The High 5s Project
Standard Operating Protocol

Assuring Medication Accuracy at Transitions in Care:
Medication Reconciliation

Standard Operating Protocol
Assuring Medication Accuracy at Transitions in Care

The Standard Operating Protocol was the primary reference document for hospitals and Lead Technical Agencies (LTAs) participating in the WHO High5s project. It outlines the standard steps of medication reconciliation, guidance for implementation, references and suggestions for quality improvement. This document and the Getting Started Kit are provided to assist more organizations to implement medication reconciliation.

Acknowledgement

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1. Description of the patient safety problem to be addressed

> **Medication reconciliation is the formal process in which health care professionals partner with patients to ensure accurate and complete medication information transfer at interfaces of care.**

Adverse drug events (ADE) are a leading cause of injury and death within health care systems around the world.[1,2,3] Many of these events occur as a result of poor communication between health professionals and between health professionals and patients and/or carers when care is transferred, such as when patients are admitted to hospital, move between wards and are discharged home to the community or a residential care facility home.

Medication History

Around half of the medication errors that occur in hospital are estimated to occur on admission or discharge from a clinical unit or hospital[4] and around 30% of these errors have the potential to cause patient harm.[5,6] These errors can occur when obtaining the patient's medication history (e.g. on admission to hospital), when recording the medicines in the medical record, and when prescribing medicines on admission, on transfer to another ward and at discharge.

Verify History

Up to 67% of patients' prescription medication histories recorded on admission to hospital have one or more errors and 30 – 80% of patients have a discrepancy between the medicines ordered in hospital and those they were taking at home.[7]

Updates During Treatment

When a patient's transition from the hospital to home is inadequate, the repercussions can be far-reaching — hospital readmission, an adverse drug event, and even mortality[,8,9] Several national European studies of adverse events in different countries revealed that between 6.3–12.9% of hospitalized patients have suffered at least one adverse event during their admission and that between 10.8–38.7% of these adverse events were caused by medications which were preventable.[10]

It is well known that adverse drug events (ADE) are a leading cause of injury and death in healthcare and that communication problems between settings of care are a significant factor in their occurrence.[11,12, 13,14] Sixty-seven percent of patients' medication histories have one or more errors[15] and up to 46% of medication errors occur during prescription at patient admission or discharge.[16] Chart reviews reveal that over half of all hospital medication errors occur at the interfaces of care.[17] The cost estimates from Europe and North America, have found that medication overuse, underuse and misuse costs billions of dollars. Yet, little work is being undertaken to understand and address this problem.[18] In America costs related to the 1.5 million people that are harmed and thousands that are killed are estimated at 3.5 billion annually.[19]

Discharge Medication Plan

A European study in six countries involving 900 consecutive patients admitted to university teaching hospitals showed a range from 22% to 77% of potentially inappropriate prescribing in the elderly.[20] While the elderly are overrepresented in terms of patient numbers, this group is underrepresented or even excluded from many clinical trials that generate the evidence-base for health care interventions.

Erroneous medication histories can lead to discontinuity of therapy, recommencement of discontinued medicines, inappropriate therapy and failure to detect a drug related problem. Up to 27% of hospital prescribing errors are attributable to inaccurate or incomplete medication histories on admission to hospital[21,22] with the omission of a regular medicine being the most common error. Older patients (≥ 65 years) and those taking multiple medicines experience a higher incidence of errors.[23]

MEDICATION RECONCILIATION

67%

Up to 67% of patient's prescription histories have one or more errors.[24]

Admission to hospital places patients at an increased risk of having a chronic medication discontinued (see case 1) and this risk is greater in patients who have an intensive care unit admission.[25] If these errors are not resolved they can have adverse consequences for the patient during their hospital stay or following discharge from hospital.

Patient Example

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

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

Discrepancies also commonly occur at discharge when prescriptions are written and discharge summaries prepared. In a population of patients discharged from an internal medicine service, 23% of patients experienced an adverse event and 72% of these were medication related.[26]

The majority of the issues described above can be prevented through medication reconciliation - a process designed to improve the accuracy of medication histories recorded and their use when prescribing. It is a system of effectively communicating changes to medication regimens to patients and healthcare providers within the patient's circle of care, as patients transition through the healthcare system.

Rationale

The safe use of medications in treating patients requires knowledge and consideration of all the medications that the patient is currently taking or receiving in order to avoid omissions, duplications, dosing errors, and potential adverse interactions with new drugs being prescribed.

The Scope of the medication reconciliation SOP

The WHO High5s medication reconciliation SOP applies to the acute hospital setting. It covers implementing medication reconciliation on admission, at internal transfer and on discharge from hospital.

2. A word about standardization

The basic assumption that was tested in the High5s initiative is that process standardization will improve patient safety. We know that in a general sense, the tendency for a process to fail is diminished in relation to the consistency with which it is carried out; that is, the degree to which it is standardized. Despite this, efforts in recent years to standardize health care processes through the introduction of practice parameters, protocols, clinical pathways, and so forth have been met with limited enthusiasm among practitioners and are only slowly affecting the actual delivery of care. Achieving process consistency while retaining the ability to recognize and accommodate variation in the input to the process (for example, the patient's severity of illness, co-morbidities, other treatments, and preferences) is one of the major challenges to standardization in health care. Process variation to meet individual patient needs is an essential principle of modern medicine; variation to meet individual health care organization or practitioner preferences need not be. The thesis that has been tested in the WHO High5s initiative is that standardization will be advantageous—will get better overall results more safely—even if we concede that each practitioner *working independently* could get better results than the others by using a personally favored, but different, process than the others. The reason, of course, is that in modern medicine, practitioners do not work independently. Clinical results are determined by the complex interrelationships among practitioners, supporting staff and services, and the clinical environment. Assuming each preferred practice is a good practice, it matters less which process is selected as the basis for standardization; it is the standardization that matters most. Standardization produces better results than a variety of "best practices" when it comes to safety. And the WHO High5s initiative has taken standardization a couple of steps further than the usual efforts to minimize variation—it not only sought to standardize certain processes among individuals within a health care organization but to standardize them in multiple organizations in multiple countries around the world. The WHO High5s Project asked the following: Is it possible to standardize on this scale? If it is, will it measurably improve the safety of care? These questions have now been answered in the affirmative. The first of these questions has now been answered as a qualified affirmative. Hospitals participating in the WHO High5s Project were able to successfully implement the key components of the medication reconciliation SOP. The SOP could not be implemented, however, as a "one-size-fits-all" solution. Some local customization (at both the country-level and hospital-level) was necessary to secure initial buy-in and to sustain post-implementation changes. Many hospitals are still in the process of spreading implementation. Also, performance measurement data collected over the course of the project demonstrates significant variation from hospital to hospital and country to country in the consistency of performance of the steps of the SOP. All countries considered the implementation of the medication reconciliation SOP to be valuable in their hospitals.

The WHO High5s SOPs are now available for general implementation. In the interest of improving patient safety, the WHO encourages all its member countries to promote implementation of the Medication reconciliation SOP by all of their health care facilities. Further, in recommending this SOP, the WHO advises health care facilities to implement them with as little adaption as possible.

3. Guiding principles for implementation of medication reconciliation

The basis for effective medication reconciliation is the development, maintenance and communication of a complete and accurate medication list throughout the continuum of care.

> **Guiding Principle 1:**
> An up-to-date and accurate patient medication list is essential to ensure safe prescribing in any setting.

The medication reconciliation SOP requires implementation of a standardised process of medication reconciliation whenever care is transferred. That is, on admission, transfer within the hospital and on discharge from hospital to home or a long term care facility (nursing home).

> **Guiding principle 2:**
> A formal structured process for reconciling medications should be in place cross all interfaces of care.

Although simple in concept, medication reconciliation is complex to implement reliably. Considering the complexity and resource requirements for reliable implementation, a phased implementation is recommended.

By staging implementation, preferably starting at admission, organizations can ensure that the process works reliably before implementing it across all interfaces of care. Organizations may also consider implementing first in high impact areas such as general medicine, or in selected high-risk patients.

> **Guiding principle 3:**
> Medication reconciliation on admission is the foundation for reconciliation throughout the episode of care.

During Phase 1 of the WHO High 5's project the intervention was limited to a specific population considered to be at high risk of adverse drug events because of increased drug use. That is, patients 65 years of age or older admitted through emergency departments to inpatient services.

> **Guiding Principle 4:**
> Medication reconciliation is integrated into existing processes for medication management and patient flow.

> **Guiding Principle 5:**
> The process of medication reconciliation is one of shared accountability with staff aware of their roles and responsibilities.

The medication reconciliation process is a multidisciplinary activity with responsibilities shared among physicians, nurses, pharmacists, and other clinicians involved in the patient's care. For medication reconciliation to be effective staff need to be aware of their roles and responsibilities in the process so that patients have their medicines reconciled and discrepancies resolved early within their admission.

Ideally a pharmacist should be involved in gathering or validating the patient's list of current medications (BPMH) and the comparison of that list with medication orders. When a pharmacist is not available, those tasks should be undertaken by a health care professional (e.g. physician, nurse, therapist, or technologist/technician) who has been trained in collecting a BPMH and reconciling medicines.

The culture of the organization with respect to interdisciplinary collaboration and teamwork will significantly influence the effectiveness of the medication reconciliation process. The process is best conducted in an environment of shared accountability and it is in this context that the standard operational protocol is based.

Guiding Principle 6:
Patients and families are involved in medication reconciliation.

Guiding Principle 7:
Staff responsible for reconciling medicines are trained to take a BPMH and reconcile medicines.

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4. The context for medication reconciliation

The context (or environment) in which the Medication reconciliation SOP is implemented will influence the success of its implementation. External factors such as health policy, national guidelines and accreditation requirements for medication reconciliation will have an influence, as will the internal factors that are the unique features of the individual health care organization. Factors such as the culture, leadership, size and structure of the organization, the nature of ownership of the intervention and the availability of resources can affect the success of the implementation and should be considered when planning the implementation strategy.

In order to better understand the influence of context in successful quality improvement work it is recommended that leadership and the implementation team review this excellent resource for the project team. See: Health Foundation - Context

Effective and efficient implementation of a process for medication reconciliation will require integration of its steps into existing processes for medication management and patient flow, rather than simply adding new tasks. It is therefore important to identify the other aspects of patient care with which medication reconciliation must interface, including the following:

- Patient admission/intake
- Initial patient assessment
- Medication ordering, preparation and dispensing
- Documentation of care
- Internal patient transfer procedures
- Communication of information among providers
- Discharge planning
- Patient education and discharge instructions
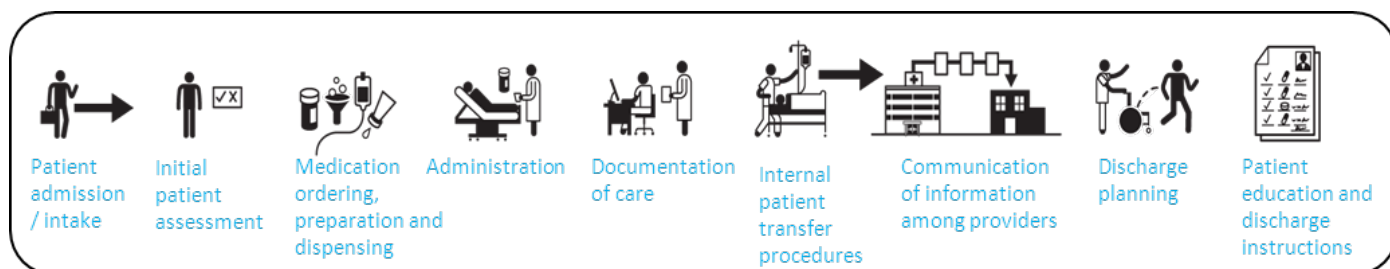
Since medication reconciliation is largely a matter of information management, the specifics of implementation will depend, to a considerable degree, on the health care organization's existing staff, systems and processes for collecting, using, and communicating medication information, for example, hand-written paper medical records or electronic medical records. Information management activities that support medication reconciliation should be integrated as much as possible into existing systems and processes by adapting current forms or data collections tools and aligning the process as much as possible with current work flow to optimize efficiency.

5. <u>Detailed Specifications for the steps in the medication reconciliation</u>

Steps in the medication reconciliation process on hospital admission:

Step 1
- Obtain a best possible medication history (BPMH)
- Compile a comprehensive list of medicines the patient is currently taking from interviewing patients and/or carers, referral letters and other information sources

Step 2
- Confirm the accuracy of the history
- Verify with one or more sources

Step 3
- Reconcile BPMH with prescribed medicines
- Compare BPMH with medicines ordered
- Resolve discrepancies with prescriber and document changes

Step 4
- Supply accurate medicines information
- To receiving clinician, patient or carer when care is transferred
- Include list of current medicines, reasons for changes

<u>Step 1: Best Possible Medication History (BPMH)</u>

A Best Possible Medication History (BPMH) is a medication history obtained by a clinician which includes a thorough history of all regular medication use (prescribed and non-prescribed), using a number of different sources of information.

Types of medication to be noted on the BPMH include ALL prescribed (based on the advice of prescriber) and non-prescribed medications (not based on prescriber's advice) which include:
- prescribed (medications the patient is instructed to take by the prescriber)
- non-prescribed (the prescriber did not advise the patient to take the medication)
- prescription medication
- non-prescription medication (e.g., over-the counter (OTC))
- complementary or herbal medication)
- recreational drugs
- 'prn' (i.e., "as needed") medication

Creation of the BPMH requires use of a systematic process for obtaining a medication history by:
1. Interviewing patients and/or family where possible.
2. Verifying and documenting the history

If a patient or family is unable to participate in a medication interview, other sources may be utilized to obtain medication histories and/or to clarify conflicting information. Other sources should never be a substitute for a thorough patient and/or family medication interview where it is possible.

Step 2: Verifying and documenting the history

The medication information should be verified with more than one source as appropriate. These may include:
- community pharmacists, physicians and/or home care providers
- inspection of medication containers
- patient medication lists
- government medication database
- previous patient health records

The BPMH is a record of medication information that includes: medication name (generic and brand), dose, frequency and route of administration of medications a patient is taking. It is a 'snapshot' of the patient's actual medication use, even though it may be different from what was prescribed. The BPMH is different and more comprehensive than a routine primary medication history (which is often a quick patient medication history).

Using tools such as a guide to gather the BPMH is recommended to improve accuracy and efficiency. (See Implementation Guide for an example of an interview guide)

The BPMH should be documented in a purpose designed form or computer tab that prompts for the information required. This should be available whenever medicines are prescribed.

Step 3: Medication reconciliation at admission

Admission medication reconciliation processes generally fit into two models: the proactive process or the retroactive process, or a combination of the two. The *proactive model* occurs when the BPMH is created prior to writing admission medication orders. In the *retroactive model*, admission orders are written before the BPMH is created. In both models, reconciliation takes place between the BPMH and the admission orders, discrepancies are identified and resolved.

PROACTIVE medication reconciliation model at admission

1 Create the best possible medication history (BPMH)

2 Using the BPMH, admission medication orders are written by the prescriber

3 Verify that the prescriber has assessed every medication on the BPMH, identifying and resolving any discrepancies with the prescriber
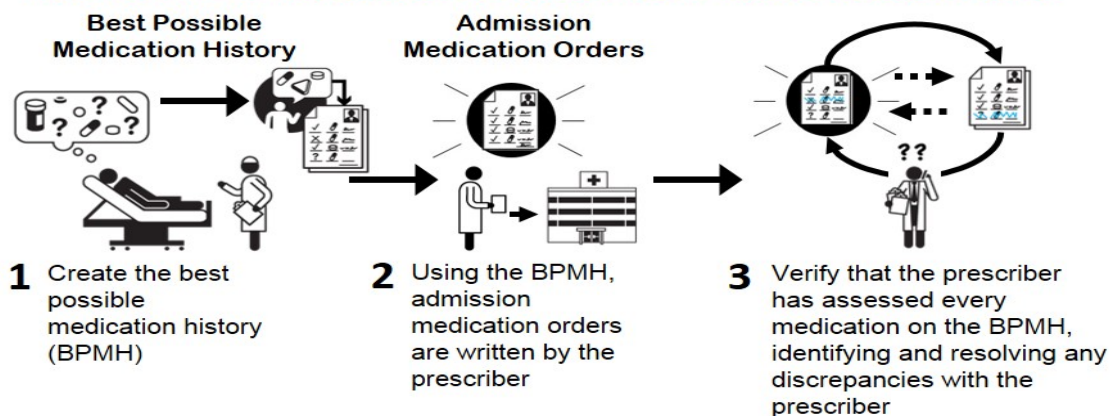
In the proactive model, the BPMH is created and documented upon patient arrival or when the decision is made to admit the patient. It is used by the prescriber to write the admission medication orders (AMO). This process depends on the BPMH being created before admission medication orders (AMOs) are written.

In some situations such as: inadequate staffing to perform a BPMH, medical status of the patient, complex patients with extensive medication histories, or incomplete information available to complete a BPMH prior to the AMOs being written, a process should be in place to reconcile the AMOs to the BPMH within 24 hours.

RETROACTIVE medication reconciliation model

1 Primary medication history is taken

2 Admission medication orders are written by prescriber

3 Create the BPMH using a systematic process

4 Compare the BPMH against the patient's admission medication orders, identify and communicate any discrepancies to the prescriber within 24 hours of the decision to admit the patient

In the retroactive model, a primary medication history is completed and orders written before the BPMH is created. In this case the BPMH is created and compared against the admission medication orders retroactively. Discrepancies are identified and resolved with the prescriber, if clinically appropriate. The medication should be reconciled within 24 hours of the decision to admit the patient. Appendix A provides, in tabular form, additional detail on how it will be done, who will do it, when it should be done, what tools are needed, and the inputs and outputs of the step. For a sample of forms that may be useful in the implementation and documentation of medication reconciliation please refer to the Implementation Guide.

The goal is to reconcile the medications within 24 hours of admission in order to resolve potential problems early in the process. This goal may not be achievable in all organizations in the beginning.

Categories of Discrepancies

Discrepancies between the admission medication orders and the BPMH can be divided into two categories:

- **undocumented intentional** – discrepancies in which the prescriber has made an intentional choice to add, change or stop a medication but this choice is not clearly documented.
- **unintentional** – discrepancies in which the prescriber unintentionally changed, added or omitted a medication the patient was taking prior to admission.

Step 4: Supply accurate information

At the end of the episode of care, the Best Possible Medication Discharge Plan (BPMDP) should be communicated to the patient, community pharmacy, primary care physician, or alternative care facility or health care team/service that will next be providing care to the patient. On receiving a BPMDP, the various recipients should assure that their records are updated to accurately reflect the patient's current medications.

Further explanation of these processes and the conceptual framework are found in the Implementation Guide.

Note: Medication reconciliation on transfer and discharge were not evaluated as part of the High5s Project.

6. <u>Patient and family involvement</u>

Patients are the only constant in the process as they move throughout the healthcare system and medication reconciliation works best when patients and families are actively involved in the process. They are in the best position to provide up-to-date information about the medications they take.

Patients should be educated about the importance of participating in medication reconciliation by:

- Keeping an up-to date list of their medications and/or bringing in their medications when they are admitted to hospital or attend preadmission and outpatient clinics and show their medication list at each encounter with a health care provider. This can be done through the use of educational materials and tools to support patient self-directed maintenance of medication lists. Examples of education resources and tools to engage patients are provided in the Medication reconciliation SOP Implementation Guide.

- Speaking up if they believe that a mistake has been made with their medicines.

Patients should also be engaged in other steps of the medication reconciliation process (beyond the BPMH collection). They should be informed of any changes made to their medication regimen and have a clear understanding of how to take medication on an ongoing basis. At interfaces such as discharge from acute care (to home) and ambulatory visits where medications have been modified, patients should be counseled and given patient friendly written information on the updated medication regimen.

Assessing a patient's understanding of their discharge medication plan can inform required improvements to the discharge medication reconciliation process.

7. Education and training of staff

A comprehensive staff education program is considered one of the four key success factors for medication reconciliation.

All staff involved in the medication reconciliation process need to be trained in their areas of responsibility. This requires an ongoing commitment by the organization to:

- training all new staff
- providing ongoing training.

Training in taking and recording the BPMH should be included in the orientation programs of all staff with responsibility for taking medication histories.

Ideally the training should be multidisciplinary as this promotes the team approach, there is an understanding of each disciplines role, and the training is consistent.

Training should focus on two concepts:

- How to conduct patient interviews to create accurate and complete best possible medication histories
- Critical thinking involved when performing the actual medication reconciliation

Ongoing education of staff is a significant investment for health service organizations. Some of this training can be undertaken by professional organizations and by universities.

There are a number of training resources available to assist organizations with their training needs. See the "WHO High 5's Assuring Medication Accuracy at Transitions in Care: Medication Reconciliation Implementation Guide."

Since it is necessary to train many staff during initial implementation, using a train the trainer approach may be helpful. Hospitals pilot testing the SOP may consider using those staff trained during the pilot testing to become the trainers for the rest of the hospital staff when the new process is ready for full implementation.

8. <u>Implementation Strategy for Medication Reconciliation</u>

It is important to understand the existing processes that may interface with medication reconciliation in the organization. There should be uniformity in:

- basic steps in the process and their interdependencies
- minimum documentation and measurement requirements

It may be possible to allow flexibility in:
- assignment of tasks to specific professional disciplines
- format of the documentation and quality improvement assessment.

Medication reconciliation is a complex process that involves many professional disciplines across all settings of care. While the basic principle of communication about medications and its value to patient safety are generally accepted, the process itself is often seen as burdensome and may be resisted if not implemented in a systematic manner with appropriate oversight, resources, and early engagement of the participants in the process. It is recommended that a quality improvement approach be taken in implementing the Medication reconciliation SOP. The following describes the implementation methodology used by countries in the High5s Project. Additional guidance can be found in the "WHO High5's Assuring Medication Accuracy at Transitions in Care: Medication Reconciliation Implementation Guide."

9. **Oversight of the implementation**

    a. Identify an Oversight Group for the project (governing body or senior leadership group).

    b. Assign a senior administrative leader to provide direct oversight of the implementation activities, assignment of staff, allocation of time for staff to do the work, and allocation of other resources. The senior leader should understand that there are resource implications to implementing the MedRec SOP. This individual should have direct accountability for outcomes related to medication reconciliation.

    c. Assign one or more representatives of the professional disciplines involved in medication management—at a minimum, physicians, nurses, and pharmacists—to guide the design, testing, and roll-out of the medication reconciliation process and to serve as role models and "champions" of the new process for their respective disciplines.

    d. Assign a facilitator—a person with knowledge of the medication management process and quality improvement methods and with project management skills—to develop and manage the project work plan.

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OVERSITE OF THE IMPLEMENTATION

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A	B	C	D
Identification of the oversight group	Assign a leader for direct oversight	Assign professional discipline teams	Assign a facilitator
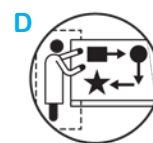
10. **Project work plan**

  a. Develop a detailed task list for design, testing, training, implementation, and measurement of the medication reconciliation process. (See Medication Reconciliation SOP Implementation Guide for a sample task list. Details may vary from one facility to another).

  b. Identify milestones and their target dates to include at least the following:

    i. Approval of the project work plan
    ii. Approval of the pilot test design
    iii. "Go-live" date for the pilot test
    iv. Presentation of pilot test results to the oversight group
    v. "Go-live" date for full implementation.

  c. Identify dependencies and time frames for each of the project tasks.

  d. Identify deliverables and due dates for each of the project tasks.

  e. Assign resources to each of the tasks.

PROJECT WORK PLAN

A	B	C	D	E	F
Develop a task list	Identify milestones and target dates	Identify dependencies and time frames	Identify deliverables and due dates	Develop communication plan	Assign resources
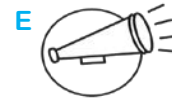
11. Risk Assessment of the proposed process

It is suggested that the proposed process be evaluated in order to identify the ways that it might fail prior to implementation. One tool that could be used is Failure Modes and Effects Analysis (FMEA) which is "a systematic, proactive method for evaluating where and how a process might fail and to assess the relative impact of different failures, in order to identify the parts of the process that are most in need of change."[27]

a. Describe the process (for example, through the use of a flowchart).

b. Identify for each of the steps in the process and for each linkage between steps, the ways that the process could break down or fail to perform its desired function.

c. Identify the possible effects that a breakdown or failure of the process could have on patients and the seriousness of the possible effects.

d. Prioritize the potential process breakdowns or failures.

e. Determine why the high priority breakdowns or failures could occur.

f. Implement controls, warnings, or protections to minimize the risk of harm to patients.

RISK ASSESSMENT

A — Describe the process

B — Identify potential process breakdowns

C — Identify effects of breakdowns on patients

D — Prioritize breakdowns / failures

E — Determine why

F — Implement controls to minimize risk
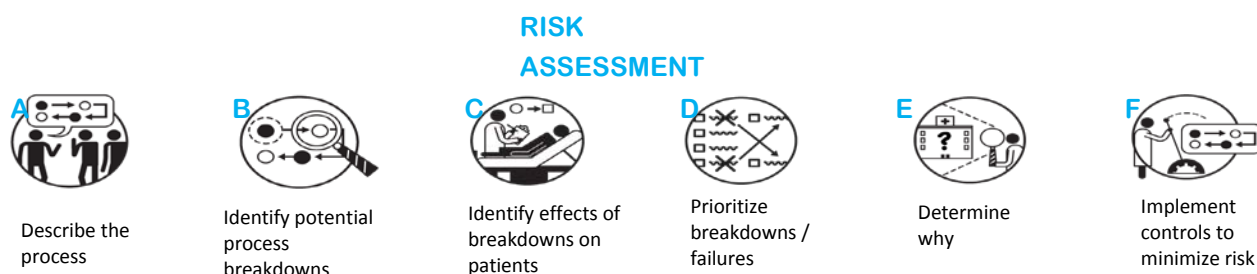
12. Pilot test of the medication reconciliation process (recommended, but optional)

a. Identify one or more pilot test sites, frequently a general medical inpatient unit that is representative of the overall functioning of the hospital.

b. Collect baseline data identifying discrepancies within current processes on the pilot test site(s) prior to introducing the medication reconciliation SOP process. For sites that do not have an established medication reconciliation process, baseline data is the first month of data collection as described in the Metrics section of the implementation guide.

c. Engage representatives from the pilot test site(s) to participate in the test design and implementation.

ENGAGE REPs TO PARTICIPATE IN THE TEST DESIGN

d. Integrate the proposed medication reconciliation process into the work flow of the pilot test site with adaptation, as necessary, to the unique features of the pilot test site.

e. Train the staff who will be participating in the pilot test of the new process - consider that these individuals may become the trainers for the rest of the hospital staff when the new process is ready for full implementation. (See section Education and Training of Staff)

TRAIN PARTICIPANT STAFF

f. Implement the new process on the pilot test unit.

g. Measure consistency and timeliness of implementation of each of the steps in the process.

h. Measure impact on other related or interfacing activities.

IMPLEMENT AND MEASURE

i. Measure impact on patients.

j. Analyze pilot test data and present to oversight group for decision on next steps, including possible redesign of the process.

Any significant redesign of the process should be fully documented, retested on the pilot test site(s), and should result in sustained improvement before considering expanded implementation.

ANALYZE PILOT TEST DATA

13. <u>Spread methodology</u>

a. Determine the sequence and timing of implementation in other areas of the organization.

b. When the process is stable in the pilot test site(s) and measurement reflects sustained improvement, consider spread of methodology to other areas of the organization. Sequential implementation, rather than concurrent implementation (the phased-in approach described above), is recommended to provide for adequate pre-implementation training, oversight and coaching during the early phases of implementation, and monitoring of the new process.
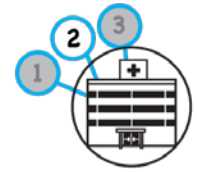
DETERMINE THE SEQUENCE AND TIMING OF SPREAD

14. Communication plan

a. Announce the organization's decision and commitment to implement medication reconciliation.

b. Provide rationale for participation in the initiative:

    i.   Description of the problem to be addressed (medication errors at transitions), share stories of medication reconciliation failures and discrepancies found in the baseline data collection phase.

    ii. The proposed solution (medication reconciliation).

    iii. The costs and benefits of participation.

    iv. Incentives to clinical staff to participate (improved safety for patients, efficiencies and lower risk exposure for staff).

    v.   Country accreditation requirements.

c. Provide regular updates to all staff on the progress of the project work plan.
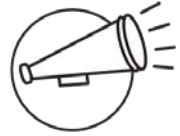
PROVIDE REGULAR UPDATES

d. Provide feedback to all staff on the measurement data collected and analyzed throughout the pilot test and implementation phases of the project. This will enhance buy-in and will highlight the effects of the improvements they are making over time.

PROVIDE FEEDBACK TO ALL STAFF

e. Develop material for front line staff to engage them in the new Medication reconciliation process. See the Medication reconciliation Implementation Guide for examples of resources.

f. Recognize the contributions and successes of all staff participating in the project.

15. Process management strategy

Successful implementation and sustained performance of this process will require information. In developing and testing the High5s SOPs, three complementary approaches to information gathering were used and are provided here and in accompanying materials as a resource for organizations that choose, not only to *implement* the SOP, but to *manage* its ongoing performance. Of the various methods and tools provided, some may be useful in the early stages of implementation, others in the later maintenance of the process, and still others not applicable for the individual organization. Decisions about how best to monitor and manage the process should be made by the designated oversight body with input from individuals who are involved in the process itself. The information obtained through the management strategy will also be valuable for providing feedback to participating staff. The following components of a process management strategy were thoroughly tested in the High5s Project:

MANAGE THE PROCESS USING QUALITATIVE & QUANTITATIVE MEASUREMENT

a. SOP Implementation Evaluation – self-reported information regarding the implementation experience.

b. Performance Measures – quantitative measurement of processes and outcomes associated with the SOP.

c. Event Analysis – identification and analysis of any adverse events directly associated with/related to the SOP or its implementation.

IDENTIFY AND ANALYZE ADVERSE EVENTS

Additional information on these process management tools is available in the Implementation Guide.

16. <u>Maintenance and improvement strategy</u>

a. Once the redesigned medication reconciliation process is fully implemented, regular monitoring of key parameters should continue to support sustained consistent performance and provide feedback to organization leadership and participating staff.

b. Opportunities to improve efficiency and effectiveness of the process should be identified, prioritized and, as appropriate, acted upon.

c. Evidence of "drifting" from the intended procedures should be analyzed to identify the reasons and to determine an appropriate response – for example: additional training; process redesign; and technical support.

Resources

Accreditation Canada**. Required Organizational Practices Handbook, 2013.**
http://www.accreditation.ca/uploadedFiles/ROP-Handbook-en(1).pdf. Accessed: July 2013.

Accreditation Canada**. Changes to the Medication Reconciliation and Medication Use ROPs for 2014, 2013**.
Supplement to the 2013 ROP Handbook
http://www.accreditation.ca/uploadedFiles/News_and_Publications/Publications/ROP_Handbook/SupplementROP
-06-2013_en.pdf Accessed: August 2013

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Appendix A: Tabular Listing of Steps in the Medication Reconciliation Process on Admission

Step of process	Detail	Who?	When?	Tools	Input	Output
Obtain best possible medication history (BPMH) on admission	Gather sources of information available as a starting point; interview patient using open ended questions and a systematic process (e.g. BPMH interview guide); the BPMH forms the basis for reconciliation across the continuum of care. It involves documentation of all medications a patient is currently taking at home including drug name, dose, frequency & route of administration. Types of medications include ALL: prescribed and non-prescribed medications (i.e. prescriber did not advise patient to take it), prescription, non-prescription (over the counter - OTCs), herbals and medications taken on an as-needed basis.	Patient/family; ED nurse (e.g. triage); admitting nurse; pharmacist; pharmacy tech; physician.	Ideally, before admission orders written—at least within 24-48 hours of admission *Note*: It will be important to identify criteria for when the BPMH should be obtained more urgently and within what time frame.	Standardized form developed by organization; paper-based or electronic	Patient's list/wallet card; patient and/or family interview; medications brought by pt (e.g. examination of vials); primary care physician, community pharmacist, referring health care facility	Complete and accurate history of patient's preadmission medications in a consistent place in the patient's health record
Use the BPMH to create admission orders (Proactive Model)	This may be accomplished with the use of a form or electronic system where the prescriber will clearly indicate whether each medication on the BPMH is to continue, hold or discontinue, modify	Pharmacist, nurse or pharmacy tech in collaboration with Physician	At the time admission orders are written. (within 24 hours of admission)	Standardized form developed by organization; pre-printed or electronic	BPMH Admission orders (paper based or electronic)	Complete & accurate admission orders
OR	OR		OR	OR		
Compare BPMH with admission orders, identify discrepancies and revise admission orders as appropriate. (Retroactive Model)	Look for any discrepancies between the BPMH and admission orders		When admission orders are written or as soon as possible thereafter. (within 24 hours of admission)	Standardized form developed by organization; pre-printed or electronic		
Measurement of MR 2, MR 3, MR 4: (for selected sample of 30 eligible patients who have received medication reconciliation within 24 hours on admission)	Look for any outstanding discrepancies between the BPMH, other sources of information & the admission orders.	Independent Observer (pharmacist, nurse, other)	After medication reconciliation process is complete.	Patient Level: Independent worksheet to identify medication discrepancies (see Volume 2.)	BPMH, other sources of information and admission orders.	Complete and accurate medication orders

Appendix B: Flow Charts of the Medication Reconciliation Process

Step I. Creating a Best Possible Medication History (BPMH) on Admission

```
┌──────────────┐      ┌──────────────────┐      ┌────────────────────────┐
│   Patient    │      │ Interview        │      │ Review with at least   │
│ admitted to  │ ───► │ patient/family to│ ───► │ one additional         │
│ health care  │      │ obtain list of   │      │ source of information  │
│ facility for │      │ current          │      │ including              │
│ care.        │      │ medications where│      │ medications/list       │
└──────────────┘      │ possible         │      │ brought by patient. As │
                      └──────────────────┘      │ appropriate, contact   │
                                                │ community pharmacist   │
                                                │ or primary care        │
                                                │ physician; review      │
                                                │ documents from         │
                                                │ referring healthcare   │
                                                │ facility               │
                                                └────────────────────────┘
                                                            │
                                                            ▼
                                                ┌────────────────────────┐
                                                │ Create BPMH using a    │
                                                │ systematic process &   │
                                                │ document on            │
                                                │ standardized form OR   │
                                                │ compare the BPMH to    │
                                                │ admission orders to    │
                                                │ identify and resolve   │
                                                │ discrepancies          │
                                                └────────────────────────┘
                                                            │
                                                            ▼
                                                    ┌──────────────┐
                                                    │ Post BPMH in │
                                                    │ patient's    │
                                                    │ medical      │
                                                    │ record       │
                                                    └──────────────┘
```

Step II a. Medication Reconciliation at Admission (Proactive Model)

Create BPMH (Step I) → Use BPMH to write admission orders. Prescriber will make a decision to continue, hold, modify, or discontinue each medication on the BPMH. → Implement initial admission medication orders

Were the discrepancies intentional?

Step II b. Medication Reconciliation at Admission (Retroactive Model)

Initial admission medication orders written

Compare initial admission medication orders with BPMH

Are there any discrepancies identified? — No → Reconcile discrepancies & revise initial admission medication orders as necessary

Were the discrepancies intentional? — Yes → Document intention in patient's health record

Implement initial admission medication orders

Create current medication administration record (MAR). Retain BPMH separate from MAR

Ensure both MAR & BPMH are available in the patient's medical record.

Step III. Medication Reconciliation at Internal Transfer

…To be implemented in Phase 1 only for transfers from the ED where orders need to be re-written as per hospital policy…

Is the patient being transferred to a new, unit, service, health care team or level of care where orders need to be re-written?
— Yes → **Are new medication orders being written?**
— No → No further action required at this time

Are new medication orders being written?
— Yes → Compare new orders with BPMH & current MAR
— No → Compare BPMH & current MAR

Compare new orders with BPMH & current MAR → **Are there any discrepancies?**
— No → No further action required at this time
— Yes → Contact prescriber to resolve discrepancies & modify medication orders if necessary

Compare BPMH & current MAR → **Are there any medications on the BPMH that should be resumed?**
— No → No further action required at this time
— Yes → Contact prescriber to resolve discrepancies & modify medication orders if necessary

Contact prescriber to resolve discrepancies & modify medication orders if necessary → Implement new or current medication orders → Update current medication administration record (MAR) → Ensure MAR & BPMH are available in patient's medical record.

Step IV. Medication Reconciliation at Discharge

…To be addressed in later phases of implementation…

Is the patient being discharged from the facility? For outpatients, is this the end of the current encounter?

No → No action required

Yes

Physician writes discharge order and prescriptions for any new or changed medications to be taken

Compare BPMH & previous 24 hour MAR with discharge prescriptions; may also compare with discharge order, discharge plan of care or discharge summary if

Evaluate & account for:
New medications
Discontinued medications
Adjusted medications
Unchanged medications to be continued
Medications held in hospital
Non-formulary/formulary adjustments
New medications started on discharge
Additional comments as appropriate
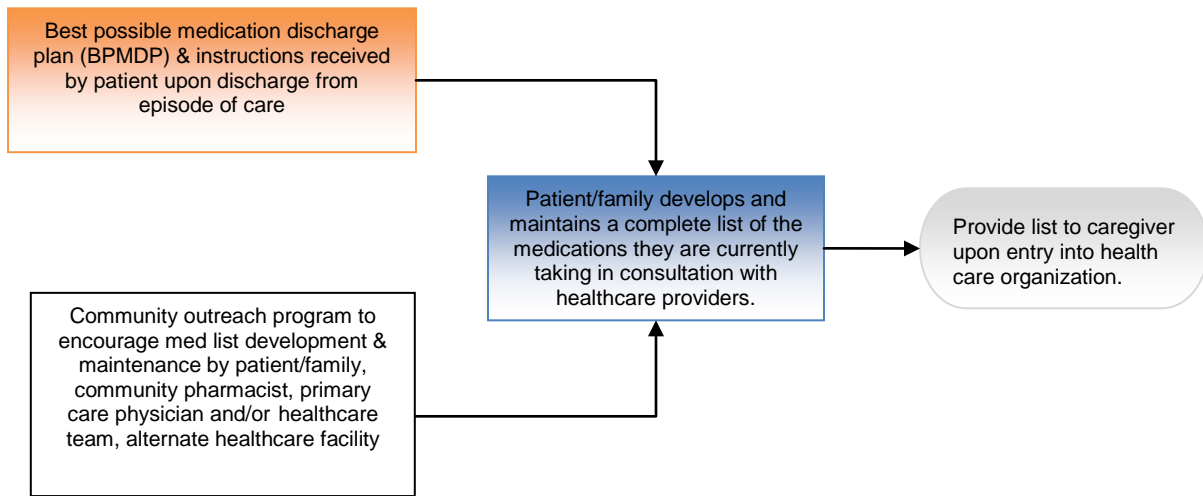
Are there any discrepancies?

No

Yes

Contact physician to resolve discrepancies; modify discharge prescriptions and/or instructions as needed creating a best possible medication discharge plan (BPMDP)

Communicate the BPMDP to:
Patient
Community pharmacy
Primary care Physician
Other healthcare facility or services

Discharge Patient

This communication should include:
- New medications
- Discontinued medications
- Adjusted medications
Unchanged medications to be continued
Medications held in hospital
Non-formulary/formulary adjustments
New medications started on discharge
Additional comments as appropriate

Step V. Patient Involvement Post-Discharge & Prior to Next Episode of Care

Best possible medication discharge plan (BPMDP) & instructions received by patient upon discharge from episode of care

Patient/family develops and maintains a complete list of the medications they are currently taking in consultation with healthcare providers.

Provide list to caregiver upon entry into health care organization.

Community outreach program to encourage med list development & maintenance by patient/family, community pharmacist, primary care physician and/or healthcare team, alternate healthcare facility

Systematic Reviews of Medication Reconciliation Primary Literature

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- **Hospital-based medication reconciliation practices: a systematic review,** Mueller et al., *Archives of Internal Medicine*, 2012 http://archinte.jamanetwork.com/article.aspx?articleid=1203516
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Other Miscellaneous Tools and Resources

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  http://www.cihi.ca/cihi-ext-portal/pdf/internet/med_reconcil_en
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- **Cross Country MedRec Check-Up,** ISMP Canada, http://www.ismp-canada.org/medrec/map/
- **"Medication Reconciliation Network" Facebook Group**,
  https://www.facebook.com/MedicationReconciliation
- **Medication Reconciliation Community of Practice,** *Safer Healthcare Now!,*
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- **Making inpatient medication reconciliation patient centered, clinically relevant and implementable: A consensus statement on key principals and necessary first steps,** Greenwald JL, Halasyamani L, Greene J et al., 2010.
  http://onlinelibrary.wiley.com/doi/10.1002/jhm.849/pdf
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  http://qualitycompass.hqontario.ca/language/en-us/home/subtopics/transitions/overviewcdec.html?topic=Transitions
- **The Physician's Role in Medication Reconciliation,** American Medical Association
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Quality Improvement Resources

- **Model For Improvement You Tube Video** (Clip 1 & 2), Institute for Healthcare Improvement
  http://www.youtube.com/watch?v=SCYghxtioIY &
  http://www.youtube.com/watch?v=6MIUqdulNwQ&feature=relmfu
- **PDSA Cycle You Tube Video**, (Clip 1 & 2), Institute for Healthcare Improvement
  http://www.youtube.com/watch?v=_-ceS9Ta820&feature=youtu.be &
  http://www.youtube.com/watch?v=eYoJxjmv_QI&feature=relmfu
- **Quality Improvement Tools and Resources,** Health Quality Ontario
  http://www.hqontario.ca/quality-improvement/tools-and-resources

End Notes

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