Canadian
Association of
Paediatric Health
Centres

Association
canadienne des
centres de santé
pédiatriques

Paediatric Medication Reconciliation Collaborative

Key Strategies and Essential Success Elements

The 3-Year Journey

Preface

Patient safety has received growing attention in Canada and around the world with media stories and legal cases highlighting the consequences of unintended adverse events (Baker and Norton *et al*, 2004). Health-care organizations are high-risk environments and as dramatic advances have been made in the diagnosis and treatment of disease, care processes have become much more complex. This complex context, combined with a shortage of qualified physicians, resource limitations and system restructuring, contributes to the risk of adverse events (Hassen, 2005).

With the involvement of all stakeholders; senior leadership, physicians, health care staff and patients and families, there are initiatives taking place in Canada, the USA and beyond to create a culture of change that supports healthcare system improvements to enhance patient safety. These initiatives provide the tools, change management strategies and measures for healthcare institutions to effect improvement within their own processes and systems (Canadian ICU Collaborative, 2009). Many of the strategies designed to address complex problems, such as *C. difficile* infections, will be a huge and costly challenge. Other strategies, including medication reconciliation, are comparatively easy to do, cost effective and have significant implications for patient care outcomes (Dr. Rick Cooper, Division of Pediatrics, Eastern Regional Integrated Health Authority, Children's and Women's Health Program, personal communication).

Safer Healthcare Now! (SHN!) under the auspices of the Canadian Patient Safety Institute, is an ambitious Pan-Canadian campaign to implement evidence-based patient care interventions aimed at reducing unintentional adverse events. This quality improvement initiative is part of a major international effort that builds upon the work of the Institute of Healthcare Improvement's (IHI) "100,000 Lives Campaign" in the United States. The SHN! campaign includes six targeted areas of care: acute myocardial infarction, central line-associated infection, medication reconciliation, rapid response teams, surgical site infection and ventilator-associated pneumonia. For each of these key areas there are evidence-based methods of treatment and standards to lower risk to patients. Each targeted intervention comes with a "bundle" of necessary and interconnected components that are in fairly common practice already. When all of them are

> Adverse drug events can occur when medication errors happen at patient transition points. Communication between settings is crucial. The ultimate goal of medication reconciliation is to prevent adverse drug events (ADEs) at all interfaces of care, for all patients. The aim is to eliminate discrepancies between what has being administered at home and what medications are ordered at all stages of hospital care, admission, transfer and discharge, that could lead to a patient experiencing an adverse drug event.

consistently applied it is expected that hospitals will see death and complication rates start to drop (Safer Healthcare Now, A Time to Intervene, 2006).

The Canadian Association of Paediatric Hospitals (CAPH) was co-founded in 1968 by the leaders of the Children's Hospitals in Canada. Over the subsequent three decades, many child and youth healthcare organizations across Canada underwent fundamental operational and structural changes creating a new landscape of healthcare delivery for children, youth and families.

To better respond to these emerging healthcare challenges, CAPHC was established and incorporated in 2001 through a transformative process of organizational renewal of the Canadian Association of Paediatric Hospitals. Today, CAPHC is proud to support its forty-three member organizations, representing multidisciplinary health professionals who provide health service delivery to children, youth and their families within acute care hospitals (all children's hospitals in Canada), community health centres, rehabilitation centres and home care provider agencies.

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CAPHC supports a communication network that enables knowledge transfer of leading-edge research from contributors across the globe. Along with its members and partners, CAPHC is a strong national advocate for change and quality improvement to enhance healthcare services for all children and youth.

Patient Safety and Quality Improvement is one of CAPHC's national priorities. CAPHC's Patient Safety Collaborative supports a framework for partnership and collaboration that supports national paediatric patient safety and quality improvement programs. Examples of these programs include the CAPHC-Paediatric Trigger Tool, the CAPHC Paediatric Medication Reconciliation Collaborative and the High-Alert Medication Delivery in Paediatrics – Implementing Leading Practice initiative.

In June 2005, CAPHC established an important patient safety partnership with the SHN! campaign that focused on one of our more vulnerable populations – children and youth. Among the six SHN! Campaign interventions, CAPHC's Patient Safety Collaborative identified Medication Reconciliation (MedRec) as their national priority. Since 2005, the CAPHC – SHN! Paediatric MedRec Collaborative (PMRC) has worked to expedite change and quality improvement in MedRec at paediatric centres across Canada.

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Executive Summary

Medication Reconciliation (MedRec) in the paediatric healthcare setting presents special challenges. Most paediatric patients are too young to provide accurate reports of the medications they are using; for youth there are issues related to privacy and consent and for new Canadians, language barriers make it difficult for parents to communicate an accurate history. These unique circumstances call upon the special knowledge and experience of the paediatric health care community to collectively lead the way.

The CAPHC-SHN Paediatric MedRec Collaborative (CAPHC-PMRC) was initiated in August 2005. Over the last three years, the collaborative model has provided a very valuable forum for paediatric implementation teams across the country. Through this forum, the participating teams identified and shared their challenges in implementing MedRec. As the process evolved the teams shared their strategies, and tools that had been successful in moving the process forward.

As the paediatric teams within the collaborative progressed through the process of implementing medication reconciliation, their experience showed that there were a number of critical factors that contributed to the success of implementing this practice change:

- **Senior Leadership Commitment**

MedRec is a process that not only requires senior leadership commitment, but commitment from all levels of leadership throughout the organization; setting the strategy for the collaborative ownership of the process, medical and operational leadership support, are essential.

- **Collaborative Implementation Teams**

Multidisciplinary implementation teams are vital to the success of MedRec.

- **Front-line Staff Education and Collaboration**

Clear definition of each team member's roles and responsibilities within the MedRec process is crucial to enhancing inter-professional collaboration and team accountability. Constant communication between and within the leadership team, the working group and pilot unit staff is indispensable.

- **Process Design**

Part of creating a sustainable process that will last across the test of time includes the creation of a process and procedures for how MedRec is to be delivered across the organization. Each organization is unique and differs in the processes used for MedRec depending on the availability of resources. It is important to create clinical processes that are systematically embedded within existing practice.

- **Resources for Implementation**

Planning around scarce resources is essential to the success of MedRec. While the implementation of MedRec will require an initial increase in resources, there is evidence that an improved medication history process can reduce the resources required per patient over time.

- **Planning for Sustainability and Spread**

It is never too early to start planning for sustainability and spread of MedRec. Successful implementation of MedRec and the ability to sustain the process long term requires that it become "the way we do business" across the organization. Embedding the MedRec process into the daily workflow will ensure that the process becomes a sustainable aspect of routine care delivery that can be spread throughout the organization.

This document is intended both as a final report of the three year paediatric MedRec journey, as well as a resource to provide support to sites that are just beginning to implement MedRec and/or are experiencing significant challenges around implementing MedRec and/or meeting Accreditation Canada Required Organizational Practices (ROPs). It contains the learnings with respect to barriers and challenges encountered, the **essential elements for success**, as well as **key strategies** and best practices from the collaborative teams.

Acknowledgements – Collaboration, Leadership and Committment

The CAPHC Patient Safety Collaborative would like to recognize the ongoing work of all of the participating paediatric centres, for without their commitment, extraordinary efforts and leadership, the success of the collaborative and the subsequent improvement in medication safety would not be possible!

Children's & Women's Health Centre of British Columbia

Alberta Children's Hospital

Stollery Children's Hospital

Saskatoon Regional Health Region

Winnipeg Children's Hospital

Bloorview Children's Rehab

Children's Hospital of Eastern Ontario

Children's Hospital, London Health Sciences Centre

Credit Valley Hospital

Grand River Hospital

Hospital for Sick Children

Kingston General Hospital

McMaster Children's Hospital

North York General Hospital

Quinte Healthcare Corporation

IWK Health Centre

Eastern Regional Integrated Health Authority, Children's and Women's Health Program

What Is Medication Reconciliation (MedRec)?

The ultimate goal of MedRec is to prevent adverse drug events (ADEs) at all interfaces of care, for all patients. The strategy is to reconcile all medications at all interfaces of care, eliminating undocumented intentional and unintentional discrepancies between medication history and medication orders. MedRec is a formal process of:

1. Obtaining a complete and accurate list of each patient's current home medications – including name, dosage, frequency and route,

2. Using that list when writing admission, transfer and/or discharge medication orders, and

3. Comparing the list against the patient's admission, transfer, and/or discharge orders, identifying and bringing any discrepancies to the attention of the prescriber and, if appropriate, making changes to the orders. Any resulting changes in orders are documented (Safer Healthcare Now, 2007).

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The MedRec process, in theory, appears straightforward; however, experience has shown that the system changes are complex and resource intensive. MedRec is not just about creating a new form and encouraging staff to use it – implementing MedRec is a broad system change that involves adopting new and improved clinical assessment processes that link to medication orders at all patient transition points.

The resources available to health care teams who are implementing MedRec procedures include ISMP Canada and Safer Healthcare Now! as well as the collaborative, peer support opportunities offered through a number of organizations including the Canadian Association of Paediatric Health Centres (CAPHC).

The Safer Healthcare Now! Getting Started Kit: MedRec (Safer Healthcare Now, 2007) provides detailed information on MedRec processes, the research supporting the need for and the value of MedRec, and support to initiate and test practice changes on small numbers of patients, and then gradually develop, implement and evaluate MedRec more broadly using quality improvement processes. The MedRec GSK (2007) includes details on MedRec at admission, internal transfer and discharge from a healthcare facility.

In Aug 2005, the CAPHC-PMRC was initiated at an introductory Orientation and Training Workshop attended by seventy-five interdisciplinary child and youth health professionals from across Canada.

Following August 2005, 17 centres across Canada established the 23 paediatric MedRec teams that formed the PMRC.

The collaborative model provided a very valuable forum for paediatric implementation teams across the country. Teams linked with each other through teleconferences, patient safety conferences and individually. Beginning in November 2005, the collaborative held the first of many interactive teleconferences. These teleconferences provided an opportunity to provide updates and a forum for collaborative members to share challenges, ideas and potential solutions. As the journey continued the teams shared their **key strategies**, and tools that had been successful in moving the process forward.

This report shares these learnings and provides a final report on the accomplishments of the teams that formed the PMRC. As well, details on the key strategies, tools and essential success elements will serve as a valuable resource for MedRec implementation teams who are just beginning to implement MedRec as well as sites that are experiencing significant challenges around implementing MedRec and/or meeting Accreditation Canada ROPs (see Appendix A).

The report is based on the SHN! Getting Started Kit for MedRec with input from the PMRC interactive teleconferences, presentations given by PMRC members at various conferences and the work of the individual paediatric teams. In addition, a nationwide team led by Dr. Kaveh Shojania and funded by the Canadian Health Services Research Foundation (CHSRF) and CPSI conducted a study that examined the barriers and facilitators to 3 widely recommended patient safety practices including MedRec. Partners

> "The communities of practice and the support we get from other people are amazing"*
>
> "One of the best things that happens is understanding that we are not the only one that may be facing these barriers"*
>
> * Shojania *et al*, 2008

for this study included CAPHC, Accreditation Canada, and ISMP Canada. Results from this study will be used to enhance the information on barriers and facilitators.

The Case for MedRec

Published Evidence

Paediatric healthcare institutions face many unique challenges in the delivery of care – medication errors are one of the most common patient safety problems. For paediatric inpatients, medication errors have been reported to range from 1 in 5.7 to 1 in 6.4 medication orders and are three times more common than in adult populations (Riley-Lawless, 2009).

Incomplete and/or inaccurate medication information at admission and subsequent healthcare transition points are significant factors in up to 50 % of all inpatient medication errors (Manno and Hayes, 2006). At transition points, high volume activity, multiple distractions, shift changes and the lack of a standardized process to complete and verify a medication history are some of the factors that present challenges for reducing medication errors. Accurate medication histories at admission are essential to medication safety. Tam *et al* (2005) conducted a systematic review of studies that have examined the frequency, type and clinical importance of medication history errors at

admission to hospital. Included in the review were 22 studies that were primary research articles, compared primary medication histories with comprehensive medication histories, were conducted on adult inpatient populations and had a sample size of at least 30 patients. In the review, an error in a prescription medication history was defined as a discrepancy between the primary, physician acquired, medication history and the comprehensive medication history (usually obtained by a pharmacist). The included studies reported that 10% to 67% of patients had at least one prescription medication history error. Five of the studies distinguished between unintentional discrepancies and intentional therapeutic changes. These studies demonstrated that 27% to 53% of patients had at least one medication history error and 19% to 75% of these errors were classified as unintentional. Limited data suggested up to half of the errors were clinically important. The authors conclude that errors in prescription medication histories at the time of hospital admission were alarmingly common and potentially harmful to patients.

In the Canadian Adverse Events Study, drug and fluid related events were the second most common type of procedure or event to which adverse events were related (Baker and Norton, 2004). In a 2006 study (Vira *et al*, 2006), the potential impact of MedRec was evaluated in randomly selected patients admitted to a Canadian community hospital. Overall, 60% of the patients had at least one unintentional medication discrepancy and 18% had at least one clinically important discrepancy. None of these had been detected by usual clinical practice. Of the 20 clinically important variances, 75% were intercepted by MedRec before patients were harmed. Another study conducted in a Canadian institution found that 54% of 151 patients admitted to general medicine teaching units who were prescribed at least four medications had at least one unintended discrepancy, of which 39% were judged to have the potential to cause moderate to severe discomfort or clinical deterioration. The most common discrepancy (46%) consisted of the omission of a regularly used medication (Cornish, *et al.*, 2005).

While there is limited published evidence on MedRec in paediatrics, one Canadian study (2008) found that admission medication errors with potentially serious consequences occur in children at rates similar to those of adults (Coffey, *et al.*, 2008).

Baseline Data and Patient Stories

Before starting implementation of a new practice it is essential to measure the extent of the gaps in clinical processes that need to be corrected. Not only does this data provide the baseline against which to measure the effectiveness of the change, it is evidence of the seriousness of the problem to motivate stakeholder involvement. "Baseline data" reflects the types of discrepancies in medication orders that existed prior to the implementation of a MedRec process and will provide the information needed to build the case for MedRec, and to identify areas of focus (Safer Healthcare Now, 2007).

As part of the SHN! MedRec initiative two measures have been used to track the progress of implementation efforts – *undocumented intentional* and *unintentional discrepancies* between the medications that a child was on at home and the admission medication

> At one paediatric site, a chart audit of admissions showed that less than 10% of charts contained a complete primary medication history with drug name, dosage route, and frequency documented. Approximately 50% of the home medications that patients were on at home were actually documented and only 56% of home medications were actually ordered on admission.
>
> Streitenberger, 2007

orders. Baseline data provides the internal, site specific evidence on undocumented intentional and unintentional discrepancy rates. This data serves to illustrate the size of the problem and demonstrates that there is room for improvement. This in turn helps to engage the staff, secure buy-in and helps to define improvement goals and targets.

Baseline data is enhanced by providing real and meaningful patient examples. Such case examples serve to provide AH HA moments to staff (Galloway, *et al.*, 2007).

In December 2005, we began our first BPMH audit. The first patient and his mother were interviewed and the admission orders were reviewed. There were 6 discrepancies out of 14 medications that had been ordered. The discrepancies were both unintentional and undocumented intentional discrepancies. This became our first AH HA moment and increased commitment to the project.

It has proven valuable for paediatric teams to spend some time mapping the processes on pilot units to identify the gaps in current practice. Analysis of current processes provides internal evidence on how clinical practice can be changed to streamline and improve work flow (see Appendix B). The experience of implementation teams has shown that information on the medications a child has been on at home can

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be everywhere and nowhere in the chart. It is helpful to understand where and why information on home medications is being recorded or omitted. The Massachusetts Coalition for the Prevention of Medication Errors (2005) suggests that the key aspect of this planning step is to focus on some of the key questions about the current process.

- Are there a variety of processes?
- Are there clearly defined clinical roles?
- Are there redundancies and duplication of work?
- Are there multiple medication lists in the chart collected by different staff?

> In the pre-rollout planning we found that there were no less than 4 medication histories on the chart done by 4 different professions, and only 1 in 4 matched. This told that the work is already being done. We just had to learn how to work smarter, not harder and therein lay the paradigm shift.
>
> Joel Lamoure,
> personal communication

Undocumented Intentional Discrepancies – Baseline Data

An undocumented intentional discrepancy (Type 2) has occurred when the physician has made an intentional choice to add, change or stop a medication however the choice is not clearly documented in the chart. 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 and require extra work. They can be reduced by standardizing the method for documenting admission medication orders.

Across Canada, 23 paediatric teams at 17 healthcare facilities were formed. The patient populations that were chosen to pilot MedRec varied from children admitted to paediatric wards in community hospitals to complex populations including nephrology, mental health and respiratory medicine within acute care settings. Baseline audit data was collected on a median of 20 patients (range 10 to 94) per team – a total of 635 patients were reviewed. Across the teams, the mean number of undocumented discrepancies per patient identified ranged up to 1.60 per patient. System-wide, a total of 275 undocumented discrepancies were identified across the 635 patients – a rate of 0.43 per patient.

Unintentional Discrepancies – Baseline Data

An unintentional discrepancy has occurred when the physician has unintentionally changed, added or omitted a medication the patient was taking prior to admission. Such discrepancies are medication errors than can lead to adverse drug events. The potential for adverse drug events can be reduced by training nurses, doctors and pharmacists to obtain an insightful medication history, and by having clinical pharmacists identify and reconcile discrepancies.

The mean number of unintentional discrepancies per patient identified in the paediatric pilot sites ranged up to 1.25 per patient. Across the paediatric teams, 366 unintentional discrepancies were identified for 635 patients reviewed during the baseline phase – a rate of 0.58 per patient.

Undocumented Discrepancies at Baseline

Bar chart — Number of Teams vs. Rate of Undocumented Discrepancies:
- 0 to 0.25: 10
- 0.26 to 0.50: 6
- 0.51 to 0.75: 1
- 0.76 to 1.0: 3
- 1.0 to 2.0: 3

Unintentional Discrepanices at Baseline

Bar chart — Number of Teams vs. Rate of Unintentional Discrepancies:
- 0 to 0.25: 3
- 0.26 to 0.50: 9
- 0.51 to 0.75: 7
- 0.76 to 1.0: 1
- 1.0 to 2.0: 3
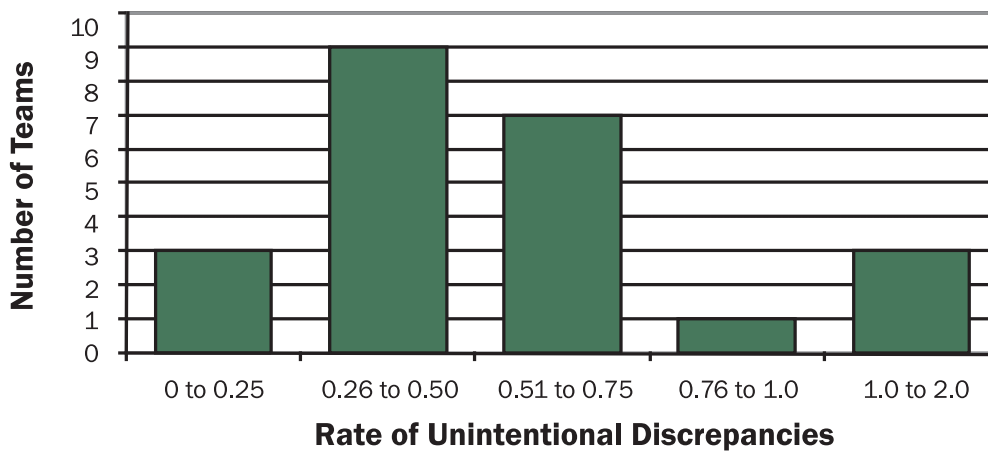
Case Examples

Real and meaningful case examples have served to motivate and inform front line staff and physicians of the value of MedRec. During the PMRC teleconferences, teams reported that presenting the baseline data report in narrative form, with some examples of unintentional discrepancies, was very helpful in convincing staff of the value of MedRec. Teams found this strategy particularly helpful capturing the interest of physicians (PMRC Teleconference 2, 2006). Not all examples will be dramatic; however, they will illustrate the value of an accurate medication history.

> A school aged patient with chronic renal failure received a regular antihypertensive at home. Admission medication history documentation indicated "no medications at home." No antihypertensive was ordered on admission.

> A child with multiple medical issues was admitted with pneumonia. The child was receiving cloBAZAM at home, however, cloNAZEPAM ordered on admission (3 fold overdose). On day 2 the child suffered respiratory arrest requiring resuscitation. The ADE was identified on day 11. The result of the error was a prolonged intensive care admission and mechanical ventilation with several failed extubations (Coffey, 2008).

MedRec: More than a Fad!

Darlene Boliver

We are all aware that the key to sustaining quality initiatives is 'senior leadership commitment and support', however clear definitions for what this means and what it should look like are lacking. MedRec as a core principle for patient safety must be built into leadership transition and succession planning if the organizational memory is to be preserved.

MedRec is a process that not only requires senior leadership commitment, but commitment from all levels of leadership throughout the organization. The process to achieve sustainable practice is long and must remain visible at all levels. Commitments for each level of leadership are categorized below. These supports are fluid and should be considered as an overall perspective and embraced by all leaders with responsibility for patient safety improvements including MedRec. Please note that although the terms may not be common to all healthcare facilities, the premises hold across all types and sizes of facilities.

Senior leadership commitment involves setting high level priorities, and linking MedRec to the mission, vision and strategy of the organization. The role of senior leadership is to help prepare the organization for change by creating the expectations and providing adequate resources and attention to the initiative. Ideally this involves generating discomfort with the present state and creating the will for other leaders, managers and staff to move to a new state, i.e. making care safer by reconciling medications at all encounters and transition points. In other words, their role is to help set or change the culture of the organization to ensure MedRec is seen as "the way we do business" and not seen or treated as a fad. This includes establishing a clear accountability within the leadership team for MedRec. A broad understanding of change theory, including the time required to reframe old ways of working into sustainable new ways of practice is required.

Setting the strategy for the collaborative ownership of the process, medical and operational leadership support, is an essential success element for the implementation of MedRec. Leaders at this level must clearly understand and strongly support MedRec concepts and practices, have credibility within their own peer group and be actively involved to ensure sustainability of MedRec within the medical staff. Medical and middle management leadership support includes developing and communicating the strategy for collaborative ownership of the process. This includes introducing and explaining the need for MedRec, how it is linked to patient safety, defining roles in the implementation process and addressing questions or concerns that arise. This may require changing policies and position descriptions to better support collaborative practice as well as providing and seeking feedback throughout the process. Leaders at this level also require knowledge and understanding of change theory and must be prepared to stay the course and not expect quick gains in practice change. Keeping MedRec on the agenda of committees and multi-disciplinary meetings demonstrates its importance.

Along with medical staff leadership, academic health centres have a key role for the chief paediatric resident. Within academic centres, a key strategy is to enlist paediatric residents who strongly support the MedRec concept and who have credibility within their peer group. The leadership of the Chief Paediatric resident, as well as a combination of junior and senior resident involvement ensures sustainability of MedRec within this high-turnover group.

Frontline leaders need to support MedRec by creating the environment for this collaborative process to occur. Managing MedRec fatigue by providing encouragement and showing appreciation for sustained effort and results demonstrates such support. Managing professional practice issues and boundary disputes is a key priority for frontline leaders. Resolving these issues may require changing policies to support collaborative practice at the unit level and provide feedback and support to individuals and teams throughout the process. Identifying 'champions' within each professional practice group with responsibility for MedRec at the very beginning of implementation in each clinical area will enable better buy-in and ownership for this process. Champions can be

alert to boundary issues and identify them at the earliest potential point and help mediate resolution.

One example of a professional practice/boundary issue has occurred in several organizations where early MedRec implementation procedures were solely the responsibility of pharmacists. As MedRec progressed, the concept that the procedures need to be a shared responsibility by nursing, pharmacy and medical staff caused push-back from non-pharmacy staff, e.g., nursing was now being asked to do "pharmacy work" versus viewing providing safer care through MedRec as everyone's responsibility. Care must be taken that this is a shared collaborative and one profession, person or leadership group can not own MedRec for the facility.

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Key Strategies

Examples of how leaders can keep MedRec on the radar include:

- providing clear and visible support with respect to the implementation of MedRec, e.g., attending the initial team meetings, communicating support for the project to all staff (see Appendix C)

- displaying achievements through run charts and other visual graphics at all meetings and other opportunities,

- using open forums to discuss issues that may arise,

- using technology such as 'chat rooms' or on-line discussions boards to communicate,

- using 'open space' techniques to generate creative ideas and solutions to overcome barriers, and/or

- providing the resources for staff involved in MedRec to present their work at local, regional and national SHN or other Patient Safety conferences

Other supports may also include:

- developing and supporting MedRec champions and leaders within the implementation team and/or unit,

- creating safe environments where diverse opinions and ideas can be freely expressed and are valued,

- providing multidisciplinary team building, training, education and/or skill building opportunities,

- providing 'protected time' for meetings and developmental activities to help support MedRec (see Appendix D),

- participating in collaborative learning by signing on to the appropriate SHN collaborative opportunities and providing support for staff to be involved actively involved, and/or

- Supporting CAPHC efforts and the larger SHN campaign to promote an increased understanding of the MedRec process.

From a management perspective, compelling evidence is required for a management team to support any patient safety initiative. Healthcare leaders are challenged with having to prioritize improvements to the system. A sound business case for quality can assist in making these difficult decisions. From the "bottom-up" perspective implementation teams, together with support from Quality & Decision Support services can provide the elements of a "business case" for MedRec to senior leadership. The key components of a business case include the direct financial, internal organizational and strategic considerations (Streitenberger, 2008).

See Appendix D for more details and links to resources.

The MedRec Implementation Team

Leslie Galloway and Cenzina Caligiuri

Forming the Team

Implementation of MedRec has, above all, required teamwork, communication and collaboration. One of the **essential success elements** to implementing MedRec, identified by the paediatric teams, has been the **vital importance of multidisciplinary implementation teams**. It is also important to appreciate the complexity of the initiative and that considerable time will be required to ensure the success and sustainability of the initiative.

Key strategies to consider when forming a MedRec working group include:

- executive sponsorship/Program Management Team support of the project

- acknowledgment by all involved that MedRec is a "need to do" versus a "nice to do" initiative

- recognition that an interdisciplinary team approach is one of the **essential success elements** – having two team co-leaders from different disciplines who have project management experience has been a successful strategy.

- involvement of physician champions who recognize and support the value of MedRec.

Prior to Beginning the MedRec Initiative

Once the pilot unit for implementation is chosen, a meeting *chaired by the executive sponsor* with the identified team lead(s), physician champions and representatives of the pilot unit should be held, prior to the start of the initiative, to discuss the scope of the project and first steps.

First steps include:

- identification of additional team members, e.g., nursing representatives from the pilot unit, pharmacy representation, pediatric resident representation, nursing educator, unit clerk, quality team representation and a parent representative.

- team member selection should be based on credibility within their own discipline, familiarity with the pilot unit, leadership ability within the unit, clinical expertise, and the ability to challenge and ask tough questions.

- within academic centres, a **key strategy** is to enlist paediatric residents who strongly support the MedRec concept and who have credibility within their peer group. The leadership of the Chief Paediatric resident, as well as a combination of junior and senior resident involvement ensures sustainability of MedRec within this high-turnover group.

- where resources are available, adding any small portion of a full-time equivalent to be dedicated to the initiative, from nursing, pharmacy or the quality team is helpful in assisting the initiative with collection of initial baseline data as well as assisting with building enthusiasm and interest in the project.

- once the primary MedRec team is established, an essential step is to develop a team charter with goals, purpose and deliverables and designated time frames (see Appendix E for examples). The team charter serves a number of purposes:

  - recognizes that individuals represent their stakeholder group on the committee, not themselves.

  - reinforces the need for stakeholders to communicate with their stakeholder groups.

  - provides timeline for the initiative, essential to focus the working group members and to ensure accountability. Moving the initiative forward in a timely manner maintains interest and motivation.

MEDICATION RECONCILIATION
IT'S A TEAM SPORT!

(Galloway and Caligiuri, 2007)

Strategic Working Groups

The "primary team" is most commonly defined as those individuals sitting around the meeting table every two weeks planning and strategizing to move the initiative forward. In the big picture, "team" is probably more reflective of all individuals who have a stake in the success of the initiative and those who also work outside the "meeting" forum. From this perspective, there can be many strategic working groups outside the primary team which can effectively contribute to the success of the MedRec initiative.

Communication Plans

Constant communication between and within the leadership team, the working group and pilot unit staff is an **essential success element**. At beginning of the initiative, a communication should be sent out by the management team to all staff announcing the start of the project. Preparing of a communication plan is a key strategy for keeping all stakeholders informed and motivated. The plan should include; the message to be communicated; the intent of the message is; how the message is to be sent; and who is responsible for sending the message; and what needs to happen when the message is received.

Eliciting staff buy-in in the early stages of implementation and maintaining staff momentum throughout can be enhanced by recognizing, acknowledging and celebrating successes. Teams have found that a "kick-off" event along with celebrations when key milestones are met can help to generate and sustain momentum for change. Newsletters, posters, sharing data, clinical stories and lessons learned during the implementation of MedRec can be motivating for staff and help them to feel a sense of ownership and accountability for the improvements they are making (see Appendix E for examples).

Robust and transparent feedback systems, as part of the communication plan, ensure that staff at every level, are aware of the improvements being made including development of measurement systems that support timely collection, analysis and sharing of data, public display of results, or use of screensavers displaying unit and organizational successes.

Primary team lead(s) must work outside the meeting forum to strategically plan next steps. Project planning tools are useful to assist team lead(s) in setting specific goals and targets over a specific timeframe from an overall broad perspective. This is crucial in maintaining momentum and contributes to effective discussions at meetings with the entire team. It is beneficial for the project leaders to be in constant communication not only with planning and next steps but also from a problem solving point of view. Team lead(s), once identified by stakeholders, are often notified of issues and potential barriers as they occur. Depending on the problem, it may be important to investigate or resolve the problem prior to the next "team" meeting. This can often be accomplished with small strategic working group meetings.

All primary team members as well as the leadership team should be involved in the planning and implementation phases of the project. There needs to be constant focus on next steps and planning of tests of change using Plan-Do-Study-Act (PDSA) cycles to conduct small-scale tests of change in real work settings (see Appendix D for links to resources on using the Model for Improvement and PDSA cycles).

Early identification of barriers and discussion of potential mitigation strategies is also helpful to complete prior to project initiation. The team also needs to be aware of and discuss issues related to project sustainability.

Transition of Team Membership

The establishment of an initial core team during the pilot is an **essential success element**. As the initiative moves forward it is important to focus on capacity building. As spread occurs, team membership should be expanded to include new unit(s)/program(s). New membership should include a physician leader, a nursing manager, and a nursing educator from the new unit/program. Membership from previous units, where implementation has already occurred, can continue to receive the agenda and minutes. This allows them to remain up-to-date and return to the table as required. This transitioning of membership can work to maintain project momentum.

It is also important to recognize transition of membership within the team as individuals change positions and assume new roles within their disciplines, e.g., chief resident appointments. It is important to meet with these new members to review project progress and to discuss their role and expectations as a team member.

As MedRec progresses and spreads expanded team membership may also include pharmacy technicians, junior quality improvement officer/patient safety representative, junior resident membership and students (e.g., pharmacy).

> MedRec requires three C's – collaboration, communication and competency development – to make the required paradigm shift.
>
> Joel Lamoure,
> SHN Newsletter, Sept 2008

Front-line Staff Education and Collaboration

Kim Streitenberger

MedRec is a team sport with each individual team member playing an important role in the process. While the MedRec process and team member roles and responsibilities may vary from one organization to another, teams who have been successful at implementing MedRec have encouraged inter-professional collaboration with nurses, physicians and pharmacists sharing ownership of the process. The multi-disciplinary nature of MedRec, while important, adds to the complexity of implementation. Clear definition of each team member's roles and responsibilities within the MedRec process is an **essential success element** for enhancing inter-professional collaboration and team accountability.

The question of who does, or should take a best possible medication history (BPMH) has been the topic of much debate. Staff resources, roles and responsibilities can impact on this decision and can be different from one area of an organization to another. The experience of the PMRC has shown that sites that use a variety of staff; nurses, residents, hospitalists, and pharmacists have greater success than those sites relying on pharmacy alone. Focusing on enhancing inter-professional team collaboration and accountability for the MedRec process can have a significant impact on ensuring the process is completed and that improvements are sustained over time.

While it is a fundamental part of the MedRec process, it is not enough to simply teach staff how to do a best possible medication history (BPMH). An understanding of each team member's contribution and how the process is applied in the work area is also important. Staff education should be tailored to ensure that all team members understand the principles of MedRec, how to take a BPMH, the MedRec process as defined within the organization and their roles and responsibilities within that process. A focus on the patient safety rationale for completing MedRec is a key strategy for staff education.

Key Strategies

Educational methods may vary from one area within an organization to another and are dependent on a variety of factors including unit culture, staff mix, experience level, and available resources. Ensuring adequate staff education and support when implementing MedRec can have a significant impact on the ability to elicit staff buy-in, engage staff in the process and sustain this change in practice over time. Successful staff education strategies include:

- Use of case studies – collecting and sharing real life examples of patients who have benefited from this process can help to engage staff by "putting a face" to MedRec. It is much more meaningful for staff to understand the direct impact of the process on the outcomes of actual patients within their care. This can be particularly effective when trying to elicit staff buy-in within the early stages of implementation.

- Providing staff education as close to the time of implementation as possible – teams found that staff had a greater understanding of the process if the rationale, philosophy and detailed aspects of how to conduct MedRec were "fresh in their minds".

- Provision of "real time" education at the point of care – while certain aspects of clinical care can be taught effectively through didactic in class lectures, training a small group of front-line champions who can act as a resource and guide their colleagues in completing the process in the actual clinical setting has been shown to be an effective method.

- Creating education programs that use a multitude of delivery methods to keep staff interested and meet a variety of learning needs – methods used by successful teams have included the development of pre-learning packages, e-learning modules on unit websites, use of simulated patient scenarios to train staff on how to conduct a BPMH, case presentations in rounds.

- "Roving in-services" where education sessions are delivered directly in the clinical setting can be very effective particularly in situations when it is difficult to remove staff for in class presentations.

If time is money, following these steps to prevent medication errors on admission is a sound investment!

STEP 1
Extra time it takes to document admission medication history on the medication reconciliation form: **0 minutes**

STEP 2
Time needed to take a "Best Possible Medication History" (BPMH): **30 minutes**

STEP 3
Time it takes to compare the BPMH to the medication orders and reconcile discrepancies: **15 minutes**

Time and effort you didn't spend managing the outcome of a medication error… PRICELESS!

SickKids

Partners in Patient Safety

Advancing Inter-Professional Practice

- Including education about the MedRec process in unit or organizational orientation programs for all new inter-professional staff – this can help to establish the process as "the way we do business" which in turn enhances sustainability over time.

- Providing continuing education, including training new trainers. Education needs to be constant and inter-professional in nature to enhance staff understanding, particularly of their roles and responsibilities and shared accountability for the MedRec process.

Resource Issues

Joel Lamoure

Accurate resource planning and resource allocation is an essential success element. In the best case scenario, implementation team members will have designated and protected time, in order to:

- meet, review data, plan tests of change, and discuss the logistics of new processes and systems.

- stay connected with the front-line staff, senior leadership, and information resources

- have adequate staffing for data collection and management

- have adequate pharmacy staffing

See Appendix D for information on the costs of implementation.

However, one of the greatest challenges to the success of MedRec has been implementing this practice change with few additional resources. Most teams have not had the luxury of adequate designated and protected time. "Doing something with nothing" requires a fearless look at how a facility does business for its end users, the patients.

Planning around scarce resources is essential to the success of MedRec. Teams need to map out overlapping roles and responsibilities performed within the unit(s) where MedRec is being implemented. A model where the patient is at the centre of MedRec is the best approach – mapping out from the patient and determining what resources already exist and how best to use them (Fillatre, 2008).

In the face of competing initiatives and limited resources, the resources come from individuals. Healthcare providers who believe in and have expertise in patient safety join the MedRec initiative. Each of these individuals may only bring 0.05 or 0.1 FTE, but with a Working Group of 10 people, that adds up to a 0.5-1 FTE. Such a collaborative effort is much more robust and the levels of experience, depth and breadth around the table make the exercise that much more sustainable.

The question, essentially, is not about more resources, but rather about how to improve processes. Evidence suggests that MedRec processes add value by streamlining clinical practices and reducing rework. Research by Rozich *et al*, (2004) found that MedRec reduced nursing time at admission by 20 minutes per patient and pharmacist time at discharge was reduced

> "It's about resources... realizing how complex it is and the constant monitoring you need to do to keep it going"
>
> "The effects on the available resources should have been anticipated and support put in place"
>
> * Shojania *et al*, 2008

by 40 min. Thus, although implementation of MedRec may require an initial increase in resources, streamlining of workflow will actually reduce the resources required per patient over time. Presenting this streamlining and reduction in rework helped many teams convince staff and senior leaders of the value of MedRec.

Key Strategies

- Have early discussions with senior leaders with respect to what resources will be necessary to initiate MedRec (see Appendix D). Ensure that management understands the savings that will result from improved clinical processes. Come armed with some alternate solutions using existing resources.

- Where resources can be found, dedicating a portion of an FTE, from nursing, pharmacy or the quality team is helpful in assisting with the collection of initial baseline data and building enthusiasm and interest in the project.

- Explore alternate resource solutions, e.g. nurses on modified duty can take on some of the tasks of implementing MedRec including collecting data, educating colleagues, etc.

- Alternate funding proposals can also assist in laying the foundation for the core team. Working groups resulting from small grants can assist with audits, process development and front-line support. These working groups often include additional individuals such as students and pharmacy technicians.

Models and Processes

MedRec is not just about creating a new form and encouraging staff to use it – implementing MedRec is a broad system change that involves changing "the way we do business". For the changes to lead to sustained improvements it is important to create clinical processes that are systematically embedded within existing practice. Creation of new clinical processes will depend on available resources, traditional practice roles and a willingness to change. The traditional point of view is that pharmacists are the experts in completing the medication reconciliation process, but in many organizations the system is not set up for them to be available all the time for this role – clinical pharmacist resources are scarce and need to be used appropriately. Each team is unique and differs in the processes used for MedRec, depending on the availability of resources.

Once a health care facility understands where their processes can be improved, changes can be crafted within the pilot unit using short Plan Do Study Act (PDSA) cycles or "tests of change". Part of creating a sustainable process that will last across the test of time includes creating a policy and procedure for how MedRec is to be delivered across the organization. This must be addressed and documented from the planning stages, with the goal of spreading from the pilot unit to the rest of the organization. The policy & procedure should include the definition of who, what, where and when MedRec is to take place. Part of this includes building the medication reconciliation process into existing daily practice & roles of medical, nursing and pharmacy staff with a solid, well-tested Medication History Form and procedure.

See Appendix H for examples of Best Possible Medication History (BPMH) forms.

The other essential link to the success of MedRec is involving families. MedRec in paediatric services presents special challenges. Since most paediatric patients are too young to provide accurate reports of the medications they are using family members must be involved in the MedRec process.

There is limited published research on MedRec in paediatrics including the role of the family in providing complete accurate medication information. A recent study (Riley-Lawless, 2009) of 100 families of children with chronic conditions, most of whom were on one to four medications at home, found that half of the families did not bring the child's medications with them and of these 50% were unable to provide complete medication information. The importance of reminding families to bring medication information multiple times using a variety of methods was noted by the families interviewed.

Families can be engaged in the MedRec process through many different means/activities. Effective strategies include providing information to patients/parents at all entry points to the system to increase awareness, providing a MedRec letter or 'wallet card', playing a loop-video in common waiting areas, etc. Examples of family letters can be seen in Appendix G.
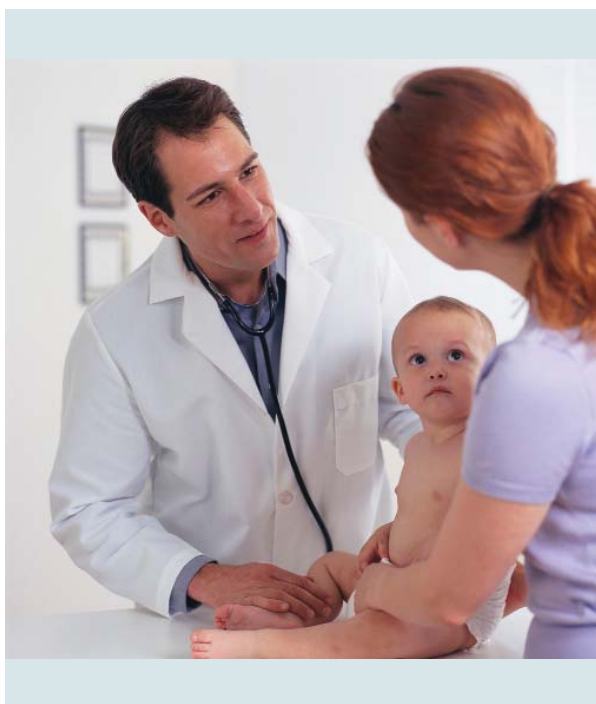
Sustainability and Spread

Leslie Galloway, Cenzina Caligiuri & Kim Streitenberger

While change is inevitable within today's healthcare system, staff fatigue or impatience with quality improvement initiatives can be a barrier to success. All teams have faced quality improvement fatigue, practice change resistance and challenges with ensuring compliance with new processes and standards. Successful implementation of MedRec and the ability to sustain the process long term requires that it become "**the way we do business**" across the organization. Embedding the MedRec process into the daily workflow is a critical strategy to ensuring that the process becomes a sustainable aspect of routine care delivery that can be spread throughout the organization.

It is never too early to start planning for sustainability and spread of MedRec. This is not a "one size fits all" process. Forms, processes, roles and responsibilities of team members and data collection processes should be developed with sustainability and the ability to spread to other areas within the organization in mind. It may be necessary to make minor modifications to the MedRec process, forms and team roles to ensure they meet the needs of care delivery in the various unique areas of an organization.

As spread occurs, it is useful to hold pre-emptive meetings within a particular program or patient care unit. These meetings should include the team lead(s) of the project, the primary physician champion, and leadership representatives from the pilot unit. The initial meeting usually includes a history of the overall initiative and a presentation of pilot data. This data may be initial baseline audit that has been done on the unit and/or data from previous programs and units. The meetings are also an opportunity for discussion of goals and expected outcomes as well as expected barriers and strategies. Once buy-in and an agreement to move forward are obtained, a follow-up working group should be planned. These individuals can then be added to the "primary team" membership.

The ability to sustain and subsequently spread the MedRec process is dependent on the essential success factors already discussed, and on applying the key strategies that have been developed on the pilot unit to the spread units. Key unit and organizational factors include:

- a supportive management structure that considers quality of care a priority, is visibly supportive and accountable

- structures to "foolproof" change and make it difficult for staff to revert to the "old way of doing things" such as IT systems that support the MedRec process or prepackaged "kits" used by units when applying the process in their area. Developing MedRec forms that double as admission orders has been shown to be an effective strategy to ensure that the process will be completed and can also eliminate extra work and forms.

- a shared sense of the admission and medication management processes that the organization is hoping to improve and a clear understanding of each team member's contribution to the implementation of MedRec

- a unit and/or organizational culture of improvement and deeply engaged staff who share a sense of pride in their accomplishments and are invested in ensuring the best outcomes for their patients

- formal capacity building programs that make staff training a priority build skill and competency in applying the MedRec process and create a culture where improvements are regularly integrated into the day to day activity of the unit or organization. (IHI - GSK Spread & Sustainability How To Guide)

One of the first things to consider is whether your team has any "gains to hold". The initial hard work of implementing MedRec should be completed with demonstrated evidence of improvement for several months on the pilot unit before the process is considered sustainable and ready to be spread to other areas of the organization. There are several questions to consider when determining if it is time to move forward with spreading the MedRec process more broadly:

1. Is the MedRec process in the final stages of development? If additional changes are required would these completely alter the way the process is completed?

2. Do your measures demonstrate real improvement? Are you seeing evidence of improvement in your data?

3. Who cares about the MedRec process? Does the process reflect the values and views of those involved?

4. What policy or technological changes might render the MedRec process you have developed as redundant and when might these happen?

(NHS Improvement Leaders Guide to Sustainability & Spread, 2002)

When you have decided that you are ready to spread MedRec beyond your pilot area(s) it is important to develop a formal plan incorporating strategies used by successful teams to enhance spread efforts. These include:

- designating an executive sponsor with accountability to the CEO and Board to lead the spread efforts and ensure sustainability of the process

- involving the executive in setting the tone by communicating the importance of implementing the MedRec process across the organization

- appointing a day to day leader and establishing a team of staff to coordinate and provide leadership in your spread efforts

- sharing the results and experiences of your pilot area(s) to make the case for spread and to leverage and build on what you have learned

- considering whether there are infrastructure or technological changes that would facilitate the spread of MedRec from one area to another for example data collection methods, IT systems or resources

- identifying any differences among the new units that might impact on the implementation of MedRec. For example is the workflow different in some units and does that influence how the MedRec process is completed?

- building accountability for the MedRec process into operational responsibility and reinforcing that it is part of everyday work so that it is not perceived as a special project that will eventually "go away".

- developing an expanded communication plan using a variety of methods including hospital-wide forums, newsletters, media coverage and special events to provide feedback, share results and build and sustain energy as the process is spread

- considering the type of support you will provide to inter-professional staff in the new units. Successful strategies have included bringing staff from pilot areas to the new units to share their experiences and expertise, providing "hot line" support for those with questions or needing assistance in completing the process and identifying credible frontline champions who can serve as resources and coaches to unit staff.

- developing measurement systems to track your progress on a unit and/or organizational level.

Developing a comprehensive plan can help to guide spread efforts however, adjustments to your initial spread plan may be needed in order to meet the needs of individual units and accelerate adoption of the MedRec process across your organization (IHI GSK Sustainability & Spread How To Guide).

The Audit Data – The Benefits of the Process

JoAnne Whittingham

Across the country, 23 paediatric teams at 17 health-care facilities implemented the MedRec initiative beginning in 2005. The patient populations that were chosen to pilot MedRec varied from children admitted to paediatric wards in community hospitals to complex populations including nephrology, mental health and respiratory medicine within acute care settings.

Audit data, tracking the changes in medication order discrepancies, was the main outcome measure used to track the progress of MedRec implementation. Teams were asked to collect and submit audit data on a monthly basis. The resources available for teams to conduct this time-consuming task varied across teams. For some, monthly collection and submission simply was not possible with the limited resources that they were working with.

Despite these challenges paediatric teams from across the country have submitted a significant amount of data. Teams (15/23) who were able to submit data on a regular basis submitted a range of up to 36 months (median 16 months) of implementation audit data, the total number of submitted implementation audits was 280.

For the 15 teams who were able to submit data regularly, baseline audit data was collected on a median of 22 patients (range 10 to 94) per team – a system-wide total of 467 patients were reviewed. By the end of 2008, teams had collected and submitted discrepancy data, tracking the progress of their implementation efforts, for a median of 317 patients (range 23 to 690 patients) per team with a total of 4141 patients reviewed.

Across the paediatric teams, the mean number of **undocumented intentional discrepancies** identified per patient ranged up to 1.05 per patient in baseline data. System-wide, a total of 181 undocumented discrepancies were identified across the 467 patients – a rate of 0.40 per patient. During the implementation of MedRec, 986 undocumented discrepancies have been identified over 4141 patients – a rate of 0.24. This represents a decrease of 38.7% from the baseline rate.

The run chart shows the variability of audit data from month to month. This pattern is evident both in the combined paediatric data as well as in the individual team run charts. Monthly variances can be

Undocumented Intentional Discrepancies over Time

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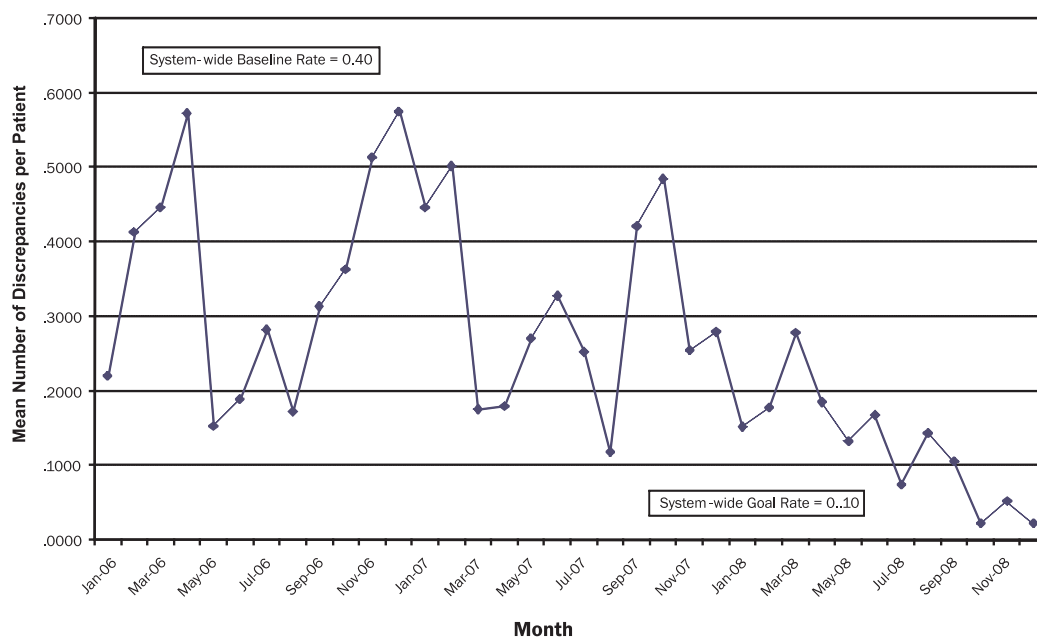
attributed to what is happening with respect to the patient population, the team and the process itself.

Once the rates are being maintained at or below goal, this indicates that the process is working and staff are on board. If the rates are not yet stable it becomes important for teams to understand what the barriers are and what can be done to improve the process.

Across the 15 paediatric teams who submitted regular data, the mean number of unintentional discrepancies per patient identified ranged up to 0.09 per patient

in baseline data. System-wide, a total of 269 unintentional discrepancies were identified across the 467 patients – a rate of 0.57 per patient. During the implementation of MedRec, 1176 unintentional discrepancies have been identified over 4141 patients – a rate of 0.28. This represents a decrease of 50.2% from the baseline rate. As with the undocumented intentional discrepancies, the combined run chart shows the variability of audit data from month to month and the need to monitor the medication reconciliation process with regular audits.

Unintentional Discrepancies over Time

System-wide Baseline Rate = 0.58

System-wide Goal Rate = 0.14
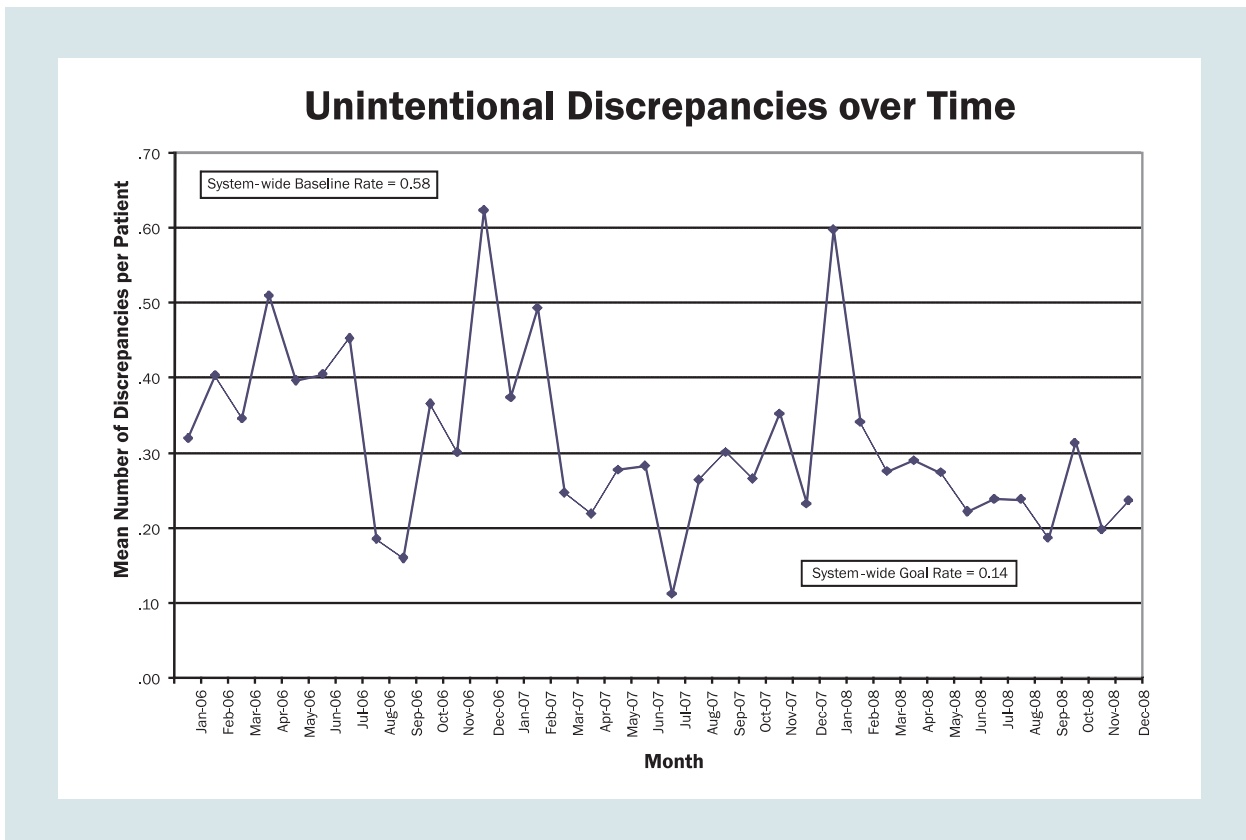
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Appendices

Included in this section is resource information, links to additional resources and examples of team tools.

Appendix A: Accreditation Canada - MedRec Required Organizational Practices

Appendix B: Flowcharting Current Processes

Appendix C: Leadership Support

Appendix D: Business Case Information

Appendix E: Examples of MedRec Team Charters

Appendix F: Staff Communication and Education

Appendix G: The Model for Improvement

Appendix H: Samples of Best Possible Medication History Forms

Appendix I: Samples of Family Information Strategies

Note: Throughout these appendices are examples of tools, processes and forms generously provided by PMRC teams. CAPHC greatly appreciates the teams sharing their hard work and wisdom. It is our intention that these examples be used and modified by other teams embarking on the MedRec journey. We only ask that you provide recognition of this document and the healthcare facility for all tools that you use. Note that the examples provided were developed for use on the pilot units during the initial stages of piloting MedRec. These documents are likely to have been adapted as each site moves their process forward, spreading MedRec across the organization.

Appendix A

Accreditation Canada – Required Organizational Practices

In 2008, Accreditation Canada introduced a new accreditation program called Qmentum in 2008. Based on the latest research and evidence and extensive feedback from clients, surveyors, board members and staff, Qmentum emphasizes health system performance, risk prevention planning, client safety, performance measurement, and governance.

Qmentum fosters an increased awareness of accreditation as a powerful tool for accountability, and enables health care organizations to use accreditation effectively and easily as a roadmap for quality. It exemplifies Accreditation Canada's commitment to quality improvement in its own programs as well as within the organizations it serves. The addition of Qmentum to the Accreditation Canada product line ensures its programs remain relevant to the needs of health care organizations, and within the Canadian health care environment.

Some of Qmentum's features include updated and new standards, a Quality Performance Roadmap, a customized survey plan, a revised self-assessment and on-site survey process, performance measures, and new accreditation reports. It also incorporates automated measurement tools for greater and faster data exchange, improved standardization and objectivity, and less paperwork, and allows Accreditation Canada to quickly capture information from both large multi-site and smaller single-site organizations.

http://www.accreditation.ca/accrediation-programs/qmentum/

A Required Organizational Practice is defined as an essential practice that organizations must have in place to enhance patient/client safety and minimize risk. Required Organizational Practices have been identified in seven patient safety areas:

- Culture
- Communication
  - Patient/client education
  - Information transfer
  - Verification processes for high-risk care/service activities
  - Medication reconciliation at admission
    http://www.accreditation.ca/uploadedFiles/medication%20reconciliation.pdf?n=8404
  - Medication reconciliation at referral/transfer
    http://www.accreditation.ca/uploadedFiles/medication%20referral%20transfer.pdf?n=7822
  - Patient/client identification
  - Dangerous abbreviations
- Medication Use
- Worklife/Workforce
- Infection Control
- Falls Prevention
- Risk Assessment

PATIENT SAFETY AREA 2: COMMUNICATION

Goal: Improve the effectiveness and coordination of communication among care/service providers and with the recipients of care/service across the continuum.

ROP: Reconcile the client's medications upon admission to the organization, and with the involvement of the client.

Test(s) for compliance

- There is a demonstrated, formal process to reconcile client medications upon admission.

- The process includes generating a comprehensive list of all medication the client has been taking prior to admission.

- The process includes a timely comparison of the prior-to-admission medication list with the list of new medications ordered at admission.

- The process requires documentation that the two lists have been compared; differences have been identified, discussed and resolved; and that appropriate modifications to the new medications have been made where necessary.

- The process makes it clear that medication reconciliation is a shared responsibility, involving the client, nursing staff, medical staff, and pharmacists, as appropriate.

- The organization has a documented plan to implement throughout the organization, and before the next accreditation survey, a medication reconciliation process upon admission.

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Driving Quality Health Services
Force motrice de la qualité des services de santé

PATIENT SAFETY AREA 2: COMMUNICATION

Goal: Improve the effectiveness and coordination of communication among care/service providers and with the recipients of care/service across the continuum.

ROP: Reconcile medications with the client at referral or transfer, and communicate information about the client's medication to the next provider of service at referral or transfer to another setting, service, service provider, or level of care within or outside the organization.

Test(s) for compliance

- There is a demonstrated, formal process to reconcile client medications at referral or transfer.

- The process includes generating a comprehensive list of all medications the client has been taking prior to referral or transfer.

- The process includes a timely comparison of the prior-to-referral or transfer medication list with the list of new medications ordered at referral or transfer.

- The process requires documentation that the two lists have been compared; differences have been identified, discussed and resolved; and appropriate modifications to the new medications have been made.

- The process makes it clear that medication reconciliation is a shared responsibility, involving the client, nursing staff, medical staff, and pharmacists, as appropriate.

- The organization has a documented plan to implement throughout the organization, and before the next accreditation survey, a medication reconciliation process at referral and transfer.

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Appendix B
Flowcharting Current Processes

Analysis of current processes can be done with flowcharts, Failure Mode and Effects Analysis (FMEA) or Root Cause Analysis (RCA). Such analysis provides internal evidence on how clinical practice can be changed to streamline and improve work flow. If your institution does not have quality improvement staff with expertise in these methods, there are directions for creating a flowchart on the Institute for Healthcare Improvement (IHI) website. The Massachusetts Coalition (2005) suggests keeping this process simple. They provide a series of questions to ask about the current process in order to understand where improvements can be made.

What are the various points of entry for patients to the unit?

It is important for any hospital embarking on MedRec for the first time to spend some time talking to front-line health care staff to determine all of the routes patients enter the system, so that the exceptions do not sabotage the project (Dr. Ellen Tsai, Kingston General Hospital, personal communication)

Who takes the medication history? When? Where?

Does this vary by point of entry?

How is the medication history passed off to others?

Is it available to the ordering prescriber when the orders are written?

How does it get sent to the pharmacy?

Who else needs the medication history, e.g. anaesthesiology?

Who writes the admit orders? When? Where?

A number of examples from PMRC sites are provided below. These examples show the process for admission medication history, order and reconciliation processes that have been developed throughout the implementation process.

Sick Kids

The following diagram outlines the admission medication reconciliation process at Sick Kids.

The patient is admitted to Sick Kids

STEP 1
The admitting MD/NP **documents a primary medication history** (PMH) on the admission medication reconciliation form

STEP 2 (continued)
The admitting RN/pharmacist compares the BPMH to the admission medication orders (AMOs) and **identifies discrepancies**. These **discrepancies are brought to the attention of the admitting MD/NP** and **changes are made to the AMOs** as necessary. If no changes are made to the AMOs, the rationale for this decision is documented on the admission medication reconciliation form

STEP 2
The admitting RN/pharmacist reviews the PMH with the patient/family. The RN/pharmacist then interviews the patient/family to **obtain the best possible medication history** (BPMH). The BPMH is documented on the admission medication reconciliation form

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A Three Year Journey – Key Strategies and Essential Success Elements

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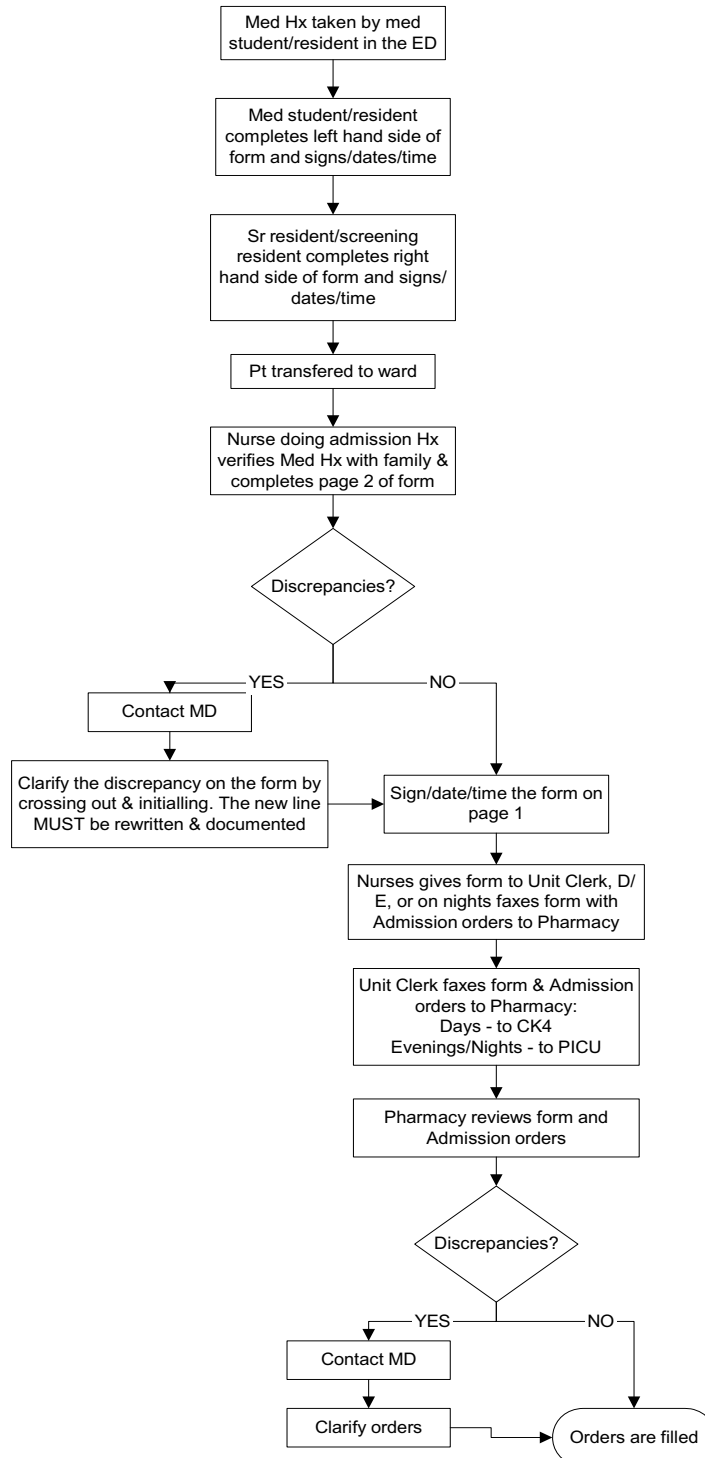## Flowcharting Current Processes

Winnipeg Children's Hospital

The following diagram outlines the admission MedRec process at Winnipeg Children's Hopsital.

Medication Reconciliation - Order Sheet for Home Medications ONLY
ADMISSIONS FROM THE ED

Appendix C
Leadership Support

One of the roles of senior leadership is to help prepare the organization for change by creating the expectations. Medical and middle management leadership support, setting the stage for collaborative ownership of the process, is also an essential success element for the implementation of MedRec. At all levels of management, leaders need to provide clear and visible support with respect to the implementation of MedRec. Below are two examples of how leaders can set the stage.

Winnipeg Regional Health Authority — Office régional de la santé de Winnipeg

Example

MEMORANDUM

To: All Nursing Managers
             All Allied Health Managers
             All Pediatricians

From: Program Management Team

Copy: Team members

Date:

Subject: Medication Reconciliation

In keeping with the importance of Patient Safety to the Child Health Program, we are delighted to announce that Children's Hospital at the Health Sciences Centre, Winnipeg will participate in the Canadian Association of Pediatric Health Centres (CAPHC) Medication Reconciliation Project. Medication Reconciliation is one of the six evidence-based patient safety strategies selected for implementation of the *Safer Healthcare Now!* Campaign of the Canadian Patient Safety Institute. Medication Reconciliation has been selected for implementation in all sixteen of CAPHC's acute care member facilities because of the extreme vulnerability of children to medication error.

The project will commence immediately under the leadership of _____ and _____. A multidisciplinary team of pharmacists, nurses and physicians will work on the project, supported by the Quality Team and with the full endorsement of the Program Management Team and the national leadership of CAPHC. The project team will be internally resourced and will share information and experience with the WRHA Adult Medication Reconciliation Project. The project will pilot the use of best practice medication histories during handovers on CK5 and in the Pediatric Nephrology clinic. While it is expected to last for one year, it will lead to ongoing practice improvements throughout the Child Health Program.

Look for regular communications about the Medication Reconciliation Project, and please give the Project Co-Leaders and their team your full support!

"Working together for healthier children"

Winnipeg Regional Health Authority

UNIVERSITY OF MANITOBA

Health Sciences Centre

Example

M E M O

Date:

To: All Childrens Hospital Surgeons

From: Director of Pediatric Surgery

Re: Medication Reconciliation (Physician Order Sheet for Home Medications)
Order Sheet)

A long standing problem that we have all had to deal with is the accurate ordering of home medications for patients when they are admitted to hospital.

Hospitals across North America have been dealing with this and over the last year the Childrens Hospital here in Winnipeg has developed a home medication order sheet. This project was initially known as medication reconciliation. The order sheet has been recently trialed on some of our surgical admissions and we are now ready to institute this for all elective surgical admissions to Childrens Hospital.

This order sheet is intended to accurately reflect the medications that a child is taking at home and allow us to continue or change or stop those medications while the patient is in hospital using a simple order sheet rather than having to rewrite all of the medications.

As of_____ we will be using the Physician Order Sheet for Home Medications for elective surgical admissions at Childrens Hospital.

Please take a moment to review the step-by-step guide for completion of these sheets which is attached for your review. Please note that most of the time the medication history will be taken by Nursing either in the Pre-Anesthetic Clinic or, in some cases, by the ward nurse. The surgeon or resident will be asked to check off as to whether to continue, change or cancel a medication and then sign the order sheet.

This project has been very successful when used for complex medical patients requiring readmission to hospital and makes the continuation of regular medications much more accurate as well as easing the process for us to reorder the regular medications. Therefore, I encourage all Childrens Hospital surgeons to put this form to good use and also encourage your resident staff to participate in its use.

Any questions regarding this home medication order sheet can be addressed to the Project Co-Leaders_____@_____.

Appendix D

The Business Case for MedRec

From a management perspective, compelling evidence is required for a management team to support any patient safety initiative. Healthcare leaders are challenged with having to prioritize improvements to the system. A sound business case for quality can assist in making these difficult decisions. From the "bottom-up" perspective implementation teams, together with support from Quality & Decision Support services, can present the elements of a "business case" for MedRec to senior leadership.

The SHN! Medication Reconciliation Community of Practice provides information on and examples of MedRec business cases including some estimates of the costs of implementing MedRec as well as the cost-benefit ratio of a successful implementation. To join the community of practice and access this information go to the SHN! website.

An excellent summary is provided in the following presentation *Streitenberger, Kim. April, 2008. Making the Case for Medication Reconciliation. Presentation given at the CAPHC Patient Safety Workshop – Advances in Paediatric Patient Safety in Canada, March 31st, 2008. Winnipeg, Manitoba.*

http://www.caphc.org/programs_patient_safety_pmrc.html

Business Model Components

1. Background

The background needs to present the "so what" factor – with multiple competing priorities and limited capacity why should a senior leader care about this particular initiative (*what does a senior leader need to hear?*)

a) The external evidence – the published literature
- for example, how common are medication discrepancies at admission and what is the potential for harm (ADEs)
- what have other paediatric centres found – PMRC collaborative data

b) The internal evidence – what is currently happening in the pilot unit
- what is the rate of discrepancies in the baseline data
- where are the failures in documentation/gaps in the process
- what is the potential for harm
- Include the patient stories!

2. The value – financial and quality aspects

a) Direct financial considerations
- Based on the baseline discrepancy rate, the number of admissions and the potential for ADEs, what is the cost of potential harm?

b) Strategic consideration
- Accreditation Canada requirements

c) Organizational image, e.g. to maintain a profile as leaders in patient safety
- Internal organizational considerations
- Relevance to the mission statement
- Impact on internal culture

3. The reality of resources – what will implementation resources cost?

In the experience of the PMRC teams, the issue of resources has been difficult. Teams who have had to do "*something with nothing*" have found many creative and collaborative ways to implement MedRec. The fact remains that, to implement MedRec, senior leaders must provide corporate support both "in spirit" and also in terms of allocating real resources to the project. Items that cost money, besides people (parts of FTE's) include MedRec forms, posters, bulletins etc. The Massachusetts Coalition (2005) provides a list of basic costs to consider (see also Streitenberger, 2008 and …)

- Recognize that there will be start-up time commitment for team members (team leaders, quality improvement staff, pharmacy, etc.) for planning, developing education materials and gathering data.
- Leadership should make explicit that key team members cannot maintain their full workload; managers need to be careful not to assign implementation tasks to staff who are already over-burdened.
- Out-of-pocket expenses include:
  - Printing forms
  - Staff education materials
  - Creating newsletters

4. What are the potential benefits – financial and quality considerations

a) Benefits to patients and families – safer care

b) Cost savings – potential reduction in ADEs and,

c) Potential for reduction in nursing/pharmacy/physician time

d) Meeting Accreditation Canada requirements

Appendix E
MedRec Team Charters

A team charter details the goals, purpose and deliverables for the implementation of MedRec as well as designated time frames. This is an essential step for effective team functioning. A number of examples from PMRC teams are presented here.
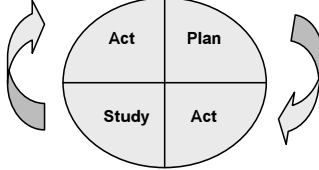
THE IMPROVEMENT MODEL

What are you trying to achieve?
(what is your goal?)

How will you know that you have achieved it?
(how will you measure it?)

What changes can you make that will result in improvement?

SickKids

MEDICATION RECONCILIATION IMPROVEMENT TEAM CHARTER

Date:
Unit:

Interface of Care: **X** Admission ☐ Internal Transfer ☐ Discharge

WHAT ARE YOU TRYING TO ACHIEVE?

AIM/GOAL

To reduce errors and adverse drug events by implementing an admission medication reconciliation process on INSERT UNIT NAME HERE to reach the following goals:
- Reduce the number of undocumented intentional discrepancies by 75%
- Reduce the number of unintentional discrepancies by 75%
- Complete the medication reconciliation process on 100% of admitted patients

HOW WILL YOU KNOW THAT YOU HAVE ACHIEVED

MEASURES *list all that apply*	CURRENT STATUS AT BASELINE	TARGET/GOAL
Mean # undocumented intentional discrepancies	INSERT BASELINE RESULTS HERE	Reduce baseline by 75%
Mean # unintentional discrepancies	INSERT BASELINE RESULTS HERE	Reduce baseline by 75%
% of admitted patients with completed medication reconciliation process (all 3 steps)	INSERT BASELINE RESULTS HERE	100%

WHAT CHANGES CAN YOU MAKE THAT WILL RESULT IN IMPROVEMENT?

BACKGROUND & EVIDENCE IN SUPPORT OF INTERVENTION

- Medication reconciliation is one of six evidence based interventions being implemented at Sick Kids through our participation in the national Safer Healthcare Now! Campaign (SHN).

- Medication reconciliation is a Canadian Council on Health Services Accreditation (CCHSA) Patient Safety Required Organizational Practice.

- Medication errors are a leading cause of injury to hospitalized patients; over half of all errors occur at interfaces of care. Rozich & Resar (2001)

- One Canadian institution found that up to 60% of patients have at least 1 discrepancy in their admission medication history. 38.6% of these discrepancies were judged to have the potential to cause moderate to severe discomfort or clinical deterioration. Most of the discrepancies (46.4%) consisted of the omission of regularly used medications. Vira, Colquhoun & Etchells (2006)

- Medication reconciliation has been demonstrated to be a powerful strategy to reduce adverse drug events as clients are moved from one level of care to another. SHN Getting Started Kit (2007)

SUMMARY OF INTERVENTION/PROPOSED CHANGES	KEY STAKEHOLDERS
Spread of standardized admission medication reconciliation process to inpatient unit (INSERT UNIT NAME HERE)	• Physicians • Staff nurses • Unit pharmacist(s) • Patients & families • Pharmacy Department • Information Services • Quality & Risk Management

Medication Reconciliation Collaborative
Adapted with permission from SHN Western Collaborative – May, 2007

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SickKids Medical Reconciliation Improvement Team Charter continued

HOW WILL YOU MANAGE THE IMPROVEMENT PROJECT?

IMPROVEMENT TEAM MEMBERSHIP

Name	Role	Estimated Time Needed
	Team Leader	1 day/week
	Physician Champion	0.5 – 1 day/week
	Data Manager	1-2 days/week
	CHS Manager	Daily staff follow-up & team meetings
	Pharmacist	Daily staff follow-up & team meetings
	Physician	Daily staff follow-up & team meetings
	Staff Nurse	Daily staff follow-up & team meetings
	Advanced Practice Nurse	Daily staff follow-up & team meetings
	Advanced Practice Nurse Educator	Daily staff follow-up & team meetings
	Patient/Parent	Team meetings and/or adhoc consultation

PROPOSED MEETING SCHEDULE

☐ Weekly ☐ Biweekly ☐ Monthly ☐ Other *please specify* _____

PROJECT PLAN

Key Activities	Timeline											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Form improvement team												
Conduct team workshop												
Develop improvement charter												
Collect baseline data												
Conduct project kickoff celebration												
FMEA & process mapping												
Conduct staff education												
Conduct tests of change												
Implement process												
Ongoing data collection												
Celebrate success												

ADDITIONAL RESOURCES REQUIRED

- Miscellaneous printing supplies e.g. forms, posters, newsletters, educational materials
- Staff incentives, celebrations e.g. coffee coupons, catering, prizes etc.

COMMUNICATION STRATEGIES *e.g. target audience, methods/tools (newsletters, posters etc), frequency etc*	EDUCATION PLAN *e.g. target audience, methods, frequency etc*

Project Approved:

_____
CHS Director

_____
Date

_____
Div/Dept Chief

_____
Date

Medication Reconciliation Collaborative
Adapted with permission from SHN Western Collaborative – May, 2007

MEDICATION RECONCILIATION

Working Group Team Charter

Purpose: To develop and implement in 2006 a medication reconciliation process for the Child Health Program. The initial transition point will be the admission process.

Deliverables:

- a multidisciplinary working group will be established in November 2005 to develop a medication reconciliation process
- baseline data will be collected on 20 patients (CK5) and (10) patients in the Nephrology clinic in December 2005
- the results of the baseline data collection will be forwarded to CAPHC at the end of December 2005
- a quality improvement plan for medication reconciliation will be developed and piloted on an inpatient unit (CK5) and in a subspecialty ambulatory care clinic (Nephrology)
- monthly audits will be done during the pilot phase (Feb –April 2006)
- upon completion of the pilot phase, the medication reconciliation process will be 'spread' to other units and other transition points in the care process. This process will be completed by Dec 2006.
- feedback on the medication reconciliation quality improvement project will be provided to staff on a regular basis
- identify systemic issues that require attention outside scope of control of this group

Operating Definitions:

- agendas will be circulated prior to the meeting
- meetings will begin and end on time
- regrets will be forwarded to the chair prior to the meeting
- minutes will be circulated following the meeting
- meetings will initially be twice a month
- team members will share information from meetings with other staff from their area of specialty

December 2005

Winnipeg Regional Health Authority   Office régional de la santé de Winnipeg
Caring for Health   À l'écoute de notre santé

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PROJECT CHARTER

NORTH YORK GENERAL HOSPITAL

Project Number:	C-046-05A

Project Definition

Title:	Medication Reconciliation
Objective: (AIM)	Medication errors due to lapses in communication at the interface of care have been linked to many patient injuries. The objective of this project is to reduce and prevent Adverse Drug Events (ADEs) with Paediatric patients through medication reconciliation.
Scope:	The project will deliver a process to help clinicians easily and accurately access and interpret the current and past medication history of a patient. This project will focus on Paediatric inpatients cared for in NYGH. Data will be submitted to the Canadian Association of Paediatric Health Centres in accordance with Safer Health Care Now directives on a monthly basis. The Project Sponsor will receive monthly status reports and a final report will be drafted for the project sponsor, team and stakeholders. Though the project team may give consideration to future implementation in other Paediatric areas of the hospital the project team is not accountable for designing processes that can be replicated in other areas of the hospital.

Program Area

Program Area		Project Type
☐ Emergency Services	☐ Laboratory Services	☒ Corporate
☐ Surgical Services	☐ IPAC/Occupational Health	☐ Program
☐ Medical Services	☐ Materials Management/Stores	Department/Unit
☐ Genetics	☐ Environmental Services	
☐ Long Term Care	☐ Human Resources	**Quality Pillar**
☐ Maternal Newborn	☐ IS/Communications	☒ Satisfaction
☒ Paediatrics	☐ Health Records	☒ Efficiency/Clinical Outcome
☐ Mental Health	☐ Security	☒ Safety
☐ Family & Community	☐ Administration	☐ Healthy Work Environment
☐ Diagnostic Imaging	☒ All Clinical Areas	
☐ Pharmacy	☐ Corporate Wide	

Other Project Benefits:	- Drive future implementation in other paediatric inpatient areas of the hospital - Improved medication documentation on inpatient paediatric chart - Patient satisfaction and peace of mind - Improved quality of work - Reduced re-work (30-40 minutes per day for pharmacist and nurse according to IHI - Reduced costs due to increase length of stay and other unnecessary costs associated with Averse Drug Events
Estimated Budget:	TBD
Current Performance:	Baseline measure will be documented as a task for this project
Performance Indicators:	- Mean of undocumented intentional discrepancies - Mean of undocumented unintentional discrepancies - Medication Reconciliation Success Index

Form Team

Project Leadership

		Title:		Ext.:
Executive Sponsor		Title:	V.P Patient Services & CNE	Ext.:
Project Lead		Title:	Director of Pharmacy	Ext.:
Project Lead		Title:	Director, Paediatrics and Maternal Program	Ext.:
Project Manager		Title:	Corporate Performance Improvement Specialist – Quality	Ext.:
Project Start Date:		**Target Completion Date:**		February 2007

Other Team Members

Member Name	Title	Ext.
	Pharmacist	
	Unit Administrator NICU and Paediatrics	
	Nurse	
	Physician	

Version 1: 24-August-05

PROJECT CHARTER

NORTH YORK GENERAL HOSPITAL

	Chief of Paediatrics	
	Chief of Inpatient Paediatrics	
Signatures		
Project Leader		**Date:**	
Project Manager		**Date:**	
Executive Sponsor		**Date:**	
QURM Director or VP		**Date:**	

Version 1: 24-August-05

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Appendix F

Staff Communication and Education

Newsletters, posters, sharing data, clinical stories and lessons learned during the implementation of MedRec can be educational and motivating for staff and help them to feel a sense of ownership and accountability for the improvements they are making. This appendix contains a number of examples from paediatric teams.

If time is money, following these steps to prevent medication errors on admission is a sound investment!

STEP 1

Extra time it takes to document admission medication history on the medication reconciliation form: **0 minutes**

STEP 2

Time needed to take a "Best Possible Medication History" (BPMH): **30 minutes**

STEP 3

Time it takes to compare the BPMH to the medication orders and reconcile discrepancies: **15 minutes**

Time and effort you didn't spend managing the outcome of a medication error... PRICELESS!

SickKids®

Partners in Patient Safety

Advancing Inter-Professional Practice

Child Health
Quality Team

Quality for Kids

Volume 6, Issue 3
Fall 2007

Medication Reconciliation - 1 Year Later

In the Fall 2006 "Quality for Kids" newsletter we were pleased to announce that the use of the Physician's Order Sheet for Home Medications had spread to include all admissions of children to the medical units. Since that time, the Order Sheet has been spread to include children requiring elective surgery.

How Are We Doing?

An audit completed in the Medical Program in June 2007 demonstrated that the number of unintentional discrepancies (when a physician unintentionally changes, adds, or omits a medicine the patient was taking prior to admission) per patient index has decreased from 0.37 (baseline audit 2006) to 0.07 (June 2007).

Spot compliance audits of the completeness of the documentation on the Order Sheet were also done. In September 2007 the order sheet was present on 90-100% of the charts.

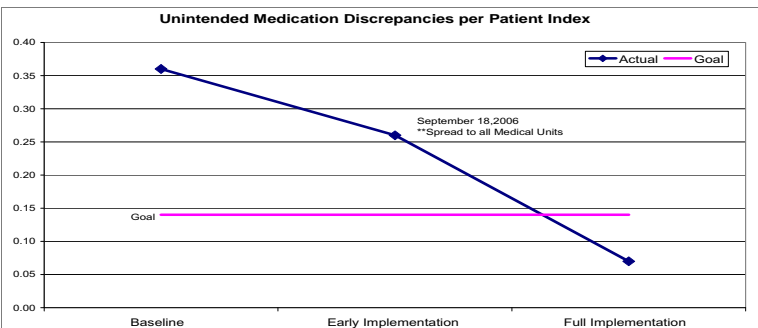We will be continuing to audit our performance to ensure that our progress continues.

Next Steps

The Medication Reconciliation working group is now working with the Surgical Program to spread the use of the Order Sheet to all surgical admissions from the Emergency Department. The working group is also working with the Pediatric Intensive Care Unit (PICU) to spread the use of the sheet for all children admitted to PICU. A process for the reconciliation of medications at points of transfer (when a patient moves from PICU to the ward), and at the time of discharge will also be developed.

We want to thank the members of the working group, the staff on CK5, CH5, CH4, the Pre-Admit Clinic, Day Surgery, PACU, CK3 and Pharmacy for their assistance and "championing" of this initiative. A special thanks and congratulations to Dr. Tanya Buors and Dr. Eddsel Martinez for their assistance and leadership during the past year. Both Tanya and Eddsel completed their pediatric residency training program in June 2007. We have welcomed the following new members to the working group: Dr. Chris Hohl, Chief Pediatric Resident, and members of the Surgical Program: Karen Amos, Lyn Seward, Betty Hunter, Colleen Weppler, Heather Falk, Maria Zelenewich, and Agnes Brokoff. We also thank Roberta Dear for her assistance with the audit process. ●

Leslie Galloway
Cenzina Caligiuri

Unintended Medication Discrepancies per Patient Index

	Baseline	Early Implementation	Full Implementation
Actual	0.36	0.26	0.07
Goal	0.14	0.14	0.14

September 18,2006
**Spread to all Medical Units

Staff Communication and Education

---

safer healthcare now!

ISMP CANADA

Top 10 Practical Tips
How to Obtain an Efficient, Comprehensive and Accurate Best Possible Medication History (BPMH)

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

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

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

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

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

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

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

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

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

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

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


Source: **http://tools.patientsafetyinstitute.ca/Communities/MedRec/Shared Documents/Training and Education/How to get a BPMH/Top 10 Tips for Interviewing Patients.pdf**

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Appendix G
The Model for Improvement

The Model for Improvement and Plan-Do-Study-Act (PDSA) cycles has been used within the context of healthcare improvement and Safer Healthcare Now! to help teams make improvements in processes and outcomes (ICU Collaborative, 2009). The model provides a structured approach to developing, testing and implementing small sequential ideas for change that lead to improvement. It involves planning a change, trying it, observing the results, and acting on what is learned. Multiple short PDSA cycles will be necessary and process changes are made on the basis of feedback. Each PDSA cycle should be documented.
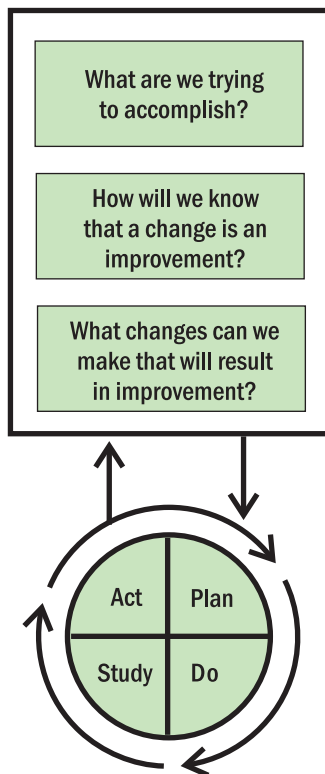
Setting Aims
Improvement requires setting aims. The aim should be time-specific and measurable; it should also define the specific population of patients that will be affected.

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

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

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

If your organization does not have experience with this concept, there are many resources available to help you get started.

Link: **http://www.ihi.org/IHI/Topics/Improvement/ImprovementMethods/HowToImprove/**

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

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

There are also a number of presentations that summarize this strategy on the MedRec Community of Practice

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Appendix H

Samples of Best Possible Medication History Forms

GRAND RIVER HOSPITAL

☐ Check box if this form is an addition/ change after original BPMH order form was signed by the physician

Check for total number of pages

Affix patient label here

ADMISSION ORDERS (Best Possible Medication History)

Allergies: ☐ None
☑ Specify (clarify reaction): **sulfa – rash**

Height (cm): **160 cm**

Weight (kg): **75 kg**

Home Medications (include dose and frequency) *Note: if patient is not taking any meds at home, please write "No Meds at Home"*	Admission Orders (Physician to complete grey section)			
	Cont	D/C	Hold	
1. **ECASA 81mg po daily**	☑	☐	☐	☐ Change to:
2. **Ramipril 2.5mg po daily**	☐	☐	☐	☑ Change to: **Ramipril 5mg po daily**
3. **Crestor 10mg po qhs**	☐	☑	☐	☐ Change to:
4.	☐	☐	☐	☐ Change to:
5.	☐	☐	☐	☐ Change to:
6.	☐	☐	☐	☐ Change to:
7.	☐	☐	☐	☐ Change to:
8.	☐	☐	☐	☐ Change to:
9.	☐	☐	☐	☐ Change to:
10.	☐	☐	☐	☐ Change to:
11.	☐	☐	☐	☐ Change to:
12.	☐	☐	☐	☐ Change to:
13.	☐	☐	☐	☐ Change to:
14.	☐	☐	☐	☐ Change to:
15.	☐	☐	☐	☐ Change to:
16.	☐	☐	☐	☐ Change to:

Look for complete list of home meds documented here instead of other places in chart

For each home med, write orders to continue, d/c, hold or change in this column

Remember to sign and date at bottom of form

BPMH completed by: **Jane Doe, RN**

Date/ Time: **Feb 15, 2008 0930**

Physician Signature: **Dr. Medrec**

Date/ Time: **Feb 15, 2008 1015**

Herbal/ Non-traditional Medications/ Street Drugs:
do not continue in hospital

Glucosamine 1 capsule daily _____

Herbal Meds, etc will NOT be continued in hospital unless physician writes specific orders on a new order sheet

Information Source(s) Used (please check all that apply)

☑ Patient interview
☐ Family member:_____
☐ Medication vials *(do not send home with family)*
☐ Patient med list *(copy in chart)*
☑ ODB med list *(copy in chart)*
☐ MAR from another facility *(copy in chart)*

☐ NephroCare list *(copy in chart)*
☑ Community Pharmacy

Name: **MedRec Pharmacy**

Phone: **519-123-4567**
☐ Other (please specify):
_____

Samples of Best Possible Medication History Forms

GRAND RIVER HOSPITAL

Information for Physicians
MEDICATION RECONCILIATION

safer healthcare now!

The ULTIMATE GOAL of medication reconciliation is to IMPROVE PATIENT SAFETY by reducing MED ERRORS !

What is Medication Reconciliation?
Medication reconciliation is a formal process of:
1. Obtaining a complete and accurate list of each patient's current home medications - including dosage, frequency and route.
2. Using that list when writing admission, transfer and/or discharge medication orders.
3. Comparing the list against the patient's admission, transfer and/or discharge orders, identifying and bringing any discrepancies to the attention of the prescriber, and if appropriate, making changes to the orders. Any resulting changes are clearly documented.

What is a Best Possible Medication History (BPMH)?
The Best Possible Medication History (BPMH) is the best possible complete and accurate list of the patient's current home medications using all available resources.

How will this new form help?
1. It is designed so physicians do not have to duplicate orders onto another document; helping to reduce errors in transcription.
2. Medications that the physician intentionally change, holds or discontinues altogether are clearly documented. This provides valuable information to healthcare staff continuing to care for the patient.

What is my role in the process?
1. Use the new form when you are writing admission orders for patients *(in place of the previous separate list of home medications)*.
2. Complete the grey section of the form indicating for EACH medication if you would like to continue, change, d/c or hold *(see example on the back)*
3. Sign and date the bottom of the grey section of form.
4. Write other admission orders (besides home meds) on the regular "Orders for Treatment" sheets.

Who do I contact for more information?
Sandra Kagoma, Director of GRH Pharmacy Services (ext. 3915)
Your feedback is most appreciated!

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Samples of Best Possible Medication History Forms

IWK Health Centre

MEDICATION RECONCILIATION
MEDICATION HISTORY & ORDER SHEET
ADMISSION

❏ No Allergies Known

ALLERGIES (SPECIFY) ………….
……………………..………………
……………………..………………
……………………................……

Takes no Medication at Home

Admission to_____

DIAGNOSIS.
……………………………………….
……………………………………….
❏ Pregnant ❏ Breastfeeding
Age: _____
Weight: _____kg   Date _____
Height: _____cm   BSA_____m^2

Page   of

Prescriber Instructions: Please review/complete medication list below and indicate (√) in the Prescriber Order column located on the right hand side of the page whether you wish to continue, discontinue, hold or change patient's current medications.
NOTE: This form does NOT become an order until signed by Prescriber at bottom of the page.

Medication names must NOT be abbreviated. Prohibited abbreviations: U, IU, q.d. or Q.O.D., MS or MSO4, µg or mcg, hs or HS, T.I.W., D/C (for discharge), c.c., AD, AS, AU, OD, OS, OU, sc, trailing zero (X.0 mg) or lack of leading zero (.X mg).

Prescriber ONLY

Medication List Source: ❏Patient/Family/Caregiver ❏Health Record ❏Physician❏ Community Pharmacy ❏Other_____

Community Pharmacy: _____ **Phone:** _____

Medication Name (Please Print Clearly)	Dose	Route	Frequency (Times)	Time last dose given	Initials	Continue	Discontinue	Hold	See Changes
1.						❏	❏	❏	❏
Change to: &/or Comments: ❏Patient's supply appropriate for use									
2.						❏	❏	❏	❏
Change to: &/or Comments: ❏Patient's supply appropriate for use									
3.						❏	❏	❏	❏
Change to: &/or Comments: ❏Patient's supply appropriate for use									
4.						❏	❏	❏	❏
Change to: &/or Comments: ❏Patient's supply appropriate for use									
5.						❏	❏	❏	❏
Change to: &/or Comments: ❏Patient's supply appropriate for use									
6.						❏	❏	❏	❏
Change to: &/or Comments: ❏Patient's supply appropriate for use									
7.						❏	❏	❏	❏
Change to: &/or Comments: ❏Patient's supply appropriate for use									
8.						❏	❏	❏	❏
Change to: &/or Comments: ❏Patient's supply appropriate for use									

Interviewer(s)   Discipline: ❏ PHA ❏ NUR ❏ Physician ❏ Other: _____   Date/Time

❏ **See additional blank or preprinted order sheets for new or other specific order sets.**

❏ **May use patient's own supply as per Health Centre policies. (Do not scan to Pharmacy without Prescriber signature)**

_____ _____ _____   _____
DATE (dd/mm/yyyy)   Time (24hr/hh:mm)   Prescriber Signature   Printed Surname/Registration #

_____ _____ _____   _____
DATE (dd/mm/yyyy)   Time (24hr/hh:mm)   Verified by (Nurse Signature)   Printed Surname

Signature / Status	Print Name	Initial	Signature / Status	Print Name	Initial

Form #6360 06/09   TRIAL   **Scan to Pharmacy**   **PHYSICIAN'S ORDERS**
                                    PERMANENT RECORD   **CHART COPY**

Samples of Best Possible Medication History Forms

Best Possible Medication History (BPMH) Interview Guide

Introduction
• Hello Mr/Mrs/Ms/Miss/ _____ (name of patient/caregiver) • My Name is _____(your name, introduce yourself) • I would like to take some time to review your/your child's medications to ensure we have the most accurate and up to date record on file
Medication Allergies
Do you/does your child have any medication allergies? If yes, what happens when you/your child take(s) _____ (medication name)?
Information Gathering

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

Community Pharmacy
• What is the name of the pharmacy that you normally go to? (Name and Location) and anticipate that there may be more than one pharmacy   ➢ May we call your pharmacy to clarify your/your child's medication if needed?
Over the Counter (OTC) Medications
• Are there any medications that you/your child are taking that you do not need a prescription for? Do you/does your child take anything that you would buy without a doctor's prescription? Give them an example i.e. Aspirin, Tylenol
Vitamins/Minerals/Supplements/Herbals /Teas /Traditional Remedies
• Do you/does your child take any vitamins (ex.Multivitamin)? If yes, how do you/does your child take _____ (medication name)? • Do you/does your child take any minerals (ex.Calcium, iron)? If yes, how do you/does your child take _____ (medication name)? • Do you/does your child use supplements (ex. Potassium, Glucosamine, St.John's Wort, Green Tea)? If yes, how do you/does your child take _____ (medication name)?
Eye/Ear/Nose Drops
• Do you/does your child use any eye drops? If yes, how many and how often? • Do you/does your child use ear or nose drops/nose sprays? If yes, how many and how often?
Patches/Creams/Ointments/Inhalers/Injectables/Samples
• Do you/does your child use inhalers? • Do you/does your child use any medicated patches? • Do you/does your child use any medicated creams or ointments? • Do you/does your child use any injectables? • Did your doctor give you/your child any medication samples to try in the last month?
Antibiotics
• Have you/has your child used any antibiotics in the past 3 months?
Closing
• This concludes our interview. Thank you for your time. Do you/does your child have any questions?
Note: Medical and Social History if not specifically described in the chart may need to clarified with patient
Used with permission from : Shiwani Chhibbar BScPhm Candidate and Sara Ingram BScPhm, ACPR, Olva Fernandes PharmD, University Health Network/ISMP Canada, Alice Watt BScPhm, ISMP Canada

Samples of Best Possible Medication History Forms

North York General Hospital
Including the IODE Children's Centre
Embracing Health

Medication Reconciliation Form

Patient Identification

✱**PLEASE COMPLETE WITHIN 24 HOURS OF PATIENT ADMISSION**✱

DATE OF ADMISSION (YY/MM/DD)**:**
MEDICATION ALLERGIES/INTOLERANCES:

VERIFICATION OF MEDICATIONS
☐ Review of medication vials or patient medication list   ☐ Patient/family recall
☐ Medication Administration Record from another facility   ☐ Other (specify):
☐ Pharmacy [Name: Tel:]

Medication Name/Strength	Dose	Route	Frequency	Duration[1]	Last Dose Date/Time	Reconciliation ✔		
						D/C[2]	Continue	Change

MEDICATION HISTORY LIST

DRAFT

✱**If Pharmacist consultation is required, please specify on physician orders**✱

[1] Duration indicates how long the patient has been taking the medication.
[2] D/C indicates discontinue

Version 5

Samples of Best Possible Medication History Forms

North York
General Hospital
Including the IODE Children's Centre

Embracing Health

DRAFT
Instructions for Reconciling Medications

Medication Reconciliation is a process designed to prevent medication errors at patient transition points. It includes:

- *Creating the most complete and accurate list of all home medications for each patient.*
- *Using that list when writing medication orders.*
- *Comparing the list against the physician's admission, transfer and/or discharge orders; identifying and bringing any discrepancies to the attention of the physician and, if applicable, making changes to the orders ensuring the changes are documented.*

Source: www.saferhealthcarenow.ca

PROCEDURE

1. The Medication Reconciliation Form will be located at the front of each patient's chart.

2. Nurses, Physicians and Pharmacists are responsible for completing the reconciliation form within 24 hours of the patient's admission if possible. Medications can be added to the 'Medication History List' section of the form by any clinician as they are determined.

3. List all home medications, including non-prescription medication, on the reconciliation form, noting the **medication name and strength, dose, route, frequency, duration** and the **date and time of the last dose**.
    a. If the form does not allow space for all medications, attach a second copy so all medications can be listed.
    b. If the patient is not currently taking medications, explicitly note **"currently not taking medications"** in the 'Medication History List' section.
    c. Verify home medications, as necessary, with the patient, patient's family, pharmacy, transferring facility, clinical records or other sources.
    d. The source of the information must be noted in the 'Verification of Medications' section at the top of the page.
    e. The "Physician Reconciliation" should only be completed by physicians. The physician will place a check mark in the appropriate box depending on whether they wish to **Discontinue**, **Continue of Change** the medication.

4. The unit Pharmacist or designate will compare the Medication Reconciliation Form to the Physician Admission Order and identify whether the medications were ordered as indicated using the Audit Tool.

5. For all variances identified the unit Pharmacist or designate will contact the physician to resolve the discrepancy within 24 hours of the patient's admission if possible.

Version 5

The Canadian Association of Paediatric Health Centres • Paediatric Medication Reconciliation Collaborative
A Three Year Journey – Key Strategies and Essential Success Elements

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Samples of Best Possible Medication History Forms

SickKids®
THE HOSPITAL FOR SICK CHILDREN

ADMISSION MEDICATION RECONCILIATION FORM
Complete within 24 hours of admission

BARCODE

ADDRESSOGRAPH

MEDICATION ALLERGIES | **REACTION**

WEIGHT _____ kg   HEIGHT _____ cm

DRUG COVERAGE - *to be completed by RN or pharmacist*
☐ None   ☐ Private
☐ Provincial e.g., ODB, Trillium,
☐ Other _____

Step 1 - MD/NP: DOCUMENT PRIMARY MEDICATION HISTORY & PRESCRIBER INTENT
List ALL medications the patient is taking PRIOR TO ADMISSION including scheduled, prn, OTC & herbal medications

Step 2 - RN/PHARMACIST: DOCUMENT BEST POSSIBLE MEDICATION HISTORY (BPMH) - see back of form for guidelines
Use multiple sources to obtain history; verify completed BPMH with patient/parent/family

Recorder Initials	Medication Name & Dosage Form *Use generic name; do not use abbreviations*	Concentration/ Special Preparation *e.g. 5 mg/ml, slow release*	Dose *mg/mcg NOT mls*	Route	Freq. *e.g. q4h, TID*	Last Taken *date & time*	Prescriber Intent Continue	Prescriber Intent D/C	Prescriber Intent Hold	Prescriber Intent Change	Step 3: RN/PHARMACIST & MD/NP - COMPLETE RECONCILIATION Compare BPMH to admission medication orders (AMO's) & identify discrepancies. Resolve discrepancies; make changes to AMO's if appropriate; document rationale for changes on form

Source of history: ☐ Child/parent/caregiver   ☐ Medication vial   ☐ Medication list   ☐ Medication administration record (MAR)
☐ Community pharmacy Phone # _____   ☐ Other _____ (please specify)

Step 3: RECONCILIATION COMPLETED

Step 1 - PRIMARY HISTORY   Date _____ Time _____ Signature _____ Print Name _____

Step 2 – BPMH   Date _____ Time _____ Signature _____ Print Name _____

Date _____ Time _____ Signature _____ Print Name _____

Page ___ of ___

Form # 40208

Appendix I

Samples of Family Information Strategies

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MEDICINE MATTERS

Because patient safety is a top priority at the Stollery Children's Hospital, it is important for us to know what medicines your child takes at home. Remember, medicine matters.

My child does take medicine at home. What should I do?

- A short chat with the pharmacist is all that is required. A pharmacist will visit you and your child within a day of admission to hospital.
    - Tell the pharmacist what medicines or remedies your child is taking.
    - It is important to include ALL medicines – those prescribed by a doctor and those you have bought yourself. Some examples are:
        - prescription medications
        - non-prescription medicines like Tylenol, Sudafed or Robitussin
        - dietary supplements like vitamins, natural or herbal remedies and alternative therapies like acupuncture
    - The pharmacist will also want to know if your child has any allergies, especially to medicines
- The pharmacist will then prepare a list of these medications for your child's chart.
- The list will be available for all healthcare team members to use throughout your child's hospital stay.
    - The list will help ensure that your child receives the correct medicines.

When do I meet with the pharmacist?
Please be in your child's room around _____ AM/PM on _____.
                                        (Time)   (Date)

For more information, please talk to a member of your child's healthcare team.

</div>

Appendix I

Samples of Family Information Strategies

CHEO Children's Hospital of Eastern Ontario
Centre hospitalier pour enfants de l'est de l'Ontario

[Date]

Aux parents et tuteurs des patients de *[nom du service]*

Une initiative visant à améliorer la sécurité des patients a été mise en vigueur par le Service de la pharmacie. Ce projet est intitulé Réconciliation des médicaments. L'objectif du projet est de veiller à ce que des informations correctes sur les médicaments soient collectées au sujet de votre enfant, lors de son admission à l'unité.

Quand votre enfant sera admis à la Clinique du *[service]*, vous verrez un ou une pharmacienne avant l'admission. Quand l'enfant est admis par la biais du Services des urgences, un ou une pharmacienne fera un suivi avec vous le lendemain (le prochaine jour d'affaires : du lundi au vendredi). Le ou la pharmacienne passera en revue avec vous tous les médicaments de votre enfant, incluant les thérapies naturelles ou de médecine douce. Pour veiller à ce que les renseignements soient exacts, veilleuz apporter **tous** les médicaments et produits de médecine douce pris par votre enfant au moment de l'admission.

Nous apprécions grandement votre aide dans ce domaine.

Veuillez agrées nos salutations les meilleures.

_____   _____
[nom]   *[nom]*
Chef, Section *[nom du service]*   Directrice
                                                              [nom du service]

401 Smyth Road, Ottawa, ON K1H 8L1, Canada
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Appendix I

Samples of Family Information Strategies

Children's Hospital of Eastern Ontario
Centre hospitalier pour enfants de l'est de l'Ontario

[DATE]

To Parents/Guardians of *[insert service patient names]*

An initiative to improve patient safety has been implemented by the Pharmacy Department. The project is called Medication Reconciliation. The purpose of the project is to ensure accurate medication information is collected on your child when they are admitted to the ward.

When your child is admitted through the *[insert service name]* Clinic you will be seen by a pharmacist prior to your admission. When your child is admitted through the Emergency Department a pharmacist will follow up with you on the next business day (Monday to Friday). The pharmacist will review with you all of your child's medications including natural or alternative therapies. To ensure accuracy please bring **all** medications and alternative therapies on admission that your child is currently taking.

Your assistance in this process is greatly appreciated.

Sincerely,

_____   _____
[name] MD, FRCP(c)   *[name]*
Chief, Division of *[Service]*   Operations Director
Medical Director *[Service]*   *[service]*

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Making a difference in the lives of children and youth   *Faire une différence dans la vie des enfants et des adolescents*

Appendix I
Samples of Family Information Strategies

GETTING THE BEST MEDICATION HISTORY

The IWK Health Centre wants to make your care safer. The Health Centre is one of 80 Canadian hospitals trying to decrease unplanned drug events. We are doing this using a process called "medication reconciliation" (re-kun-sil-ee-a-shun).

What is "medication reconciliation"?

- "Medication reconciliation" has many steps.
- Families and health care team members (nurses, doctors, pharmacists, etc.) work together to have the best medication history for the patient.
- This history can include information about medications used before coming to the Health Centre or when transferred within the Health Centre.
- After the medication history is taken, the team will check for any differences or changes.

Why are we doing this?

- We want to increase safety by decreasing unplanned drug events.
- We are trying to make sure that the medications you take while in the Health Centre are the same as they were before coming here.
- If the medications are not the same, we want to make sure that all health care team members know if and why any changes have been made.

Who is involved with the process?

- Patients/families and all members of the health care team will be involved.
- A pharmacist or nurse will visit you to talk about medications.
- All medications are important. The pharmacist or nurse will ask about prescription, nonprescription, over the counter products, and herbals.
- The pharmacist or nurse may call your community pharmacist to get a complete medication picture (called a medication profile).

What do I have to do?

- Your help and support is very important and we could not do this without you.
- The pharmacist or nurse will meet with you to talk about what medications you have been taking at home. When coming in to be admitted, please bring **all** of your medications that you take at home including:
    - Prescription and non- prescription (over the counter and herbal) medications.
    - Medications you take every day
    - Medications you use occasionally
    - Please bring the medications in the original containers they came in when you received them from the drug store (do not bring in pill cases).

For more information, please talk to a member of the health care team.
"Medication reconciliation" and *Safer Healthcare Now!*
(website: www.saferhealthcarenow.ca)

Paediatric Medication Reconciliation Collaborative

safer healthcare
now!

ismp
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