MEDICATION RECONCILIATION IN ACUTE CARE

Getting Started Kit

Version 3.0

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Safer Healthcare Now!

We invite you to join *Safer Healthcare Now!* to help improve the safety of the Canadian healthcare system. *Safer Healthcare Now!* is a national program supporting Canadian healthcare organizations to improve safety through the use of quality improvement methods and the integration of evidence in practice.

To learn more about this intervention, to find out how to join *Safer Healthcare Now!* and to gain access to additional resources, contacts, and tools, visit our website at www.saferhealthcarenow.ca

This Getting Started Kit has been written to help engage your interprofessional/ interdisciplinary teams in a dynamic approach for improving quality and safety while providing a basis for getting started. 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 Quebec Campaign: Together, let's improve healthcare safety! works collaboratively with *Safer Healthcare Now!.* The Getting Started Kits for all interventions used in both *Safer Healthcare Now!* and the Quebec Campaigns are the same and available in both French and English.

Acknowledgement

Safer Healthcare Now! and the authors of this document would like to acknowledge and thank:

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We wish to thank and acknowledge our Canadian faculty who has contributed significantly to the work of the Medication Reconciliation teams and the revisions to this kit.

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(September 2011)

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We are grateful to the many reviewers from across Canada, for their thoughtful suggestions, which have contributed greatly to this kit. In addition, we wish to acknowledge the work of ISMP Canada staff including Brenda Carthy, Kimindra Tiwana, Jennifer Turple, and Alice Watt in the development of this guide.

Table of Contents

The Goal of the *Safer Healthcare Now!* Getting Started Kit: Medication Reconciliation

The Getting Started Kit provides support to start the process on small numbers of patients, make changes, and gradually develop, implement and evaluate medication reconciliation broadly using quality improvement processes. This updated kit includes an update on measurement, proactive and retroactive models for medication reconciliation at admission, expanded BPMH guidelines and update resources.

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


Guiding Principle

Tips


Frequently Asked Questions

Reminder


Available on the Medication Reconciliation Communities of Practice or the *Safer Healthcare Now!* website

Glossary of Terms

In this Getting Started Kit the following terms will be used.

Admission Medication Orders (AMOs): Prescriber-recorded admission medication orders documented within 24 hours from the time admission to healthcare facility. A time frame of 24 hours is preferred 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: An injury from a medicine or lack of an intended medicine. Includes adverse drug reactions and harm from medication incidents.

Best Possible Medication History (BPMH): A Best Possible Medication History (BPMH) is a history created using 1) a systematic process of interviewing the patient/family; and 2) a review of at least one other reliable source of information to obtain and verify all of a patient's medication use (prescribed and non-prescribed). Complete documentation includes drug name, 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.

Full Implementation: The processes, procedures and practices are refined and finalized and have lead to significant improvement. All team members in selected units are consistently implementing the processes, procedures and practices and continue to monitor and maintain their sustained performance which remains at or close to goal. They achieved their aim and are ready for spread to other units.

Intentional Discrepancies: An *intentional discrepancy* is one in which the prescriber 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.

Medication reconciliation is a formal process in which healthcare providers work together with patients, 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 patient 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.

Non-Prescribed Medication: The term 'Non-Prescribed Medication' will be used for all medications not prescribed by a healthcare practitioner and *may* include over-the counter (OTC) medications, nutritional supplements, vitamins, natural health products, or recreational drugs.

Prescribed Medication: The term 'Prescribed medication' will be used for medications that are prescribed by a healthcare practitioner. Prescribed medications includes all prescription drugs (as defined by each provincial pharmacy act), may include over-the-counter drugs (e.g. ASA) and vitamins (e.g. calcium supplements).

Primary Medication History (PMH): An initial medication history taken at the time of admission, generally by a prescriber or nurse. Various sources of information may be used to obtain the PMH, including patient/family interviews, review of medication lists/vials, or follow-up with the community pharmacy or family physician.[1]

Seamless Care: The desirable continuity of care delivered to a patient in the health care system across the spectrum of caregivers and their environments.[2 3]

Senior Leadership: A senior leader is a person defined by an organization (e.g. Vice-president) that 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, Post-operatively, Transfer between units because of availability of beds.

Undocumented Intentional Discrepancies: An *undocumented intentional discrepancy* is one in which the prescriber 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 patient 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. *Undocumented intentional discrepancies* represent 25 – 75% of all discrepancies.

Unintentional Discrepancy: An *unintentional discrepancy* is one in which the prescriber unintentionally changed, added or omitted a medication the patient was taking prior to admission. Unintentional discrepancies are potential medication errors than can lead to ADEs. They can be reduced by ensuring good training of nurses/prescribers/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.

Medication Reconciliation in Acute Care Getting Started Kit – Version 3

Overview of Medication Reconciliation

What is Medication Reconciliation?

Medication reconciliation is a formal process in which healthcare providers work together with patients, 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 patient 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.

The Case for Medication Reconciliation

It is well known that adverse drug events (ADEs) occur with disturbing frequency, and that communication problems between settings of care are a significant factor in their occurrence. In the Canadian Adverse Events Study, drug and fluid related events were the second most common type of procedure or event to which adverse events were related.[4] Moreover, chart reviews have revealed that over half of all hospital medication errors occur at the interfaces of care.[5]

At Admission

- A 2005 study conducted in a Canadian institution found that 54% of the study population had at least one unintended medication discrepancy, of which 39% were judged to have the potential to cause moderate to severe discomfort or clinical deterioration.[1] The most common discrepancy (46%) consisted of the omission of a regularly used medication.
- A large 2011 study found that patients admitted to hospital were at increased risk for the unintentional discontinuation of chronic evidence based therapies as compared to controls.[6] There was an even greater risk of unintentional discontinuation of these medications following an ICU admission.

At Transfer

- In a 2010 Canadian study, 62.0% of the study population had at least 1 unintentional medication discrepancy at the time of transfer, and the most common discrepancy was medication omission (55.6%).[7] Factors that independently increased the risk of a patient experiencing at least 1 unintentional discrepancy included lack of best possible medication history, increasing number of home medications, and increasing number of transfer medications. Forty-seven patients (36.4%) had at least 1 unintentional discrepancy with the potential to cause discomfort and/or clinical deterioration.

At Discharge

- Forster et al followed 361 patients discharged from a general internal medicine service at a Canadian teaching hospital to independent or residential living to determine the risk, severity and type of adverse events (AEs) after discharge.[8] The physician reviewers determined that 72 patients (23%) experienced an AE post-discharge. Of all AEs, 72% were medication related, and the majority were considered either preventable or ameliorable. The authors concluded that improved monitoring and communication with community care providers is needed to improve safety after discharge.

The Impact of Medication Reconciliation

The literature regarding the potential impact of medication reconciliation continues to expand. The reconciling process has been demonstrated to be a powerful strategy to reduce ADEs as patients move from one level of care to another.

At Admission

- A 2011 study revealed that medication reconciliation at admission led to a 43% reduction in actual ADEs caused by errors in admission orders.[9]
- A series of interventions, including medication reconciliation, introduced over a seven-month period, successfully decreased the rate of medication errors by 70% and reduced ADEs by over 15%.[10]
- In another study, the utilization of pharmacy technicians to initiate the reconciling process by obtaining medication histories for a scheduled surgical population reduced potential ADEs by 80% within three months of implementation.[11]
- A study by Vira et al, 60% of their prospectively enrolled patients had at least one unintended variance (discrepancy) and 18% had at least one clinically important variance identified at the time of admission. None of the variances had been detected by usual clinical practice before reconciliation was conducted. Of the 20 clinically important variances, a medication reconciliation process intercepted 75% of the variances before patients were harmed.[12]
- There is evidence that a successful medication reconciliation process reduces work and re-work associated with the management of medication orders. After implementation, nursing time at admission was reduced by over 20 minutes per patient. The amount of time pharmacists were involved in discharge was reduced by over 40 minutes.[13]

At Transfer

- MEDMARX® in the US reported 2,022 medication errors that involved a reconciliation issue between September 2004 and July 2005. The number of harmful errors was greatest for admission and transition reconciliation failures. Two fatalities were associated with failures to reconcile medications during a patient's transition from one level or care to another.[14]

At Discharge

- In a study comparing medication discrepancies at discharge, an intervention including medication reconciliation at discharge decreased medication discrepancies identified at discharge by 26% as compared to a control group who did not receive medication reconciliation.[15]

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

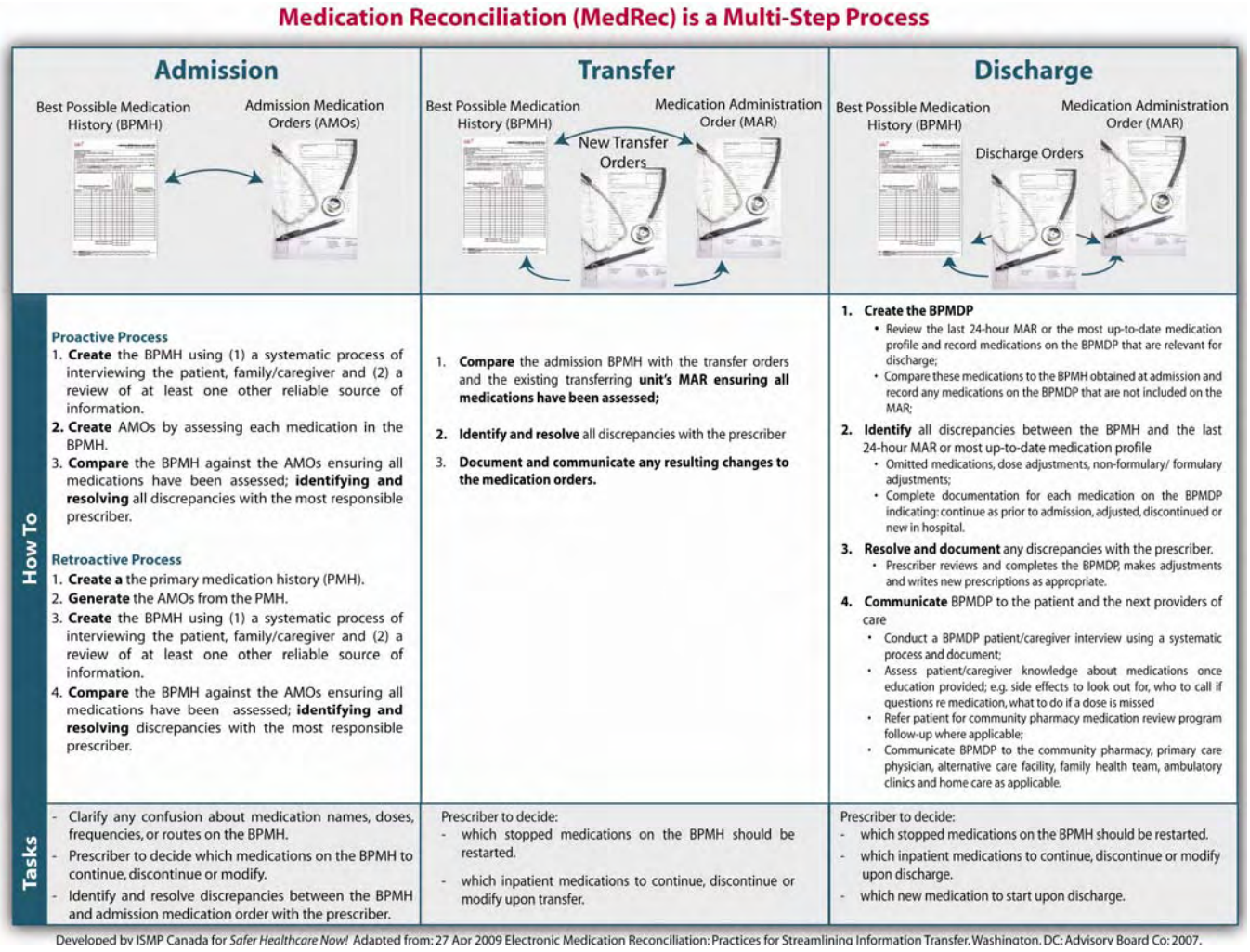
In recognition of the importance of this initiative, the implementation of medication reconciliation is supported by Canadian Accreditation requirements. Accreditation Canada released their Patient Safety Goals and Required Organizational Practices beginning in 2005 for implementation in 2006.[16] The required organizational practices (ROPs) related to medication reconciliation include requirements to improve the effectiveness and coordination of communication among care/service providers and with the recipients of care/service across the continuum. ROPs for medication reconciliation require the organization to reconcile clients' medications at admission and discharge, transfer, or end of service. For updated Accreditation Canada "Test for Compliance" visit their website: http://www.accreditation.ca/accreditation-programs/qmentum/required-organizational-practices/

Medication reconciliation in acute care is a three-step process:

1. **Create a complete and accurate Best Possible Medication History (BPMH)** of the patient's medications including name, dosage, route and frequency. This includes:
   - ❖ a systematic process of interviewing the patient/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 admission, transfer or discharge medication orders; identify and resolve all differences or discrepancies; and
3. **Document and Communicate** any resulting changes in medication orders to the patient, family/caregiver and to the next provider of care.

Ultimately, the goal is to develop a process which provides an accurate list that can be used for medication orders by all healthcare providers as patients are admitted, transferred through the institution, and eventually discharged and reduce the potential for adverse drug events (ADEs).

Medication Reconciliation (MedRec) is a Multi-Step Process



Developed by ISMP Canada for *Safer Healthcare Now!* Adapted from: 27 Apr 2009 Electronic Medication Reconciliation: Practices for Streamlining Information Transfer. Washington, DC: Advisory Board Co: 2007.

STEP 1 - Creating the Best Possible Medication History

The Best Possible Medication History (BPMH) is the cornerstone of the medication reconciliation process. Studies have found the majority of unintentional discrepancies which may lead to medication errors originated in obtaining patients' medication histories. The process relies heavily on clinicians' interview skills, patients' ability to participate, and access to patients' outpatient medication lists or community pharmacy dispensing records.[17] 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 patient/family; and 2) a review of at least one other reliable source of information to obtain and verify all of a patient's medication use (prescribed and non-prescribed). Complete documentation includes drug name, 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.

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 without using at least one other reliable source of information	Created using at least one other reliable source of information including a patient interview, 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

What medications should be included in the BPMH?

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

- Prescribed drugs
- Non-prescribed drugs which may include over-the counter (OTC) medications, vitamins, 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, and IV solutions are excluded from the BPMH.

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

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

Once the decision to admit the patient has been made, 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 from the time of the decision to admit. However, each team will need to determine what best practice is for them.

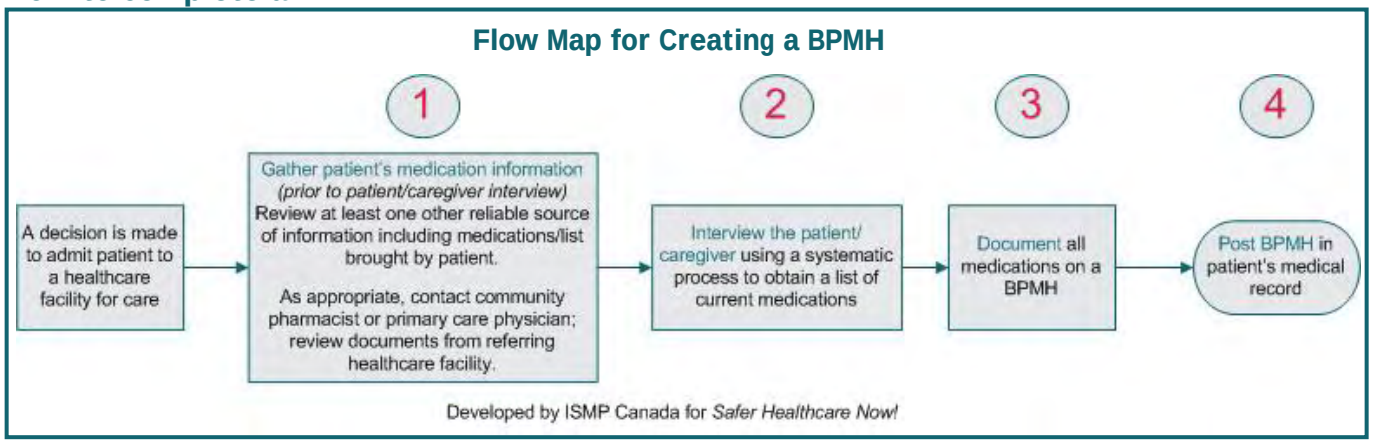
Who should obtain the Best Possible Medication History (BPMH)?

The person collecting the Best Possible Medication History should be a healthcare professional (e.g. doctor, nurse, nurse practitioner, 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*



1 *Gather patient's medication information*. Start with the most up-to-date and at least one other reliable source of information as shown in table below. Not all sources of information are equally useful. Consider the limitations and potential benefits of each source that you use. When possible, utilize clerical staff to assist with this initial step.

Initial Sources of Medication Information

Type of Admission	Suggested Sources
From the Community/ Home Care	• Electronic provincial medication record • Medication vials/community pharmacy records • Patient own medication list (paper or electronic) • Prescriber referral/consultation notes • Previous admission records/discharge summary • Home care reconciled medication list • Ambulatory clinic medication records
From a Long-Term Care facility or another healthcare facility	• Most current Medication Administration Record (MAR) • Best Possible Medication Discharge Plan (BPMDP) from another healthcare facility • Pharmacy records

When reviewing 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 6 months**. The purpose of the BPMH is to capture what the patient was taking just prior to the admission, but you may need to look back 6 months to understand the history of medication changes and the patient's unique prescription filling habits.

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

2

Interview the patient/caregiver using a *systematic process* to identify patient'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 patient "How do you take/use these?" During this process, compare and verify the information from this interview with at least one other source of information.

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 patient. The back cover uses effective prompts such as visual aids to support the interview process, which are. Copies of the guide are available from the *Safer Healthcare Now!* Shop.

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

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

- **Discuss** these identified differences with the patient/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 patient is actually taking to help the prescriber make an informed decision based on what is best for the patient.

Note: These differences are not to be counted as "discrepancies" as these should be addressed when acquiring the BPMH.

3

Document all medications including 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. Examples are available on the SHN Medication Reconciliation Communities of Practice.

Post the BPMH **in a highly visible, central location in the patients' chart** (whether electronic or paper-based) for all healthcare professionals to access.

Triaging Patients for MedRec in the Emergency Department

Adapted and *used with permission* from Washington State community hospital emergency departments.

Step 1. Involve patients earlier in medication information gathering.

- Educate the patients before they come into the ER so that they will anticipate the need to present an up-to-date medication list, medication vials or a dispensing record from their community pharmacy. (e.g. community newsletters, media, social media, family doctors offices, ambulance services)
- If patients do not have the medication information with them, give patients a form to fill out in the ER to list their medications and resources to contact their pharmacy or family physician for information.

Step 2. The triage nurse in ER reviews the patient's sources of information (use at least one other reliable sources) and categorizes the patient into one of three categories.

- Category 1: no medications. This group requires no further work other than to document the fact that the patient is not taking medications.
- Category 2: medications known. These patients have at least one other reliable source of medication information and they know the names of the medications they take. They have their medication vials/list with them. They are ready to have their BPMH taken by the team once the decision has been made to admit or the triage nurse or their delegate may obtain the BPMH.
- Category 3: medications unknown. This is the small percentage of patients taking medications who do **not** know the name of at least one of their medications, are unable to give information due to their medical status, or do not have caregivers available who can provide this information. These patients are the only ones for whom additional information gathering efforts by the ER team is necessary if this patient is to be admitted. Their charts are flagged.

Step 3. For Category 3 patients who are admitted, delegate the gathering of missing information to clerical/administrative staff.

They may:

- access the electronic provincial medication record (as available).
- contact the patient's community pharmacies for a fax of the medication list
- ask family members to bring in medications
- call family physicians to send in patient's medication lists

Once the information is complete, the flag is removed, patient becomes a Category 2 and is ready to have their BPMH taken, once admitted.

Step 4. Flag patients with missing medication information.

The purpose of flagging patients with incomplete medication lists is to make it obvious to doctors and nurses in the emergency department that a patient has missing medication information. Possible flags include colored buttons on a hospital gown, a brightly colored bracelet or a 'dog-tag' style necklace.

STEP 2: Reconciling the Medication &

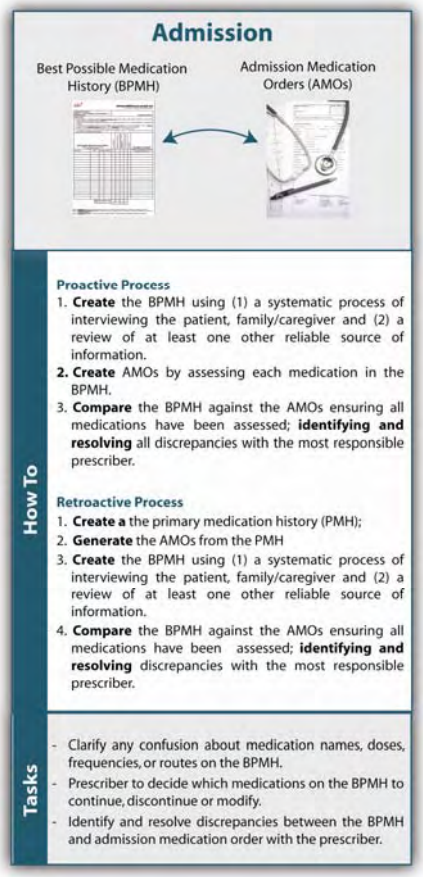
STEP 3: Documenting and Communicating

Medication Reconciliation at Admission

The BPMH is the cornerstone to medication reconciliation. This next section will describe in detail the various models used to complete the reconciliation process at admission.

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.

The overarching process at admission appears in the figure to the right. There are however, differing processes or models that have been developed to complete the admission reconciliation process.



Reconciliation Models

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).

Proactive Medication Reconciliation Process

1. **Create** the BPMH using a systematic process of interviewing the patient, 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.

Developed by ISMP Canada for *Safer Healthcare Now!*

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 patient, 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; i**dentifying and resolving** all discrepancies with the most responsible prescriber.

Although it is desirable to have one reliable process, it may be necessary to have a combination based on complexity or staffing. For example, a proactive model may be in place on weekdays but a retroactive process may be used on evenings and weekends. Patients needing immediate treatment (e.g. patient trauma) will generally be reconciled retroactively. This combination of models is sometimes referred to as a "**mixed model**".

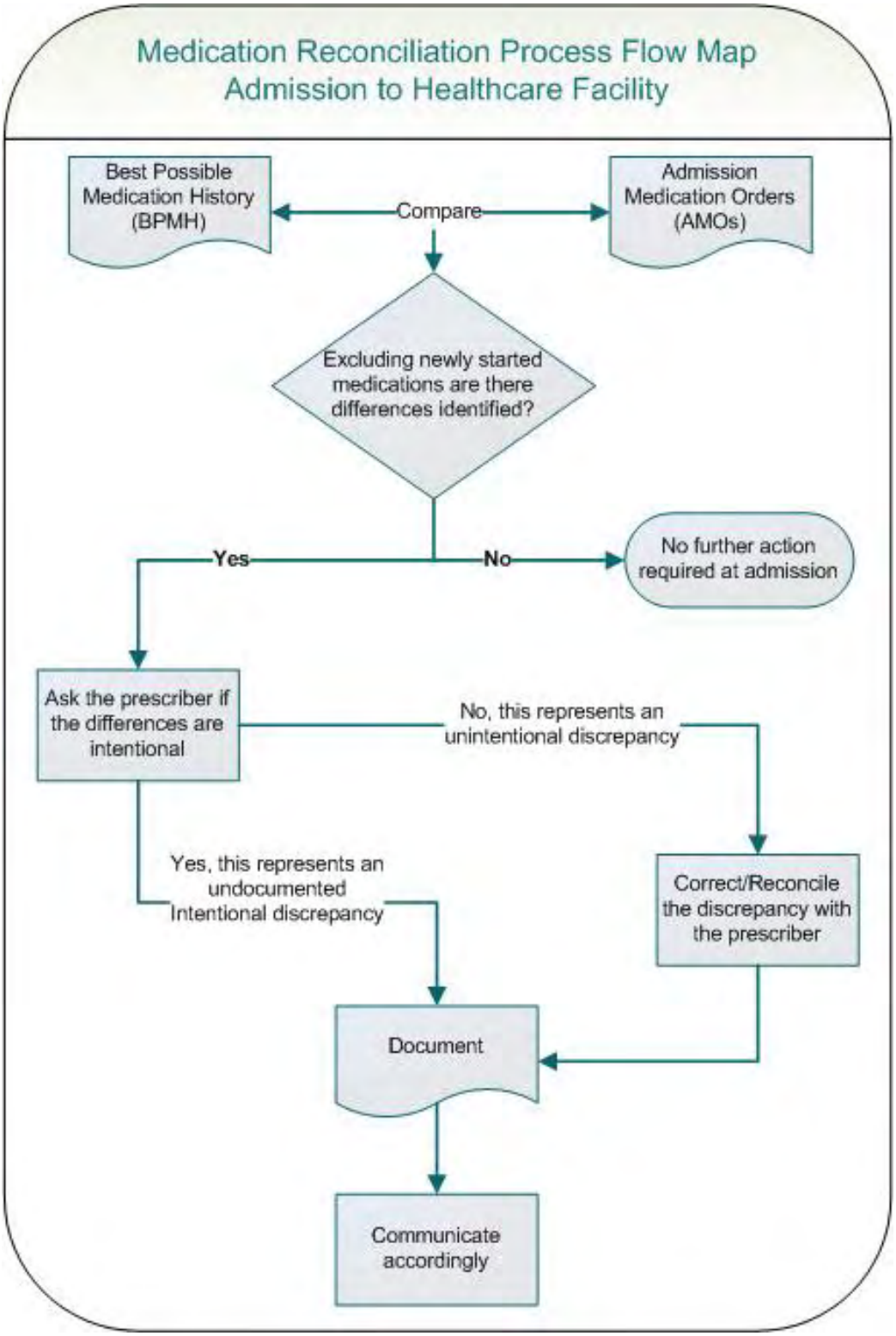
Improving the Primary Medication History

If a 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 patient and their families in the process.

Proactive versus Retroactive or a Combination of Both?

- The proactive process is well-suited for small institutions where there are fewer admissions and for areas with planned admissions like the pre-admission clinic with highly skilled and trained clinicians dedicated to obtaining the BPMH.
- The retroactive process is suited to sites with high admission volumes that have difficulty obtaining a BPMH before admission orders are written. Reconciliation of the AMOs to the BPMH is necessary to identify and resolve any discrepancies.
- Larger institutions may have difficulty implementing a fully proactive model due to high admission volumes. A hybrid of both proactive and retroactive models may be needed to capture 'all' admissions.

"If you don't have a good admissions process, you can't have a good care process or a good discharge. Everything is based on admission data. We'd like to see pharmacists on that intake interview. They are the drug experts, after all."[18]


Medication Reconciliation Process Flow Map
Admission to Healthcare Facility
Best Possible Medication History (BPMH)
Compare
Admission Medication Orders (AMOs)
Excluding newly started medications are there differences identified?
Yes
No
No further action required at admission
Ask the prescriber if the differences are intentional
No, this represents an unintentional discrepancy
Yes, this represents an undocumented Intentional discrepancy
Correct/Reconcile the discrepancy with the prescriber
Document
Communicate accordingly

SAMPLE TOOLS for Admission Medication Reconciliation

SASKATOON HEALTH REGION
Saskatoon, Saskatchewan

Facility: _____

PREADMISSION MEDICATION LIST
PHYSICIAN ORDER FORM
Keep this form with the Physician Orders

Allergy / Intolerance to Medication & Food
(NO MEDICATIONS TO BE ADMINISTERED UNTIL THIS SECTION COMPLETED)
❑ No Known Allergies
❑ Unable to obtain (Pharmacy to flag on MAR)
❑ Allergies as follows (describe reaction):

Weight:
_____ kg, _____lbs
❑ Estimate, ❑ Actual

Height:
____ cm, ____ inches
❑ Estimate, ❑ Actual

❑ **Check here** if this is an addendum to or revision of previously completed medication list.

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

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

Medication Name (list only those medications currently being taken)	Dose	Interval	Route	Time / Date of Last Dose	Physician Orders for Individual Medications on Admission: Continue	Stop	Comments / Change to (specify):
❑ No Preadmission Medications							

Initial: _____ Processed, _____ Faxed, _____ MAR
Please cross out blank lines after processing to prevent additions.

❑ continued on page 2
Comments / Concerns / Follow-up:

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

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

Prescribing Physician:

_____ **(print)**

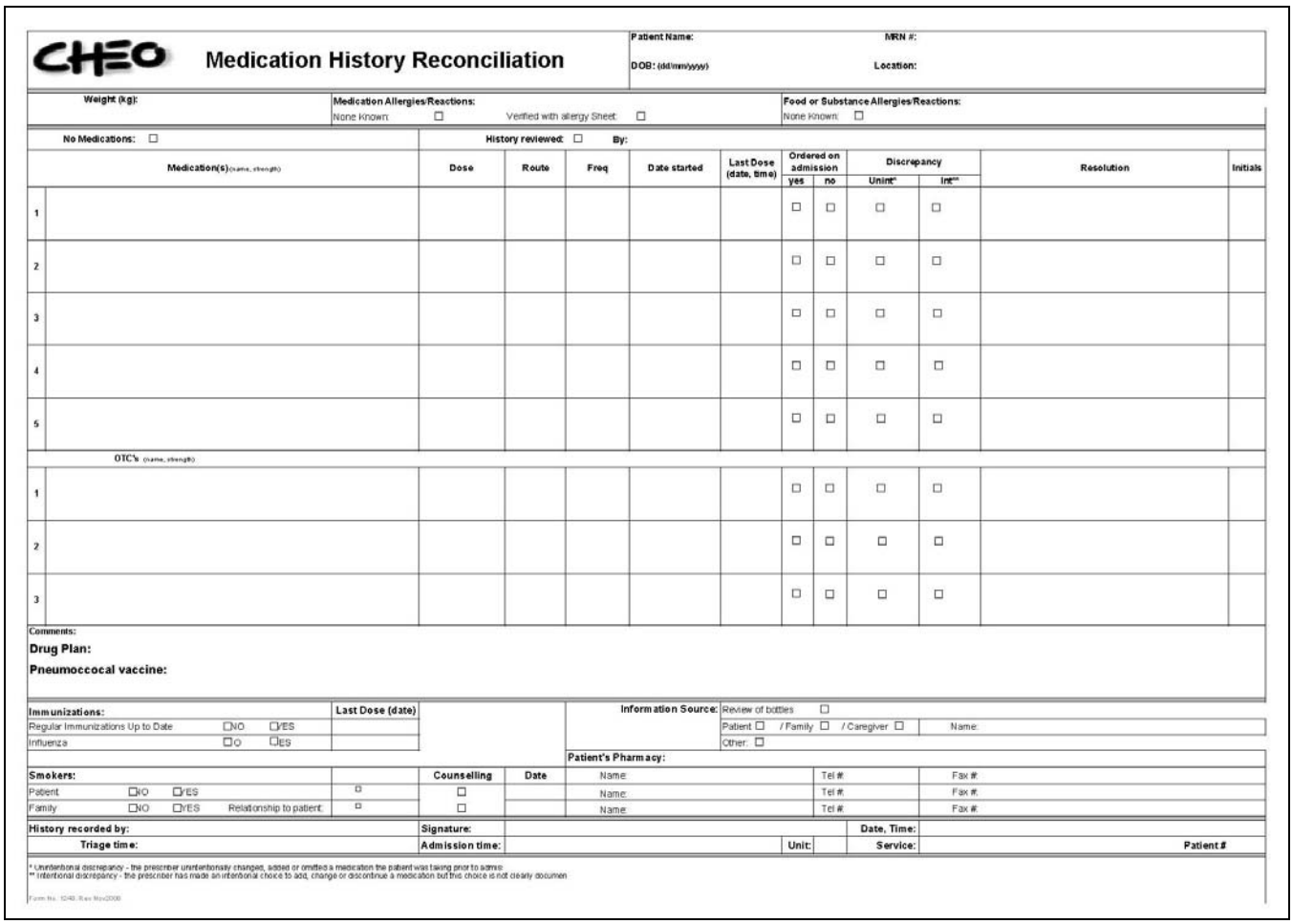
_____ **(signature)**

Date: _____ **Time:** _____

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

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

Used with Permission



CHEO **Medication History Reconciliation**

Patient Name: MRN #:
DOB: (dd/mm/yyyy) Location:

Weight (kg):
Medication Allergies/Reactions: None Known ☐ Verified with allergy Sheet ☐
Food or Substance Allergies/Reactions: None Known ☐

No Medications: ☐ History reviewed: ☐ By:

	Medication(s) (name, strength)	Dose	Route	Freq	Date started	Last Dose (date, time)	Ordered on admission yes	Ordered on admission no	Discrepancy Unint*	Discrepancy Int**	Resolution	Initials
1							☐	☐	☐	☐		
2							☐	☐	☐	☐		
3							☐	☐	☐	☐		
4							☐	☐	☐	☐		
5							☐	☐	☐	☐		
	OTC's (name, strength)											
1							☐	☐	☐	☐		
2							☐	☐	☐	☐		
3							☐	☐	☐	☐		

Comments:
Drug Plan:
Pneumococcal vaccine:

Immunizations:			Last Dose (date)
Regular Immunizations Up to Date	☐NO	☐YES	
Influenza	☐O	☐ES	

Information Source: Review of bottles ☐
Patient ☐ / Family ☐ / Caregiver ☐ Name:
Other: ☐

Patient's Pharmacy:

Smokers:				Counselling	Date			
Patient	☐NO	☐YES		☐		Name:	Tel #:	Fax #:
Family	☐NO	☐YES	Relationship to patient:	☐		Name:	Tel #:	Fax #:
						Name:	Tel #:	Fax #:

History recorded by: Signature: Date, Time:
Triage time: Admission time: Unit: Service: Patient #

* Unintentional discrepancy - the prescriber unintentionally changed, added or omitted a medication the patient was taking prior to admis
** Intentional discrepancy - the prescriber has made an intentional choice to add, change or discontinue a medication but this choice is not clearly documen

Form No. 1240, Rev Nov2008

Used with permission

Additional examples of admission Medication Reconciliation forms are available on the SHN! Medication Reconciliation Community of Practice.

Instructions on how to create forms are available from the Massachusetts Coalition.
http://www.macoalition.org/Initiatives/RMToolkit.shtml

Medication Reconciliation at Internal Transfer

Transfer is an interface of care where orders need to be reviewed and rewritten according to facility policy. This may include:

- Changes in responsible medical service
- Changes in level of care
- Post-operatively, and/or
- Transfers between units

Internal transfer is usually associated with a change in patient status – for example, transfer from a ward to ICU signifies deterioration whereas transfer from an ICU to a ward is usually associated with improvement or stabilization. Patients are particularly vulnerable to medication errors during transfers in care often as a result of poor communication between care teams.

A small study evaluating medication errors at the time of transfer from a surgical intensive care unit (ICU) to a ward revealed that 94% of patients needed to have their transfer orders changed as a result of medication errors.[19] Another study assessing the utility of a medication reconciliation tool for patients being transferred out of an ICU demonstrated that 21% of patients required at least one change in their transfer medication orders as a result of an error detected through use of the tool.[20]

A Canadian study evaluated unintentional discontinuation of chronic medications in patients transferred from an ICU to a ward and then discharged home.[21] It was determined that, as a result of failure to review chronic medications upon transfer from ICU, 33% of patients ultimately had one or more of their chronic medications omitted at discharge from hospital. This study underscores the importance of appropriate review of pre-admission medication lists (BPMH) upon transfer out of the ICU and the need for better communication strategies at transitions of care.

The optimal procedure and personnel involved in medication reconciliation for internal hospital transfers will vary in different institutions. However, it is important to have a policy that designates who is responsible for completing the reconciliation and when it should occur.

Reconciliation at transfer usually involves the use of a standardized paper or computerized form and the choice will depend on the available systems within the hospital. Many hospitals, either through the pharmacy computer system or computerized physician order entry (CPOE) system, have the capability to electronically generate a current medication list at the time of transfer that allows the prescriber to select the medications that should continue at the next level of care. However, these systems do not generally have a mechanism for addressing pre-hospital medications, especially on transfer from an ICU to a ward, and a separate process may be needed to ensure that this type of reconciliation occurs.

There is limited published information evaluating tools for medication reconciliation for internal hospital transfers. The existing studies[22] looked at patients being transferred from an ICU to a ward and involved ICU nurses in completing a standardized medication reconciliation form that addressed the following crucial issues:

- Have pre-hospital orders been reconciled to transfer orders?
- Have ICU orders been reconciled to transfer orders?
- Have all discrepancies been resolved prior to transfer?
- Are allergies correctly listed on transfer orders?

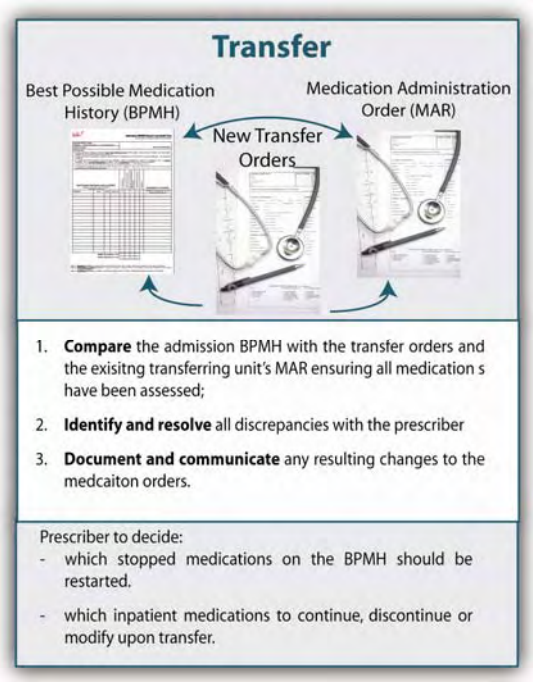
Transfer

The goal of transfer medication reconciliation is to consider not only the transferring unit but also any medications they were to continue, restart, discontinue or modify.

Internal transfer is an interface of care associated with a change in patient status where it is required for medication orders to be re-written. The process may be paper-based or electronic and should require a sign-off to indicate that the process has occurred. It is important to have a policy that designates who is responsible for completing the reconciliation (receiving or transferring unit) and when it should occur.

Internal transfer medication reconciliation involves assessing and accounting for:

- ❖ medications the patient was taking prior to admission (BPMH);
- ❖ medications from the transferring unit (medication administration record (MAR); and
- ❖ new post-transfer medication orders.

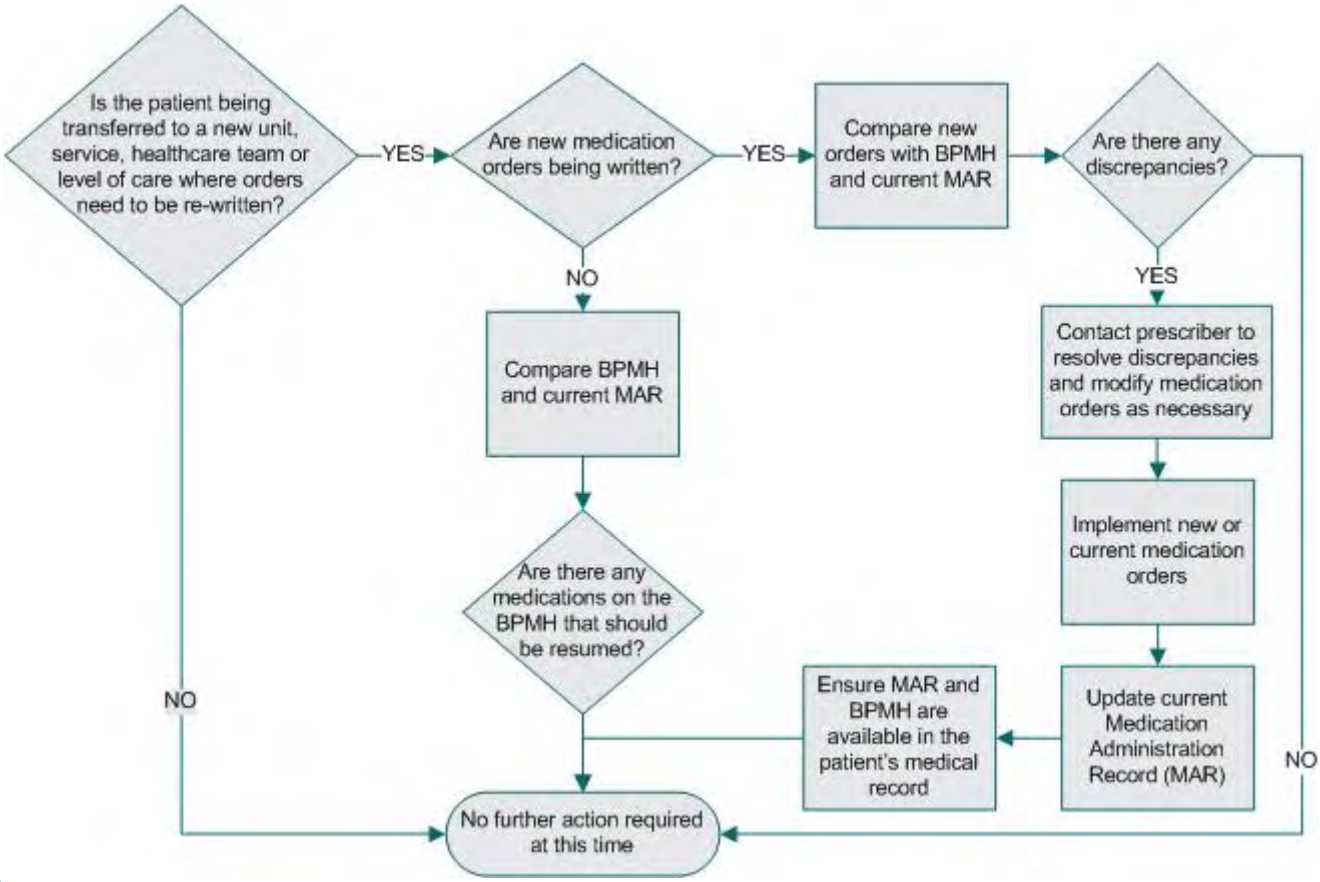


Medication Reconciliation at Internal Transfer

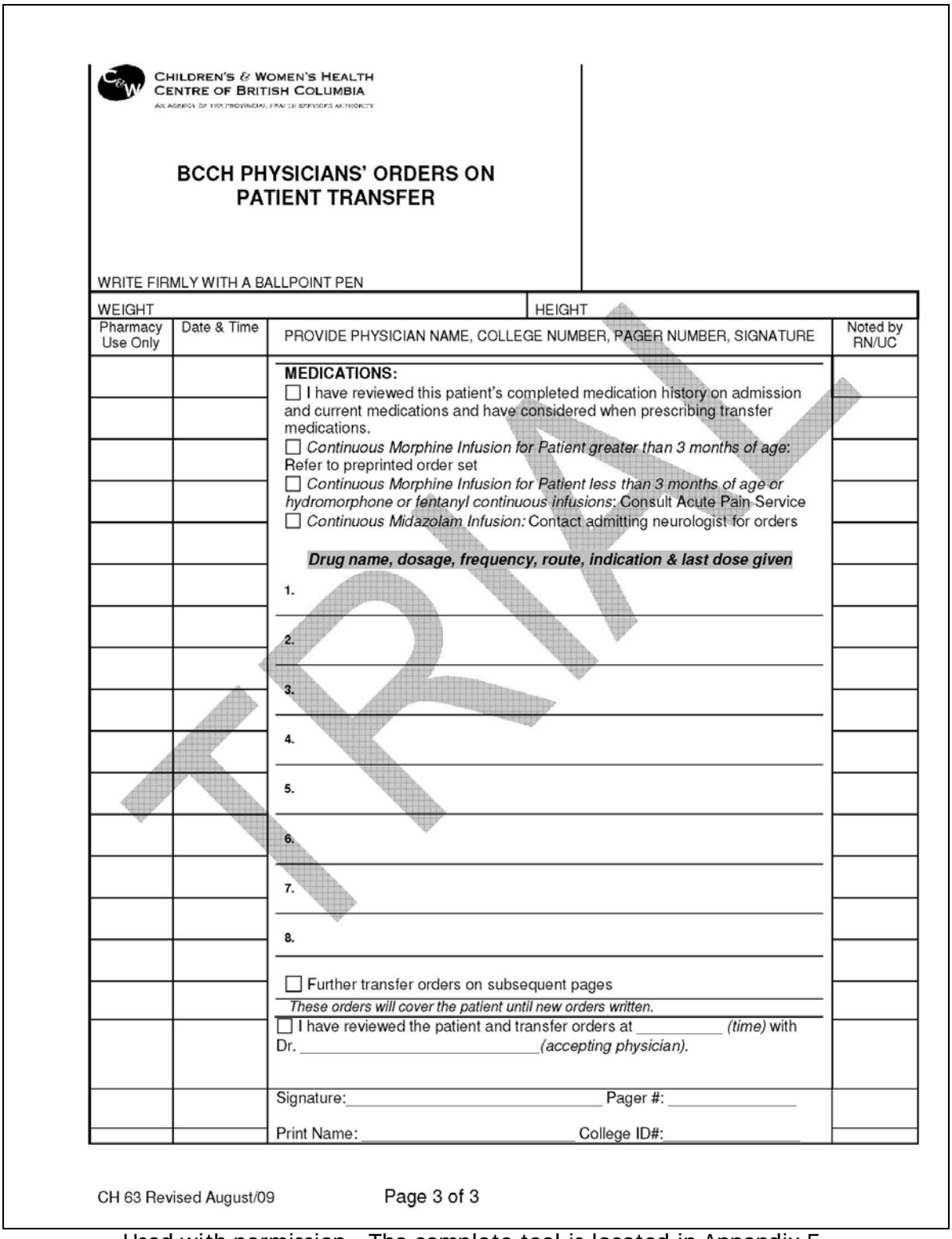
1. **Compare** the admission BPMH with the transfer orders and the existing transferring unit's MAR ensuring all medications have been assessed;
2. **Identify and resolve** all discrepancies with the prescriber;
3. **Document and communicate** any resulting changes to the medication orders.

Medication reconciliation at transfer usually involves the use of a standardized paper or computerized form and the choice will depend on the available systems within the hospital. Many hospitals, either through the pharmacy computer system or computerized physician order entry (CPOE) system, have the capability to electronically generate a current medication list at the time of transfer that allows the prescriber to select the medications that should continue at the next level of care. However, these systems do not generally have a mechanism for addressing pre-hospital medications, especially on transfer from an ICU to a ward, and a separate process may be needed to ensure that this type of reconciliation occurs.

Process of Medication Reconciliation at Transfer



SAMPLE TOOLS for Transfer Medication Reconciliation



CHILDREN'S & WOMEN'S HEALTH CENTRE OF BRITISH COLUMBIA

AN AGENCY OF THE PROVINCIAL HEALTH SERVICES AUTHORITY

BCCH PHYSICIANS' ORDERS ON PATIENT TRANSFER

WRITE FIRMLY WITH A BALLPOINT PEN

WEIGHT		HEIGHT	
Pharmacy Use Only	Date & Time	PROVIDE PHYSICIAN NAME, COLLEGE NUMBER, PAGER NUMBER, SIGNATURE	Noted by RN/UC

MEDICATIONS:

☐ I have reviewed this patient's completed medication history on admission and current medications and have considered when prescribing transfer medications.

☐ *Continuous Morphine Infusion for Patient greater than 3 months of age*: Refer to preprinted order set

☐ *Continuous Morphine Infusion for Patient less than 3 months of age or hydromorphone or fentanyl continuous infusions*: Consult Acute Pain Service

☐ *Continuous Midazolam Infusion:* Contact admitting neurologist for orders

Drug name, dosage, frequency, route, indication & last dose given

1.

2.

3.

4.

5.

6.

7.

8.

☐ Further transfer orders on subsequent pages

These orders will cover the patient until new orders written.

☐ I have reviewed the patient and transfer orders at _____ *(time)* with Dr. _____ *(accepting physician).*

Signature:_____ Pager #: _____

Print Name:_____ College ID#:_____

TRIAL

CH 63 Revised August/09 Page 3 of 3

Used with permission. The complete tool is located in Appendix E.

Example of a pharmacy-system generated transfer tool

RUN DATE: 23/01/06
RUN TIME: 1241
RUN USER: RIZE

** LIVE NPR PHARMACY **
MEDICATION TRANSFER ORDERS

PAGE -1

UNIT #: PATIENT: LOCATION:
ACCT #: DOCTOR: ROOM/BED:

DRUG ALLERGIES: NO KNOWN DRUG ALLERGY.

MEDICATION	STRENGTH	ROUTE	DOSE	SIG	CONTINUE YES	CONTINUE NO	COMMENT
ACETAMINOPHEN	500 MG	PO	500-1000 MG	Q4HPRN			
BISACODYL	10 MG	RECTAL	10 MG	DAILYPRN			
CHLORAL HYDRATE	500 MG/5 M	PO	500 MG	QHSPRN			
CIPROFLOXACIN	500 MG	PO	500 MG	BID@1000,2200			
DIGOXIN	0.125 MG	PO	0.125 MG	DAILY			
FERROUS GLUCONATE	300 MG	PO	300 MG	TIDCC			
FLUCONAZOLE	50 MG	PO	50 MG	DAILY			
FUROSEMIDE	40 MG	PO	40 MG	DAILY			
GLICLAZIDE	80 MG	PO	80 MG	BIDCC			
METFORMIN	500 MG	PO	500 MG	TIDCC			
METOPROLOL	50 MG	PO	50 MG	BID			
METRONIDAZOLE	250 MG	PO	500 MG	BIDCC			
NITROGLYCERIN	75 *	BUC	0.4 MG/SPRAY	PRN			
RAMIPRIL	2.5 MG	PO	2.5 MG	DAILY			
RANITIDINE	150 MG	PO	150 MG	BID			

Date Review Due: 26/01/06

PLEASE NOTE:
* Nurse should review prn medication use and note any nonuse in the Comment column prior to the transfer
* Medications will be DISCONTINUED if checked in the 'NO' column OR if neither column is checked.
* Each medication must be assessed individually.

PHYSICIAN's SIGNATURE: _____ Date: _____ Time:
UNIT SECRETARY: _____ Date: _____ Time:
NURSE's SIGNATURE: _____ Date: _____ Time:

** Send a Copy to Pharmacy **

Used with permission

Additional Medication Reconciliation transfer forms are available on the SHN Medication Reconciliation Community of Practice.

Medication Reconciliation at Discharge

Hospital discharge is a critical interface of care where patients are at a high risk of medication discrepancies as they transition out of the hospital. Forster et al highlighted the patient risk at this interface in a prospective study revealing that 23% of patients discharged from a Canadian teaching hospital experienced an adverse event, of which 72% were drug related[23].

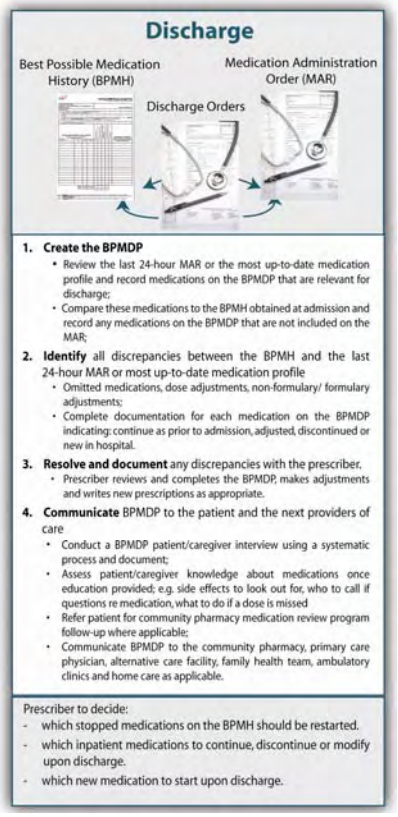
The goal of discharge medication reconciliation is to reconcile the medications the patient is taking prior to admission (BPMH) and those initiated in hospital, with the medications they should be taking post-discharge to ensure all changes are intentional and that discrepancies are resolved prior to discharge. This should result in avoidance of therapeutic duplications, omissions, unnecessary medications and confusion.

Discharge medication reconciliation clarifies the medications the patient should be taking post-discharge by reviewing:

- Medications the patient was taking prior to admission (BPMH)
- Most current MAR (medication administration record) or medication profile
- New medications planned to start upon discharge

A multidisciplinary, integrated medication reconciliation strategy will reduce medication discrepancies at hospital discharge. This strategy should include tools to support the clinician and patient with discharge reconciliation and should integrate and clarify medication information from all sources. A discharge medication reconciliation form may be developed similar to the admission medication reconciliation form. The result of discharge reconciliation should be clear and comprehensive information for the patient and other care providers – the Best Possible Medication Discharge Plan (BPMDP). These tools may be electronically produced or paper-based.

Discharge



The goal of discharge medication reconciliation is to reconcile the medications the patient is taking prior to admission (BPMH) and those initiated in hospital, with the medications they should be taking post-discharge to ensure all changes are intentional and that discrepancies are resolved prior to discharge. This should result in avoidance of therapeutic duplications, omissions, unnecessary medications and confusion.

Discharge medication reconciliation clarifies the medications the patient should be taking post-discharge by reviewing:

- Medications the patient was taking prior to admission (BPMH)
- Previous 24-hour MAR (medication administration record) or most up-to-date medication profile
- New medications planned to start upon discharge
- Using the Best Possible Medication History (BPMH) and the last 24-hour medication administration record (MAR) or most up-to-date medication profile as references, create the **Best Possible Medication Discharge Plan (BPMDP)** by evaluating and accounting for:
  - New medications started in hospital
  - Discontinued medications (from BPMH)
  - Adjusted medications (from BPMH)
  - Unchanged medications that are to be continued (from BPMH)
  - Medications held in hospital
  - Non-formulary/formulary adjustments made in hospital
  - New medications started upon discharge
  - Additional comments as appropriate - e.g., status of herbals or medications to be taken at the patient's discretion

The **Best Possible Medication Discharge Plan (BPMDP)** 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
- A structured discharge prescription to the next care provider or community pharmacist
- A patient information grid and/or wallet card.

The Best Possible Medication Discharge Plan (BPMDP) should be communicated using a systematic process to the:

- Patient/caregiver
- Community physician
- Community pharmacy
- Long term care provider
- Home Care provider
- Alternative care facility or service

Each time a patient moves from one healthcare facility to another or to home, providers should review with the patient/caregiver all previous medication lists alongside the list of medication prescribed at discharge and reconcile the differences. This process should take place both prior to leaving the hospital and again promptly after transition to the new setting of care.

Medication Reconciliation at Discharge

1. **Create the BPMDP**
   - Review the last 24-hour MAR prior to discharge and record medications on the BPMDP that are relevant for discharge;
   - Compare these medications to the BPMH obtained at admission and record any medications on the BPMDP that are not included on the MAR;

2. **Identify** all discrepancies between the BPMH and the last 24-hour MAR or medication profile
   - Omitted medications, dose adjustments, non-formulary/formulary adjustments;
   - Complete documentation for each medication on the BPMDP indicating: continue as prior to admission, adjusted, discontinued or new in hospital.

3. **Resolve and document** any discrepancies with the prescriber.
   - Prescriber reviews and completes the BPMDP, makes adjustments and writes new prescriptions as appropriate.

4. **Communicate** BPMDP to the patient and the next providers of care
   - Conduct a BPMDP patient/caregiver interview using a systematic process and document;
   - Assess patient/caregiver knowledge about medications once education provided; e.g. side effects to look out for, who to call if questions re medication, what to do if a dose is missed
   - Refer patient for community pharmacy medication review program follow-up where applicable;
   - Communicate BPMDP to the community pharmacy, primary care physician, alternative care facility, family health team, ambulatory clinics and home care as applicable.

Note: Unless specified, each institution and/or individual unit should determine who is primarily responsible for completing each step based on available resources (e.g., RPh, RN, MD)

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

SAMPLE TOOLS for Discharge Medication Reconciliation

Capital Health

Departments of Pharmacy, Nursing and Medicine

Medication Reconciliation and Discharge Prescription

Patient: _____ Site: _____ Unit _____

☐ **No Known Drug Allergies** ☐ **Allergies as follows** (please describe reaction)	Confidential Facsimile transmission to: Intended Pharmacy: _____ Pharmacy fax #: _____ Date: _____ Time: _____ ** **If faxing, please see box on reverse for instructions****

List of Discharge Medication All medications to be taken on discharge (Use current MAR to create list)	**Reconciliation** Compare List of Discharge Meds to BPMH and check appropriate column				***Prescriptions***		
Medication Name / Dose / Route / Frequency	Unchanged	Changed	New	Rationale for drug addition / change	Quantity	Repeats	MSI Special Auth Code

Page _____ of _____ ☐ **Medication Calendar Provided**

Discontinued Medications	**Rationale for Discontinuation**

☐ Other non-prescription drugs and NHP D/C on admission. Pt may resume in consultation with community care provider(s) on D/C.

Prescriber Certification for Faxed Prescriptions: This prescription represents the original of the prescription drug order. The pharmacy addressee noted above is the only intended recipient and there are no others. The original prescription has been invalidated by marking it in such a way that it cannot be reissued.

Authorized Prescriber: _____ Date (yyyy/mm/dd): _____

Prescriber name: _____ CPSNS #: _____ Pager #: _____

Medication Reconcilation Orders First copy - Patient/Home Pharmacy Second copy - Chart Third copy - Family Physician

CD1910MR_07_09 Page 1 of 1

Used with permission

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 with permission in writing from ISMP Canada.

ismp CANADA

Best Possible Medication Discharge Plan (BPMDP)

Discharge Date: _____

Allergies: _____

Primary Diagnosis: _____

Community Pharmacy: _____ Phone Number: _____

Patient Addressograph

To be completed by RPh , RN or MD Name: _____ Date _____								To be completed by MD			
Current Medications	**Dose**	**Route and Directions**	Source (BPMH / MAR)	Same as prior to admission	Adjusted in hospital	Discontinued in hospital	New in hospital	Do Not Continue	Quantity	Repeats	Comments / Codes
New Discharge Medications											

BPMDP Patient Interview Completed: ❑

Refer for *community medication review program* if available: ❑

Physician (print name): _____ Physician's Signature: _____

Date: _____ CPSO Number: _____

Page ___ of ___

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

The *Best Possible Medication Discharge Plan (BPMDP) Patient Interview Guide* is available on the ISMP Canada website and can be adapted for use within your organization with permission in writing from ISMP Canada.

Best Possible Medication Discharge Plan (BPMDP) Patient Interview Guide

Ensure these topics are addressed when conducting education to patients regarding discharge.

Identify medications:

1. **Changed** while the patient has been in hospital *(e.g., formulary adjustments, auto-substitutions, dose/frequency changes, etc.)*
2. **No longer required** on discharge. *(Including medications started in hospital and those the patient was taking prior to admission).*
3. **To be continued** on discharge. *(Including medications started in hospital and those the patient was taking prior to admission).*
4. **New** medications the patient is to take on discharge.

Confirm patient's understanding of:

1. **Purpose** for each medication *(e.g., Can you explain to me the reason why you are taking each of your medications?).*
2. **Possible side effects and when it is necessary to seek medical attention** for each medication *(e.g., Can you explain to me the possible side effects of each of your medications (or just new medications) and what to do if these occur?).*
3. **Intended duration of therapy** for each new medication *(e.g., How long will you be on each medication?).*

Provide patient with:

1. **Medication calendar**, summarizing name of medication, purpose, dose, frequency, when best to take medications, duration of therapy and any additional comments which may be necessary.
2. **Follow up information** regarding appointments/laboratory tests that may be necessary concerning their medications.

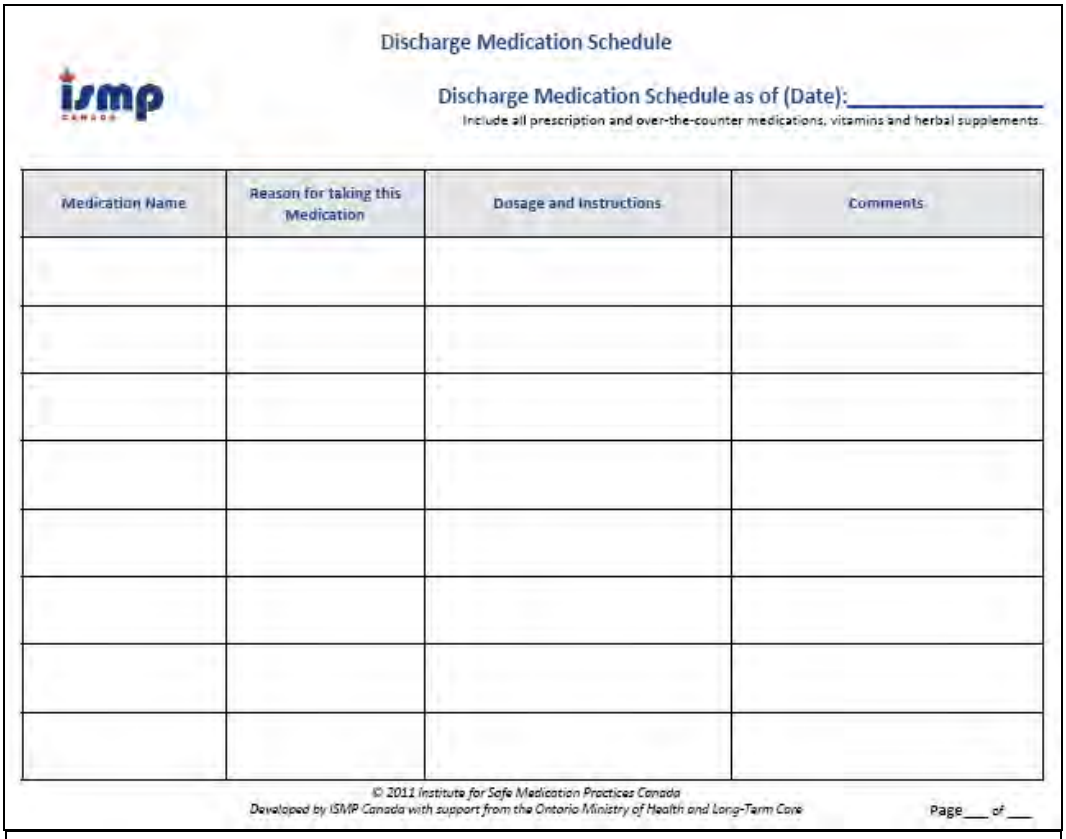
Ask the patient / caregiver to:

1. **Summarize** their discharge medication instructions *(to assess their understanding of information presented to them).*

Encourage patient / caregiver to:

1. **Bring this medication list** with them to every healthcare appointment, physician / specialist, ER visit, clinic appointment and to their community pharmacy.
2. **Keep their medication list up to date**.
3. **Carry their medication list** with them at all times.
4. **Use one community pharmacy** to process all prescriptions.

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.



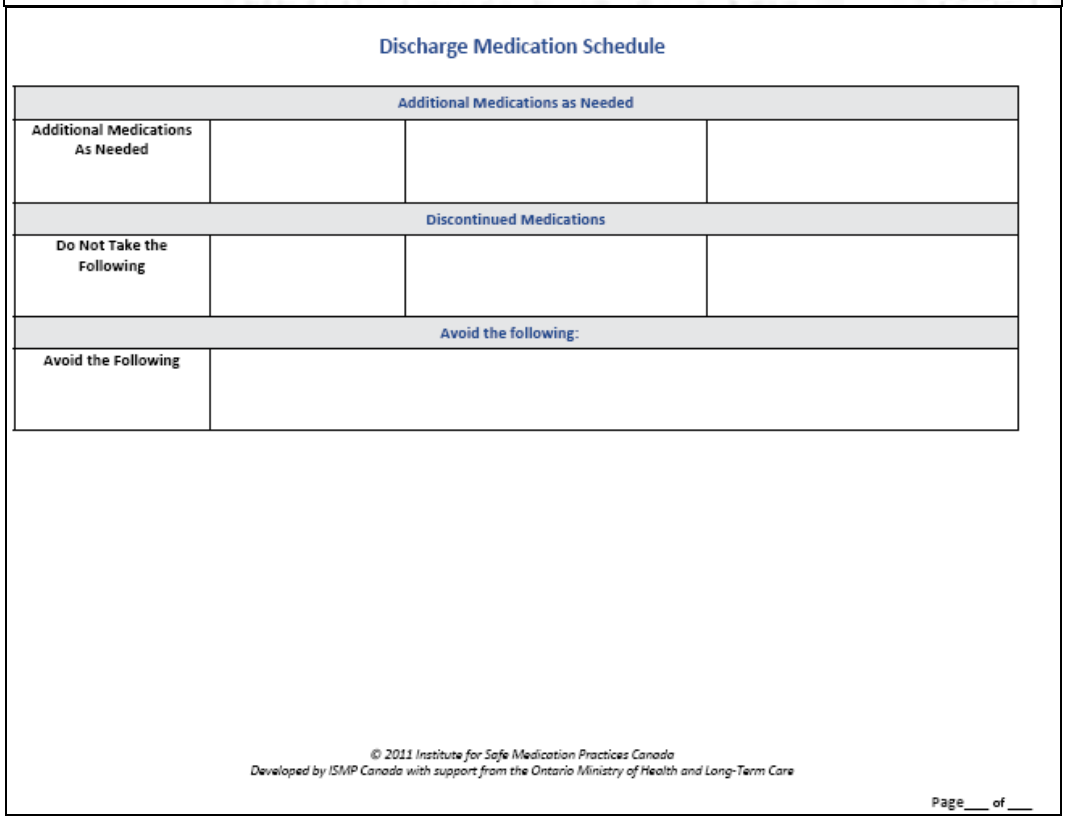
Discharge Medication Schedule

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

Page___ of ___

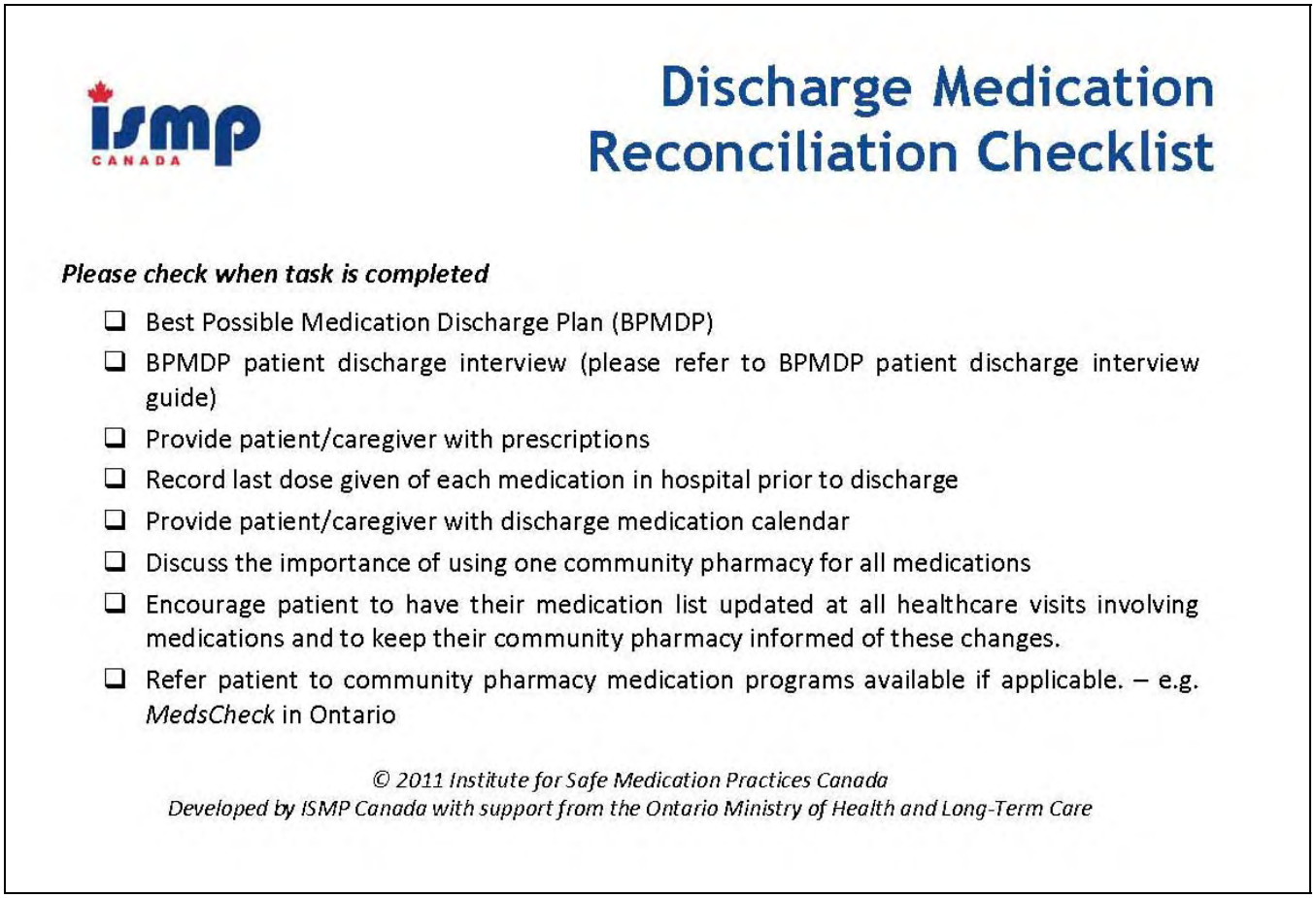


Discharge Medication Schedule

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

Page___ of ___

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



ismp CANADA

Discharge Medication Reconciliation Checklist

Please check when task is completed

- ❑ Best Possible Medication Discharge Plan (BPMDP)
- ❑ BPMDP patient discharge interview (please refer to BPMDP patient discharge interview guide)
- ❑ Provide patient/caregiver with prescriptions
- ❑ Record last dose given of each medication in hospital prior to discharge
- ❑ Provide patient/caregiver with discharge medication calendar
- ❑ Discuss the importance of using one community pharmacy for all medications
- ❑ Encourage patient to have their medication list updated at all healthcare visits involving medications and to keep their community pharmacy informed of these changes.
- ❑ Refer patient to community pharmacy medication programs available if applicable. – e.g. *MedsCheck* in Ontario

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

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

Patient wallet card

A Portable list of medications for the patient and for communication to health care 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 Patient and Family

Communicates the entire adjusted medication regimen intended for the patient post discharge.

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

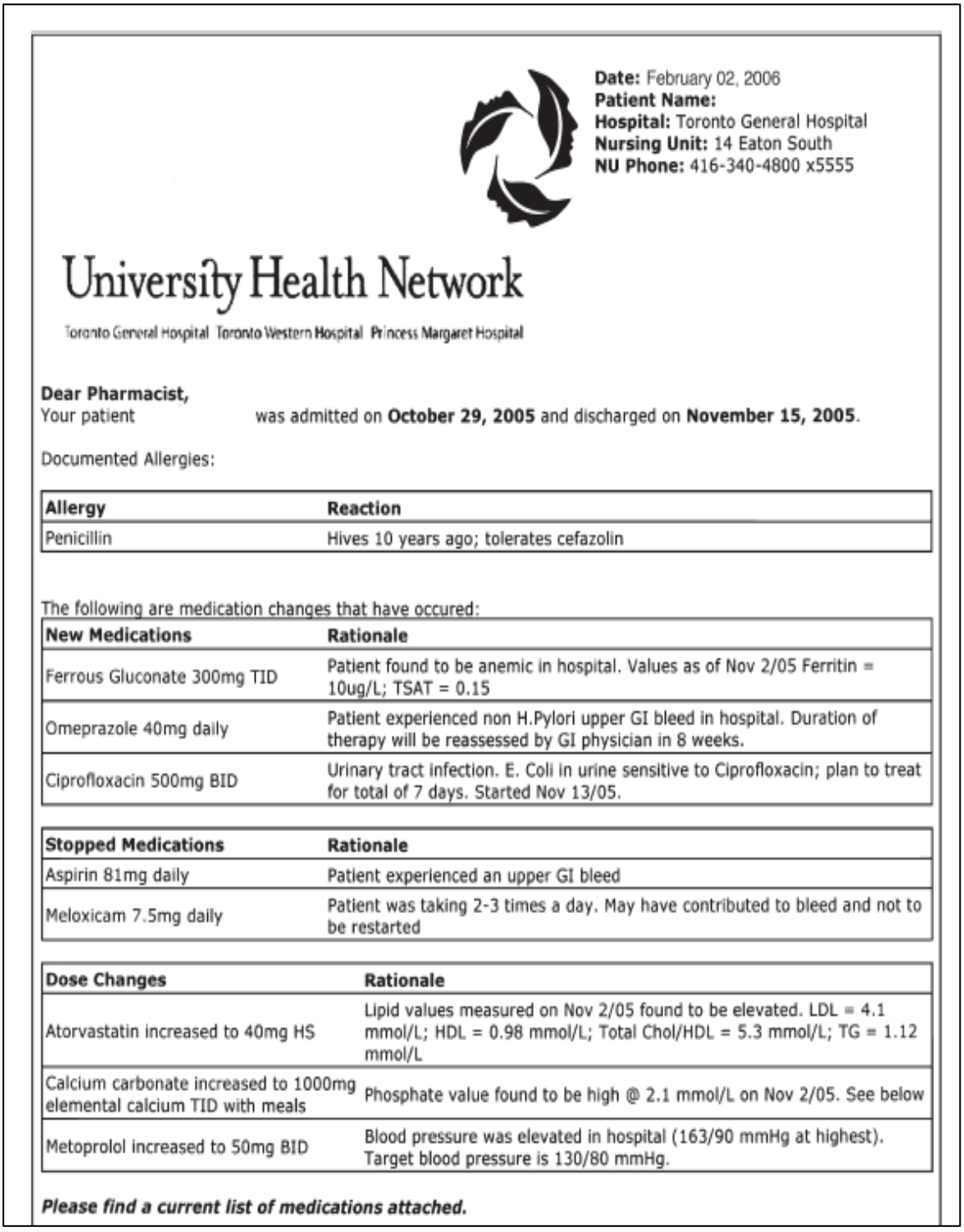
* If discrepancies occur between this list and your prescriptions, please follow the instructions on your medication vials unless your physician has indicated otherwise *

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

Used with permission

Medication information discharge letter

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 patient 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.

Used with permission

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

Additional forms created by Canadian SHN teams are located on the SHN Medication Reconciliation Community of Practice.

Implementing the SHN Medication Reconciliation Intervention

The following outlines the key steps for getting started on implementation of Medication Reconciliation.

1. **Secure Senior Leadership Commitment**
2. **Form a Team**
3. **Define the Problem**
   - Set Aims (Goals and Objectives)
   - Collect Baseline Data
   - Submit Baseline Data
4. **Start with Small Projects and Build Expertise in Reconciling Medications**
   - Map the current process
5. **Evaluate Improvements Being Made – Collect and Submit Data**
6. **Spread**

Safer Healthcare Now! recommends using the Model for Improvement when implementing Medication Reconciliation in your organization. See Appendix B: The Model for Improvement

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.

2. Form a Team

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 coordinate implementation of medication reconciliation and a smaller team at the patient care unit level to conduct tests of change on that unit.

Teamwork is an integral part of the medication reconciliation process. Medication reconciliation is not owned by one discipline. Clinical champions can contribute significantly to successful implementation.

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 patient safety (e.g. Patient Safety Officer, representatives from Quality Improvement/Risk Management, Patient Representatives, Pharmacy and Therapeutics committee)
- Patient and/or family member

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

Patient involvement, including patient interviews, is critical to the medication reconciliation process. The patient is the only constant participant across the system and is critical to the success of this major system change.

3. Define the Problem and Collect Baseline Data

Set Aims (Goals & Objectives)
Setting an aim can assist teams to focus on what they are hoping to achieve when implementing medication reconciliation. The aim should be time-specific, measurable and define the specific population of patients who will be affected.

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

Reduce the mean number of unintentional discrepancies at admission on the pilot unit by 75% within the next three months.

Collecting and Submitting Baseline Data: See Measuring Performance and Improvement

4. Start with Small Tests of Change & Build Expertise in Reconciling Medications

- Initially implement a medication reconciliation process on a smaller scale with select groups of patients, 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.
- Consider starting on the unit where you collected your baseline data and involve staff in the initiative from the planning stage forward.

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

- Although medication reconciliation can occur at any of the transition points in care (e.g., admission, transfer, discharge), we suggest that you **start at the admission process**. If medication reconciliation is not done right at admission, you could be continuing your process using inaccurate information. As patients may be admitted to the hospital from a number of points, select one area (e.g. pre-operative screening or the emergency department).
- **Map the current process**. Use a simple process flow diagram to outline the current process in place. Note: keep this process simple, but make sure all to include all those involved in the process as its purpose is to identify the sequence of events and who is doing what.
- **Map the ideal process**. Involve all team members to develop a new ideal process that can be trialed and tested using a model for improvement.
- **Adapt and test a medication reconciliation form**. Specific sample forms are available in the chapters Admission, Transfer and Discharge. 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 prescriber'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.

Your **Medication Reconciliation Form is used to document/facilitate the process of medication reconciliation** and is specific to your organization.

The **Individual Medication Reconciliation Audit Tool is used to identify discrepanci**es and is completed for a specific sample of charts on a monthly basis to facilitate data collection to measure improvement

The **Measurement Worksheet is used to submit data** to *Safer Healthcare Now! Patient Safety Metrics system.*

5. Evaluate the Improvements Being Made – Collect and Submit Data

See *Measuring Performance and Improvement.*

6. Spread

As experience develops and measurement of the success of your medication reconciliation process reflects sustained improvement the process can be implemented for more patients 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. The IHI's "A Framework for 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. Some issues that need to be addressed 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.

The process owner's matrix in Appendix D will help you transition from project success to operations. The key to engaging front-line staff is to describe how each step in the process benefits patients.

Measuring Performance and Improvement

The SHN framework measures the success and quality of the medication reconciliation process using a consistent set of core measures. These measures will help evaluate the **improvement strategy**, identify any positive or negative effects on the organization and help to garner senior management support. The core measures also represent the minimum measures required to evaluate the success of medication reconciliation. However, healthcare facilities may add additional measures to evaluate improvement as they see fit. (see "Optional Measures" in Appendix A)

Data Measurement

At Baseline

It is critical to collect baseline data to get a sense of what some of the issues are, at each interface of care, in your facility. "Baseline data" reflects the types of discrepancies that exist prior to the implementation of the Medication Reconciliation process and will provide the information your team needs to build the case for medication reconciliation, and help to identify areas of focus.

Selecting a patient population

Each site should determine which patients will be included in baseline data collection. Use the following criteria to select the group of patients who will participate.

Begin where:

1. You think a problem exists. Talk to your colleagues. Review a few charts if needed. Do this planning ahead of time to avoid the situation where baseline data collection needs to be collected on another population because there is little evidence of a problem with the first group.
2. You think you can make a difference by implementing medication reconciliation.
3. There is sufficient volume for data collection. You can engage staff to participate. Work with those who are enthusiastic and willing.

Collecting and submitting the data

1. Randomly choose a patient who has had the "usual practice" of a primary medication history obtained (see Sampling Strategies in Appendix A.
2. Have a health care practitioner (trained in obtaining a BPMH) collect a BPMH.
3. Compare the AMOs with the BPMH to identify any discrepancies.
4. Clarify the discrepancies with the prescriber to determine which discrepancies were *undocumented intentional* and which were *unintentional.*
5. Record results for each discrepancy type (see Individual Medication Reconciliation Audit tool in Appendix A) and calculate the mean number of both the undocumented intentional discrepancies and the unintentional discrepancies for the sample.
6. Submit this data to the SHN Central Measurement Team

Who conducts baseline data measurement?

Measurement should be conducted by a person who is familiar with the medication reconciliation process and how to obtain the BPMH.

Stories about medication reconciliation "good catches" or medication reconciliation failures are powerful. Share your stories with front-line staff, physicians, nurse practitioners, senior management, hospital board and patients in your community to generate awareness and the need for medication reconciliation in your facility.

Medication reconciliation is intended to decrease medication errors however, unless we hear about them, we will not understand the complexity.

If you have experienced a medication reconciliation incident 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 patients to report medication reconciliation incidents to Safe Medication Use at: http://www.safemedicationuse.ca/report/

Post-Implementation

Once you have established your baseline data and demonstrated a need for a process change, you can then implement medication reconciliation. In order to determine if the implementation has been successful, you should continue to measure on an ongoing basis.

To ensure consistency we encourage all participants to report the three core medication reconciliation measures for **10-20 charts** to the SHN Central Measurement Team and their senior leadership monthly. Note: Larger organizations may choose to review more charts depending on patient volumes.

Core Measures

The core measures have been broken down into two types:

- **Outcome measures** which focus on quality of reconciliation. *Collection of the outcome measures below should only occur at admission to an acute care facility.*
- **Process measures** which allow teams to gage their capacity to reach as many eligible patients as possible.

Outcome measures

Outcome measures use a 'sample' of the patient population to verify the quality of the team's medication reconciliation process (accuracy and completeness) and are based on the principles of an independent double check process to identify *outstanding discrepancies not found by the team. It is important to distinguish between the medication reconciliation process and the measurement process.* See Appendix A for more information on random sampling techniques.

Mean Number of *Undocumented Intentional* Discrepancies per Patient (AC 1.0/ Type 2) – *at admission only*

The mean number of *undocumented intentional discrepancies* evaluates the communication and documentation of the prescriber for medications ordered or discontinued.

These discrepancies can lead to confusion and require extra work to resolve. The aim of effective reconciliation is to improve communication and reduce the number of undocumented intentional discrepancies to a minimum.

$$\text{Mean number of undocumented intentional discrepancies} = \frac{\text{Number of undocumented intentional discrepancies}}{\text{Number of patients reconciled}}$$

Goal: decrease rate of *undocumented intentional* discrepancies by 90% or more in one year from baseline.

In the interest of standardized measurement for *Safer Healthcare Now!* it is suggested that teams operate with the following guidelines.

1. Assess each medication for consistency of drug, dose, frequency, and route.

- These are counts of medications, not doses administered. For example, if there is a discrepancy with a medication is administered 5 times a day, this is counted as one discrepancy.
- If total daily dose does not change despite frequency or timing of administration change – it is not a discrepancy. For example, furosemide 20 mg bid changed to 40 mg daily (total daily dose administered at one time).
- If the route changes for clinical reasons it is not a discrepancy. For example, if furosemide po is switched to IV.

2. Teams should develop site specific criteria regarding how non-prescription and herbal medications will be addressed (i.e. to include or exclude them).

Mean Number of *Unintentional* Discrepancies per Patient (AC 2.0/ Type 3) – *at admission only*

This is a measure of medication errors of omission and commission and contradiction that if not resolved, can lead to actual adverse drug events. The aim of effective medication reconciliation is to reduce the number of unintentional discrepancies to a minimum.

$$\text{Mean number of unintentional discrepancies} = \frac{\text{Number of unintentional discrepancies}}{\text{Number of patients reconciled}}$$

Goal: An absolute 0.3 unintentional discrepancies per patient or a relative target of 75% improvement from team's baseline data.

Don't give up!! If measures do not reflect improvement, your team should investigate why (e.g. processes which are not working, non-compliance to these processes and/or barriers exist which prevent the process from working effectively etc.) *For more info see Appendix B – The Model for Improvement*

Process Measures

Percentage of patients reconciled at admission (AC 5.0)

The percentage of patients 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.

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

Goal: 75% of eligible patients reconciled at admission

Percentage of patients reconciled at discharge (AC 4.0)

The percentage of patients reconciled at discharge is a process measure to determine the degree to which medication reconciliation is performed, a patient receives a Best Possible Medication Discharge Plan and evaluates if the system is performing as planned.

$$\text{Percent of Patients recieving a BPMDP at Discharge} = \frac{\text{Number of patients in the sample for whom a BPMDP was created}}{\text{Number of patients in the sample}} \times 100$$

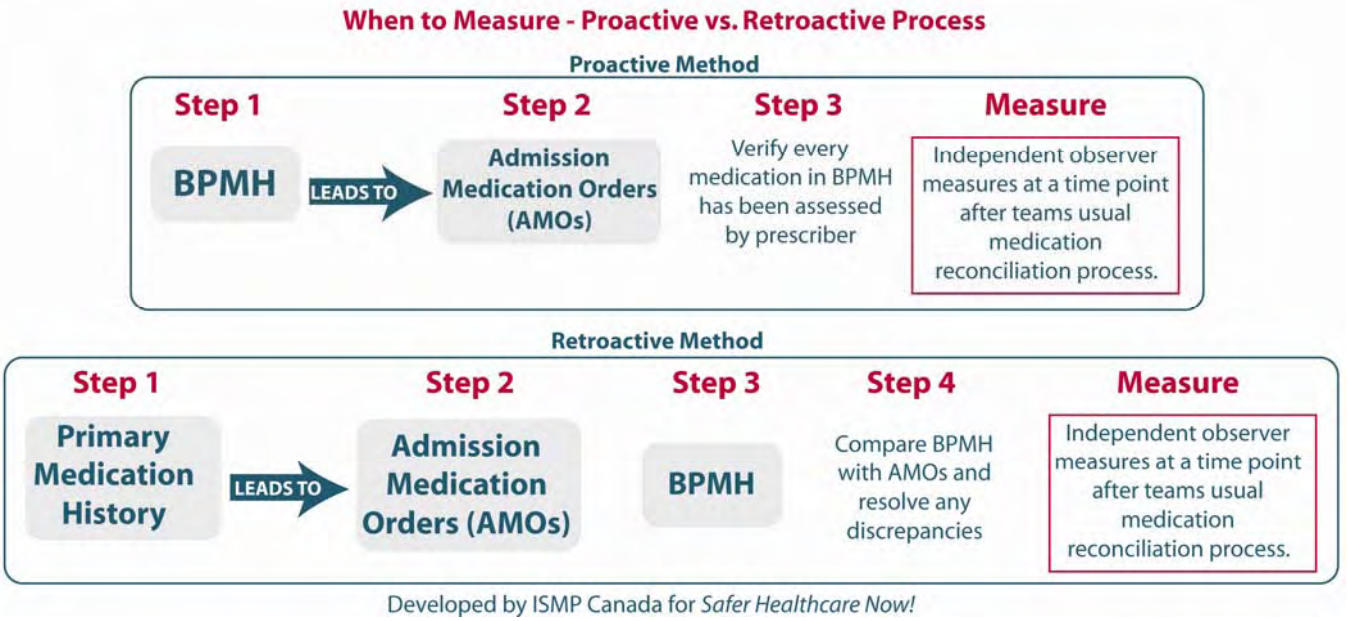
BPMDP = Best Possible Medication Discharge Plan

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

Celebrate success! Share your success stories and your measurement data with your team and across your institution. Encourage your colleagues to persevere, to know they are making a difference and MedRec is the right thing to do!

When should measurement occur?

It is important to underscore that measurement, for both the proactive and retroactive model, should occur soon **after** the usual medication reconciliation process has occurred. The concurrent method of data collection will be used. Concurrent audits identify patients "at hazard" 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.



Developed by ISMP Canada for *Safer Healthcare Now!*

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 do an independent double check of the BPMH and compare with at least 2 different reliable sources of information and the BPMH with the admission orders to identify outstanding discrepancies. The independent observer may be a nurse, pharmacist, nurse practitioner, physician or quality improvement staff member who is not responsible for routine operations in the clinical area under review. It is suggested to use an *independent observer* to collect measures. This observer will compare the existing BPMH to existing orders and any readily available sources of medication information and ensure all discrepancies have been identified, resolved or are in the process of being resolved (see Appendix A for more on Independent Observers).

How long should you continue to measure?

Process measures should be measured on an ongoing basis as it reflects the number of patients being reconciled. 'Percentage Reconciled' is consistent with the Accreditation Canada measurement.

Outcome measures should be measured monthly until data shows that the team's implemented process is working dependably. This is demonstrated when teams have **achieved and sustained a target goal** for mean number of unintentional discrepancies per patient. Thereafter, to continue to hold your gains, it is important to audit on a regular basis. For more information, see the SHN Data Submission Policy below.

Some SHN teams have identified that when independent observers complete audits post goal attainment that there is a re-occurrence of unintentional discrepancies. This is likely due to a re-immergence of poor quality processes (or negative deviance).

The SHN Data Submission Policy specifies the following requirements for organizations/teams enrolled:

1. Baseline data for at least one measure of each intervention for which the organization is enrolled is to be submitted within the first quarter following enrolment.
2. Early Implementation data (Working to Goal) for the measure for which baseline data had been submitted, is to be submitted within one quarter following the first month of baseline data submission.
3. If no data is received for one quarter between the Baseline and Early Implementation (Working to Goal) Phase the team will be designated as "Inactive".
4. During the Early Implementation (Working to Goal) Phase if data is not received once every quarter the team will be designated as "Inactive".
5. A team may re-activate at any time by submitting data.
6. A team that has reached its measurement goal (Full Implementation) and held its gains for 3 consecutive data points in 6 months (9 months for quarterly submitters) is considered to be "At Goal". Teams designated as "At Goal" must recertify annually by submitting 3 data points within a period of 2 quarters.

Teams submitting data using the SHN Patient Safety Metrics system can generate run charts and in 2012 will have the ability to create control charts (statistical process control).

Data Submission

On a national level, the central question is whether Canadian healthcare facilities are able to learn and implement the changes in practice that have been shown in other settings to reduce adverse events, morbidity and mortality.

Measurement is essential to monitoring success and helps guide your team towards your specific intervention goal. Measurement also tells us what's working and what's not, and provides evidence to inspire other healthcare providers to improve the quality of patient safety.

The management of data submitted to *Safer Healthcare Now!* will be carried out by a University of Toronto based Central Measurement Team (CMT) which is funded by the Canadian Patient Safety Institute (CPSI) and led by Dr. G. Ross Baker. Data collected by the Central Measurement Team will be used:

1. To facilitate the testing of evidence-based strategies for better practice, shown in other settings to reduce morbidity and mortality.
2. To support the teams by providing information on their own performance relative to the interventions for which they have enrolled through the collection, analysis and reporting of organization-level, intervention specific data.

As part of SHN, measures will be completed by participating teams and submitted on a monthly basis in order to monitor the success of implementation of medication reconciliation across Canada. Data can be submitted by entering your data directly into the Patient Safety Metrics System.

About the Patient Safety Metrics

The Patient Safety Metrics System, a web based data submission and reporting system, was designed to support teams in the collection and analysis of improvement data.

Benefits of the Patient Safety Metrics System

The process of data submission has been streamlined and simplified; the system is easily accessible, intuitive to use, simple to navigate, and barriers to data submission have been minimized.

- Reports of participating facilities by region, type, intervention, measure
- Centralized source for data and
- Real-time access to data of all participants
- Real- time access to performance reports (controlled by permission linked to user level)
- Data can be rolled up or drilled down for reporting (e.g. team, hospital, region, Province/Territorial, National)
- Customizable reports
- Dashboard multi-site and indicator reports (Phase 2)

Main Components

This application consists of two main components:

- the Enrolment Process, and
- the Data Entry and Reporting Process

The Enrolment component is used to enrol new organizations into *Safer Healthcare Now!* and can be used to see if an organization has already been enrolled.

To enter the Patient Safety Metrics System, the following options are available:

- The **Data Entry and Reporting** component is a secure environment accessible by approved user-members to access and enter data, organization and member profiles as well as to run real time organizational reports.
- The **Guest Data Entry** component is an unsecured environment which can be used by anyone to submit data. The data is held separate from the main database until it is approved by the Key Organizational Contact (KOC) or Central Measurement Team (CMT). It can only be used to submit data to interventions already enrolled in by existing organizations. This function was designed for those who are irregularly delegated as data entry persons only, where their role has no need to view data, or run reports.

A user's manual for data submission is available on the *Patient Safety Metrics website* using the following link: https://shn.med.utoronto.ca/manual.aspx

Measurement Tips

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

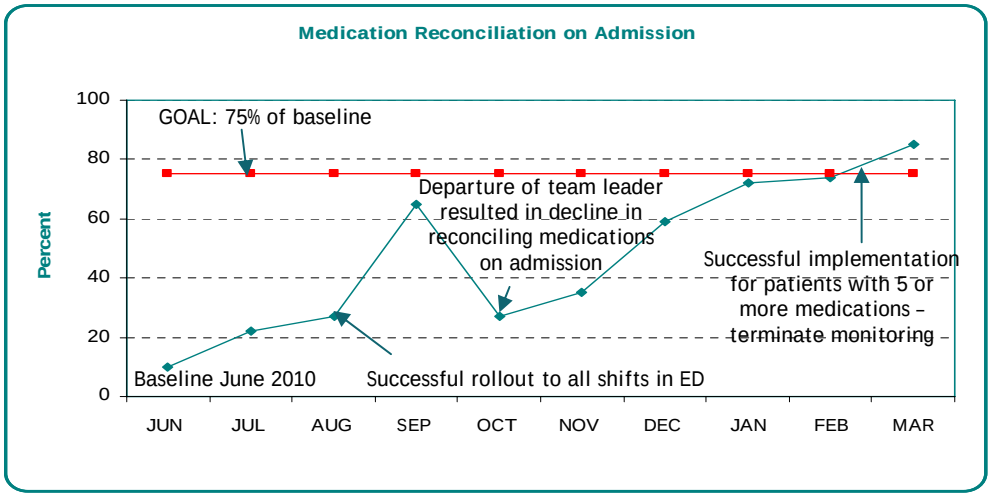
1. **Plot data over time.** Much information about a system and how to improve it can be obtained by plotting data over time and then observing trends and other patterns. Tracking a few key measures over time is the single most powerful tool a team can use and will help them to see the effects of the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



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 patient's ability to provide a complete and accurate medication history, ask patients and their families about their experience.

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 measuring process

Data Collection Strategy *Adapted from the Hospital for Sick Children, Toronto, ON*		
Measure & Definition	**Calculation**	**Goal**
Undocumented Intentional Discrepancies Mean # of undocumented intentional discrepancies per patient **These discrepancies are errors in documentation**	**Numerator:** Total number of undocumented intentional discrepancies **Denominator:** Total number of patients	Improvement goals should be defined by individual teams e.g. improve undocumented intentional discrepancies by 75% Stretch goal should be to reduce undocumented intentional discrepancies to zero
Unintentional Discrepancies Mean # of unintentional discrepancies per patient **These discrepancies are medication errors**.	**Numerator:** Total number of unintentional discrepancies **Denominator:** Total number of patients	Goal should be to reduce unintentional discrepancies to 0.3
Percent Reconciled at Admission	**Numerator:** Total number of patients reconciled **Denominator:** Total number of patients admitted	Goal should be to close to 100 percent
Percent Reconciled at Discharge	**Numerator:** Total number of patients with a BPMDP **Denominator:** Total number of patients discharged	Goal should be close to 100 percent
Data Collection Process & Frequency Data Collection Process & Frequency	**Baseline:** • Collect monthly until any interventions are implemented • Active concurrent audit involving patient/family interview **Data collection process:** 1. After initial history done as per usual admission process, data collector completes best possible medication history (BPMH) 2. Compares BPMH to admission medical orders (AMOs) 3. Identifies & documents discrepancies on audit tool 4. Reconciles discrepancies with prescriber to ensure that appropriate medications are ordered on admission **Post-intervention:** • Collect monthly following implementation of intervention(s) • Chart review of admissions with a completed medication reconciliation form	

	• Chart review must be conducted more than 24 hours after admission. **Data collection process:** - Review medication reconciliation form on patient charts - Compare BPMH plus at least 2 different reliable sources of information to the reconciled medication orders - Identify outstanding discrepancies not found during the MedRec process. Document the discrepancies on Post Intervention Audit Tool
Data Submission Plan & Frequency	**Baseline data collection tool:** Baseline Audit Tool – complete one per patient **Data submission:** • Submit data monthly • Submit on Measurement Worksheet • Exclude all OTC's & herbal med discrepancies from data set when submitting • All Others: Submit to *Safer Healthcare Now!* **Post-intervention data collection tool:** Post intervention Audit Tool – complete one per patient
Inclusion - Exclusion Criteria	**Inclusions:** Should be defined by individual teams e.g. new admissions with at least 1 home med **Exclusions:** Patients that are not prescribed any medications at home. Additional exclusions should be defined by individual hospital team e.g. transfers from another unit
Sample Size & Plan	**Baseline:** 10-20 patients each month **Note:** sample size should be determined by individual teams based on patient volumes e.g. smaller organizations sample 10 patients per month, larger organizations sample 20 patients per month Sample should include patients admitted on various days & at various times e.g. evenings/nights; weekends **Post-intervention:** See above

Summary

Medication reconciliation will take time and resources to implement across an organization. *Safer Healthcare Now!* shares Canadian experiences, policies, tools and supporting material to facilitate implementation of medication reconciliation across the system from acute to primary care in Canada with the goal of reducing potential harm to patients related to medication therapy.

Data from the first 5 years of *Safer Healthcare Now!* demonstrates effectiveness in reducing unintentional discrepancies.

End Notes

1 Cornish PL, Knowles SR, Marcheso R, Tam V, Shadowitz S, Juurlink DN, Etchells EE. Unintended medication discrepancies at the time of hospital admission. Arch Intern Med. 2005;165:424-429.

2 Seamless Care Task Force of the Canadian Pharmacists Association and the Canadian Society of Hospital Pharmacists. Statement on Seamless Care. Ottawa (ON): Canadian Society of Hospital Pharmacists, 2004.

3 Seamless Care Task Force of the Canadian Pharmacists Association and the Canadian Society of Hospital Pharmacists. *Statement on Seamless Care.* Ottawa (ON): Canadian Society of Hospital Pharmacists, 2004.

4 Baker GR, Norton PG. The Canadian Adverse Events Study: The incidence of adverse events among hospitalized patients in Canada. Can Med Assoc J. 2004;170(11):1678-1686.

5 Rozich JD, Resar RK. Medication safety: one organization's approach to the challenge. J Clin Outcomes Manag. 2001; 8(10): 27–34.

6 Bell CM, Brener SS, Gunraj N, Huo C, et al. Association of ICU or Hospital Admission with Uninterntional Discontinuation of Medications for Chronic Diseases. JAMA. 2011;306(8): 840-847.

7 Lee JY, Leblanc K, Fernandes OA, Huh JH, et al.. Medication reconciliation during internal hospital transfer and impact of computerized prescriber order entry. Ann Pharmacother. 2010 Dec;44(12):1887-95.

8 Forster HD, Menard A, Dupuis N, Chernish R, et. al., Adverse events among medical patients after discharge from hospital. Can Med Assoc J. 2004;170(3):345-349.

9 Boockvar KS, Blum S, Kugler A, Livote E, Mergenhagen KA, Nebeker JR, Signor D, Sung S, Yeh J. Effect of admission medication reconciliation on adverse drug events from admission medication changes. Arch Intern Med. 2011 May 9;171(9):860-1. PubMed PMID: 21555668.

10 Whittington J, Cohen H. OSF Healthcare's journey in patient safety. Qual Manag Health Care. 2004;13(1):53-59.

11 Michels RD, Meisel S. Program using pharmacy technicians to obtain medication histories. Am J Health-Sys Pharm. 2003;60:1982-1986.

12 Vira T, Colquhoun M, Etchells EE. Reconcilable differences: correcting medication errors at hospital admission and discharge, Qual Saf Health Care 2006;000:1–6.

13 Rozich JD, Howard RJ, Justeson JM, Macken PD et al. Standardization as a mechanism to improve safety in health care: impact of sliding scale insulin protocol and reconciliation of medications initiatives. Jt Comm J Qual Saf. 2004;30(1):5-14.

14 Santell JP. Reconciliation Failures Lead to Medication Errors. Joint Commission Journal on Quality and Patient Safety.2006;32(4):225-229.

15 Walker PC, Bernstein SJ, Jones JN, Piersma J, et al. Impact of a pharmacist facilitated hospital discharge program: a quasi-experimental study. Arch Intern Med. 2009;169(21):2003-2010.

16 CCHSA Patient Safety Goals and Required Organizational Practices Link: http://www.cchsa.ca/default.aspx?page=211&cat=30 , Accessed February 21, 2007.

17 Gleason KM, et al. Results of the Medications At Transitions and Clinical Handoffs (MATCH) study: an analysis of medication reconciliation errors and risk factors at hospital admission. J Gen Intern Med. 2010 May;25(5):441-7.

18 Gerhardt F, Setting up a Medication Reconciliation System, Drug Topics. Available at: http://www.drugtopics.com/article/articleDetail.jsp?id=143478&pageID=1. Accessed December 2006.

19 Pronovost P, Weast B, Schwarz M, Wyskiel RM, et al. Medication reconciliation: a practical tool to reduce the risk of medication errors. J Crit Care 2003;18:201-5.

20 Pronovost P, Hobson DB, Earsing, Lins ES, Rinke ML, Emery K, et al. A practical tool to reduce medication errors during patient transfer from an intensive care unit. Journal of Clinical Outcomes Management 2004;11:26-33.

21 Bell CM, Rahimi-Darabad P, Orner AI. Discontinuity of chronic medications in patients discharged from the intensive care unit. J Gen Intern Med 2006;21:937-41.

22 Reconciling Medications Collaborative of the Massachusetts Coalition for the Prevention of Medical Errors and the Massachusetts Hospital Association. The Collaborative was funded by a cooperative agreement between the Agency for Healthcare Research and Quality (AHRQ) and the Massachusetts Department of Public Health (Grant #U18 HS11928).

MEDICATION RECONCILIATION IN ACUTE CARE

Measurement Resources

Appendix A

MEASUREMENT RESOURCES

Independent Observer

The role of the independent observer is to check the quality of the MedRec that is performed on a unit, like an independent double check, regardless of the MedRec model being used. The role is to ensure nothing has slipped through the cracks. It is not meant to be an exhaustive review or a duplication of work and should not take an excessive amount of time.

The checking of outstanding unintentional and undocumented intentional discrepancies for patients who have had medication reconciliation process requires 4 Checkpoints.

4 Checkpoints to Auditing a Patient Chart (Proactive or Retroactive Method)

☑ Check that there was a patient/family interview.

- If circumstances did not allow for an interview, ensure that there are at least 2 different reliable sources of information that have been used to create the BPMH.
- If circumstances allowed, but an interview was **not** conducted, the independent observer may need to conduct an interview to confirm the patient's actual use of medications.
- If there was an interview, verify that there is at least 1 reliable source of information has been utilized to create the BPMH. This may include: medication vials, medication list, an electronic dispensing record, a Medication Administration Record (MAR) from another facility.

☑ Look to see that there is at least 1 available source of information that has been gathered by the team to create the BPMH. This may include: Medication vials, medication list, an electronic dispensing record, a Medication Administration Record (MAR) from another facility.

☑ Check the BPMH that has been documented in the chart and includes all the information from the sources of information. If there are any transcription errors or errors in medication name, dose, frequency, this may be a flag that there is a discrepancy. This is meant to be the double check.

☑ Check the admission orders against the BPMH to ensure all medications in the sources of information are included and ordered.

Check with the MedRec team or prescriber if you have identified any discrepancies, to clarify if the discrepancies were undocumented intentional or unintentional. Record the number of discrepancies and the types of discrepancies you have found. This will be the numerator for the mean number unintentional/undocumented intentional discrepancies and the denominator will be the number of charts you audited.

If the auditing is being done retrospectively the independent observer will need to review all of the available documentation in the medical record to decide whether the discrepancy is unintentional or undocumented intentional.

Sampling Strategies

Teams in each service area should collect data for a sample of 20 charts per month. If the number of admissions to the service area is less than 20, teams should collect data for all admissions. 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 at the end of the protocol.

Methods to Generate a Random Sample:

1. **Method 1 - Nth Client Method:** Based on admission histories, teams will estimate the average number of clients for a month. Then, 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 per month. The independent observer will select every 10th client to achieve a sample of at least 20.

   Notes for Method 1:
   For the Nth client method, it is important to start at a random starting point, i.e. not always with the 3rd or 4th client. If one is sampling every 10th client, the first client sampled should be a random digit selected between 1 and 10, and then every 10th client thereafter.

1. **Method 2 - X Days in a Month Method:** Based on admission histories, teams will estimate the average number of clients for a month. Then, based on this number, calculate the mean 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 200 clients per month resulting in an average of 6 clients per day. With this method three to four days could be randomly selected (random number generator) out of the month to conduct measurements.

   Notes for Method 2:
   Less preferable method due to several types of potential bias, such as selected days (i.e. 3 Mondays vs 3 Thursdays) having different performance. 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.

Medication Reconciliation Audit Tool for Baseline Data Collection

Individual Medication Reconciliation Audit Tool
Use the results to compete the measurement worksheets

Implementation Stage: ❒ **Baseline** ❒ **Early implementation** ❒ **Full implementation**	Patient Identification
Patient Sample:	

INSTRUCTIONS:

- A clinical pharmacist or designate compiles the Best Possible Medication History (BPMH) based on patient interview, medication vial review, patient medication list, community pharmacist, family physician, etc. .
- Compare the BPMH to all prescribed medication ordered (AMOs) for this patient within the first 24 hours of the index healthcare facility stay.
- To complete the BPMH Discrepancy columns for each medication, check the appropriate box. Type 0= NO discrepancy; Type 1= Intentional discrepancy; Type 2= Undocumented Intentional Discrepancy; Type 3= Unintentional Discrepancy and comment as applicable.
- Indicate for all Type 2 and Type 3 discrepancies whether they were resolved by placing a ✓ in the "Resolved" column.

Best Possible Medication History (BPMH) Medication name, dose, route & frequency (prescribed meds only)				**NO discrepancy**	**Intentional Discrepancy**	**Undocumented Intentional Discrepancy**	**Unintentional Discrepancy**	**Resolved ✓**	Discrepancy Comments
Medication	Dose	Route	Frequency	0	1	2	3		*Clarification of discrepancies should be recorded in Patient Record*
BPMH Discrepancy Total									
BPMH Discrepancy Type				0	1	2	3		

Type 1=Intentional discrepancy - prescriber has made an intentional choice to add, change or discontinue a medication and is clearly documented.

Type 2= Undocumented Intentional Discrepancy - prescriber has made an intentional choice to add, change or discontinue a medication but this choice is not clearly documented.

Type 3= Unintentional Discrepancy - prescriber unintentionally changed, added or omitted a medication the patient was taking prior to admission.

Example of a Completed Individual Medication Reconciliation Audit Tool

Use the results to compete the measurement worksheets

Implementation Stage: ❒ **Baseline** ❒ **Early implementation** ❒ **Full implementation**	Patient Identification
Patient Sample:	

INSTRUCTIONS:

- A clinical pharmacist or designate compiles the Best Possible Medication History (BPMH) based on patient interview, medication vial review, patient medication list, community pharmacist, family physician, etc. .
- Compare the BPMH to all prescribed medication ordered (AMOs) for this patient within the first 24 hours of the index healthcare facility stay.
- To complete the BPMH Discrepancy columns for each medication, check the appropriate box. Type 0= NO discrepancy; Type 1= Intentional discrepancy; Type 2= Undocumented Intentional Discrepancy; Type 3= Unintentional Discrepancy and comment as applicable.
- Indicate for all Type 2 and Type 3 discrepancies whether they were resolved by placing a ✓ in the "Resolved" column.

Best Possible Medication History (BPMH) Medication name, dose, route & frequency (prescribed meds only)				**NO discrepancy**	**Intentional Discrepancy**	**Undocumented Intentional Discrepancy**	**Unintentional Discrepancy**	**Resolved ✓**	**Discrepancy Comments**
Medication	**Dose**	**Route**	**Frequency**	**0**	**1**	**2**	**3**		*Clarification of discrepancies should be recorded in Patient Record*
Digoxin	0.125mg	po	daily	✓					
Enalapril	20 mg	po	bid				✓	✓	Incorrect dose 10 mg bid was ordered
Metformin	500 mg	2 tabs	at brkfst	✓					
Metformin	500 mg	2 tabs	at supper	✓					
Metformin	500 mg	i tab	at lunch		✓			✓	Reduce dose based on blood glucose
ECASA	325mg		qhs	✓					
Temazepam	30 mg	po	daily	✓					
****ADDITIONAL**									
Lactulose	667 mg/mL		qhs			✓		✓	
Furosemide	60 mg	po	bid			✓		✓	
			BPMH Discrepancy Total	5	1	2	1		
			BPMH Discrepancy Type	0	1	2	3		

Type 1=Intentional discrepancy - prescriber has made an intentional choice to add, change or discontinue a medication and is clearly documented.

Type 2= Undocumented Intentional Discrepancy - prescriber has made an intentional choice to add, change or discontinue a medication but this choice is not clearly documented.

Type 3= Unintentional Discrepancy - prescriber unintentionally changed, added or omitted a medication the patient was taking prior to admission.

In the interest of standardized measurement for *Safer Healthcare Now!*, it is suggested that teams operate with the following guidelines.

- Compare the BPMH to the AMO for each medication and for consistency in its dose, frequency, and route.
- Discrepancies are **not** tallied based on doses administered. For example, if there is a discrepancy with a medication is administered 5 times a day, this is counted as one discrepancy.

The following should **not** be considered as a discrepancy:

- If total daily dose does not change despite frequency or timing of administration change – it is not a discrepancy. For example, furosemide 20 mg bid changed to 40 mg daily (total daily dose administered at one time).
- If the route changes for clinical reasons it is not a discrepancy. For example, if furosemide po is switched to IV.

Discrepancy Examples by Type and Transition Point

	Undocumented Intentional Discrepancy	**Unintentional Discrepancy**
ADMISSION	A patient on a maintenance dose of atenolol for hypertension was admitted for surgery. The surgeon did not order atenolol on admission, due to concerns about perioperative hypotension; however, the reason for not ordering atenolol was not documented in the medical record.	A patient with Parkinson's disease was admitted for management of acute pulmonary edema. Based on information on the patient's medication vial, Sinemet 200 mg/50 mg PO **BID** was ordered on admission. Days later, the patient's family commented that the patient's tremor appears to be worsening. Investigation revealed that the patient had recently been told by his neurologist to increase his Sinemet dosage to 200/50 PO **TID**.
TRANSFER	A patient is transferred from a cardiology unit to a palliative care service; upon transfer many medications the patient received on the cardiology unit have not been ordered. Upon discussion with the prescriber, the patient no longer required aggressive cardiac care due to their palliative status, however this was not documented.	A CCU patient is being transferred to the cardiology ward – the transfer orders include atorvastatin 40 mg daily, instead of the 80 mg daily that was prescribed in CCU.
DISCHARGE*	Patient receiving ramipril 5 mg po daily prior to admission. Upon discharge, the prescriber intentionally increased the dose to 7.5 mg po daily. There is no documentation of the rationale for this change in the medical chart, yet a discussion with the prescriber reveals that this is an intentional choice.	Patient was stabilized on warfarin 4 mg daily for a new DVT in hospital. Warfarin was unintentionally ordered as warfarin 2 mg on the discharge prescription. A discussion with the prescriber reveals that this is NOT an intentional choice.

* For the purpose of *Safer Healthcare Now!*, the primary measure at discharge reflects the percentage of patients for whom the discharge medication reconciliation process (creation of the Best Possible Medication Discharge Plan (BPMDP)) was completed.

Detailed Data Submission Information and SHN Metric Worksheets

Mean Number of Undocumented Intentional Discrepancies per patient

$$\text{Mean number of undocumented intentional discrepancies} = \frac{\text{Number of undocumented intentional discrepancies}}{\text{Number of patients reconciled}}$$

MedRec-Acute 1 - Mean Number of Undocumented Intentional Discrepancies per Patient

Year [ ] Month [ ]

An undocumented intentional discrepancy has occurred when the prescriber has made an intentional choice to add, change or stop a medication however this choice was not clearly documented in the patient chart.

Denominator	
1 **Enter the total number of patients in this sample population.**	
Numerator	
2 **Enter the total number of Undocumented Intentional (Type 2) Discrepancies identified for the patients in the sample (#1) after the medication reconciliation process has been completed.**	
Your Result	
3 Numerator/Denominator	Your Result
	Goal Decrease the rate of undocumented intentional discrepancies by 75% in one year

Comments

Cancel | Save and Back

Numerator Exclusions: The recommended approach is to focus on reconciling medications the patient was taking at home. Over-the-counter (OTC), herbals, and other medications are counted as per institution discretion (for purposes of SHN, teams that excluded OTC's and herbals in their original data should continue to do so).

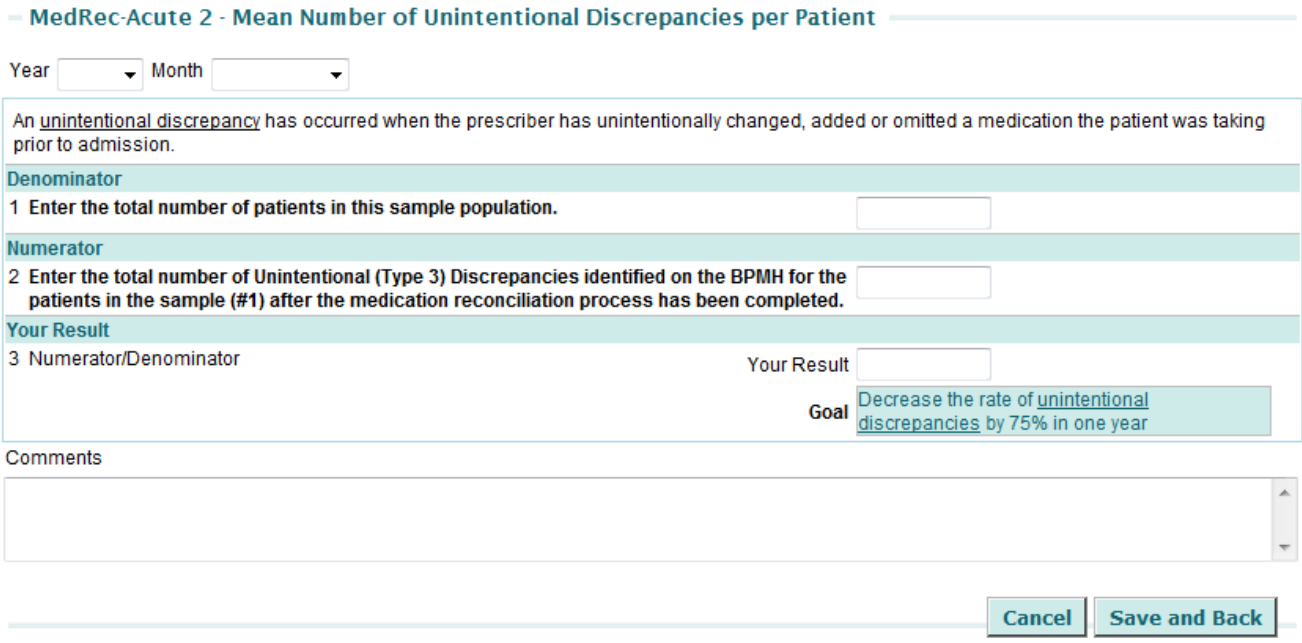
Note:

The numerator definition is a count of medications, not doses.

Organizations should decide which OTC medications are relevant in their setting and should be counted. For the purpose of SHN, we require consistent reporting for prescribed medications only.

Mean number of UNINTENTIONAL discrepancies per patient

$$\text{Mean number of unintentional discrepancies} = \frac{\text{Number of unintentional discrepancies}}{\text{Number of patients reconciled}}$$



Numerator Exclusions: The recommended approach is to focus on reconciling medications the patient was taking at home. Over-the-counter (OTC), herbals, and other medications are counted as per institution discretion (for purposes of SHN, teams that excluded OTC's and herbals in their original data should continue to do so).

Note:

The numerator definition is a count of medications, not doses.

Organizations should decide which OTC medications are relevant in their setting and should be counted. For the purpose of SHN, we require consistent reporting of prescribed medications.

Percentage of Patients Reconciled at Admission

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

MedRec-Acute 5 - Percentage of Patients Reconciled at Admission

Year [ ] Month [ ]

The percentage of eligible patients who had a Medication Reconciliation performed this month at the time of admission. This is a process measure which evaluates whether the system is performing as planned.

Denominator

1 **What is the total number of patients admitted to the facility this month?** [ ]

Numerator

2 **What is the total number of patients in #3.1 for whom a medication reconciliation was performed this month at the time of admission? (An individual medication reconciliation audit tool should be completed for each resident at baseline and all others on admission there after).** [ ]

Your Result

3 Numerator/Denominator x 100 = % Your Result [ ]

Goal 100%

Comments

[ ]

Cancel | Save and Back

Medication Reconciliation at Discharge

$$\text{Percent of Patients recieving a BPMDP at Discharge} = \frac{\text{Number of patients in the sample for whom a BPMDP was created}}{\text{Number of patients in the sample}} \times 100$$

BPMDP = Best Possible Medication Discharge Plan

MedRec-Acute 4 - Medication Reconciliation at Discharge

Year [ ] Month [ ]

The percentage of patients with medications who were discharged with a Best Possible Medication Discharge Plan.

Denominator

1 **Enter the total number of patients in the sample*.**
*The sample could be all patients discharged or 10-30 discharges/month [ ]

Numerator

2 **Enter the total number of patients in the sample (#1) for whom a Best Possible Medication Discharge Plan (BPMDP) was created.** [ ]

Your Result

3 Numerator/Denominator x 100 = % Your Result [ ]

Goal 100% of all eligible patients.

Comments

[ ]

Cancel | Save and Back

Optional Measures

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

- **Time it takes to conduct a BPMH**
- **Patient and staff satisfaction**
- **Time from admission to reconciliation**
- **Number of Medication Histories on the chart before medication reconciliation vs. documentation of BPMH first** (reduction in duplication)
- **Mean number of Discrepancies Resolved** –the number of discrepancies that are being resolved per patient. One hospital, using this measure, has mandated that all Type 2 and 3 errors must be resolved.

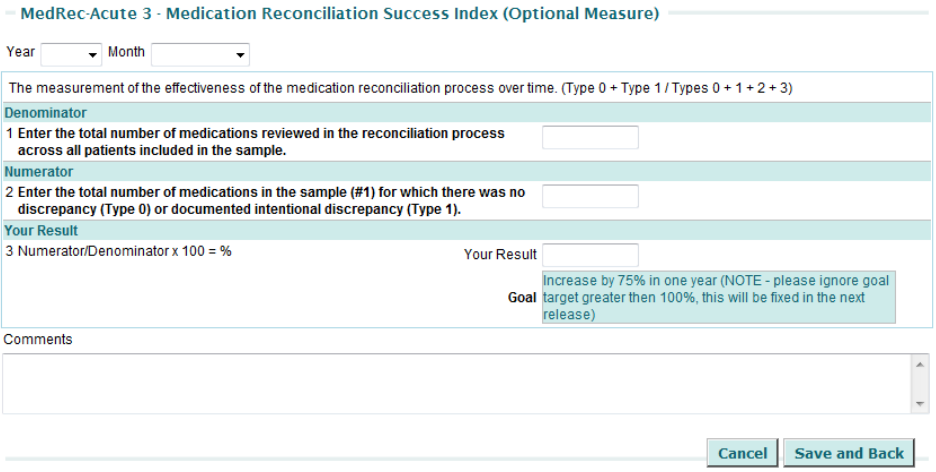
$$\text{Mean number of Discrepancies Resolved} = \frac{\text{Total number of resolved Type 2} + \text{Total number of resolved Type 3}}{\text{Number of patients}}$$

- **Rate of Potential Harm** - the percentage of patients with one or more unintentional discrepancies (Type 3).

$$\text{Rate of potential harm \%} = \frac{\text{Number of patients with 1 or more unintentional discrepanices}}{\text{Number of patients in the sample}} \times 100$$

- **Medication Reconciliation Success Index** -the total percentage of 'good' or acceptable orders. It is a measure intended to be used over time.

$$\text{Medication Reconciliation Success Index} = \frac{\text{Number of NO discrepanices} + \text{number of documented intentional discrepancies}}{\text{Number of NO discrepancies} + \text{total number of ALL discrepancies}} \times 100$$



Note: With experience and the right tools, the process will lead automatically to fewer unintentional discrepancies and undocumented intentional discrepancies. Intentional discrepancies should become more the norm as forms indicate a prescriber's intent to "continue", "change", or "discontinue" orders.

A success index of 90% signifies that 90 out of 100 orders, have no discrepancy between the home medications and the prescriber orders, and/or the orders are clearly documented as to the reason for change in home medication. The higher the number the better!

MEDICATION RECONCILIATION IN ACUTE CARE

Model for Improvement

Appendix B

The Model for Improvement

In order to implement Medication Reconciliation, *Safer Healthcare Now!* recommends using the Model for Improvement. Developed by Associates in Process Improvement, the Model for Improvement is a simple yet powerful tool for accelerating improvement that has been successfully used by hundreds of health care organizations to improve many different health care processes and outcomes.

The model has two parts:

- Three fundamental questions that guide improvement teams to 1) set clear aims, 2) establish measures that will tell if changes are leading to improvement, and 3) identify changes that are likely to lead to improvement.
- The Plan-Do-Study-Act (PDSA) cycle to conduct small-scale tests of change in real work settings — by planning a test, trying it, observing the results, and acting on what is learned. This is the scientific method used for action-oriented learning. (Available at: http://www.ihi.org/ihi).

THE MODEL FOR IMPROVEMENT

1) Set Clear Aims

2) Establish Measures

3) Identify Changes

Conduct Small Tests of Change

- Plan the small test of change
- Implement the change on a small scale
- Evaluate the test of change; did it result in the desired effect?
- Adopt, reject or modify the test of change
- Begin next PDSA cycle

http://www.ihi.org/IHI/Topics/Improvement/ImprovementMethods/HowToImprove/ Accessed February 2007.

Implementation: 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 — for example, test medication reconciliation on admissions first.

- Keep testing and fine tuning using the PDSA process. Request input and incorporate recommended changes.
- Medication reconciliation often involves the development of a documentation form. Ask an appropriate healthcare professional to test the medication reconciliation form to determine ease of use, ability to capture needed information, and formatting issues. Use the results of this test to modify the form. The form should fit your system and even if it is an extra form temporarily it must be built in to the system over time.
- The list of medications may never be perfect. According to Roger Resar, MD, Senior Fellow at Institute for Healthcare Improvement and a pioneer in developing this process, the phrase "as complete as possible" is key.
- Once the form has been modified, ask another healthcare professional to test it on a small number of patients.
- Test processes associated with the use of the form (e.g. compliance with the completion, when completed, etc.
- Continue testing and changing the form until you have reached a point where it is easy to use, collects the information required, and allows for communication as patients move through different levels of care. You need to consider when the form is 'good enough' and avoid prolongation of finalizing forms.
- Provide site specific patient case examples of Medication Reconciliation cases to illustrate the problems with the current process.

Learn more about the Model for Improvement from Institute for Healthcare Improvement
Link: http://www.ihi.org/IHI/Topics/Improvement/ImprovementMethods/HowToImprove/

The Massachusetts Coalition created a worksheet for testing change based on the PDSA form

Link:http://www.macoalition.org/Initiatives/RecMeds/PDSA.doc

MEDICATION RECONCILIATION IN ACUTE CARE

Communities of Practice (CoP)

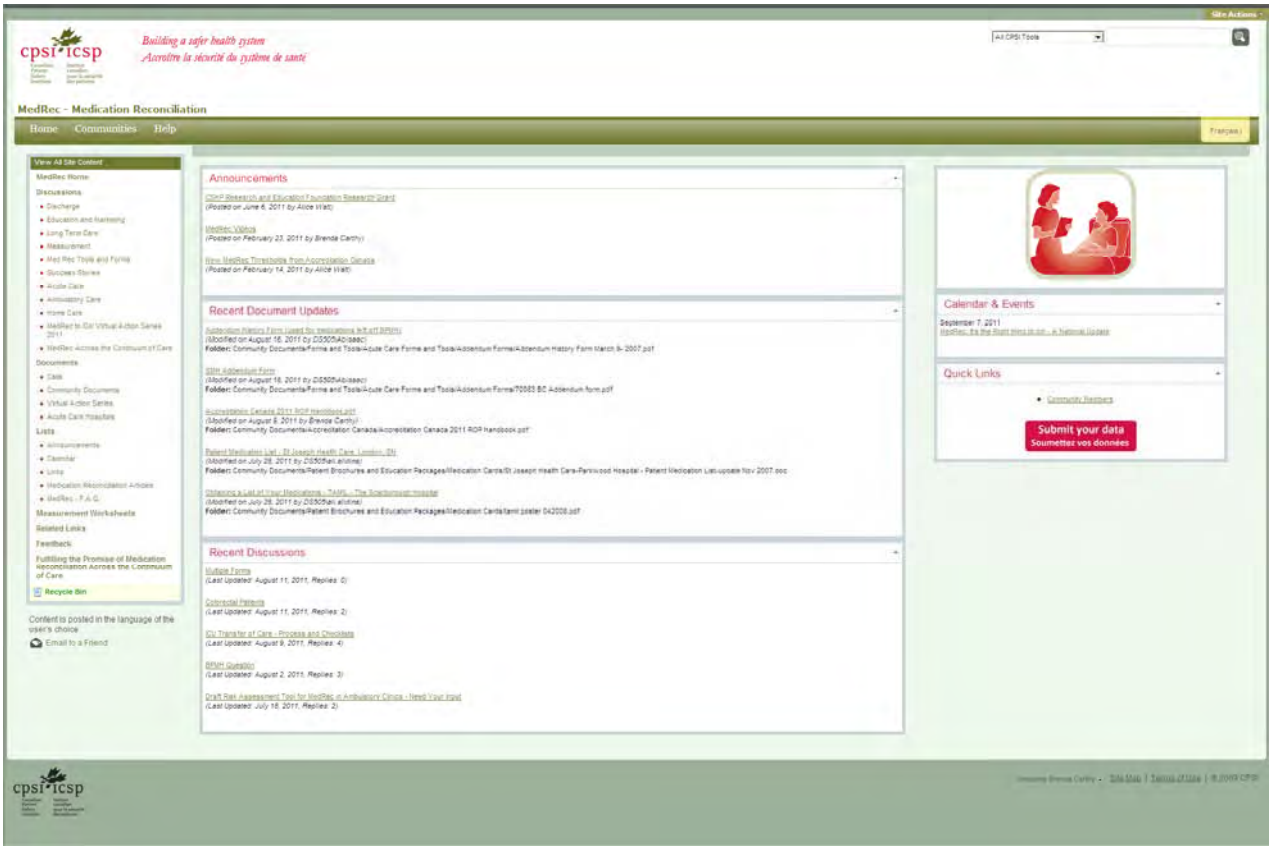
Appendix C

Communities of Practice (CoP)

The *Safer Healthcare Now!* Medication Reconciliation CoP is an online neighbourhood for healthcare professionals to discuss, debate, share and get support for ideas, insights and practices related to Medication Reconciliation. This online community is a virtual gathering spots to facilitate group communications and enable SHN team members to collaborate with and learn from each other. The CoP will facilitate:

1. *Shared Knowledge:* support Medication Reconciliation teams across Canada, to provide a mechanism of communication between teams across Canada, and between team members and the Medication Reconciliation faculty, and SHN constituents.
2. *Shared Practice:* To encourage the sharing of forms, documents, policies, processes, learning's and successes amongst participating hospitals.
3. *Common Knowledge:* Provide online discussion forums, intervention-specific resources, calendar of scheduled events and a database of searchable, frequently asked questions.

The CoP contains valuable information to assist teams in successfully implementing Medication Reconciliation.



CoP Help Videos:

Link: http://tools.patientsafetyinstitute.ca/help/CoP%20Help%20Videos/Forms/AllItems.aspx

CoP Help FAQs:

Link: http://tools.patientsafetyinstitute.ca/help/Lists/CoP%20FAQs/FAQ%20Grouped.aspx

MEDICATION RECONCILIATION IN ACUTE CARE

Process Owners Matrix

Appendix D

Process Owners Matrix

Sustainability Resource from Regina Qu-Appelle Health Region – Quality Improvement Unit
Used with permission from Regina Qu-Appelle Health Region

Sustaining an Improvement Initiative Process Owners: Transition to Operations
May 2010

Why do many pilot projects produce fantastic results which fizz out and die when the pilot is over? The answer lies in the lack of sustainability, and sustainability is the greatest challenge to any improvement effort. Lean principles recognize that Process Owners are the missing link. **A process owner is an individual (s) who has the authority to ensure that portions of a new or improved process are operationalized.** The matrix below initiates and guides the important and on-going discussions with individuals who will be tasked to operationalize, monitor and sustain the improved process.

How to construct a Process Owners Matrix:

The matrix template is completed at the *end* of the kaizen (or finalized after the trial period). Keep the matrix in draft form until all sponsors and process owners have had a chance to comment on the initiative and their role and responsibility for sustaining the process. The examples in the stages below are also found in the matrix.

Step 1. List the operational steps of the process in the 3rd column called Portion of the Process. *e.g. Porter will remove contaminated laundry from transport equipment, and will then push equipment outside of patient area.* Portions of the Process describe the operational process steps. (Note: this column also identifies key process measures that will allow the organization to monitor the process overall, and can determine if the process is sustained).

Step 2. Describe how the operational activity benefits the patient/client/resident and family or the internal customer, and write this in Column 4, Benefit to Patient/Internal Customer. *e.g. Porters help to contain infectious diseases and reduce the risk to patients*

Step 3. Name the Process Owner for that portion of the process in Column 2, i.e. the person who supports the employee or physician and builds this responsibility into the employee's/physician's work plan. *e.g. Manager, Portering Services*. The Process Owner will oversee the staff or prescribers and ensure adequate awareness or education has been provided, address issues raised by staff/prescribers and ensure that the process is followed.

Step 4. Name the Senior Leader for each portion of the process in Column 1, i.e. the person who supports that process owner to build this responsibility into the process owner's work plan, and discusses the success of this work on a regular basis. *e.g. Executive Director, Support Services and Central Scheduling.* The Sponsor will have the authority to address barriers and allocate resources in order to ensure the portion of the process is sustained.

Step 5. Communication Strategy step one: Discuss this document with all Process Owners identified on the matrix and ask for their feedback. This document fosters an important discussion about owning and operationalizing this work on behalf of the patients receiving care in our organization. Process Owners should be given the time and opportunity to understand the initiative before it is fully operationalized. They should have a voice in its implementation, and a full understanding of their unique role and responsibilities in sustaining the work. Process owners ensure that their staff/prescribers are aware of the job duties within the process.

Step 6. Communication Strategy step two: Discuss this document with all Senior Leaders identified on the matrix and ask for their feedback. Explain what data will be collected related to this process, and how they will receive it. Explain each senior leader's unique role and responsibilities in sustaining the work

Step 7. Monitoring and Reporting Plan: Determine which key portion(s) of the process will become the source of data to determine if the process is on track and sustained. Select a one or two key process measures from Column 3 and determine how the measure information will be collected, compiled, analyzed and reported. Identify the individual(s) responsible for each of these tasks. State who this data will be reported to, and frequency (monthly vs. quarterly).

Step 8. Action to Sustain Process: When problems are identified through the Monitoring and Reporting Plan, the process owner of the problematic step will investigate the issues and take action to develop solutions. This process owner will report problems encountered and resolutions implemented to their senior leader, as well as to other key process owners as applicable to sustain the process.

Senior Leader Provides support to the process owner, addressing system barriers	**Process Owner** Has the authority and influence to ensure the portion of the process is sustained	**Assigned To:** Responsible individual(s) – should become part of work plan	**Portion of the Process** The portion of the new or improved process that the process owner influences (note: list job title and operational activity)	**Benefit to Patient/Internal Customer:** The beneficial outcome for the patient
e.g. Executive Director, Support Services and Central Scheduling	*e.g. Manager, Portering Services*	*e.g. Porter*	*e.g.: remove contaminated laundry from transport equipment, and will then push equipment outside of patient area.*	*e.g.: Porters help to contain infectious diseases and reduce the risk of nosocomial infection for patients*

Example: Sustaining Medication Reconciliation in Acute Care Sites

Used with permission from Regina Qu-Appelle Health Region

Senior Leader: Provides support to the process owner, addressing system barriers	**Process Owner:** Has the authority and influence to ensure the portion of the process is sustained	**Assigned To:** Responsible individual/ group to carry out the process activity	**Portion of the Process:** The portion of the new or improved process that the process owner influences *(note: list job title and operational activity)*	**Benefit to Patient/Internal Customer:** The beneficial outcome for the patient
Director, SWADD	SWADD Mgr, Admissions	SWADD Admissions Clerk	Print the Pharmacy Information Program (PIP) Preadmission Medication/ Prescriber Order form for every all visits	Use of PIP Prescriber Order form prevents transcription medication errors and reduces hunting & gathering of medication information
Exec Director, Emergency Services	Director, Emergency Dept	Nurse caring for patient	On the PIP form: ▪ record the dose and interval for each medication that the patient is still taking prior to arriving in the ED ▪ Cross out all medications the patient had stopped taking prior to arriving in the ED	Complete, concise and accurate information about the medications taken by the patient prior to arriving at the facility prevents medication errors of omission or incorrect dose/interval. This information will ensure that medications are not inappropriately changed or abruptly stopped in error.
Executive Director(s), Specialty Care	Nurse Manager, Patient Care Units	Nurse caring for patient	If not completed prior to arriving on the unit: ▪ On the PIP form: record the dose and interval for each medication that the patient is still taking prior to arriving in the facility ▪ Cross out all medications the patient had stopped taking prior to arriving in the facility	
Department Head or Senior Medical Officer	Section Head Or Department Head	Prescriber	Utilize the PIP form with the medication history now documented on it, to address all medications taken by the patient prior to visit/admission, and determine if the medication should be stopped/changed or continued	Use of a complete and accurate home medication list for the purpose of determining appropriate medications during hospital stay will prevent serious patient harm secondary to inadvertent changes or abrupt stops in medications.
Executive Director	Nurse Manager	Charge Nurse	1) Complete MedRec audit form for five charts each week (during	Close monitoring of how successfully a patient safety process is functioning can

Senior Leader: Provides support to the process owner, addressing system barriers	**Process Owner:** Has the authority and influence to ensure the portion of the process is sustained	**Assigned To:** Responsible individual/ group to carry out the process activity	**Portion of the Process:** The portion of the new or improved process that the process owner influences *(note: list job title and operational activity)*	**Benefit to Patient/Internal Customer:** The beneficial outcome for the patient
			project phase September 2008 – August 2009). 2) Post run charts each month as they are generated by the audit excel workbook (self-populated as data is entered). 3) Send excel workbook to QI each month.	ensure early intervention for areas that are struggling, and assist senior leaders to address barriers faced by staff and prescribers.
Vice President	Executive Director	Nurse Manager	Share monthly data run charts with executive director and discuss any concerns that need to be addressed.	
Senior Medical Officer	Department Head	Section Head	Share monthly data run charts with department head and discuss any concerns that need to be addressed	

MEDICATION RECONCILIATION IN ACUTE CARE

MedRec Tools and Forms

Appendix E

Medication History Reconciliation

Patient Name: **MRN #:**

DOB: (dd/mm/yyyy) **Location:**

Weight (kg):

Medication Allergies/Reactions:
None Known: ☐ Verified with allergy Sheet: ☐

Food or Substance Allergies/Reactions:
None Known: ☐

No Medications: ☐ **History reviewed:** ☐ **By:**

	Medication(s) (name, strength)	Dose	Route	Freq	Date started	Last Dose (date, time)	Ordered on admission		Discrepancy		Resolution	Initials
							yes	no	Unint*	Int**		
1							☐	☐	☐	☐		
2							☐	☐	☐	☐		
3							☐	☐	☐	☐		
4							☐	☐	☐	☐		
5							☐	☐	☐	☐		
	OTC's (name, strength)											
1							☐	☐	☐	☐		
2							☐	☐	☐	☐		
3							☐	☐	☐	☐		

Comments:

Drug Plan:

Pneumoccocal vaccine:

Immunizations:			**Last Dose (date)**
Regular Immunizations Up to Date	☐NO	☐YES	
Influenza	☐O	☐ES	

Information Source: Review of bottles ☐
Patient ☐ / Family ☐ / Caregiver ☐ Name:
Other: ☐

Patient's Pharmacy:

Smokers:				**Counselling**	**Date**	Name:	Tel #:	Fax #:
Patient	☐NO	☐YES	☐	☐		Name:	Tel #:	Fax #:
Family	☐NO	☐YES	Relationship to patient: ☐	☐		Name:	Tel #:	Fax #:

History recorded by:	**Signature:**		**Date, Time:**	
Triage time:	**Admission time:**	**Unit:**	**Service:**	**Patient #**

***** Unintentional discrepancy - the prescriber unintentionally changed, added or omitted a medication the patient was taking prior to admis
****** Intentional discrepancy - the prescriber has made an intentional choice to add, change or discontinue a medication but this choice is not clearly documen

Cape Breton District Health Authority

Best Possible Medication History & Initial Orders

Date: _____ Weight: _____ kg

Page: _____ of _____ Height: _____ cm

Allergies: _____

Smoked tobacco product previous 6 months: ☐ Y / ☐ N

If yes, refer to smoking cessation program.

☐ Not taking medication

☐ Interviewed patient/ representative

☐ Unable to complete medication reconciliation.

Reason: _____

Information Source:

☐ Home Medications ☐ Transfer Sheet

☐ Home Med List ☐ Patient

☐ Family / Caregiver ☐ Physician

☐ Pharmacy: _____

Home Medications On Admission (Prescriptions, OTCs, Herbals, Patches, Inhalers, Eye Drops & Supplements)					**Physician Medication Orders (Check ONE only)**			
Drug	Dose	Route	Frequency	Notes	Continue	Hold	Stop	Change See below

Date	Medication Changed	Comments

Ordering Physician Signature: _____ Date: _____

Faxed To Pharmacy (Initials): _____ Obtained By: _____

IF YOU RECEIVED THIS FACSIMILE IN ERROR, PLEASE CALL 604-806-8886 IMMEDIATELY

Providence HEALTH CARE | Vancouver Coastal Health

ADMISSION MEDICATION ORDERS

Birthdate: Gender:

PHN:

The following is a PharmaNet extract as of **2006 Aug 30 16:42** of prescriptions dispensed for the above patient in the province of British Columbia.

*****Do not assume the patient is currently taking these medications or in these doses*****
Please review each medication with the patient.

Please note that this list is **NOT all-inclusive**. It may contain discontinued medications and does **NOT** contain updated instructions the patient may have received from their physician or such items as non-prescription drugs, samples, investigational or clinical trial drugs, complementary and alternative therapies, selected prescriptions obtained through provincial programs (e.g. antiretrovirals), or prescriptions obtained from outside the province or over the Internet.

*****Medications for which no action is indicated will be DISCONTINUED*****

Profile requested: previous 14 months

Medication per PharmaNet	Verified Use	Indicate Action	Revised Dose/Directions/Duration
FINASTERIDE **5MG** TABLET 20060718 50 TAKE ONE TABLET DAILY	___ as per PharmaNet ___ actual dose: _____ ___ discontinued (reason) _____	Continue Change Discontinue	
ONE TOUCH ULTRA BG 20060623 100 USE TO TEST BLOOD GLUCOSE	___ as per PharmaNet ___ actual dose: _____ ___ discontinued (reason) _____	Continue Change Discontinue	
RAMIPRIL **5MG** CAPSULE 20060302 90 TAKE ONE CAPSULE DAILY IN THE MORNING	___ as per PharmaNet ___ actual dose: _____ ___ discontinued (reason) _____	Continue Change Discontinue	
BETAXOLOL HCL **0.5%** DROPS 20060302 10 INSTIL 1 DROP IN EACH EYE TWICE DAILY	___ as per PharmaNet ___ actual dose: _____ ___ discontinued (reason) _____	Continue Change Discontinue	
SIMVASTATIN **40MG** TABLET 20051028 100 TAKE ONE TABLET DAILY AT BEDTIME	___ as per PharmaNet ___ actual dose: _____ ___ discontinued (reason) _____	Continue Change Discontinue	

(Date) (Prescriber Signature) (Prescriber Printed Name) (Phone/Pager Number)

FAX SIGNED ORDERS TO PHARMACY **PLACE ORIGINAL IN PATIENTS CHART**

IF YOU RECEIVED THIS FACSIMILE IN ERROR, PLEASE CALL 604-806-8886 IMMEDIATELY

ADMISSION MEDICATION ORDERS

Birthdate: Gender:

PHN:

Other Medications Taken Prior to Admission (e.g. samples, investigational drugs, nonprescription or herbal medications, antiretrovirals, chemotherapeutic agents, etc.)	Indicate Action	Revised Dose/Directions/Duration
	Continue Change Discontinue	
	Continue Change Discontinue	
	Continue Change Discontinue	
	Continue Change Discontinue	
	Continue Change Discontinue	

Additional Orders:

(Date) (Prescriber Signature) (Prescriber Printed Name) (Phone/Pager Number)

FAX SIGNED ORDERS TO PHARMACY **PLACE ORIGINAL IN PATIENTS CHART**

IF YOU RECEIVED THIS FACSIMILE IN ERROR, PLEASE CALL 604-806-8886 IMMEDIATELY

Providence HEALTH CARE

Vancouver CoastalHealth

ADMISSION
MEDICATION ORDERS

Birthdate: Gender:

PHN:

Additional Orders:

(Date) (Prescriber Signature) (Prescriber Printed Name) (Phone/Pager Number)

FAX SIGNED ORDERS TO PHARMACY **PLACE ORIGINAL IN PATIENTS CHART**

SASKATOON HEALTH REGION
Saskatoon, Saskatchewan

Facility: _____

PREADMISSION MEDICATION LIST
PHYSICIAN ORDER FORM

Keep this form with the Physician Orders

Allergy / Intolerance to Medication & Food
(NO MEDICATIONS TO BE ADMINISTERED UNTIL THIS SECTION COMPLETED)
❑ No Known Allergies
❑ Unable to obtain (Pharmacy to flag on MAR)
❑ Allergies as follows (describe reaction):

Weight:
_____ **kg,** _____**lbs**
❑ Estimate, ❑ Actual

Height:
____ **cm,** ____ **inches**
❑ Estimate, ❑ Actual

❑ **Check here** if this is an addendum to or revision of previously completed medication list.

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

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

Medication Name (list only those medications **currently** being taken)	**Dose**	**Interval**	**Route**	Time / Date of Last Dose	**Physician Orders for Individual Medications on Admission** Continue	Stop	Comments / Change to (specify):
❑ No Preadmission Medications							

Initial: _____ Processed, _____ Faxed, _____ MAR
Please cross out blank lines after processing to prevent additions.

❑ continued on page 2
Comments / Concerns / Follow-up:

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

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

Prescribing Physician:

_____ **(print)**

_____ **(signature)**

Date: _____ **Time:** _____

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

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

Word Form # 102728 10/06 Category: Orders

This form is intended to serve as the pre-admission medication list as well as the physician's admitting orders for pre-admission medications. New medication prescribed on admission should be written on the physician's order sheet.

Questions to Ask for a Medication History

1. Ask about all medications:
   - Prescription
   - Over-the-counter (non-prescription)
   - Anything from a herbalist or health food store
   - Vitamins or supplements
   - Traditional remedies

2. Include:
   - Name
   - Dosage form
   - Dose
   - Schedule
   - Last dose taken

   Note: be specific about prn medication

3. Ask about recently started medications or dosage changes

Tips for Performing a Medication History

- Balance open-ended questions with yes / no questions
- Ask nonbiased questions
- Don't ask leading questions
- Vague responses may indicate non-adherence
- Avoid medical jargon
- Encourage questions from patient
- Educate patient to bring medications from home
- Educate patient to carry a list of current medications
- Prompt regarding non-pill dosage forms such as patches, creams, eye drops, inhalers, sprays, samples, shots
- Do not assume instructions on prescription vial labels are current. If the medication vials are available, review each medication individually with the patient. Ask them how they take each medication.
- Ensure the vial contains the medication specified on the label.
- Prompt regarding prn medication
- Allergies: ask about symptoms
- Use multiple sources of information:
  - Medication labels
  - Family
  - Community Pharmacy
  - Family physician

Other Questions for Medication History Interviews

1. Did a doctor change the dose or stop any of your medications recently?
2. Have you changed the dose or stopped any of your medications recently?
3. Have any of the medications been causing side effects?
4. Your profile indicates that you may have run out of some medications. Are you still taking any of these?
5. Have you spent any days in the hospital over the past year?
6. When you feel better, do you sometimes stop taking your medicine?
7. Sometimes if you feel worse when you take your medicine, do you stop taking it?
8. Are the pills in the bottle the same as what is on the label?
9. Have you changed your daily routine to accommodate your medication schedule?

Word Form # 102728 10/06 Category: Orders

CHILDREN'S & WOMEN'S HEALTH CENTRE OF BRITISH COLUMBIA

BCCH PHYSICIANS' ORDERS ON PATIENT TRANSFER

WRITE FIRMLY WITH A BALLPOINT PEN

WEIGHT		HEIGHT	
Pharmacy Use Only	Date & Time	PROVIDE PHYSICIAN NAME, COLLEGE NUMBER, PAGER NUMBER, SIGNATURE	Noted by RN/UC

TRANSFER patient to _____ (unit) under the **CARE** of _____ service.

CONTACT receiving physician at pager _____ on arrival to unit.

DIAGNOSIS:

CODE STATUS:

☐ Full Code

☐ Please see attached "Do Not Attempt Resuscitation Guidelines"

DIET:

☐ Nothing by mouth

☐ Diet as tolerated

☐ Total Parenteral Nutrition

☐ Expressed Breast Milk/Breastfeeding

☐ Formula_____

☐ Other_____

Via:

☐ Oral ☐ Nasogastric Tube ☐ Gastric Tube

☐ Nasojejeunal Tube ☐ Jejeunal Tube

ACTIVITY:

☐ Bedrest

☐ Activity as tolerated

☐ Other _____

_____

VITAL SIGNS:

Temperature, pulse & respirations: Every _____ hours

Blood pressure: Every _____ hours

Neuro vital signs **:** Every _____ hours

Vital sign parameters:

☐ Notify physician if vital signs not within parameters.

CONTINUOUS MONITORING:

☐ Telemetry

☐ Oxygen saturation

These orders will cover the patient until new orders written.

Signature:_____ Pager #: _____

Print Name: _____ College ID#:_____

CHILDREN'S & WOMEN'S HEALTH CENTRE OF BRITISH COLUMBIA

BCCH PHYSICIANS' ORDERS ON PATIENT TRANSFER

WRITE FIRMLY WITH A BALLPOINT PEN

WEIGHT | HEIGHT

Pharmacy Use Only	Date & Time	PROVIDE PHYSICIAN NAME, COLLEGE NUMBER, PAGER NUMBER, SIGNATURE	Noted by RN/UC

TREATMENTS:

☐ **Supplemental oxygen** at _____ litres/min by ☐ nasal prongs or ☐ mask to maintain oxygen saturation at greater than ____%

☐ **Chest tube** to ☐ 10 cm suction ☐ 15 cm suction ☐ 20 cm suction ☐ no suction or ☐ other _____

ISOLATION:

☐ No

☐ Yes

Type_____

OTHER TREATMENTS OR MONITORING (gastric, neuro, urinary etc.):

☐ **Nasogastric tube** to: ☐ straight drainage ☐ low intermittent suction ☐ no drainage ☐ other (specify) _____

☐ **Indwelling urinary catheter**

☐ **Intermittent urinary catheterizations** every _____ hours

☐ **EVD** to _____ cm H_2O. Open drain at _____ mmHg

TOTAL FLUIDS:

_____ mL/kg/day **OR** ☐ No restrictions

INTRAVENOUS FLUIDS:

INVESTIGATIONS: *(e.g., Laboratory, Drug Levels, Radiology, Electrocardiograms)*

These orders will cover the patient until new orders written.

Signature:_____ Pager #: _____

Print Name: _____ College ID#:_____

CHILDREN'S & WOMEN'S HEALTH CENTRE OF BRITISH COLUMBIA

BCCH PHYSICIANS' ORDERS ON PATIENT TRANSFER

WRITE FIRMLY WITH A BALLPOINT PEN

WEIGHT	HEIGHT

Pharmacy Use Only	Date & Time	PROVIDE PHYSICIAN NAME, COLLEGE NUMBER, PAGER NUMBER, SIGNATURE	Noted by RN/UC
		MEDICATIONS: ☐ I have reviewed this patient's completed medication history on admission and current medications and have considered when prescribing transfer medications. ☐ *Continuous Morphine Infusion for Patient greater than 3 months of age*: Refer to preprinted order set ☐ *Continuous Morphine Infusion for Patient less than 3 months of age or hydromorphone or fentanyl continuous infusions*: Consult Acute Pain Service ☐ *Continuous Midazolam Infusion:* Contact admitting neurologist for orders ***Drug name, dosage, frequency, route, indication & last dose given*** **1.** **2.** **3.** **4.** **5.** **6.** **7.** **8.** ☐ Further transfer orders on subsequent pages *These orders will cover the patient until new orders written.* ☐ I have reviewed the patient and transfer orders at _____ *(time)* with Dr. _____*(accepting physician).* Signature:_____ Pager #: _____ Print Name: _____ College ID#:_____	

Discharge Medication Reconciliation Checklist

Please check when task is completed

- ❑ Best Possible Medication Discharge Plan (BPMDP)
- ❑ BPMDP patient discharge interview (please refer to BPMDP patient discharge interview guide)
- ❑ Provide patient/caregiver with prescriptions
- ❑ Record last dose given of each medication in hospital prior to discharge
- ❑ Provide patient/caregiver with discharge medication calendar
- ❑ Discuss the importance of using one community pharmacy for all medications
- ❑ Encourage patient to have their medication list updated at all healthcare visits involving medications and to keep their community pharmacy informed of these changes.
- ❑ Refer patient to community pharmacy medication programs available if applicable. – e.g. *MedsCheck* in Ontario

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

Steps for Creating the Best Possible Medication Discharge Plan (BPMDP)

Discharge from an Acute Care Facility

Step 1 (Ready):

- ❑ Review the MAR for the previous 24 hours prior to discharge
- ❑ Record medications on the BPMDP that are relevant for discharge
- ❑ Compare these medications to the BPMH completed on admission
- ❑ Record any medications, from the BPMH, on the BPMDP that are not included on the MAR

Step 2 (Set):

- ❑ Identify any discrepancies between the previous 24-hour MAR and the BPMH *(e.g., omitted medications, dose adjustments, non-formulary/ formulary adjustments etc.)*

Step 3 (Go!):

- ❑ Resolve the discrepancies identified either through direct communication with the prescriber and/or through review of the patient's chart
- ❑ Complete all relevant sections of the BPMDP

Step 4 (Pass the Baton):

- ❑ Inform prescriber that the BPMDP has been prepared and requires review
- ❑ *Prescriber* determines which medications on the BPMDP should be continued/ discontinued/ adjusted and completes all the necessary components of the prescription
- ❑ *Prescriber* includes on the BPMDP new medications to begin on discharge
- ❑ Conduct BPMDP patient interview with patient and/or caregiver and document completion on the BPMDP. *(Refer to BPMDP Patient Interview Guide)*
- ❑ Refer patient for community pharmacy medication review program, if applicable to your province
- ❑ Communicate the BPMDP to the patient, community pharmacy, primary care physician, alternative care facility or applicable service

---

Choosing your Target Population

Whenever possible this process should be applied to all patients being discharged including those who may not have had medication reconciliation on admission. However patients at high risk for a medication adverse event on discharge should take priority.

Risk factors for patients at high-risk for a medication adverse event on discharge may include:

- Number of medications patient is taking ($\geq$ 5)
- Multiple changes to patient's medication regimen
- Patients on high-risk medications (e.g., warfarin, digoxin, insulin, ASA in combination with clopidogrel)
- Patients discharged home without supports
- Principal diagnosis of: cancer, COPD, stroke, heart failure, diabetes, depression
- Prior unplanned hospitalization within the previous 6 months

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

Best Possible Medication Discharge Plan (BPMDP)
Patient Interview Guide

Ensure these topics are addressed when conducting education to patients regarding discharge.

Identify medications:

1. **Changed** while the patient has been in hospital *(e.g., formulary adjustments, auto-substitutions, dose/frequency changes, etc.)*
2. **No longer required** on discharge. *(Including medications started in hospital and those the patient was taking prior to admission).*
3. **To be continued** on discharge. *(Including medications started in hospital and those the patient was taking prior to admission).*
4. **New** medications the patient is to take on discharge.

Confirm patient's understanding of:

1. **Purpose** for each medication *(e.g., Can you explain to me the reason why you are taking each of your medications?).*
2. **Possible side effects and when it is necessary to seek medical attention** for each medication *(e.g., Can you explain to me the possible side effects of each of your medications (or just new medications) and what to do if these occur?).*
3. **Intended duration of therapy** for each new medication *(e.g., How long will you be on each medication?).*

Provide patient with:

1. **Medication calendar**, summarizing name of medication, purpose, dose, frequency, when best to take medications, duration of therapy and any additional comments which may be necessary.
2. **Follow up information** regarding appointments/laboratory tests that may be necessary concerning their medications.

Ask the patient / caregiver to:

1. **Summarize** their discharge medication instructions *(to assess their understanding of information presented to them)*.

Encourage patient / caregiver to:

1. **Bring this medication list** with them to every healthcare appointment, physician / specialist, ER visit, clinic appointment and to their community pharmacy.
2. **Keep their medication list up to date**.
3. **Carry their medication list** with them at all times.
4. **Use one community pharmacy** to process all prescriptions.

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

Best Possible Medication Discharge Plan (BPMDP)

Discharge Date: _____

Allergies: _____

Primary Diagnosis: _____

Community Pharmacy: _____ Phone Number: _____

Patient Addressograph

To be completed by RPh , RN or MD Name: _____ Date _____								To be completed by MD			
Current Medications	**Dose**	**Route and Directions**	**Source (BPMH / MAR)**	**Same as prior to admission**	**Adjusted in hospital**	**Discontinued in hospital**	**New in hospital**	**Do Not Continue**	**Quantity**	**Repeats**	**Comments / Codes**
New Discharge Medications											

BPMDP Patient Interview Completed: ❑

Refer for *community medication review program* if available: ❑

Physician (print name): _____ Physician's Signature: _____

Date: _____ CPSO Number: _____

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

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

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

Discharge Medication Schedule

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

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

LONDON
Health Sciences Centre

INFORMATION ONLY

INTEGRATED DISCHARGE PRESCRIPTION

☐ University Campus

☐ South Street Site ☐ Westminster Campus

DRUG ALLERGIES:

NEW DRUG ALLERGIES/INTOLERANCES:

SECTION A	SECTION B			
Medications Prior to Admission (Name, Dose and Frequency)	Modifications to Medications CONTINUED	DISCONTINUED	MODIFIED	Full Medication List on Discharge
1.	☐	☐	☐	
2.	☐	☐	☐	
3.	☐	☐	☐	
4.	☐	☐	☐	
5.	☐	☐	☐	
6.	☐	☐	☐	
7.	☐	☐	☐	
8.	☐	☐	☐	
9.	☐	☐	☐	
10.	☐	☐	☐	
11.	☐	☐	☐	
12.	☐	☐	☐	
13.	☐	☐	☐	
14.	☐	☐	☐	
15.	☐	☐	☐	
16.	☐	☐	☐	

FAMILY PHYSICIAN'S COPY

PHARMACIST'S COPY

LONDON Health Sciences Centre

SECTION C: DISCHARGE PRESCRIPTION(S)

DATE (YYYY/MM/DD): _____

NAME: ADDRESS:

Community Pharmacist: Please update medication profile as above, print current medication list with instructions for the patient and return the top portion of this form to the patient.

1.
2.
3.
4.
5.
6.
7.
8.

PRINT NAME OF PHYSICIAN: _____ PHYSICIAN'S SIGNATURE: _____

DISTRIBUTION: WHITE - Give to Patient CANARY - Patient's Chart

ST. MICHAEL'S HOSPITAL
A teaching hospital affiliated with the University of Toronto

7 0 2 0 3

Patient ID

DISCHARGE PRESCRIPTION AND MEDICATION RECONCILIATION

(File with Discharge Summary)

Allergy/Intolerance to Medication & Food

☐ No Known Allergies

☐ Allergies as follows (describe reaction):

List of Discharge Medications Include all medications patient is to take upon discharge	**Reconciliation** Compare List of Discharge Meds to Preadmission Medication List and check appropriate column. If no prescription necessary- draw a line through row				**Prescriptions**		
Medication Name/Dose/Route/Frequency *Use only approved abbreviations*	Unchanged	Changed	New	Rationale for drug addition/change	Qty/Duration	Repeats	Limited Use Codes

Discontinued Medications	Rationale for Discontinuation

Physician Name: _____(print) Physician Signature: _____

Physician CPSO #:_____ (416) 864 – 6060 Ext. _____ Date (DD/MM/YY):_____

WHITE - Prescription * **YELLOW -** Copy for Family Physician * **PINK -** Copy for Chart **ONLY WHITE COPY VALID AS PRESCRIPTION**

calgary health region

Calgary Health Region

- Foothills Medical Centre 944-1307, fax 944-4893
- Peter Lougheed Centre 943-4680, fax 943-4889
- Rockyview General Hospital 943-3593, fax 943-3550
- Alberta Children's Hospital 943-7935, fax 245-4073

ADDRESSOGRAPH

SEAMLESS PHARMACEUTICAL CARE DISCHARGE SUMMARY

Department of Pharmacy

CONFIDENTIAL

Your patient was recently treated in hospital. This information is provided to support continuity of care.

ATTENTION:

Community Pharmacy _____ fax: _____ phone: _____
Family Physician _____ fax: _____ phone: _____

Admission Date: _____ Reason for Admission: _____
Discharge Date: _____ _____
Allergies/Drug Reactions: _____

A. DISCHARGE MEDICATIONS or ☐ See attached medication schedule

Drug Name	Dose and Frequency	Quantity*	Indication/Comments/Dose ↑ or ↓
1-			
2-			
3-			
4-			
5-			
6-			
7-			

***Community Pharmacist to provide quantity indicated, subsequent refills must be authorized by family physician**

Physician _____

B. DISCONTINUED MEDICATIONS

Drug	Reason

C. PATIENT COUNSELLING & COMPLIANCE ISSUES

Patient Teaching on new medications completed? ☐ Yes ☐ No

Community based counselling/reinforcement needed? ☐ Yes _____ ☐ No

Potential Barriers to communication: ☐Understands English ☐Reads English

Language: _____

☐Hearing Impaired: ☐Sight Impaired

Compliance Aid: ☐Currently Used ☐Needed

Type of aid - _____ ☐ Not necessary

D. ADDITIONAL INFORMATION (Plan, Follow-up Required, Patient Goals/Concerns)

_____

Completed by (print): _____ Hospital Pharmacist (signature)_____

Capital Health

Departments of Pharmacy, Nursing and Medicine

Medication Reconciliation and Discharge Prescription

Patient: _____ Site: _____ Unit _____

☐ **No Known Drug Allergies** ☐ **Allergies as follows** (please describe reaction)	Confidential Facsimile transmission to: Intended Pharmacy: _____ Pharmacy fax #: _____ Date: _____ Time: _____ ** **If faxing, please see box on reverse for instructions****

List of Discharge Medication All medications to be taken on discharge (Use current MAR to create list)	**Reconciliation** Compare List of Discharge Meds to BPMH and check appropriate column				***Prescriptions***		
Medication Name / Dose / Route / Frequency	Unchanged	Changed	New	Rationale for drug addition / change	Quantity	Repeats	MSI Special Auth Code

Page _____ of _____ ☐ **Medication Calendar Provided**

Discontinued Medications	**Rationale for Discontinuation**

☐ Other non-prescription drugs and NHP D/C on admission. Pt may resume in consultation with community care provider(s) on D/C.

Prescriber Certification for Faxed Prescriptions: This prescription represents the original of the prescription drug order. The pharmacy addressee noted above is the only intended recipient and there are no others. The original prescription has been invalidated by marking it in such a way that it cannot be reissued.

Authorized Prescriber: _____ Date (yyyy/mm/dd): _____

Prescriber name: _____ CPSNS #: _____ Pager #: _____

Medication Reconcilation Orders

First copy - Patient/Home Pharmacy Second copy - Chart Third copy - Family Physician

Instructions for Discharge form completion

For a faxed discharge prescription, please:

A. Write intended community pharmacy name, fax #, date and time of fax transmission in provided box.
B. Fax prescription only to drugstore listed in the fax transmission section of the discharge form.
C. Do not give a handwritten copy of the prescription to the patient. The faxed drugstore copy is now the original prescription.
D. Mark on the discharge prescription, ***"This prescription has been faxed. Do not fill from this copy."*** Leave original in chart.

1. **List of Discharge Medications** - Document all medications the patient is to take upon discharge.
   - Scheduled and prn drugs.
   - Prescription, over the counter (OTC), vitamins, natural products, samples and study drugs.
   - Use the last 24-hour Medication Administration Record (MAR), as well as any medication to be started upon discharge, to generate this list.

2. Once the discharge medication list is complete, each medication should be compared to the **Medication Reconciliation and Admission Form** and applicable box checked as follows:
   - **Unchanged** - No change to the medication as written in the BPMH.
   - **Changed** - Modification to a dose, route or frequency of a BPMH medication. Document the rationale.
   - **New** – A new medication added to the medication regimen while in hospital (i.e. Does not appear on the BPMH). Document the rationale for the addition.

Please note*: Some medications may have been be changed on admission to a formulary substitute and the original medications should be restarted at discharge whenever possible.*

3. **Prescription Quantities** – For each medication, the prescriber (in consultation with patient) determines which medications will require prescriptions.

PLEASE NOTE:

- STRIKETHROUGH THE ASSOCIATED PRESCRIPTION SECTIONS OF LISTED MEDICATIONS FOR WHICH PRESCRIPTIONS **WILL NOT** BE PROVIDED.
- **DO NOT** USE THE PRESCRIPTION SECTIONS TO PROVIDE PRESCRIPTIONS FOR NARCOTIC OR CONTROLLED SUBSTANCES. THESE REQUIRE PRESCRIPTIONS WRITTEN ON A PRESCRIPTION MONITORING PROGRAM'S "TRIPLICATE FORM".

4. **Discontinued Medication** – Document home medications discontinued during this hospital stay. List rationale. To indicate that non-prescription medications or natural health products have been discontinued on this admission, check the box provided.

5. Prescriber legibly signs, dates and lists their pager and registration number on the form.

PLEASE REFER TO POLICY MM 50-003 FOR FURTHER INFORMATION

MEDICATION RECONCILIATION IN ACUTE CARE

MedRec Posters

Appendix F

Medication Reconciliation (MedRec) is a Multi-Step Process

Admission

Best Possible Medication History (BPMH) ↔ Admission Medication Orders (AMOs)

How To

Proactive Process

1. **Create** the BPMH using (1) a systematic process of interviewing the patient, family/caregiver and (2) a review of at least one other reliable source of information.
2. **Create** AMOs by assessing each medication in 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.

Retroactive Process

1. **Create a** the primary medication history (PMH).
2. **Generate** the AMOs from the PMH.
3. **Create** the BPMH using (1) a systematic process of interviewing the patient, family/caregiver and (2) 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** discrepancies with the most responsible prescriber.

Tasks

- Clarify any confusion about medication names, doses, frequencies, or routes on the BPMH.
- Prescriber to decide which medications on the BPMH to continue, discontinue or modify.
- Identify and resolve discrepancies between the BPMH and admission medication order with the prescriber.

Transfer

Best Possible Medication History (BPMH) ↔ New Transfer Orders ↔ Medication Administration Order (MAR)

How To

1. **Compare** the admission BPMH with the transfer orders and the existing transferring **unit's MAR ensuring all medications have been assessed;**
2. **Identify and resolve** all discrepancies with the prescriber
3. **Document and communicate any resulting changes to the medication orders.**

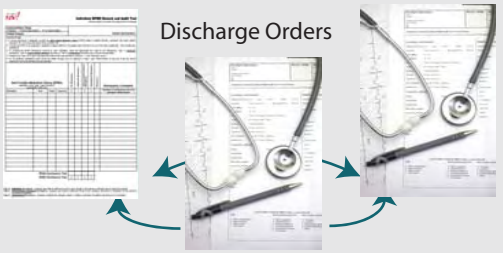
Tasks

Prescriber to decide:

- which stopped medications on the BPMH should be restarted.
- which inpatient medications to continue, discontinue or modify upon transfer.

Discharge

Best Possible Medication History (BPMH) → Discharge Orders → Medication Administration Order (MAR)



How To

1. **Create the BPMDP**
   - Review the last 24-hour MAR or the most up-to-date medication profile and record medications on the BPMDP that are relevant for discharge;
   - Compare these medications to the BPMH obtained at admission and record any medications on the BPMDP that are not included on the MAR;
2. **Identify** all discrepancies between the BPMH and the last 24-hour MAR or most up-to-date medication profile
   - Omitted medications, dose adjustments, non-formulary/ formulary adjustments;
   - Complete documentation for each medication on the BPMDP indicating: continue as prior to admission, adjusted, discontinued or new in hospital.
3. **Resolve and document** any discrepancies with the prescriber.
   - Prescriber reviews and completes the BPMDP, makes adjustments and writes new prescriptions as appropriate.
4. **Communicate** BPMDP to the patient and the next providers of care
   - Conduct a BPMDP patient/caregiver interview using a systematic process and document;
   - Assess patient/caregiver knowledge about medications once education provided; e.g. side effects to look out for, who to call if questions re medication, what to do if a dose is missed
   - Refer patient for community pharmacy medication review program follow-up where applicable;
   - Communicate BPMDP to the community pharmacy, primary care physician, alternative care facility, family health team, ambulatory clinics and home care as applicable.

Tasks

Prescriber to decide:

- which stopped medications on the BPMH should be restarted.
- which inpatient medications to continue, discontinue or modify upon discharge.
- which new medication to start upon discharge.

Developed by ISMP Canada for *Safer Healthcare Now!* Adapted from: 27 Apr 2009 Electronic Medication Reconciliation: Practices for Streamlining Information Transfer. Washington, DC: Advisory Board Co; 2007.

Medication Reconciliation

From Admission to Discharge in Acute Care

ADMISSION

AT ADMISSION:

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

Compare:

Best Possible Medication History (BPMH)

vs.

Admission Medication Orders (AMO)

to identify and resolve discrepancies

TRANSFER

AT TRANSFER:

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

Compare:

Best Possible Medication History (BPMH)

and the

Transferring Unit Medication Administration Record (MAR)

vs.

Transfer Orders

to identify and resolve discrepancies

DISCHARGE

AT DISCHARGE:

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

Compare:

Best Possible Medication History (BPMH)

and the

Last 24 hour Medication Administration Record (MAR)

C

plus

New medications started upon discharge

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

Developed by ISMP Canada) for *Safer Healthcare Now!*. Graphic adapted from St. Mary's Hospital & Regional Medical Center, Grand Junction, Colorado, USA.

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Top 10 Practical Tips

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

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

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

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

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

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

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

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

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

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

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

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