

ISMP Canada Safety Bulletin

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Aggregate Analysis of Medication Incidents in Home Care

Safety in home care is becoming a national focus. The shift from institutional to community care presents new challenges as governments, healthcare organizations, and families try to help patients maintain their independence as long as possible in the comfort of their own homes. As a result, a growing number of medically complex patients are receiving care in the community with the support of multiple caregivers coordinated by home care agencies. Many of these caregivers (including family members and personal support workers) are attempting to manage complex medication regimens with limited training or education, which may increase the risk of a medication error. Recent home care safety reviews have confirmed that medications are a major cause of preventable adverse events.¹⁻³ ISMP Canada undertook a multi-incident analysis to better understand the underlying challenges faced by individuals involved in supporting safe medication use in the home care setting. This bulletin shares findings from the analysis, highlighting the major themes and selected contributing factors, to identify opportunities for system-based improvements.

Methodology and Overview of Findings

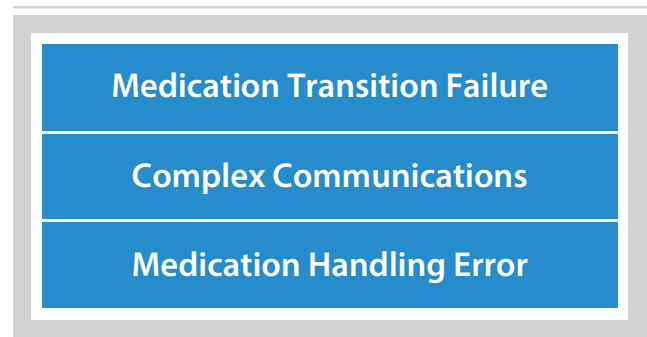
Reports of medication incidents that occurred at home were extracted from voluntary reports submitted to ISMP Canada's medication incident reporting database from August 1, 2000, to February 18, 2014. Of the 246 incident reports reviewed, only those with descriptive text suggesting the provision of home care (use of terms such as "service provider", "case management", "home-visiting"

regulated or unregulated professional) were retained. A total of 153 incidents were included in the final analysis, which was conducted according to the methodology outlined in the Canadian Incident Analysis Framework.⁴ Fifty-seven (37%) of these incidents resulted in harm to the patient. High-alert medications in the community setting (anticoagulants, opioids, hypoglycemic agents, pediatric liquids, immunosuppressants)⁵ accounted for 37 (24%) of the total. Antibiotics, proton pump inhibitors, and medications for inhalation were involved in 15 (10%), 10 (7%), and 10 (7%) of the incidents, respectively.

Findings of the Qualitative Analysis

Analysis of the incidents identified 3 main themes (see Figure 1). Some incidents were categorized under more than one theme. The following sections describe each of the main themes in some detail, along with an illustrative example.

Figure 1. Main Themes from the Qualitative Analysis



Main Theme: Medication Transition Failure

The transition from hospital to home can be a stressful time for patients and their caregivers. Key components of a successful medication transition include utilization of a reconciled discharge medication plan and effective communication among the hospital, the patient and family members, and community providers. Of the 153 medication incidents reported, 104 (68%) involved a problematic transition of the patient and his/her medications from the hospital back home.

The lack of a clear discharge medication plan was evident in many cases, including some cases in which plans were missing instructions to continue, start, or discontinue specific medications and other cases in which plans were missing altogether. A discharge medication plan should be based on a thorough pre-discharge assessment of the appropriateness of the patient's medications both in hospital and at home. This assessment also involves engaging with patients and/or family members to address limitations (e.g., knowledge deficits, financial considerations, and physical challenges) that may prevent optimal medication use once the patient is back home. Bypassing these aspects of the assessment has resulted in prescribing the wrong dose, selecting an inappropriate product (e.g., choosing a product that the patient cannot afford, manipulate, or swallow), and exposing patients to high-risk situations due to potential medication interactions.

Hospital-initiated communication with community partners is a second vital component to successfully implementing a discharge plan. Although home care agencies may be aware of an impending discharge, community pharmacies are rarely alerted, which may cause a delay in therapy (e.g., if a needed drug is not regularly stocked by the community pharmacy) or worse, may place patients in unnecessarily dangerous situations, as described in the incident example below.

Incident Example

A home care pharmacist visited an elderly patient 1 week after discharge from hospital. The patient reported feeling very weak and was unable to get

out of bed. Upon reviewing her blister pack and the discharge medication list, the pharmacist discovered that a blood pressure medication that the patient had been taking before admission was still present in the blister pack, even though it was supposed to have been discontinued. Discontinuation of the medication had not been communicated to the community pharmacy that prepared the blister pack. As a result, the patient experienced severe hypotension and had to be readmitted to hospital.

Other hospital-based factors contributing to failures of medication transition include provision of conflicting information (e.g., discrepancies between the discharge plan and the discharge summary) and lack of a medication monitoring care plan for follow-up in the community. Error-prone processes with computerized physician order entry systems (e.g., a system that permits re-prescribing a discontinued drug at discharge without decision support) also contributed to these types of failures.

Home-based factors contributing to incidents of this type included not filling discharge medication prescriptions in a timely manner, resuming preadmission medications without instructions to do so, and misinterpreting written or verbal instructions.

Main Theme: Complex Communications

The provision of home care typically involves several individuals from multiple organizations, a situation that creates communication complexities. Twenty-two (14%) of the 153 incidents in this analysis occurred because of a breakdown in the communications required to successfully carry out the medication plan in the home.

Incident Example

A patient's son called the family doctor because his father was in pain at home. A pain pump had been delivered to the home, but a nursing visit was not scheduled in advance for pain pump set up and management. The doctor called to alert the home care coordinator to the problem. The home care coordinator in turn contacted the service provider to determine the reason for the delay in nursing

service and to request an urgent nursing visit. Although the family was informed that help was coming, the patient continued to experience pain while the new plan was being implemented.

Coordination of home care providers through a combination of electronic referrals, faxes, phone calls, and manual documentation is often required to set up service plans. A breakdown in any of these communication methods can lead to medication incidents such as dose omissions or delays. Timely delivery of medication and related equipment (e.g., pump and supplies for intravenous administration of antibiotics) and verification that the equipment is functional further complicate the coordination required to carry out the plan.

Changes in the service plan, including changes to medications, will affect many healthcare providers, including prescribers, pharmacists, nurses, and case managers, as well as the patient and his or her caregivers. Sometimes documentation of these changes must be duplicated (e.g., the physician must write orders on a home care order sheet and must also write the corresponding prescriptions for the community pharmacy), which creates not only additional work but also opportunities for error. The lack of a central chart or centralized system which all providers can access creates challenges in ensuring that accurate information is communicated in a timely manner to all service providers.

Main Theme: Medication Handling

The final theme relates to errors associated with dispensing, administering, and repackaging medications in the community. Thirty-four (22%) of the 153 incidents reviewed involved medication handling errors that were discovered in the home, often by home-visiting nurses or pharmacists.

Incident Example

To help an overwhelmed family manage an elderly patient's medication, a home-visiting nurse asked the community pharmacy to repack the medications in a weekly compliance package (i.e., a blister pack). A home care pharmacist visited several days later and confirmed that the family

was using the pack appropriately, but discovered that the patient's anticoagulant was missing from the pack. The family showed the pharmacist the patient's bag of "as needed medications", which contained the missing anticoagulant, with instructions to "take as directed". The patient and family had not been made aware of the importance of this medication and had not been given directions for administration, so the patient had not received the anticoagulant for several days.

Some patients and caregivers find it easier to manage multiple medications when they are repackaged into blister packs by the pharmacy or into dosettes by caregivers or healthcare providers in the home (see Figure 2 for examples). However, such repackaging carries a risk of error, especially when a dosette is filled in the home without a systematic double check in place. A double check, as in the example provided, may identify a serious omission or another problem. It is crucial that dosettes and blister packs be clearly labelled with the patient's name and an accurate list of the contents to facilitate medication reconciliation. Errors in repackaging can carry serious consequences: one case included in this analysis involved a death that resulted from filling the patient's dosette with medications intended for the patient's spouse.

Figure 2. Example of a blister pack from the pharmacy (at left) and a dosette (at right).



Administration of complex medication regimens in the home is usually the responsibility of the patient or a caregiver. Instructions for how to properly and safely use a medication can be misinterpreted, especially if patients and caregivers are given verbal instructions that do not match those written in the

care plan or on the prescription label. This type of problem occurred in some of the reported incidents in this analysis.

Several incident reports described unclear instructions or use of abbreviations as contributing factors. For example, the abbreviation “tsp” was interpreted as “tablespoon” rather than “teaspoon”. More generally, the instruction “take as directed” can be interpreted in many ways and is only effective if the person receiving the instruction actually understands and can implement it. In other instances, the patient or a family member made choices to alter the directions for a medication without consulting the physician.

Conclusion

Over two-thirds of home care medication incidents reported to the ISMP Canada database occurred during the transition from hospital to home. Many incident reports described shortcomings in medication planning at discharge. These findings challenge hospitals to improve their medication discharge processes, to ensure effective communication with home care and community providers, and to better engage patients and their

caregivers in their own care. Similarly, agencies coordinating home care should consider reviewing their communication processes and exploring how to improve the information flow with both hospitals and service providers. Healthcare providers also need to critically evaluate how important information is conveyed to patients and their caregivers, with recognition that these individuals are under tremendous stress attempting to manage complex care in the home.

Interestingly, the majority of the incidents reviewed were reported by home-visiting pharmacists who, in some of the cases, were able to intervene to prevent harm. Although pharmacists are not traditional home care providers, consideration should be given to implementing the role of a home-visiting pharmacist to further medication safety.⁶⁻⁹ Healthcare practitioners are encouraged to continue to report medication incidents to ISMP Canada in a confidential or anonymous manner, to help further medication safety in this increasingly important sector. Patients, families, and their care providers are also encouraged to help advance safety in the home environment by reporting medication incidents through SafeMedicationUse.ca (for consumers).

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Support for the Safe Use of Insulin

Insulin is a commonly prescribed antihyperglycemic agent that continues to be one of the top high-alert drugs implicated in medication errors, as identified from incidents voluntarily submitted to ISMP Canada's medication incident reporting programs.¹ Much has been learned from incidents that have resulted in harm and death, and recommendations have been shared with a national audience through several issues of the ISMP Canada Safety Bulletin.¹⁻³ ISMP Canada has leveraged learning from these incidents to further support healthcare practitioners in preventing medication errors involving administration of subcutaneous insulin by undertaking a knowledge translation project that developed interventions and safeguards.⁴

Earlier this year, ISMP Canada collaborated with the Canadian Society of Hospital Pharmacists (CSHP) Ontario branch to host a roundtable discussion on the safe delivery of subcutaneous insulin in facilities, with experts from internal medicine, infectious disease, nursing and pharmacy.⁵ The roundtable had 3 primary goals:

- 1) to identify medication safety considerations for insulin pens and for multidose vials and syringes;
- 2) to assess infection control risks associated with insulin pens and multidose vials and syringes; and
- 3) to recommend strategies to promote safe administration of insulin in acute care settings.

The roundtable discussion provided guidance to hospital practitioners for the safe use of insulin pens and multidose vials and syringes, including a recommendation that each individual hospital assess the optimal method for subcutaneous delivery of insulin for its own situation. Participants determined that each method offered certain benefits over the other method in terms of various aspects of medication administration, medication safety, and infection control; thus, the consensus was that such evaluation should take place within the context of each unique practice setting and organizational culture. More details about the discussion and other recommendations from the roundtable can be found at http://ismp-canada.org/download/insulin/SafeDeliveryOfInsulinReport_09Jun2014.pdf

More recently, an e-Learning module was developed, with support from the Ontario Ministry of Health and Long-Term Care, to provide a general introduction to the safe use of insulin pens in hospitals for healthcare practitioners.⁶ This module serves as a guide to help pharmacists, nurses, and other healthcare professionals to recognize the advantages, disadvantages, and risks of using insulin pens. As well, the module explains how to use insulin pens safely in the hospital setting by helping practitioners develop best-practice administration techniques. Some of the features include interactive diagrams and case-based scenarios on the different types of insulin pens available, as well as the risks that sharing insulin pens pose for patients. The module is intended as a supplemental resource, meant to be delivered concurrently with hands-on training; it is not intended to replace other forms of insulin pen training.⁶ More information about the risks of sharing insulin pens and the e-Learning module itself are highlighted in a recent issue of the Ontario Critical Incident Learning bulletin.⁷

A few Ontario facilities have now incorporated the module into their staff training, and several others are planning to do the same. Knowledge transfer of safe administration practices through use of the module has also been demonstrated. A sample group of 50 nurses, who were naive to insulin pen administration, completed a test before and after reviewing the module to determine their knowledge of best practices. The average test score after viewing the module increased from 65% at baseline to 96%.

Hospitals are encouraged to review their administration practices and organizational culture to determine their own best option for administering insulin. It is hoped that the roundtable guidance and the insulin pen e-Learning module will increase safety with subcutaneous administration of insulin.

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This segment of the bulletin describes a recent SafeMedicationUse.ca publication from ISMP Canada's Consumer Program.

August 2014 - Newsletter:

Travellers: Many Medicines Have Different Names in Foreign Countries

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It is important to be careful when purchasing medicines while travelling abroad. SafeMedicationUse.ca has received reports showing the need for extra care when purchasing medicines in another country. Medications prescribed by a doctor or purchased over the counter may have different names in foreign countries. In addition, medicine products with a particular brand name in one country may not necessarily have the same ingredients or strengths in another country.

The SafeMedicationUse.ca newsletter advises consumers to carry an up-to-date list of their medicines, including both the brand name and the generic name for every product, at all times when travelling abroad. The newsletter also highlights the importance of bringing along an adequate supply of all prescription and over-the-counter medicines that are taken regularly.

For additional recommendations about safe practices when buying and taking medicines in other countries, read the complete newsletter at:

www.safemedicationuse.ca/newsletter/newsletter_Travelling.html



**Consumers Can Help Prevent
Harmful Medication Incidents**

SafeMedicationUse.ca



The Canadian Medication Incident Reporting and Prevention System (CMIRPS) is a collaborative pan-Canadian program of Health Canada, the Canadian Institute for Health Information (CIHI), the Institute for Safe Medication Practices Canada (ISMP Canada) and the Canadian Patient Safety Institute (CPSI). The goal of CMIRPS is to reduce and prevent harmful medication incidents in Canada.



The Healthcare Insurance Reciprocal of Canada (HIROC) provides support for the bulletin and is a member owned expert provider of professional and general liability coverage and risk management support.



The Institute for Safe Medication Practices Canada (ISMP Canada) is an independent national not-for-profit organization committed to the advancement of medication safety in all healthcare settings. ISMP Canada's mandate includes analyzing medication incidents, making recommendations for the prevention of harmful medication incidents, and facilitating quality improvement initiatives.

Report Medication Incidents

(Including near misses)

Online: www.ismp-canada.org/err_index.htm

Phone: 1-866- 544-7672

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