
Primary Medication History	LEADS TO	Admission Medication Orders (AMOs)	BPMH	Compare BPMH with AMOs and resolve any discrepancies	Independent observer measures at a time point after teams usual medication reconciliation process.

Developed by ISMP Canada for the Canadian Patient Safety Institute

How long should you continue to measure?

Quality of MedRec should be measured monthly until data shows that the team's implemented process reflects the components of the MedRec process. This should continue until teams have **achieved and sustained a target improvement goal**. Thereafter, to monitor whether improvements are being sustained, it is important to audit on a regular basis.

Compliance with the MedRec processes should be measured on an ongoing basis as they reflect the number of patients being appropriately reconciled. The 'Percentage Reconciled' measure supports the Accreditation Canada tests for compliance in which organizations are required to monitor compliance with their medication reconciliation process and make necessary improvements.

Sampling Strategies

Teams in each service area should collect data for a sample of 20 charts per month. If the number of admissions, internal transfers or discharges in the service area is less than 20, teams should collect data for all admissions, internal transfers or discharges. Larger service areas may choose to review more charts each month depending on patient volumes. Charts reviewed should be taken from a random sample. Two strategies that could be used for selecting a random sample are described below.

Methods to Generate a Random Sample:

Method 1 - Nth Client Method: Based on the total number of admissions, readmissions or discharges, estimate the average number of clients for a month. Based on this number, calculate the 'nth' number of clients to sample to ensure a random sample of at least 20 clients is achieved. For example, service area A has an average of 200 clients admitted per month. The independent observer will select every 10th client to achieve a sample of at least 20.

Method 2 - X Days in a Month Method: Based on admissions, readmissions or discharges, estimate the average number of clients for a month. Based on this number, calculate the average number of clients per day, followed by the number of days required for the independent observer to ensure a random sample of at least 20 clients. For example service area B has an average of 240 clients per month resulting in an average of eight clients per day (240/30=8). With this method two to three days (Goal=20 and 8pts x 2days =16pts – 8pts x 3days =24 pts) could be randomly selected (random number generator) out of the month to conduct measurements.

Notes for Method 2:
This method is less preferable due to several types of potential bias, such as the potential for differences in performance on selected days (i.e. three Mondays vs. three Thursdays). For the X days per month method, once the number of days to be sampled per month is determined, these days need to be randomly sampled within the month.

Additional Notes for Selecting a Random Sample:

Once an organization has selected one of the sampling strategies, this approach must be used consistently throughout the data collection period. To reduce potential bias, the independent observer should be the only one to know which sampling strategy is selected, and which cases will be reviewed.

Data collection tool examples

Admission MedRec Audit Tool - Instructions for the Admission MedRec Quality audit tool

Discharge MedRec Audit Tool - Instructions for the Discharge MedRec Quality Audit Tool

Measurement Tips

Adapted from Institute for Healthcare Improvement, *Tips for Effective Measures*; accessed August 9, 2006.

1. **Plot data over time.** Much information about a system and how to improve it can be obtained by plotting data over time and then observing trends and other patterns. Tracking a few key measures over time is the single most powerful tool a team can use and will help them to see the effects of the changes they are making. Within your organization we encourage you to use run charts to show progress over time.

   Run Charts - Track Your Measures over Time

   Determining if improvement has really happened and if it is lasting, requires observation of patterns over time. Run charts are graphs that display data over time and are one of the single most important tools in performance improvement. Using run charts has a variety of benefits:

   - They help improvement teams formulate aims by depicting how well (or poorly) a process is performing

   - They help in determining when changes are truly improvements by displaying a pattern of data that you can observe as you make changes

   - They give direction as you work on improvement and information about the value of particular changes

Run chart example

Medication Reconciliation on Admission

GOAL: 75% of baseline

Departure of team leader resulted in decline in reconciling medications on admission

Baseline

Process implemented on all shifts in ED

Achievement of improvement goal - routine monitoring

Percent — JUN JUL AUG SEP OCT NOV DEC JAN FEB MAR
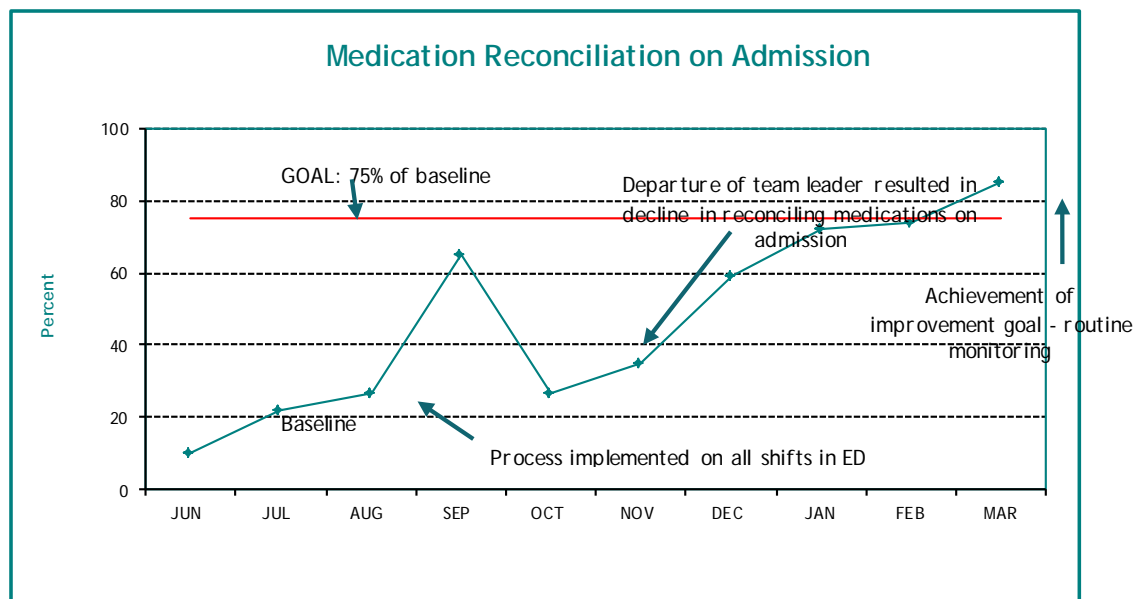
2. Seek usefulness, not perfection. Remember, measurement is not the goal; improvement is the goal. In order to move forward to the next step, a team needs just enough data to know whether changes are leading to improvement.

- **Integrate measurement into the daily routine**. Useful data are often easy to obtain without relying on information systems. Don't wait two months to receive data from your hospital's information systems department. Develop a simple data collection form, and make collecting the data part of someone's job. Often, a few simple measures will yield all the information you need.

- **Use qualitative and quantitative data.** In addition to collecting quantitative data, be sure to collect qualitative data, which often are easier to access and highly informative. For example, ask staff how the medication reconciliation process is going or how to improve the medication reconciliation or BPMH form. Or, in order to focus your efforts on improving a resident's ability to provide a complete and accurate medication history, ask residents and their families about their experience.

The goal of measurement is improvement, not the development of a measurement system

- Measurement should speed up improvement
- Develop a useful rather than a perfect process
- Key measures should clarify objectives
- Integrate measurement into daily routines
- Link measures for improvement with other initiatives in the unit/organization
- Involve stakeholders in the measurement process

MEDICATION RECONCILIATION IN LONG-TERM CARE

Sample Tools and Resources

Appendix C

Appendix C: Sample Tools and Resources

Best Possible Medication Discharge Plan

ISMP Canada has developed forms that may be used as tools for discharge medication reconciliation from an acute care facility. The *Best Possible Medication Discharge Plan (BPMDP)* form is available on the ISMP Canada website and can be adapted for use within your organization. It is an example of a form that long-term care facilities might also receive from an acute care facility.

Discharge Medication Schedule

The *Discharge Medication Schedule* is available on the ISMP Canada website and can be adapted for use within your organization with permission in writing from ISMP Canada.

Discharge Medication Schedule

Discharge Medication Schedule as of (Date):_____

Include all prescription and over-the-counter medications, vitamins and herbal supplements.

Medication Name	Reason for taking this Medication	Dosage and Instructions	Comments

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Developed by ISMP Canada with support from the Ontario Ministry of Health and Long-Term Care

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Discharge Medication Schedule

Additional Medications as Needed		
Additional Medications As Needed		
Discontinued Medications		
Do Not Take the Following		
Avoid the following:		
Avoid the Following		

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Example of an Electronic-based system

As an example of an **electronic-based system**, the University Health Network (UHN) in Toronto has developed software to produce the following to be used to generate the BPMDP at discharge from hospital. The following forms have been used with permission.

HOSPITAL NAME AND LOGO

Date: xxx
Patient Name: xxx
Patient Address: xxx
Patient Phone #: xxx

Hospital Discharge Prescriptions

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

QTY= Quantity, Rpts = Repeats, LU Code = Limited use Code

Physician Name: xxx
CPSO Number: xxx
Physician Phone #: xxx
Physician Signature: xxx
Please contact family physician for repeats

Summary of Medication Allergies:
Penicillin - Hives

Summary of Medication Changes Since Admission:

New Medications:
• Ferrous Gluconate 300mg PO TID
• Omeprazole 40mg PO Daily
• Ciprofloxacin 500mg PO BID

Discontinued Medications:
• Aspirin 81mg PO daily
• Meloxicam 7.5mg PO daily

Adjusted Medications:
• Atorvastatin increased to 40mg PO QHS
• Calcium carbonate increased to 1000mg elemental calcium PO TID with meals
• Metoprolol increased to 50mg PO BID

Unchanged Medications to be Continued:
• Calcitriol 0.25mcg PO daily
• Darbepoetin 60mcg SC qFriday
• Docusate sodium 100mg PO BID
• Ramipril 5mg PO daily
• Acetaminophen 325—650mg PO q4h PRN

Additional Comments:

E.G. Section 8 filled for XXXX drug

An inpatient pharmacist helped to prepare this prescription.

Used with permission

Resident wallet card

A portable list of medications for the resident and for communication to healthcare professionals:

Drug and dose	Directions
Calcium Carbonate 500 mg tablet	Take 1 tablet three times daily
Ibuprofen 200 mg tablet (ADVIL)	Take 1 tablet as needed
Metoprolol 50 mg tablet	Take 2 tablets two times daily
Atorvastatin 20mg tablet (LIPITOR)	Take 1 tablet at bedtime

Used with permission

Discharge Prescription Schedule for Resident and Family

Communicates the entire adjusted medication regimen intended for the resident post discharge from acute care.

Discharge Prescription Schedule for Patient & Family

Name: xxx   Date: xxx
Documented Allergies: • Penicillin • Codeine

My family physician is _____ phone _____

Morning

Medication	Comments	Directions
Calcium Carbonate 500mg tablet	Phosphate binder Take with food	Take 1 tablet
Metoprolol 50mg tablet	For blood pressure	Take 2 tablets

Noon

Medication	Comments	Directions
Calcium Carbonate 500mg tablet	Phosphate binder Take with food	Take 1 tablet

Supper

Medication	Comments	Directions
Calcium Carbonate 500mg tablet	Phosphate binder Take with food	Take 1 tablet
Metoprolol 50mg tablet	For blood pressure	Take 2 tablets

Bedtime

Medication	Comments	Directions
Atorvastatin 20mg tablet (LIPITOR)	Take at night (bedtime)	Take 1 Tablet

As needed

Medication	Comments	Directions
Ibuprofen 200mg tablet (ADVIL)	Take as needed for pain only	Take 1 tablet as needed

* If discrepancies occur between this list and your prescriptions, please follow the instructions on your medication vials unless your physician has indicated otherwise *

Prepared by _____, Pharmacist, _____ Hospital
Phone:_____ Pager:_____

Used with permission

Medication information discharge letter

The medication information discharge letter summarizes changes since the BPMH to post-discharge regimen. This letter can include a list and rationale for discontinued medications, medications initiated in hospital, adjusted medications (dose and frequency changes) as well as outstanding resident issues that require ongoing monitoring and follow-up.

Date: February 02, 2006
Patient Name:
Hospital: Toronto General Hospital
Nursing Unit: 14 Eaton South
NU Phone: 416-340-4800 x5555

University Health Network

Toronto General Hospital Toronto Western Hospital Princess Margaret Hospital

Dear Pharmacist,
Your patient   was admitted on **October 29, 2005** and discharged on **November 15, 2005**.

Documented Allergies:

Allergy	Reaction
Penicillin	Hives 10 years ago; tolerates cefazolin

The following are medication changes that have occured:

New Medications	Rationale
Ferrous Gluconate 300mg TID	Patient found to be anemic in hospital. Values as of Nov 2/05 Ferritin = 10ug/L; TSAT = 0.15
Omeprazole 40mg daily	Patient experienced non H.Pylori upper GI bleed in hospital. Duration of therapy will be reassessed by GI physician in 8 weeks.
Ciprofloxacin 500mg BID	Urinary tract infection. E. Coli in urine sensitive to Ciprofloxacin; plan to treat for total of 7 days. Started Nov 13/05.

Stopped Medications	Rationale
Aspirin 81mg daily	Patient experienced an upper GI bleed
Meloxicam 7.5mg daily	Patient was taking 2-3 times a day. May have contributed to bleed and not to be restarted

Dose Changes	Rationale
Atorvastatin increased to 40mg HS	Lipid values measured on Nov 2/05 found to be elevated. LDL = 4.1 mmol/L; HDL = 0.98 mmol/L; Total Chol/HDL = 5.3 mmol/L; TG = 1.12 mmol/L
Calcium carbonate increased to 1000mg elemental calcium TID with meals	Phosphate value found to be high @ 2.1 mmol/L on Nov 2/05. See below
Metoprolol increased to 50mg BID	Blood pressure was elevated in hospital (163/90 mmHg at highest). Target blood pressure is 130/80 mmHg.

Please find a current list of medications attached.

Please find a current list of medications attached.

The following are unresolved/ongoing medication related issues

- High lipid values
  - Please re-check lipids in 3 months and suggest adjustment of atorvastatin dose accordingly
- Patient was taking Aspirin 81mg EC tablet daily for caridac protection. It was stopped due to GI bleed. Dr. Smith (GI physician) to reassess restarting ASA at next appointment
  - Please follow-up with re-initiation of ASA

Other issues include:

- **Education/Counseling**
  Patient may benefit from additional discussion on use of NSAIDs for pain. Meloxicam was being taken at higher doses then prescribed. Patient was educated on adverse effects of NSAIDs and instructed to use acetaminophen for pain in the future.

- **Monitoring needed**
  Continue to monitor blood pressure and suggest titration of medications accordingly. Monitor phosphate levels and suggest adjustment of phosphate binder accordingly. Re-check iron profile in 3 months.

Please attach this document with the patient's prescriptions if possible
Feel free to contact me if you have any questions or concerns.

Thank you,

Cesta,Annemarie, Pharmacist   Phone: **416-340-4800 x1234**
                                                  Pager: **416-555-8856**

Verbal consent was obtained from the patient to release the above information on **February 02, 2006**

Current medication list for   as of **February 02, 2006**

Drug and dose	Directions
Atorvastatin 40 MG tablet	Take 1 tablet at bedtime
Calcitriol 0.25 MCG capsule	Take 1 capsule once daily
Calcium carbonate 1250 MG tablet (500 MG elemental Ca++)	Take 2 tablets three times a day with meals
Ciprofloxacin 500 MG tablet	Take 1 tablet two times a day for 4 more days. Separate from calcium by at least 2 hours.
Darbepoetin Inj 60MCG/0.3ML syringe	Inject 60 MCG subcutaneously every Friday
Docusate sodium 100 MG capsule	Take 1 capsule two times a day
Ferrous fumarate 300 MG tablet	Take 1 tablet at bedtime
Metoprolol 25 MG tablet	Take 2 tablets (50 MG) two times a day
Omeprazole 20 MG tablet	Take 2 tablets (40 MG) once daily
Ramipril 5 MG capsule	Take 1 capsule once daily
Acetaminophen 325 MG tablet	Take 1-2 tablets every 4 hours as needed for pain

Used with permission

5 Questions to Ask About Your Medications

The *5 Questions to Ask about Your Medications* is a tool to help patients and caregivers start a conversation about medications to improve communications with their health care provider and is available in over 20 different languages.

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MEDICATION RECONCILIATION IN LONG-TERM CARE

Challenges of Medication Reconciliation in Long-Term Care

Appendix D

Appendix D: Challenges of Medication Reconciliation in Long-Term Care

Awareness of challenges and barriers is essential to identifying, developing and implementing effective strategies to address them.

Challenges and Solutions of Medication Reconciliation in Long-term Care

Challenges/Barriers	Solutions
Limited pharmacist/nurse staffing Resident to healthcare provider ratios are higher in long-term care than in acute care. Many long-term care facilities have very limited access to pharmacists or nurses/nurse practitioners to reconcile medications.	• Most admissions and external transfers from acute care are known in advance and therefore preparations can be made by the healthcare provider to prioritize their time to be spent on these residents. • Build a business case to support resources for medication reconciliation.
Limited Physician/nurse practitioner availability Limited availability of physician/nurse practitioner to write admission orders and to reconcile discrepancies since some physicians may visit on a monthly basis.	• Timely communication with the physician/nurse practitioner via fax or phone is possible even when they are not on-site. E.g. conference call involving acute and long-term care team members ie. pharmacists, physicians/nurse practitioners
Poor communication between facilities Most long-term care facilities and acute care hospitals are loosely affiliated and do not share medical records, medication ordering systems, formularies, or pharmacies. Medication information may be inaccurately transcribed upon transfer of the resident.[12]	• Work with a referring acute care site to arrange the transfer of electronic or paper records to meet the needs of the long-term care facility on a pilot basis, in order to demonstrate success. • Utilise an electronic form that can be generated for residents admitted to or discharged from an acute care facility. *An example of a process tested* at Providence Healthcare in BC where they have implemented the MIMO (Moving in Medication Orders). The MIMO, which is remotely printed to the receiving facility, is generated for residents moving in or returning from an acute care site. It lists all the medications the resident was receiving on discharge. Residential RNs compare this list with any additional resident's

Challenges/Barriers	Solutions
	medication information to determine if there are any discrepancies. The complete list is then faxed to the resident's physician. The RN calls the physician's office 30 minutes later to review the list, makes changes as required and signs the bottom of the form as a verbal order. The form is designed to minimize transcription errors while reducing the risk of overlooking medications. The MIMO is then faxed to Pharmacy for processing and the original is filed in the resident's record.[21]
Many sources of information are incomplete/inaccurate Residents admitted from the community are not always aware of the names of drugs they are taking, frequency, dosage, and management of side effects. There are many situations in which the resident/caregiver is incapable of providing an accurate list of medications. Statements such as "I take a blue pill" or "I do not remember the name" are common.	• More accurate sources of information (e.g. provincial databases, community pharmacy record, and family physician record) may be available and utilising multiple sources should be used to help compile the BPMH. Involving the family or caregiver in medication reconciliation may help to get accurate information
No clear owner of the process and/or no defined process for medication reconciliation.	• Use the quality improvement model to test a possible solution on one or two long-term care admissions in order to develop a process that works.
Variability in knowledge and skills of inter-disciplinary healthcare providers related to the importance of medication reconciliation.	• Provide educational seminars with interactive components so staff may have opportunities to learn the importance of medication reconciliation, to practice taking the BPMH and to understand the process of reconciling medications.
Fear of getting blamed if errors are made or discovered.	• Celebrate the 'good catches' when _unintentional_ discrepancies are intercepted and potential harm averted. Share results broadly to gain commitment and reduce fear.

Challenges/Barriers	Solutions
Fear of change	• Any change is difficult. The antidote to fear is knowledge about the deficiencies of the present process and optimism about the potential benefits of a new process.
Communication breakdown	• Organizations have not been successful when they failed to communicate with staff about the process as well as when they failed to provide ongoing teaching as new staff, become involved in the process.
Physician & staff 'partial buy-in' (Just another flavour of the week)	• In order to enlist support and engage staff, It is important to share baseline data on *unintentional discrepancy* rates and to share the results of improvement efforts. If the run charts suggest a large decrease in *unintentional discrepancies* compared to baseline, issues surrounding "buy-in" tend to fade.[22]

MEDICATION RECONCILIATION IN LONG-TERM CARE

Tips for creating a BPMH

Appendix E

Appendix E: Tips for Creating a Best Possible Medication History

- ### Use multiple sources of information

- ### Go back as far as necessary

If medication reconciliation was not clearly documented at the former facility, review the pre-acute care admission, pre-long-term care admission and community/assisted living medication list as far back as is necessary to capture all chronic medications taking into consideration some medications may be given as infrequently as every 3 months. Also, residents may get a 100-day fill of their medications or even occasionally a 6-month fill, therefore a review of their medications filled in the last year may be necessary to capture all the necessary information.

- ### Keep intentional changes that were made

Changes to the resident's medication regimen, which often occur during an acute care stay, need to be transferred and implemented upon the resident's return to long-term care. Pay special attention to medications whose interruption is likely to be associated with immediate withdrawal and/or relapse symptoms such as opioids, antidepressants and also antibiotics which were commonly missed upon transfer in a recent study.[25] In cases where it may be difficult to assess, consultation with the former facility's physician or pharmacist is recommended.

- ### Don't re-order discontinued medication

Ensure medications that have been discontinued intentionally are not included in the BPMH. If you choose to record it on the list, clearly indicate that the medication has been discontinued and indicate when it was stopped. If the intention of the discontinuation of a medication is difficult to assess, consultation with former facility's physician or pharmacist is recommended.

- ### Remember medications on hold

It is not uncommon in acute care that unessential or infrequent medications are not ordered or held. Upon re-admission to long-term care, these medications should be re-assessed and reordered, if necessary. If the resident was not from your long-term care facility, a thorough investigation of the pre-acute admission medications, (i.e. referring to the most current LTC medication profile) to re-evaluate medications on hold may be necessary.

Examples of infrequent or commonly held medications include: vitamins, home laxative products, benzodiazepines, skin creams and intermittent therapies (i.e. weekly bisphosphonates monthly B12 injections, monthly or every third month injections of GnRH agonists such as Lupron® or Zoladex®). Antihypertensive agents also tend to be discontinued on an acute care admission as many elderly residents have low blood pressure (BP) when ill, but these medications usually get restarted either before or at the time of discharge.

- **Record what the resident was actually taking versus what was prescribed**

  Interviewing the resident or caregiver, where possible, is beneficial to determine what medications the resident is actually taking, which may be different than what was prescribed. It may be worthwhile to write as a note to the physician what the resident was prescribed especially if the resident is taking the medication incorrectly or differently.

  Example: A resident is prescribed digoxin 0.0625 mg daily. An interview with the resident revealed he was taking digoxin twice a day for the last month without the doctor knowing.

  What to do: Record the 'digoxin 0.0625 mg twice daily' in the BPMH but ensure physician knows what was originally prescribed so the physician is able to make a clinical decision about what dose and monitoring measures are needed.

MEDICATION RECONCILIATION IN LONG-TERM CARE

Tips to Remember When Interviewing Residents

Appendix F

Appendix F: Tips to Remember When Interviewing Residents

Note: the resident's cognition should be assessed before their involvement can be relied upon to gather information

- When asking about all medications, be sure to **get the name, dosage form, dosage, dosing schedule, and last dose taken** - be as specific as possible about prn (as needed) medications.

- **Use open-ended questions** (what, how, why, when) and balance with yes/no questions.

- Use nonbiased questions which do not lead the resident into answering something that may not be true.

- **Pursue unclear answers** until they are clarified.

- **Ask simple questions**, avoid using medical jargon, and always invite the resident to ask questions.

- **Prompt the resident** to try and remember patches, creams/ointments, eye/ear drops, inhalers, sample medications, shots, herbals, vitamins, and minerals.

- When discussing allergies, **educate the resident on the difference between a side effect and a true allergy**—e.g., rash, breathing problems, hives.

- **Have residents describe how and when they take their medications**, and if they ever have difficulty taking their medications or remembering to take their medications. Vague responses may indicate non-compliance.

Steps to take if the resident cannot remember a medication or if clarification is needed:

- **Obtain a detailed description of the medication** from the resident or a family member—dosage form, strength, size, shape, color, markings.

- **Talk to any family members** present or contact someone that could possibly bring in the medication or read it over the phone.

- **Call the resident's pharmacy** to obtain a list of medications the resident has been regularly filling

- **Contact the resident's physician/physicians** to get an accurate listing of their current medications.

- **Obtain previous medical records**.

MEDICATION RECONCILIATION IN LONG-TERM CARE

Resident and Family Role in the Medication Reconciliation Process

Appendix G

Appendix G: Resident and Family Role in the Medication Reconciliation Process

While the majority of residents in the long-term care home are unable to manage their own medications either due to cognition, mental or physical constraints or the sheer complexity of their regimens, there may be a small group of residents who are capable of taking on a more active role in their medication management. Those who are on a self-medication program or who frequently go on passes home with committed involvement from family members, can play a significant role in a medication reconciliation process and be active participants in developing and maintaining an accurate list of the medications they are taking.

Effectively engaging these types of residents and/or family in medication reconciliation is a key strategy for identifying and preventing prescribing and administration errors, and thereby reducing potential harm. Involvement should be encouraged by the healthcare team by:

- engaging the resident and family in the development and maintenance of a complete and accurate list of the resident's medications,

- asking the resident or family to bring their medication bottles/vials and the list upon admission,

- keeping them informed about medications the resident is receiving and changes that occur especially if they are being transferred or discharged or going on pass or are on a self-medication program,

- educating them about what side effects to look for, and

- providing the means and encouragement to report any concerns they might have.

Tools have been developed by the Manitoba Institute for Patient Safety to help residents learn how to be more involved in their healthcare. See It's Safe to Ask for more information.

For a tool to support residents and healthcare professionals to have a discussion about their medications, see "5 Questions to Ask About Your Medications".

For information and tools to assist residents to keep an up-to-date medication list, see "Keep a List of Your Medicines"

MEDICATION RECONCILIATION IN LONG-TERM CARE

Keys to Successful Implementation of Medication Reconciliation

Appendix H

Appendix H: Tips for Successful Implementation of Medication Reconciliation

Tips for Successful Implementation of Medication Reconciliation

1. **Evaluate existing processes** - by creating a high level flowchart of existing processes and assess where problem areas exist, identification of need for reconciling activity.

2. **Actively engage leadership** - by demonstrating the need: ADE prevention, reductions in work and rework associated with the management of medication orders. Present progress to healthcare leadership monthly: discuss adverse events that have been prevented by medication reconciling process, present charts displaying change measures, resourcing needs.

3. **Start small** – Begin your small projects with one nurse, one resident, one ordering physician, on one unit. Test how the medication reconciliation process can be integrated most effectively with current work processes. Engage early adopters first for testing and act as champions, then spread to others. Next thoroughly test forms in paper format before automating. Moving too fast to spread change to other areas can be a mistake; ensure a smooth process first.

4. **Teamwork** - is important as commitment to the process by nurses, pharmacists and physicians is integral to achieving success. Clinical champions are also required to achieve success.

5. **Work towards Information Technology solutions (computerization and automation of the process)** - Create software links integrating process into usual activities – link with pharmacy systems (Meditech, Cerner, etc.) and Medication Administration Records (MAR) for creating discharge/transfer order sheets. **Embed the medication reconciliation process into normal processes of care and work towards reconciliation forms that result in orders.**

6. **Provide access to drug information and pharmacist advice at decision points** – In addition, if pharmacist availability is an issue, develop criteria (e.g. > 4 medications, complex medical conditions) for pharmacist referral to complete the medication history.

7. **Provide structural support** - Develop policies and procedures to govern the medication reconciliation process, provide standardization and quality in the process; ensure consistent policies for all disciplines.

8. **Provide documentation tools** - Have the necessary forms available to document the process: "continue, change, discontinue," medications.

9. **Educate Staff** - Involve the education department in the project planning phase (include the nurse education coordinator on team). Ongoing staff education is integral to maintaining gains; teach critical thinking skills, and quality improvement techniques.

11. **Partner with residents/family** – Include a resident as a member of the reconciling implementation planning team. Strategies are required to educate residents/families to participate in monitoring medications and maintaining accurate medication lists.

12. **Celebrate successes** – share, recognize and publicize success stories and potential adverse events that were prevented.

MEDICATION RECONCILIATION IN LONG-TERM CARE

Lessons Learned:
The Canadian Experience

Appendix I

Appendix I: Lessons Learned: the Canadian Experience

- Teams found it useful to **map the current process early on** in the implementation to identify redundancies and inefficiencies and the target areas needed for change.

- **Ensure senior administrators, leaders and team members are well informed about the time commitment in advance.** Consider a sign-off to confirm responsibilities, buy-in and active engagement.

- The Canadian definitions of *unintentional discrepancies* and *undocumented intentional discrepancies* were new and therefore, some resistance was anticipated. However, these terms have provided a useful measure of progress toward improving resident care.

- **Medication Reconciliation will not be achieved using a single specific model.** Medication reconciliation must be tailored to fit the organization or system, considering human resources, resident population, current admission process, culture of staff, etc.

- **Medication reconciliation is not simply a process of matching medication lists.** The process offers professionals an excellent opportunity to apply their clinical expertise and resolve longstanding issues in appropriate medication therapy.

- **Engage clinicians** in making decisions on measurement definitions and the clinical underpinnings that constitute *unintentional discrepancies* and *undocumented intentional discrepancies*.

- **Ensure data is collected to track progress. Data will drive commitment!** Each organization must look closely at the types of discrepancies occurring and what may be contributing to the occurrence of these discrepancies. Let your data be the "voice" for your medication reconciliation initiative. Its compelling story will capture attention and support from all levels of the organization. Provide data in a timely manner during testing to show success and opportunities for improvement.

- **Presentations on the rationale for medication reconciliation are critical when the initiative is being established.** An orientation process and regular communication including organizational data and recommendations should be developed. This will serve to reinforce the significance of the medication reconciliation initiative in reducing adverse drug events. Need continual discussions (formal and informal) as it will take time for some individuals to adopt and accept the process willingly. Need time for cultural change. Cannot expect everyone to buy-in based on one meeting or presentation.

- **Medication reconciliation is a system change which will contribute to seamless care across *all* healthcare settings.** Collaboration with community pharmacists, long-term care facilities and homecare is mandatory to ensure appropriate medication monitoring is present across all transition points.

- **Medication Reconciliation is a multi-disciplinary approach**. To be successful, medication reconciliation must be done by different professionals at different transition points.

- **Do not underestimate the time and resources required**. The medication reconciliation intervention appears simple – but it is extremely complex and involves multiple processes and people. At first, medication reconciliation appears to require a lot of time and resources. However, it has become evident that residents regularly experience unintentional discrepancies (medication errors). In the current medication process (without medication reconciliation), there is significant rework required when discrepancies occur and must be resolved. Additionally residents are not well informed or prepared regarding their medications when transitioning across the healthcare system.

MEDICATION RECONCILIATION IN LONG-TERM CARE

Examples of Change Concepts

Appendix J

Appendix J: Examples of Change Concepts

(Adapted and used with permission from: Western Node, Safer Healthcare Now! Change Package: Coming Full Circle: AMI & Med Across the Continuum Breakthrough Series Collaborative, 2007.)

Change concepts are "general ideas – with proven merit and sound scientific or logical foundation - that can stimulate specific ideas for changes that lead to improvement."[20]

Multiple rapid cycle trials or PDSA cycles (Plan-Do-Study-Act) are a major factor in accelerating system change and "are the primary means to turn planning into action and to connect action to learning."[25] By using different general change concepts, generating ideas from those high level concepts and developing iterative PDSA cycles to try in your environment "teams are more likely to develop changes that lead to improvement and increase the pace of improvement in their system"[21]

This following tables outline change concepts and ideas under each of the processes of resident care across the continuum. Select a change concept and modify/adapt an idea through the use of PDSAs.

Admission[22]

Obtaining the Best Possible Medication History (BPMH) forms the basis of reconciliation from admission through to discharge in every setting: acute care, home care and long-term care. The key to the success of medication reconciliation is to first have the process working at admission to the healthcare facility. This will facilitate appropriate reconciliation at transfer and discharge.

Key Change Concepts	Key Change Ideas	Examples to Test
Take Care of Basics	• Reconcile the resident's medications upon admission to the facility with the involvement of the resident. [2] • Eliminate any undocumented intentional discrepancies. [23] • Eliminate any unintentional discrepancies. • Document how the discrepancies were reconciled in the orders.	• Trial a BPMH form (customize from one posted on the medication Reconciliation Community of Practice http://tools.patientsafety institute.ca/Pages/welco me.aspx)
Reduce Variation	• Involve physicians in validating the home medication list. In particular, doses and complex medication regimens must be an important part of the strategy. • Require pharmacist involvement for special situations (e.g., on high-risk meds, >10 meds, elderly, etc.). • Ensure accountability: verify signatures to indicate who collected the information on the BPMH. • Develop a comprehensive list of questions for resident interviewing to reduce variation between disciplines obtaining the BPMH.	• Use a checklist when interviewing a resident.
Conduct Training	• Develop an education package for obtaining a BPMH.	• Develop a video/DVD showing a pharmacist conducting a BPMH interview. [24] • Role play collecting a BPMH.

Key Change Concepts	Key Change Ideas	Examples to Test
Standardization	• Standardize the process for obtaining a BPMH. • Assign accountability and responsibility for obtaining BPMH. • Develop a policy that designates who is responsible for completing the reconciliation and when it should occur. • Develop clear policies and procedures for each step in the reconciling process. Policies should be developed covering procedures for: [25] 　1. Generating resident's home medication list; 　2. Comparing that list to physician orders; 　3. Specifying when to call/stat page physician to review discrepancies; 　4. Back-up procedures for special situations: unavailability of ordering physician, evening/weekend admissions; 　5. Process for nurses to pass off non-reconciled meds at shift change for follow-up by next shift; 　6. Identifying high-risk situations requiring pharmacist involvement (e.g., on high-risk meds, >10 meds, elderly, mental health); and 　7. Identifying high-risk situations for involving specialist consults, case managers. • Get the team to agree to discontinue blanket orders such as "continue home medications" or "resume all medications" [24]	• Develop a standard list of sources for obtaining medication information for the BPMH that are relevant to your setting. • Use a 3rd year pharmacy student in the ED. • Have a medication reconciliation physician champion to educate other physicians on the benefits.

Key Change Concepts	Key Change Ideas	Examples to Test
Use Affordances - *make it easy to do the best practice. A visual prompting without the need for further explanation.*	• Incorporate the BPMH form into the physician admitting order sheet - hospitals using their reconciling form as an order sheet still need to follow through on the verification step: were all home meds ordered unless specifically discontinued or held? • Place the reconciling form in a consistent, highly visible location within the resident's chart, easily accessible by clinicians writing orders. • Flag Eligible Charts - educate Unit Clerk on resident/resident criteria for BMPH and have her flag the charts with a coloured sticker as well as contact the pharmacist or professional delegated to complete the BPMH. • Use special color paper for the form – teams report strong recognition of "that yellow form"	• Keep the BPMH next to the admitting order sheet in the chart. • Identify the most common place that ordering prescriber's reference (e.g., first page of physician progress notes, first sheet in chart, and clip on top of chart).
Develop Operational Definitions	• Identify criteria for those residents who should receive and those who don't need to receive an in-depth BPMH and in what time frame.	• Residents on > 5 medications must have a BPMH within 48 hours of admission.

Key Change Concepts	Key Change Ideas	Examples to Test
Reach Agreement on Expectations	• Establish the expectation that residents/residents come with all their medications upon elective admission.	• Incorporate this expectation into preoperative clinic education, discharge teaching and work with family physicians and communication departments re: "about your visit" materials, partner with community.
Use Automation	• If one person is doing BPMH over several units, have a paging code to identify priority. • Incorporate BPMH into the physician order entry system.	
Smooth Work Flow	• Use a stamp to eliminate duplication in workload. • Include the BPMH within the admission package.	

General Processes

Key Change Concepts	Key Change Ideas	Examples to Test
Taking Care of Basics *"An up-to-date and accurate medication list is essential to ensure safe prescribing in any setting."*[26]	• Create the most complete and accurate list possible of all home medication for each resident; involve the resident/family in obtaining a Best Possible Medication History (BPMH) as per Accreditation Canada Required Organizational Practices. • Use the BPMH list when writing medication orders. • Compare the BMPH against the physician's admission, readmission and/or discharge orders. • Identify and bring any discrepancies to the attention of the physician and, if appropriate, make changes to the orders. • Record the discrepancies on a document adapted for your institution. • Focus initial work for medication reconciliation on small portion or your population.	• Choose a pilot population to begin testing the medication reconciliation process. • Use a process map to discover the highest volume or most vulnerable resident population.
Give People Access to Information	• Identify stakeholders early and get buy-in with nursing, pharmacy, physicians, senior leadership and other key groups. • Identify all partners in the process; pick the right members of the team. • Use data to build will, monitor concerns and communicate progress. Data can be more than just numbers. • Seeing progress motivates a team. Use data stories and anecdotal comments in team meetings. QI can be fun.	• Meet with stakeholders to identify concerns, communicate intent of team – use data. • Process map routes of resident/resident from intake to discharge. • Incorporate stakeholder concerns in balancing measures. • Present team progress and results at research days, forums for staff education, and /or directors meetings.[25]

Key Change Concepts	Key Change Ideas	Examples to Test
	• Post results to gain expanded audience.[27] • Downturn in results is an opportunity to create treasures from defects – investigate those cases and find out where to focus improvements. • Small bites of data collected consistently allow the team to identify problems sooner.	• Use a sampling technique to foster more frequent data collection and reduce burden of data collection.
Consider Other People in the Same System	• Teamwork is important as commitment to the process by nurses, pharmacists and physicians is integral to achieving success. Clinical champions are also required to achieve success.	• Develop a multidisciplinary team.

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Appendix K

Appendix K: References

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