Potential Medication Reconciliation Indicators for Public Reporting in Ontario

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Executive Summary

The Institute for Safe Medication Practices Canada (ISMP Canada) is an independent, national, not-for-profit agency dedicated to advancing medication safety in all healthcare settings. ISMP Canada has been supporting the Ontario Ministry of Health and Long-Term Care (MOHLTC) with medication safety related activities since 2006. Included in the activities for 2012, ISMP Canada was to support the direction of MOHLTC towards public reporting of safety indicators by facilitating the determination of a suitable medication reconciliation (MedRec) indicator. Based on available data on the current state of MedRec implementation, it was decided that an indicator specific to admission MedRec would be the most appropriate as this interface of care has the highest implementation rates and frontline experience associated with it.

To achieve this goal three ISMP Canada project leaders developed a survey on MedRec measurement practices and disseminated it to a sample of healthcare facilities across Ontario, a list of relevant MedRec measures was compiled and a focus group of healthcare experts from the greater Toronto area was convened to reach a consensus on recommendations for a potential MedRec indicator for public reporting.

The survey indicated that of the organizations that responded 93% are collecting MedRec measures and of those 96.5 % indicated that they are collecting admission related MedRec measures. From the available national and international measures that are currently in use, a list of 9 measures that were specific to admission MedRec was compiled. The project leaders further narrowed the list to 4 measures that they determined to be the most suitable as an indicator for public reporting based on indicator selection criteria of alignment with existing measures and feasibility of data collection and reporting.

Background information on indicators, indicator selection criteria and the 4 selected potential indicators was presented to the focus group. The focus group was tasked with evaluating each of the selected measures against the indicator selection criteria. In particular, the focus group members were asked to evaluate each measure as a potential indicator of MedRec quality.

The group reached a consensus on the following measures as potential MedRec indicators for public reporting in Ontario:

- ***Percentage of patients reconciled at admission:*** the number of patients with medication reconciliation performed at admission as a proportion of the number of patients (or patients eligible for MedRec) admitted, with the critical addition of an auditing process for conducting BPMHs.

And if a more specific quality measure was required then

- ***Percentage of patients with at least one outstanding discrepancy*** : the number of patients who have at least one outstanding unintentional medication discrepancy as a proportion of the number of patients (or patients eligible for MedRec) who received medication reconciliation

The focus group also recommended that the following be taken into consideration when determining an appropriate MedRec indicator: the indicator should be clear and have unambiguous definitions associated with it, realistic targets should be set, a need for consistent sample sizes between organizations and recommendations for sampling techniques and there needs to be assurance of the quality of the MedRec process.

A MedRec indicator would be valuable to healthcare organizations, government and the public as means of promoting implementation and ensuring success of an important patient safety intervention. However, this needs to be balanced with reasonable expectations of delivery by those implementing and measuring the process.

Background: Potential Admission Medication Reconciliation Indicators for Public Reporting in Ontario

The Institute for Safe Medication Practices Canada (ISMP Canada) is an independent, national, not-for-profit agency committed to the advancement of medication safety in all health care settings. ISMP Canada is a key partner in the Canadian Medication Incident Reporting and Prevention System, working with members of the healthcare community, regulatory agencies and policy makers, patient safety organizations, the pharmaceutical industry, and the public.

ISMP Canada has been involved with medication reconciliation (MedRec) activities internationally as the MedRec protocol lead for the World Health Organization (WHO) High 5's Medication Reconciliation Program, nationally as the intervention lead for Safe Healthcare Now! (SHN) program, and provincially by facilitating implementation of MedRec across the sectors through work for the Ministry of Health and Long-Term Care (MOHLTC). Next steps identified for strengthening MedRec implementation in Ontario include focusing on indicators for public reporting. ISMP Canada put forth a proposal to provide subject matter expertise, facilitation and input to the development of MedRec indicators that support MOHLTC directions towards public reporting of safety indicators.

Accreditation Canada's Required Organizational Practices (ROPs) for MedRec activities are a major driver for the implementation of MedRec activities in Canada. At present, in order for a survey site to be compliant with an ROP, the site must demonstrate implementation in one service area at admission and implemented in one service area at transfer or discharge (Accreditation Canada, 2011). A 2011 Accreditation Canada report on ROPs indicated that only 47% of those undergoing accreditation in 2010 were compliant with the ROP to complete MedRec at admission and 36% at transfer or discharge (Accreditation Canada, 2011). In February 2012, ISMP Canada and the Canadian Patient Safety Institute (CPSI) conducted a national survey identifying practice leaders for MedRec in Canada (ISMP Canada/CPSI, 2012). The results of the survey found that 74% of organizations indicated full implementation of MedRec at admission, while 43.6% had full implementation on transfer and 37.2% at discharge. Although this data is not specific to Ontario, it strongly suggests that there are challenges associated with the implementation of MedRec six years after MedRec was defined as an ROP by Accreditation Canada.

In view of these challenges ISMP Canada considered the most prudent course of action was to further explore the most appropriate indicator for MedRec at admission; deferring determination of a

discharge MedRec indicator until more sites have fully implemented at discharge and until further knowledge and frontline experience in this area is obtained.

What is MedRec?

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 be ing 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. (ISMP Canada/CPSI, 2011).

The foundation, and the first step, of the MedRec process at all transition points is obtaining a Best Possible Medication History (BPMH). The BPMH is defined as a list of current medications 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). The remaining steps of the reconciliation in the acute care setting include comparing the BPMH to admission/transfer or discharge orders to identify and resolve any discrepancies, and the subsequent effective communication around changes that may have occurred to the prior medication regimen.

What are indicators?

In healthcare settings, indicators are used as tools to quantitatively assess processes and outcomes of care (New South Wales Therapeutic Advisory Group, 2007). Indicators are measures that describe particular aspects of a system, they can be used to assess how well clinicians and organizations function to address the needs of the patient and can be used as accountability tools to stakeholders. Indicators draw attention to areas that may need improvement by quantitatively assessing process and outcomes of care. They are not meant to be direct measures of quality, definitive or diagnostic and do not necessarily encompass every aspect of the system they measure.

The Ontario MOHLTC defines an indicator as (Ontario Ministry of Health and Long-Term Care, 2011):

- An assessment of a particular health care process or outcome

- A quantitative measure that can be used to monitor and evaluate the quality of important governance, management, clinical, and support functions that affect patient outcomes
- Measurement tools or screens, used as guides to monitor, evaluate, and to improve the quality of patient care, clinical support services, and organizational functions that affect patient outcomes

The Ontario MOHLTC goes on to differentiate indicators between outcome and process indicators. Outcome indicators are considered to be from the perspective of the patient. Outcome measures reflect the effect of care processes on the health of patients/ population, while process indicators are from the perspective of the system. Process indicators assess what the provider did for the patient and how well it was done. Process indicators are especially useful when quality improvement is the goal of measurement.

It was decided to frame the discussion on the most appropriate MedRec indicator at admission on previous ISMP Canada work, completed in 2010, on "Identification of Medication Safety Indicators for Public Reporting" (ISMP Canada, 2010). In this report a number of medication safety measures were reviewed for potential indicators, including MedRec measures. At that time it was determined that the most appropriate indicator for MedRec was percentage reconciled (the number of patients with medication reconciliation performed at admission as a proportion of the number of patients (or patients eligible for MedRec) admitted. We wanted to determine if the landscape for measuring practices of MedRec has evolved since then and if organizations have increased their capacity to move towards a qualitative measure.

Purpose

- To identify if learning since 2010 changes the recommendation of a potential indicator(s) for MedRec for the province of Ontario,
- To provide subject matter expertise, facilitation and input into a potential admission MedRec indicator(s) for the province.

Methodology

ISMP Canada developed a multi-phase process which included:

- A review of previously developed selection criteria for indicators
- Development and dissemination of a survey to determine current measurement practices in Ontario
- Consideration of MedRec measures against survey findings and indicator criteria
- A roundtable discussion in which consensus was reached on the most appropriate admission MedRec indicators based on selection criteria
- Production of a final report

The detailed methodology for each of these phases is outlined below.

A. Review of Previously Developed Selection Criteria for Indicators

The project leaders (MC, KT, JT) reviewed existing information on medication safety indicators for public reporting to ensure alignment with current practices for selecting indicators. It was agreed that the work previously done by ISMP Canada on medication safety indicators remains relevant and complements the Ontario MOHLTC's definition of an indicator (ISMP Canada, 2010).

The criteria as outlined in ISMP Canada's report on Medication Safety Indicators are:

- Alignment with current acute care patient safety initiatives: Alignment with current or emerging medication safety programs or projects in Canada (e.g., SHN, Accreditation Canada, WHO etc.)
- Burden of data collection and feasibility: Data required for the indicator is readily available for the areas and the time periods required. There are no unreasonable obstacles or constraints on access, and the information can be used without restrictions.
- Validity and data quality: The indicator appears to measure what is intended and is accepted by the healthcare community. The indicator covers relevant content or domains, and the indicator has predictive power.
- Actionable: The information being collected can be used to inform and influence policy or funding or alter behaviour of health services providers.
- Understandable: The indicator can be readily interpreted and the intended audience can generally understand the changes in values. In this case, since the ultimate objective is to produce public reports, the indicator must be meaningful to the general public.

- Has evidence to support: There was evidence that the highlighted practice would result in improved outcomes.

B. Survey Development and Dissemination

When identifying existing measurement strategies pertaining to MedRec, it was became clear that there was no national organization requiring reporting of MedRec related measures, as Accreditation Canada's required reporting on MedRec measures was abandoned in 2011. Voluntary reporting of MedRec related measures is promoted by CPSI's SHN program.

Given this, in order to better understand current measurement practices in Ontario, an April 2012 survey of primarily acute care facilities in Ontario was undertaken to capture the current "who, what, where, when and whys" of MedRec measurement at admission, transfer and discharge. The survey, consisting of forty seven questions, was sent to key organizational contacts and was developed using the web based tool Survey Monkey® (refer to Appendix 2). It was felt that the information garnered from the survey would also inform a potential indicator's alignment with the feasibility characteristic as the required resources (i.e. human and technological) to collect the data may already be in place.

C. Consideration of MedRec Measures Against Survey Findings and Indicator Criteria

In an effort to fully appreciate the current measurement practices, perceived barriers to measurement practices and opinions for future direction it was decided to convene a focus group. Invitations to the focus group were sent to experts and stakeholders from the Ontario MOHLTC, hospitals, long-term care homes and health quality organizations. Attendees included health policy analysts, MedRec researchers, measurement and evaluation specialists, pharmacists, nurses, and risk management staff.

Prior to the focus group the project leaders compiled a list of the available admission measures derived from provincial, national and international work in MedRec (refer to Appendix 3). Each measure was then considered against the agreed upon criteria for an indicator and the findings from the survey. Initially, the measures were assessed using the criteria: alignment with existing measures and feasibility. These two criteria were chosen for the first round of review because healthcare organizations have been measuring MedRec in varying degrees for a number of years and because of the known difficulty with measuring MedRec processes.

Through this process the list of measures to be considered as a potential indicator was narrowed down from 9 to 4. To facilitate the decision making process an *Indicator Consideration Grid* (refer to Appendix 4) was developed for the focus to group. The grid had a number of questions listed that were intended to prompt the focus group members to consider the ideal characteristics of indicators. The list of questions included on the grid were:

- Is the measure adequate to determine the quality of MedRec processes?
- Is it feasible to collect data for this measure?
- Does this measure consider the "voice" of the patient, i.e., is it an outcome measure?
- Is this measure feasible in both a paper based and electronic model of MedRec?
- Is this measure feasible in both a proactive and retroactive model of MedRec?
- Does this measure provide meaningful information to the frontline staff?
- Does this measure provide meaning to the board?
- Does this measure provide meaning to the province?
- Other? (The group could decide on other questions that they felt were relevant to consider).

As a means to promote consideration of the quality of the process a second worksheet was created, *Admission MedRec Audit Process* (refer to Appendix 5). The questions on this worksheet were designed to have the focus group members assess the process behind the previously suggested quantitative indicator.

D. Consensus Generation

At the beginning of the 3 hour session, the focus group members were provided with an introduction to current measurement practices, survey findings, criteria for indicator selection and goals and objectives for the session by the project leaders.

After a brief review of the 4 suggested indicators, participants broke into small groups. Individual members were asked to assess each of the suggested measures by completing the *Indicator Decision Grid* and the *Admission MedRec Audit Process* worksheets. The small groups then discussed their individual results and the rationale for their choices. With the assistance of the project leaders each group reached a consensus on which measure would best serve as a provincial MedRec indicator(s). Finally, the small groups shared their decisions with the entire focus group. A facilitated discussion was then held to further obtain a consensus from the larger group.

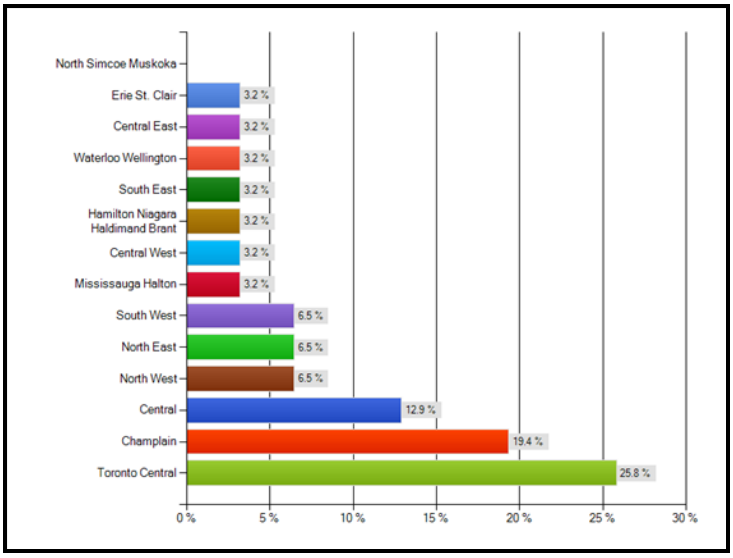
Results

A. Survey Findings

The key findings of the *MedRec Measurement Practices Survey* are outlined as follows:

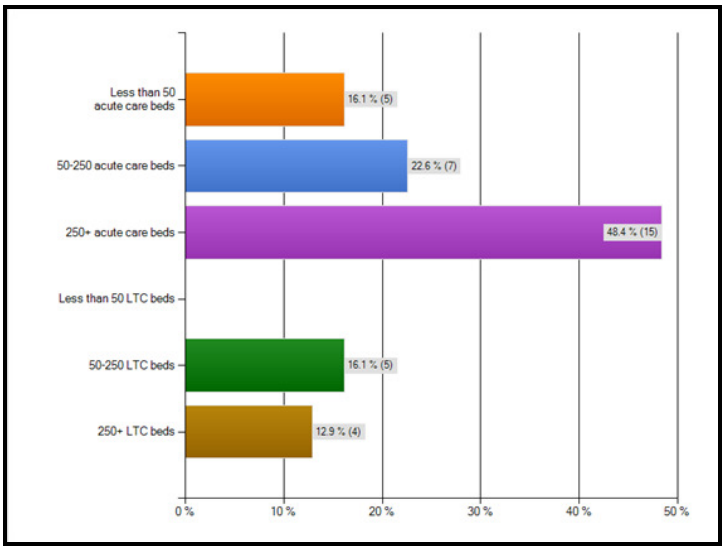
- There were a total of 31 respondents to the survey. As shown in figure 1, there was representation from all but one Local Health Integration Network (LHIN). A quarter of the respondents were from the Toronto Central LHIN.

Figure 1- Survey respondents by LHIN



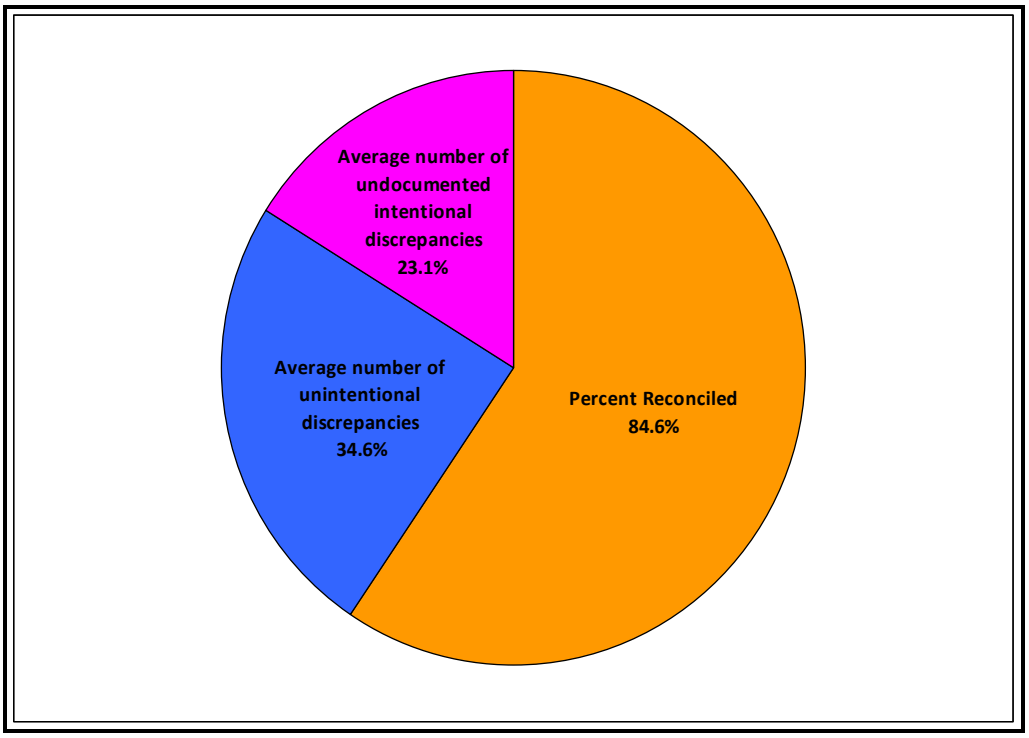
- Almost half of the respondents to the survey identified themselves as large acute care facilities (see figure 2). Furthermore, almost 60% of the respondents identified themselves as a teaching facility.

Figure 2- Respondents by facility type



- 93% of the survey respondents indicated that they were currently collecting measures pertaining to MedRec. Of those, 96.5 % indicated that they are collecting admission related MedRec measures.
- Figure 3 below describes the specific admission measures being collected among those who responded. The percentage of patients reconciled at admission was the most frequently reported admission related measures being collected. The other measures being collected are average numbers of unintentional discrepancies and undocumented intentional discrepancies. The latter two measures attempt to capture information on the quality of the MedRec processes in place.

Figure 3- Identification of currently used admission measures



- Thirty percent of survey respondents indicated that they were conducting quality audits of their BPMH processes. The types of quality audits ranged from review of chart documentation to a standardized certification process of those obtaining BPMHs. The frequency of data collection varied from randomly, every 3-6 months to twice weekly (refer to Appendix 6).

B. Identified MedRec Measures for Consideration

The compilation of established MedRec related measures recommended by the WHO, SHN and Accreditation Canada resulted in a total of 9 measures (refer to Appendix 3). Of these 9 measures 4 were indentified as being specific to admission in both acute and long-term care settings, as described in table 1.

Table 1-Identified Admission MedRec Measures for Consideration

Category /Type	Indicator	Description	Alignment with voluntary reporting to:
Process	**Percentage of Patients Reconciled at Admission**	$\text{Percent of Patients Reconciled at Admission} = \frac{\text{Number of patients reconciled}}{\text{Number of patients admitted}} \times 100$ • Collected by manual chart review or (if available) by electronically generated reports using a sampling technique that is standardized over time. This can occur retrospectively or prospectively.	-Safer Healthcare Now! MedRec Initiative -World Health Organization's High 5s - Institute for Healthcare Improvement - NSW Therapeutic Advisory Group
Process	**Mean number of unintentional discrepancies* per patient**	$\text{Mean number of unintentional discrepancies} = \frac{\text{Number of unintentional discrepancies}}{\text{Number of patients reconciled}}$ • Collected by independent observer who repeats the BPMH collection and identifies outstanding unintentional discrepancies. Best if completed concurrently.	-Safer Healthcare Now! MedRec Initiative -World Health Organization's High 5s
Process	**Mean number of undocumented intentional discrepancies** per patient**	$\text{Mean number of undocumented intentional discrepancies} = \frac{\text{Number of undocumented intentional discrepancies}}{\text{Number of patients reconciled}}$ • Collected by independent observer who repeats the BPMH collection and identifies outstanding undocumented intentional discrepancies. Best if completed concurrently.	-Safer Healthcare Now! MedRec Initiative -World Health Organization's High 5s
Process	**Percentage of patients with at least one outstanding discrepancy*** **	$\text{Percent of Patients With at Least One Outstanding Unintentional Discrepancy} = \frac{\text{Number of patients with at least one outstanding unintentional discrepancy}}{\text{Number of eligible patients}} \times 100$ • Collected by independent observer	-World Health Organization's High 5s

*** Definition of <u>unintentional</u> discrepancy:** An *<u>unintentional</u> discrepancy* is one in which the prescriber unintentionally changed, added or omitted a medication the patient was taking prior to admission

**** Definition of undocumented intentional discrepancy:** An *<u>undocumented intentional</u> 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.

*** **<u>Outstanding Unintentional</u> Discrepancy**: An <u>outstanding unintentional</u> discrepancy is identified by the independent observer after the usual process of medication reconciliation has occurred. It does not include medication discrepancies identified by the team or medication discrepancies that are in the process of being resolved

C. Themes Identified from Consensus Generation

The main themes from the discussions were captured and are described below as a means to provide rationale and context to the overall recommendations that came forth.

i) Key Characteristics of MedRec Indicators

There was a clear consensus from the group that one of the main characteristics to consider when deciding on an indicator is measurement burden. Those organizations that are currently reporting to SHN or have in the past, stated that the effort involved in collecting discrepancy metrics impeded the implementation process of MedRec. In particular, making the determination between unintentional versus intentional discrepancies was identified as being highly resource intensive. They stated that having to direct their resources to measurement of discrepancies did not allow for adequate resources to be directed towards further implementation and spread of MedRec across their organizations, which they felt should be the actual priority.

"Why are we spending so much time measuring when we do not have the process fully implemented yet? Wouldn't it be a better use of our resources to focus on further implementing MedRec in our organizations?"

The group was clear that a potential indicator must be unambiguous. Concerns the group felt that must be addressed before establishing a potential MedRec indicator include clear definitions for the numerator and denominator, ensuring targets are set for the indicator that all organizations can reasonably meet and providing guidelines on the sample size of patients receiving the intervention. For example, a small community hospital with less than 100 beds could very easily meet the target of 100% of patients reconciled, while a large tertiary hospital with over 500 beds may not be at 100% but in fact actually have more patients being reconciled. It was also expressed that the potential indicators should stimulate actual activities and be suitable for public reporting.

ii) Qualitative versus Quantitative Indicators

There was much consideration given to the significance of a qualitative indicator versus a quantitative indicator. In terms of measuring the success of the MedRec there was an overwhelming consensus that measuring the quality of the intervention has the most to offer to all stakeholders involved (patients, senior leadership, board and province). However, since MedRec is an intervention

that requires system integration, versus a discrete intervention such as hand hygiene, concern was voiced that it would be difficult to determine a quality indicator that would adequately capture the success of the entire system, show direct impact on patient care and have minimal measurement burden associated with it.

A recommendation brought forth by the group was to increase the validity of a quantitative measure by evaluating the quality of the process behind the measure. For the quantitative measure % reconciled at admission, several suggestions were put forth as to how this could be accomplished:

- Random audits of the BPMH and reconciliation process, by having an independent third party repeat the BPMH and reconciliation at a later time. A potential limitation identified was variability in patient recall. For example, a patient who is acutely distressed may have had limited recall when the BPMH was first completed as compared to several days into their admission when the BPMH is re-done.
- Employ an independent third party (such as a qualified mentoring observer) to observe while the BPMH is being completed. A potential disadvantage to this option is that the person conducting the BPMH could adjust their behavior only for the purposes of the observation period.
- Implement a BPMH / MedRec certification process (including case simulations), for all of those tasked with the responsibility of conducting MedRec.
- Have select individuals in the organizations conduct BPMHs as their primary responsibility, (e.g., pharmacy technicians) to increase competency and decrease variability of those completing the intervention.

The group suggested that auditing process guidelines should be provided to assist with standardized auditing processes.

Another way of measuring the quality of the MedRec process that the group considered, was the measure required by the WHO High 5's Medication Reconciliation Program, the number of patients with at least one outstanding discrepancy. The WHO created this measure because it takes into account the impact of MedRec on the patient and it fosters a better understanding of MedRec by all stakeholders. By measuring the number of patients with at least one outstanding discrepancy an organization will still be able to track progress over time with limited amount of resources required for data collection.

iii) Recommendations

Although there was still debate as to whether or not healthcare organizations in Ontario are ready to publicly report on MedRec indicators, the focus group did make the following statement on each measure:

- ***Percentage of patients reconciled at admission:*** this supports the 2010 recommended measure for MedRec, with the critical addition of an auditing process for conducting BPMHs. The main reason this indicator was selected was due to the feasibility of measurement collection in all models of MedRec.
- ***Percentage of patients with at least one outstanding discrepancy:*** suitable as an indicator for public reporting because it is a reflection of the quality of the MedRec process, progress with this measure can be easily tracked and the measurement burden associated is considerably reduced as it does not require distinction between the types of discrepancies. Stakeholders, including the general public, should easily understand the proportion of patients who still had a "mistake" with their admission medication orders even after a thorough medication history and a systematic review was completed.
- ***Mean number of unintentional discrepancies per patient and mean number of undocumented intentional discrepancies per patient***: although these measures are currently required measures by SHN it was decided that they are not suitable as indicators for public reporting. These measures require significant resources to accurately determine the intentions of prescribers; they would not be easily be understood by the general public or provide meaning to the board or the province and they are difficult to implement consistently.

iv) Broader Concerns about MedRec

Frustrations were expressed that individual organizations are carrying too much of the burden of implementation and that supports need to come from foundational and national levels. Strategies suggested to help facilitate this included incorporating MedRec into the curricula for all healthcare professional schools, increasing access to electronic health records, and having professional regulatory bodies incorporate MedRec into best practice standards.

A few participants also expressed that there are other clinical activities within the umbrella of Medication Management that also deserve the same amount of attention, if not more, then MedRec.

Some of these activities were noted to have more of a direct impact on patient care but yet lacked prioritization for standardization, training and widespread implementation as compared to MedRec. It was suggested that directing efforts to these activities would be a better use of resources rather than directing additional resources to the measurement of MedRec.

Discussion

Through discussions it became clear that the participants representing various healthcare organizations in Ontario regarded MedRec as an important patient safety initiative. However, there were significant concerns expressed with mandatory public reporting of admission MedRec when there are still many unresolved challenges with respect to process implementation and measurement strategies many years after sites have implemented. In addition concerns were expressed with expanding mandatory measurement requirements beyond admission to transfer and discharge, without first addressing the challenges that currently exist. It was suggested that resources should be directed to ensure that current implementation processes for MedRec are sustainable and reliable and that suggested measurement strategies are achievable before continuing to spread the intervention.

The focus group members did express their appreciation for being invited to a discussion in which their experiences and opinions have the potential to influence health quality decision makers in Ontario. They also appreciated the course the province is taking towards supporting continuous quality improvement in the healthcare setting. The focus group made a concerted effort to balance the needs of the individual healthcare organizations with the needs of the province/public in their recommendations for a MedRec indicator.

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World Health Organization. http://www.who.int/patientsafety/implementation/solutions/high5s/en/index.html

Appendix 1 – Glossary of Terms

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.
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: 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.

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.

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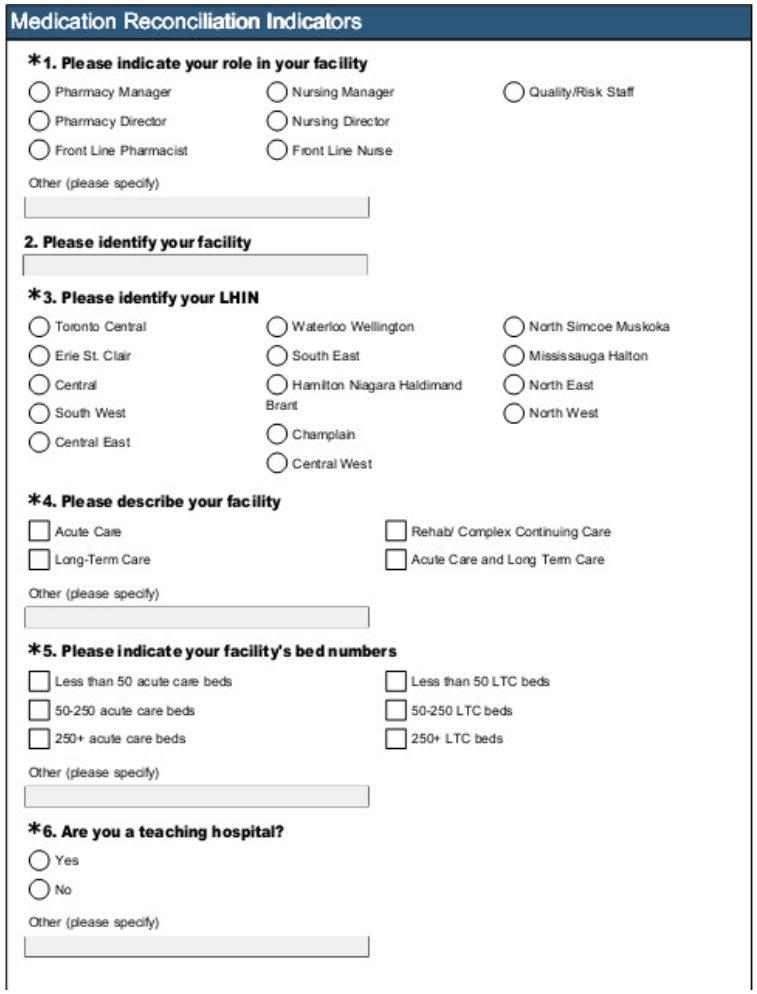
ISMP Canada and Canadian Patient Safety Institute. (2012) *Medication Reconciliation in Acute Care: Getting Started Kit (version 3.0)* Retrieved April 15, 2012, from http://www.ismp-canada.org/download/MedRec/Medrec_AC_English_GSK_V3.pdf

Appendix 2 – MedRec Measurement Practices Survey



Medication Reconciliation Indicators

*1. Please indicate your role in your facility

- ◯ Pharmacy Manager
- ◯ Pharmacy Director
- ◯ Front Line Pharmacist
- ◯ Nursing Manager
- ◯ Nursing Director
- ◯ Front Line Nurse
- ◯ Quality/Risk Staff

Other (please specify)

2. Please identify your facility

*3. Please identify your LHIN

- ◯ Toronto Central
- ◯ Erie St. Clair
- ◯ Central
- ◯ South West
- ◯ Central East
- ◯ Waterloo Wellington
- ◯ South East
- ◯ Hamilton Niagara Haldimand Brant
- ◯ Champlain
- ◯ Central West
- ◯ North Simcoe Muskoka
- ◯ Mississauga Halton
- ◯ North East
- ◯ North West

*4. Please describe your facility

- ☐ Acute Care
- ☐ Long-Term Care
- ☐ Rehab/ Complex Continuing Care
- ☐ Acute Care and Long Term Care

Other (please specify)

*5. Please indicate your facility's bed numbers

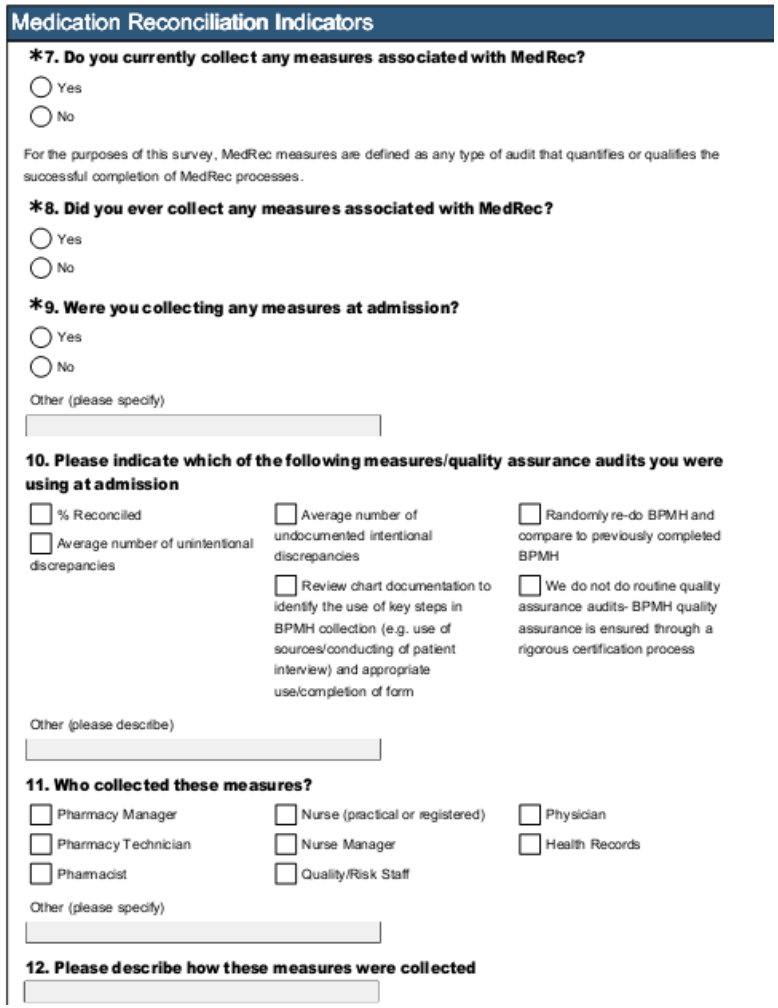
- ☐ Less than 50 acute care beds
- ☐ 50-250 acute care beds
- ☐ 250+ acute care beds
- ☐ Less than 50 LTC beds
- ☐ 50-250 LTC beds
- ☐ 250+ LTC beds

Other (please specify)

*6. Are you a teaching hospital?

- ◯ Yes
- ◯ No

Other (please specify)



Medication Reconciliation Indicators

*7. Do you currently collect any measures associated with MedRec?

- ◯ Yes
- ◯ No

For the purposes of this survey, MedRec measures are defined as any type of audit that quantifies or qualifies the successful completion of MedRec processes.

*8. Did you ever collect any measures associated with MedRec?

- ◯ Yes
- ◯ No

*9. Were you collecting any measures at admission?

- ◯ Yes
- ◯ No

Other (please specify)

10. Please indicate which of the following measures/quality assurance audits you were using at admission

- ☐ % Reconciled
- ☐ Average number of unintentional discrepancies
- ☐ Average number of undocumented intentional discrepancies
- ☐ Review chart documentation to identify the use of key steps in BPMH collection (e.g. use of sources/conducting of patient interview) and appropriate use/completion of form
- ☐ Randomly re-do BPMH and compare to previously completed BPMH
- ☐ We do not do routine quality assurance audits- BPMH quality assurance is ensured through a rigorous certification process

Other (please describe)

11. Who collected these measures?

- ☐ Pharmacy Manager
- ☐ Pharmacy Technician
- ☐ Pharmacist
- ☐ Nurse (practical or registered)
- ☐ Nurse Manager
- ☐ Quality/Risk Staff
- ☐ Physician
- ☐ Health Records

Other (please specify)

12. Please describe how these measures were collected

Medication Reconciliation Indicators

13. When or how often was data collected for these measures?

- [ ] Randomly
- [ ] Weekly
- [ ] Monthly
- [ ] Every second month
- [ ] Every 3-6 months
- [ ] Less than once per year
- [ ] As needed when there is a concern

Other (please specify)

***14. Were you collecting any measures at transfer?**

- ◯ Yes
- ◯ No

15. Please identify the measures you were collecting at transfer

- [ ] % Reconciled

Other (please describe)

16. Who collected these measures?

- [ ] Pharmacy Manager
- [ ] Pharmacy Technician
- [ ] Pharmacist
- [ ] Nurse (practical or registered)
- [ ] Nurse Manager
- [ ] Quality/Risk Staff
- [ ] Physician
- [ ] Health Records

Other (please specify)

17. Please describe how these measures were collected

Medication Reconciliation Indicators

18. When or how often was data collected for these measures?

- [ ] Randomly
- [ ] Weekly
- [ ] Monthly
- [ ] Every second month
- [ ] Every 3-6 months
- [ ] Less than once per year
- [ ] As needed when there is a concern

Other (please specify)

***19. Were you collecting any measures at discharge?**

- ◯ Yes
- ◯ No

20. Please identify the measures you were collecting at discharge

- [ ] % Reconciled

Other (please describe)

21. Who collected these measures?

- [ ] Pharmacy Manager
- [ ] Pharmacy Technician
- [ ] Pharmacist
- [ ] Nurse (practical or registered)
- [ ] Nurse Manager
- [ ] Quality/Risk Staff
- [ ] Physician
- [ ] Health Records

Other (please specify)

22. Please describe how these measures were collected

Medication Reconciliation Indicators

***23. When or how often was data collected for these measures?**

- [ ] Randomly
- [ ] Weekly
- [ ] Monthly
- [ ] Every second month
- [ ] Every 3-6 months
- [ ] Less than once per year
- [ ] As needed when there is a concern

Other (please specify)

***24. Are you collecting any measures at admission?**

- ◯ Yes
- ◯ No

Other (please specify)

***25. Please indicate the reason for this**

- [ ] Not implemented at admission
- [ ] Lack of resources
- [ ] We do not know how
- [ ] Lack of perceived the value

Other (please specify)

26. Please indicate which of the following measures/quality assurance audits you are using at admission

- [ ] % Reconciled
- [ ] Average number of unintentional discrepancies
- [ ] Average number of undocumented intentional discrepancies
- [ ] Review chart documentation to identify the use of key steps in BPMH collection (e.g. use of sources/conducting of patient interview) and appropriate use/completion of form
- [ ] Randomly re-do BPMH and compare to previously completed BPMH
- [ ] We do not do routine quality assurance audits- BPMH quality assurance is ensured through a rigorous certification process

Other (please describe)

Medication Reconciliation Indicators

Undocumented Intentional Discrepancies: An *undocumented intentional discrepancy* is one the prescriber has made an intentional choice to add, change or discontinue a medicatio choice is not clearly documented. Undocumented intentional discrepancies are a t document. They are not medication errors and do not usually represent a serious threat t safety. *Undocumented intentional discrepancies* may however lead to confusion, require e and may lead to medication errors. They can be reduced by standardizing the m documenting admission medication orders. *Undocumented intentional discrepancies* repre 75% of all discrepancies.

Unintentional Discrepancy: An *unintentional discrepancy* is one in which the unintentionally changed, added or omitted a medication the patient was taking prior to a Unintentional discrepancies are potential medication errors than can lead to ADEs. The reduced by ensuring good training of nurses/prescribers/pharmacists at obtaining medication histories and by wisely involving clinical pharmacists to identify and recon discrepancies. In institutions without access to clinical pharmacists, reconciliation of disc can be assigned to other healthcare professionals.

27. Who collects these measures?

- [ ] Pharmacy Manager
- [ ] Pharmacy Technician
- [ ] Pharmacist
- [ ] Nurse (practical or registered)
- [ ] Nurse Manager
- [ ] Quality/Risk Staff
- [ ] Physician
- [ ] Health Records

Other (please specify)

28. Please describe how these measures are collected.

Medication Reconciliation Indicators

29. When or how often are you collecting data on these measures?

- [ ] Randomly
- [ ] Weekly
- [ ] Monthly
- [ ] Every second month
- [ ] Every 3-6 months
- [ ] Less than once per year
- [ ] As needed when there is a concern

Other (please specify)

30. Please describe where this data collection takes place (e.g. in all areas where MedRec in currently implemented, in specific target units, in pre-admission clinic, randomly etc.)

***31. Are you collecting any measures at transfer?**

- ◯ Yes
- ◯ No

Other (please specify)

***32. Please indicate the reason for this**

- [ ] Not implemented at transfer
- [ ] We do not know how
- [ ] Lack of resources
- [ ] Lack of perceived the value

Other (please specify)

33. Who collects these measures?

- [ ] Pharmacy Manager
- [ ] Nurse (practical or registered)
- [ ] Physician
- [ ] Pharmacy Technician
- [ ] Nurse Manager
- [ ] Health Records
- [ ] Pharmacist
- [ ] Quality/Risk Staff

Other (please specify)

34. Please describe how these measures are collected

Medication Reconciliation Indicators

35. When or how often are you collecting data for these measures?

- [ ] Randomly
- [ ] Weekly
- [ ] Monthly
- [ ] Every second month
- [ ] Every 3-6 months
- [ ] Less than once per year
- [ ] As needed when there is a concern

Other (please specify)

36. Please describe where this data collection takes place (e.g. in all areas where MedRec in currently implemented, in specific target units, in pre-admission clinic, randomly etc.)

***37. Are you collecting measures at discharge?**

- ◯ Yes
- ◯ No

***38. Please indicate the reason for this**

- [ ] We have not implemented at discharge
- [ ] We do not know how
- [ ] We are not resourced adequately to audit
- [ ] We do not see the value

Other (please specify)

39. Please identify the measures you are currently using at discharge

- [ ] % Reconciled

Other (please specify)

40. Who collects these measures?

- [ ] Pharmacy Manager
- [ ] Nurse (practical or registered)
- [ ] Physician
- [ ] Pharmacy Technician
- [ ] Nurse Manager
- [ ] Health Records
- [ ] Pharmacist
- [ ] Quality/Risk Staff

Other (please specify)

Medication Reconciliation Indicators

***45. How often is/was the data reported?**

- ◯ More than once a month
- ◯ Once a month
- ◯ Quarterly
- ◯ Every six months

Other (please specify)

46. Overall, why did you stop collecting or never collect MedRec measures?

- ☐ No requirement to do so
- ☐ Lack of resources
- ☐ Lack of understanding how to collect
- ☐ Lack of perceived value
- ☐ Felt we were meeting and sustaining our quality/goals

Other (please specify)

47. Please provide any other thoughts or comments on MedRec measures

THANKS KINDLY FOR YOUR TIME!

Appendix 3 - Overview of Existing Admission MedRec Measures for Acute and Long-Term Care Settings

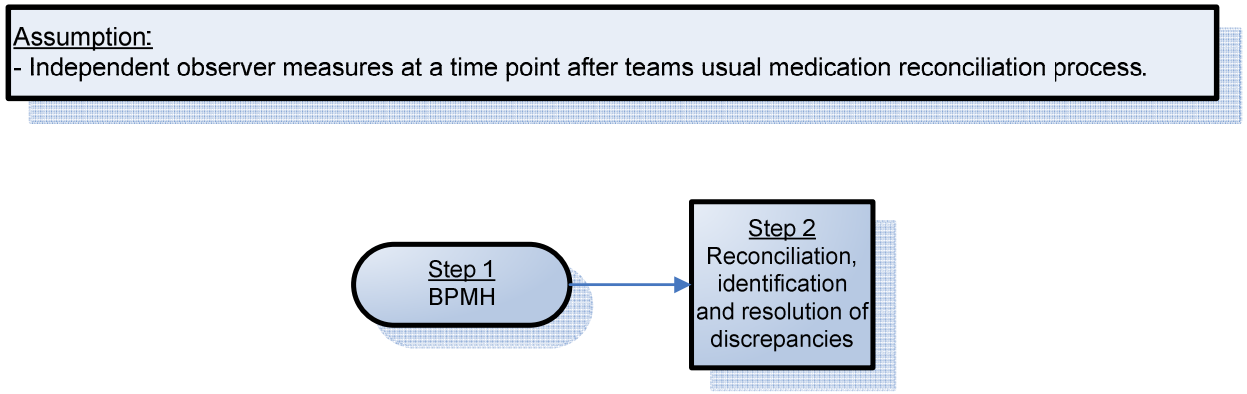
Programs-Sectors	Type of Measure	Measure	Calculation
SHN – Acute & Long-Term Care	CORE ADMISSION	Percent of Patients (or Residents) Reconciled at Admission	Number of patients reconciled x 100 Number of patients admitted
SHN – Acute & Long-Term Care	CORE ADMISSION	Mean Number of *UNDOCUMENTED INTENTIONAL Discrepancies*	Number of undocumented intentional discrepancies Number of patients reconciled
SHN – Acute & Long Term Care	CORE ADMISSION	Mean Number of UNINTENTIONAL Discrepancies	Number of unintentional discrepancies Number of patients reconciled
SHN – Acute Care	OPTIONAL	Medication Reconciliation Success Index	Number of NO discrepancies + number of documentred intentional discrepancies x 100 Number of NO discrepancies + total number of ALL discrepancies
SHN – Acute Care	CORE DISCHARGE	Percentage of Patients Reconciled	Number of patients in the sample for whom a BPMDP was created x 100 Number of patients in the sample
WHO	CORE ADMISSION	Percent of Patients with Medications Reconciled within 24 hours of the decision to admit the patient	Number of eligible patients receiving medication reconciliation within 24 hours X 100 Number of eligible patients admitted
WHO	CORE ADMISSION	The Mean Number of Outstanding Undocumented Intentional Medication Discrepancies Per Patient	Number of outstanding undocumented intentional discrepancies Number of eligible patients
WHO	CORE ADMISSION	The Mean Number of Outstanding Unintentional Medication Discrepancies Per Patient	Number of outstanding unintentional discrepancies Number of eligible patients
WHO	CORE ADMISSION	Percent of Patients With at Least One Outstanding Unintentional Discrepancy	Number of patients with at least one outstanding unintentional discrepancy x 100 Number of eligible patients

SHN= *Safer Healthcare Now*! WHO= World Health Organization

Appendix 4 – Indicator Consideration Grid

	% of Patients Reconciled at Admission (SHN)	Mean number of UNINTENTIONAL discrepancies (SHN)	Mean Number of UNDOCUMENTED INTENTIONAL Discrepancies (SHN)	% of Patients with at least One Outstanding Unintentional Discrepancy (WHO)	Other?
Is the measure adequate to determine the quality of MedRec processes?					
Is it feasible to collect data for this measure?					
Does this measure consider the "voice" of the patient, i.e., is it an outcome measure?					
Is this measure feasible in both a paper based and electronic model of MedRec?					
Is this measure feasible in both a proactive and retroactive model of MedRec?					
Provide meaningful information to the frontline staff?					
Does this measure provide meaning to the board?					
Does this measure provide meaning to the province?					

Appendix 5 – Admission MedRec Audit Process



1. **Is it necessary to measure the quality of the BPMH?**

   a) **If yes:**
   How would you ensure the quality of the BPMH?

   b) **If no, please explain why?**

2. **Is it necessary to assess whether discrepancies are undocumented intentional and unintentional or should there just be a count of discrepancies regardless of type?**

Appendix 6 – Admission MedRec Measurement Practices by Respondent

	Measure	Method	Data Collector	Frequency	Area	Comments
1	% reconciled	Customised computerized reports	Quality Risk Staff	Monthly	ALL	
	Average # of both discrepancy types					
2	% reconciled	Manual chart audit	Nurse Nursing Student	Monthy	ALL	
3	% reconciled	Customised computerized reports	Pharmacy Manager	Quarterly	ALL	
4	% reconciled	Manual chart audit	Pharmacy	Monthly	ALL	
5	% reconciled	Customised computerized reports	Pharmacy	Daily	ALL	Pharmacists identify errors in BPMH when entering orders/ BPMH Certification Process
6	% reconciled	Manual chart audit	Nurse Manager	q3-6 months	ALL	
7	% reconciled	Customised computerized reports	Pharmacist/ Pharmacy Tech.	q3-6 months	ALL	
	Average # of unintentional discrepancies					
8	% reconciled	Manual chart audit	Pharmacy Manager Pharmacist Nurse Manager	Monthly	ALL	
	BPMH Quality Audit	Random Re-do of BPMH				
	Average # of both discrepancy types					
9	% reconciled		Pharmacist	Monthly		
	BPMH Quality Audit	Random Re-do of BPMH			Only areas where pharmacy staff do not collect BPMH	Pharm- Assumed competency Tech- Annual re-cert.
10	% reconciled	Manual chart audit	Pharmacist	q3-6 months	ALL	
	BPMH Quality Audit	Review of documentation				
11	% reconciled	Manual chart audit	Pharmacist/ Pharmacy Student	Monthly	ALL	Certification
	Average # of both discrepancy types					
12	% reconciled	Customised computer report	Informatics Systems	Monthly	ALL	

13	% reconciled	Customised computer report	Pharmacy Manager/ Pharmacist IT/ Physician	Twice weekly	ALL	
14	% reconciled	Manual chart audit	Quality Risk Staff	Monthly	ALL	
	Average # of both discrepancy types				Random Small Sample Monthly	
15	Average # of both discrepancy types	Manual chart audit	Pharmacist	Monthly	Random Sample Surgery Units	
16	% reconciled	Manual proactive count	Pharmacy Manager	Quarterly	ALL	
17	% reconciled	Manual chart audit	Pharmacy Director Pharmacy Manager Pharmacy Student	Quarterly	4 Select Units	
	BPMH Quality Audit			Randomly	ED admissions	
18	% reconciled		Pharmacist	Monthly	Medicine and Surgery	Pharmacist BPMH certification process
	Average # of unintentional discrepancies					
19	Average # of both discrepancy types	Manual chart audit	Pharmacist Pharmacy Manager	Monthly	ALL	Submission of 5 samples monthly
20	BPMH Quality Audit	Repeat BPMH	Pharmacy Tech	Quarterly	Admitted through ED	Sample 25 patients
21	% reconciled	Customised computer report	Health Records	Monthly	ALL	
	BPMH Quality Audit		Pharmacy tech			
22	% reconciled	Manual chart audit	Pharmacist	Every 3-6 months	ALL	
	Average # of unintentional discrepancies			Randomly	Target Areas	
23	% reconciled	Manual proactive count	Pharmacy manager Nurse Manager	Every 3-6 months	Target Areas	
	BPMH Quality Audit	Review of documentation				
24	% reconciled	Manual chart audit	Pharmacist	Weekly	ALL	Includes a review of form