

BOOMR: Better Coordinated Cross-Sectoral Medication Reconciliation for Residential Care

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Abstract

There is evidence that medication errors often arise during the transition of residents from acute care to long-term care (LTC) homes due to lapses in communication and documentation. Better Coordinated Cross-Sectoral Medication Reconciliation (BOOMR) is an integrated practice change improving medication safety during patient transitions through the health system. Our Medication Reconciliation (MedRec) redesign improved patient engagement using “the patient’s story,” increased quality of information, workflow efficiency and reduced unnecessary medications. Using progressive initiatives, we showed cost savings to the system proving value for quality with sustainable results since January 2015.

The Issue

Transfer from acute care to a long-term care (LTC) home is a vulnerable time period for patients, and there is evidence of unintentional medication errors or discrepancies at discharge that compromise and effectively “undo” otherwise excellent care of our seniors. A recent study showed that 43% of patients experienced medication errors at discharge and most were put at risk for moderate harm as a result. Upon admission to a LTC home in Ontario, medication orders for new residents are traditionally reviewed by a LTC nurse and verified on the

telephone by a LTC physician who may be unfamiliar with the resident. Healthcare workers experience pressure due to late-day admissions, with 80% of LTC admissions occurring between 12 pm and 8 pm. Time and scheduling constraints faced by the LTC home nurses prevent them from obtaining better information about medications, leading to high rates of medication errors as reported in the literature (Tjia et al. 2009; Gurwitz et al. 2000).

Medication Reconciliation (MedRec) is a formal process in which healthcare providers work together with residents, families and care providers to ensure that accurate and comprehensive medication information is communicated consistently across transitions of care (Accreditation Canada 2012). Currently, a LTC pharmacist’s involvement in the MedRec process is usually triggered when the completed prescription is sent to the off-site community pharmacy. In hospitals, on-site pharmacists often lead MedRec and are available to meet with the resident and family to complete a Best Possible Medication History (BPMH). Crotty et al. (2004) investigated the impact of pharmacist involvement on the transition from hospital to LTC, indicating significantly more appropriate medication use when a pharmacist is involved. On average, 6.4 discrepancies were detected per pharmacist-conducted MedRec during the transition to and

from LTC (Boockvar et al. 2004; Chhabra et al. 2012). A systematic review by Chhabra et al. described the usefulness of clinical pharmacists in identifying drug discrepancies, reducing risk of death and reducing the amount of medication errors during the transition to LTC. Low overall MedRec quality scores were reported for the LTC setting across Canada, indicating a need for improvement (ISMP 2015). It is evident that collaborative medication reconciliation involving pharmacists could play an important role in improving medication safety in the LTC setting (Mekonnen et al. 2016). BOOMR aims to improve the quality of admission MedRec in LTC homes and retirement homes.

Intervention

A pilot project was developed in collaboration with key sector stakeholders from Royal Victoria Regional Health Centre (RVH), Woods Park Care Centre (a Sienna Senior Living Home), North Simcoe and Muskoka CCAC and Medical Pharmacies Group Limited, the pharmacy provider for the involved LTC home. The project was launched in December 2014 with a team “kick off”, targeting patients admitted to the convalescent care program at Woods Park from the RVH Surgery Inpatient Program in Barrie, Ontario. A novel interdisciplinary MedRec process change was introduced to improve the timeliness, integration and effectiveness of communication between healthcare providers and the resident and family in LTC. This change addressed the need for “a more efficient and accurate MedRec process that improves the ability to identify and resolve medication-related discrepancies and clinical concerns in advance of admission” (Table 1) (ISMP 2012).

BOOMR consolidated key elements including the LTC community pharmacist initiating the MedRec process 48 hours in advance of the admission, the LTC pharmacist contacting the resident and family for a medication history and utilizing a three-way “Trio-call” between the LTC pharmacist, LTC nurse and LTC prescriber before “move in” day to finalize admission orders and discuss concerns. The redesign facilitated the right information in the right place at the right time. (Figure 1, available at: <http://www.longwoods.com/content/25075>).

Methodology/Change Process

The process of sustaining BOOMR was unique for each LTC home. A baseline assessment was completed at each home to identify site-specific barriers, strengths and weaknesses, system maturity and phase of team development. An official study kickoff event to establish sector alignment and subsequent team meetings was used to solidify team structure. Engagement of stakeholders was established by sharing a MedRec audit/feedback report at group meetings to highlight opportunities for improvement. Executive sponsors at each home were continually engaged through regular education and assessments of the practice change. Anonymous resident and family satisfaction surveys were completed after admission to the LTC home. The survey consisted of a mixture of close- and open-ended questions that captured the resident’s experiences with the pharmacist-driven MedRec, the transition experience to the LTC home and recognition of resident’s goals of therapy. A whiteboard video was created as a knowledge translation of the BOOMR MedRec change ideas and included the “5 questions to ask about your medications” poster which was developed in collaboration with ISMP Canada and the Canadian Patient Safety Institute (CPSI) (ISMP 2016).

The project first focused on a 15-bed convalescent care LTC unit in January 2015. By February 2016, BOOMR had expanded to four LTC homes (referred to as spread homes), representing 558 beds. By December 2016, BOOMR had spread across three Local Health Integration Networks (LHINs), three CCACs, seven acute care facilities, two retirement homes, seven LTC homes and three Medical Pharmacies affecting 1,700 beds. The key MedRec process changes tested are described below.

PDSA cycle 1 (January 2015)

To reduce rushing due to late afternoon admissions, the LTC pharmacist coordinated with the LTC home/hospital and took advantage of more time to safely get all the answers needed. By changing the timing of MedRec process to start on “bed acceptance day” 48 hours before the LTC admission, information could be communicated in a more timely and efficient manner for each resident. This resulted in improved use of the LTC pharmacist’s time, ensuring that reconciled orders could be safely processed.

TABLE 1.
Definitions of discrepancy and clinical concern

Discrepancy	Any of the following: <i>Undocumented intentional discrepancies:</i> the prescriber has made an intentional choice to add, change or discontinue a medication but the choice was not clearly documented. OR <i>Unintentional discrepancies:</i> the prescriber unintentionally changed, added or omitted a medication the resident was taking prior to admission, transfer, or discharge. OR <i>Resident/family recall discrepancies:</i> A resident or family member describes that a certain medication is being taken differently than what is documented on written medication sources.
Clinical concern	Drug related problem identified during the MedRec process

PDSA cycle 2 (February 2015)

To better engage residents and families and to hear their concerns, we conducted a test by having the LTC pharmacist call residents and their families to ask about their medications. More medication discrepancies such as missing medications or incorrect doses or formulations were identified before admission, reducing the risk of medication incidents from occurring at a later point in time. This proactive interview improved the resident experience during the stressful time of moving.

PDSA cycle 3 (February 2015)

We realized that interprofessional communication could be optimized, as multiple phone calls and faxes took up valuable time that could be spent on resident care. It was decided that a three-way Trio conferencing call between the LTC physician, LTC nurse and LTC pharmacist on a mobile device before admission would be conducted. The primary aim of the Trio call was to finalize admission orders and discuss discrepancies and clinical concerns, thus eliminating two separate conversations between the nurse / physician and nurse / pharmacist. Critical issues that were identified could be addressed in a timely way, potentially reducing unnecessary emergency department (ED) or hospital transfers.

PDSA cycle 4 (May 2015)

We aimed to reduce the transfer of information that was not useful for the LTC pharmacist. We discovered that the LTC pharmacist required knowledge of the hospital stay and only 9 pages of the 33-page Resident Assessment Instrument – Home Care (RAI-HC) assessment completed by the community care coordinator. We requested that the previous pharmacy contact be added to section Q, the medication section of the RAI-HC.

Time wasted in faxing and analyzing unnecessary documents was eliminated.

Results

A random sample of completed MedRecs was selected for each month and reviewed by an external auditor using a “modified” (addition of pharmacist/resident interview and Trio call steps) Institute of Safe Medication Practices (ISMP) MedRec Quality Audit (ISMP 2014). The average modified MedRec quality score for the pilot home improved from 4.8 out of 9 (53%) in December 2014 to 7.6 out of 9 (85%) by August 2015 with a median score increasing from 5 to 8 (Figure 2). The average modified MedRec quality score for the initial spread homes improved from 4.8 out of 9 (53%) at baseline in January 2016 to 7.4 out of 9 (82%) by February 2016 with a median score increasing from 5 to 8 (Figure 3). Initial spread home Trio call frequency increased from 17% in February 2016 to 67% in May 2016. The frequency of medication history interviews between the LTC pharmacist and the resident and family during the initial spread improved from 67% in February 2016 to 92% in May 2016.

Pilot results showed an increase in family and resident satisfaction about medication knowledge from 57% to 83%. Following implementation at the spread homes, 92% of surveyed residents and family members felt they had input into the resident’s medication treatment goals and were satisfied that their medication needs were met. The two most important therapeutic goals reported were to re-engage in social activities and be able to carry out basic activities of daily living. Other significant goals included pain reduction, preventing falls and managing behaviors secondary to dementia. All participants found it helpful to talk with the pharmacist about the resident’s medications.

FIGURE 2. Modified MedRec quality score at pilot home (modified = addition of pharmacist/resident interview and trio call)

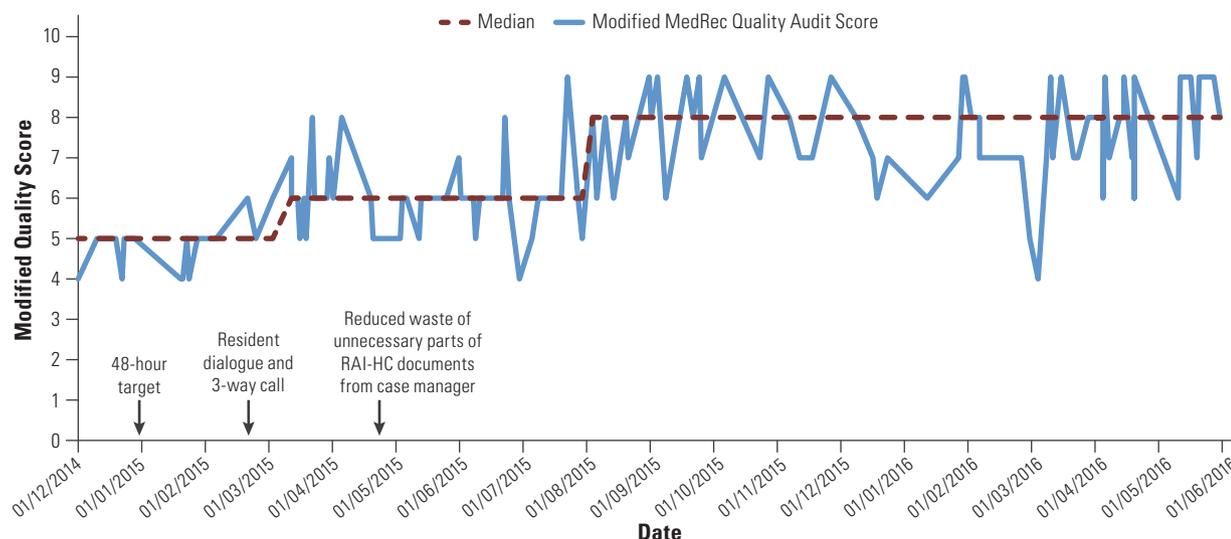


FIGURE 3.
Modified MedRec quality score for BOOMR spread homes

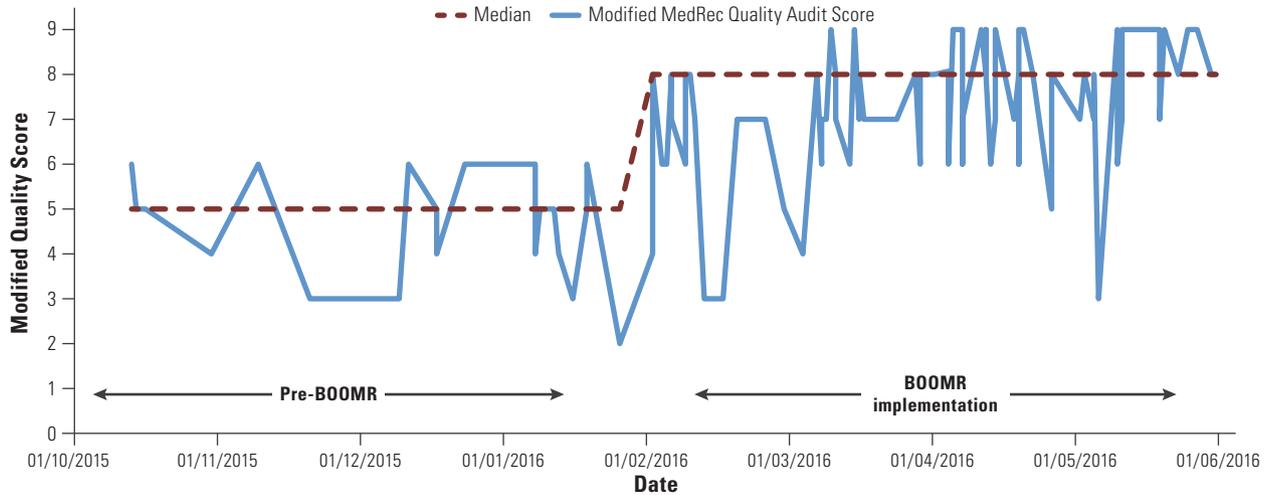
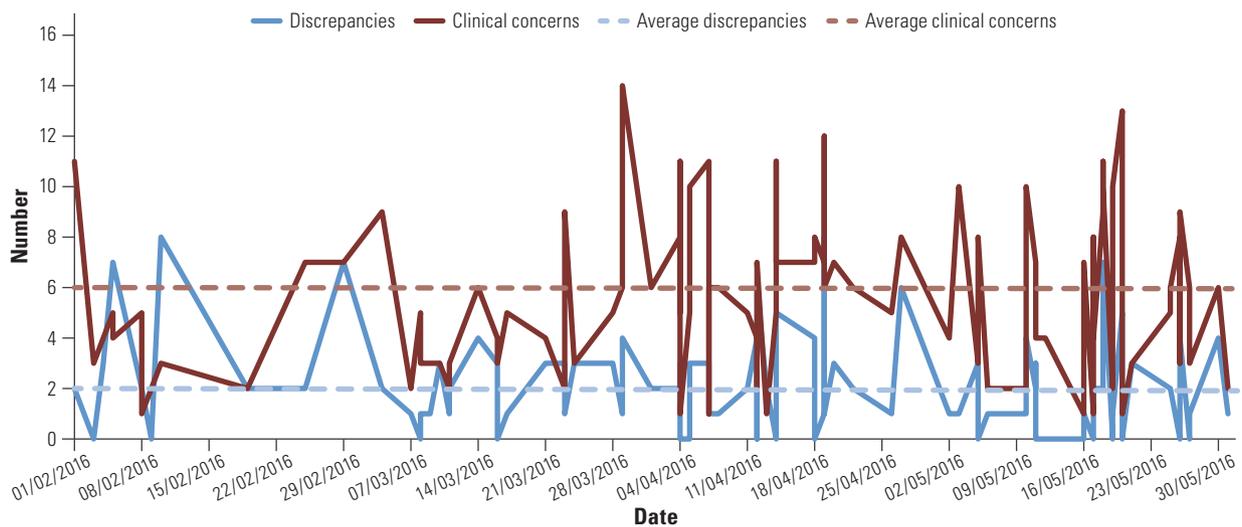


FIGURE 4.
Discrepancies and clinical concerns for all BOOMR spread homes



Hospital/ED visits occurring within 90 days of the admission were measured in pre-BOOMR and post-BOOMR cohorts. The percentage of hospital/ED visits remained at a median of 13% across these time periods. The Naranjo Adverse Drug Reaction Probability Scale was applied to each of the documented hospital/ED visits (Naranjo et al. 1981). It could not be concluded that any of the documented hospital/ED visits from the BOOMR cohort were directly related to medications, although it was recognized that the Naranjo Adverse Drug Reaction Probability Scale is limited by its ability to detect adverse drug events and not drug treatment failure leading to hospitalization.

An average of two discrepancies and six clinical concerns were detected per MedRec at the four LTC spread homes from February 2016 to May 2016, resulting in clinical interventions

and leading to a reduction of polypharmacy. (Figure 4) (American Geriatrics Society 2015 Beers Criteria Update Expert Panel 2015; NHS Cumbria 2013)

Balancing measures evaluated staff workload and cost savings. Each BOOMR MedRec freed up 3 hours of nursing time and 1 hour of physician time, while consolidating the pharmacist time into 2 hours per admission. The result was improved system workflow efficiency in all sectors. Reduced polypharmacy resulted in sustained system cost savings of \$1,000 per resident over the first 90 days in the LTC home. If extended to all 77,000 LTC residents and over 25,000 retirement residents in Ontario, BOOMR has the potential to save the ministry \$100 million for new admissions taking into account that the annual turnover rate in LTC is 30%.

Discussion

Improvements in “modified” MedRec quality scores over several months reflected steady improvements in interprofessional collaboration, resident and family engagement and thoroughness of MedRec at the LTC home level. Similar increases in MedRec quality score between the pilot and spread home populations showed successful scalability of the BOOMR methodology. The patient experience from a quality improvement perspective was thoroughly captured through the resident satisfaction/experience survey, which included comments such as: “My last move to a home was terrible. The fact that you are calling me days ahead of my move already tells me this is a better organization.” There were sustained improvements in overall workload, cost savings and resident/family satisfaction when increasing the scale of the project from 15 to 1,700 beds.

Transitioning from a pilot to the larger spread home population involved varying levels of participation between prescribers in the three-way Trio calls. Prescriber buy-in increased when they experienced the content of the call to be concise, organized and of value to relevant patient outcomes.

Conclusion

BOOMR taught us some strong lessons for achieving success. Using adaptive leadership techniques to know when to turn the pressure up or down for change ensures achievement of the desired outcomes. Even when stakeholders are not all engaged, they can be won over when the time is right for them. Working together and listening to each other’s needs leads to decreasing waste in the system such as duplication of work and unproductive waiting time. One physician commented: “It works so well, why did we not do it this way before?”

BOOMR uses a patient-centred approach to redesign the MedRec process in the LTC setting, improving patient engagement, increasing the quality of information shared, improving workflow efficiencies/timeliness during transfer of care and achieving real and potential cost savings to the healthcare system. To the best of our knowledge, BOOMR is the first project of its kind to involve LTC pharmacists remotely in a novel interdisciplinary MedRec process in a LTC home or retirement home setting. BOOMR won the IDEAS 2015 Cohort 6 Alumni Award and has been recognized on the Honour Role of the Ontario Minister of Health and Long Term Care’s Medal for 2015 and 2016. We are further investigating this novel MedRec redesign and its benefits through spread across additional LTC or retirement home settings. **HQ**

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