Delayed Treatment after Transitions of Care: A Multi-Incident Analysis

A multi-incident analysis of delayed medication doses after transitions of care identified the following themes:

- Failure of manual medication-ordering processes
- Inadequate follow-up of problematic orders
- Incomplete handoffs between care providers
- Gaps in quality of medication reconciliation

Transition of care is a term describing the movement of patients between healthcare locations, providers, or different levels of care within the same location, as their conditions or care needs change.1 Previous studies have shown that when a patient is transferred between a hospital and the community or a long-term care facility, the first doses of medication to be administered after the transition may be delayed.2-4 A multi-incident analysis of medication incidents was conducted to identify factors contributing to delayed treatment (i.e., delayed doses after transitions of care) and to suggest strategies to prevent or minimize the potential harm of such delays.

Methodology

Reports of medication incidents were extracted from voluntary reports* submitted to 2 ISMP Canada incident reporting databases (Individual Practitioner Reporting and Community Pharmacy Incident Reporting) and the National System for Incident Reporting† (NSIR), between database inception (August 2000, April 2010, and April 2009, respectively) and May 17, 2016.

Key terms used to search the databases were “delayed dose”, “missed dose”, and “dose omission”. Of the 5022 incidents identified from the ISMP Canada databases, 134 mentioned a transition of care in the description and had sufficient details for inclusion in the final analysis. Application of the same process for NSIR data produced 2219 incidents, of which 203 met the criteria for inclusion. The analyses were conducted according to the methodology for multi-incident analysis outlined in the Canadian Incident Analysis Framework.5

Quantitative Findings

Although the majority of incidents from the ISMP Canada databases resulted in no harm, about 10% were reported to have caused harm to the patient (Table 1). The percentage of reported harm outcomes for the NSIR data was 15% (Table 2).

Findings of the Qualitative Analysis

Analysis of the incidents from the ISMP Canada databases identified 4 main themes and associated...
subthemes (Figure 1). Illustrative cases are shared to highlight each of the main themes. Analysis of the NSIR dataset supported the ISMP Canada database themes identified.

**Theme: Failure of Manual Medication-Ordering Processes**

Forty-three percent of the medication incidents had contributing factors related to missteps in paper-based (manual) transcription and order entry processes. Incomplete transcription of medication orders to the medication administration record (MAR), omissions and errors during pharmacy order entry, and delays in tracking down or processing paper orders were all evident. In many incidents, prescribers’ handwritten orders were not processed in a timely manner. In other incidents, the form used for the admission BPMH was not integrated with the prescriber’s order process, which led to omission errors. Electronic order entry and electronic MAR processes can aid in preventing these types of errors.

<table>
<thead>
<tr>
<th>Reported Severity</th>
<th>No. of Incidents</th>
</tr>
</thead>
<tbody>
<tr>
<td>No error</td>
<td>2</td>
</tr>
<tr>
<td>No harm</td>
<td>117</td>
</tr>
<tr>
<td>Harm</td>
<td>14</td>
</tr>
<tr>
<td>Death</td>
<td>0</td>
</tr>
<tr>
<td>Unknown</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>134</strong></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Reported Severity</th>
<th>No. of Incidents</th>
</tr>
</thead>
<tbody>
<tr>
<td>No adverse outcome categories: reportable circumstance, near miss, none</td>
<td>159</td>
</tr>
<tr>
<td>Adverse outcome categories: mild, moderate, severe, death</td>
<td>29</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>188</strong></td>
</tr>
</tbody>
</table>
A multi-incident analysis of medication incidents was conducted to assess potential harm of such delays. It was found that when a patient is transferred between a hospital and the community or a long-term care facility, the first doses of medication to be administered after the transition may be delayed.2-4

Community pharmacies that provide consulting services to long-term care facilities and retirement homes should ensure that there is a standardized, robust, and timely double-check process in place for all new medication orders. A double-check process is especially important if the medication-use system includes a manual step, such as manual copying of medication orders. Otherwise, delays in detecting inadvertent transcription errors or errors related to legibility can lead to medication omission or administration of incorrect medications.

**Theme: Incomplete Handoffs Between Care Providers**

The process by which one healthcare provider transfers responsibility for a patient’s care to another care provider is often referred to as a “handoff”. A handoff involves communicating essential patient-specific information, including medication-related information, to the next care provider. Information about the patient’s current medications should identify new orders and any outstanding doses to be administered immediately after the handoff, as well as medications that require monitoring or follow-up. This handoff is critical for a safe transition, and standardized tools should be developed and used.6 Creating opportunities for the patient and/or family caregiver to be involved when communicating medication-related information and when planning treatment can increase patient safety; this involvement forms a key element within handoff of care processes.6,7

For the hospital setting, the analysis identified several factors that contributed to delayed administration of doses after transitions of care, including the lack of standardized transfer protocols and incomplete documentation in the MAR. Delay of first doses was particularly noticeable for patients transferring from the emergency department (ED). Such delays occurred when ordered medications were not administered before a patient’s transfer out of the ED, when medications that had been dispensed but not administered did not accompany the patient upon transfer to another care unit, and when medication-related information was not discussed with the next care provider.

Medication dose delays also occurred when patients were discharged from hospital with ensuing gaps in home care services, as illustrated by the example below.

**Incident Example**

A patient with diabetes mellitus was discharged from hospital, and instructions were given to the home care provider that the patient required a daily reminder to take insulin. The first contact from a support worker was made 3 days after the
discharge. At that time, the patient reported an extremely high blood glucose reading. Further investigation showed that the requirement to contact the patient daily had not been communicated to the support worker; as a result, the patient forgot to administer his insulin.

Standardized processes should be in place to ensure that patients receive appropriate follow-up after a transition in care, especially if they are returning home on high-alert medications. Strategies to promote safety include involving the patient and caregiver(s) in these processes, providing written instructions on symptoms that require attention, and supplying a list of key contacts once the patient is at home. These approaches are highlighted in the Hospital to Home: Facilitating Medication Safety at Transitions Toolkit and Checklist.

**Theme: Gaps in Quality of Medication Reconciliation**

In Canada, published studies from the acute care environment have shown that unintentional medication discrepancies or potential errors are experienced by 40% to 50% of patients at admission and by 40% of patients at discharge. It is accepted that such discrepancies can be reduced by conducting high-quality medication reconciliation (MedRec) at each transition of care.

**Incident Example**

When a patient with a diagnosis of chronic renal disease was admitted to hospital for another reason, the patient did not receive any of the medications used to manage the renal condition because they were not ordered on admission. The required medications were not on the medication list provided by the family doctor, and the patient was not questioned about any additional medications during the best possible medication history (BPMH) interview.

MedRec is patient-centered and can empower the patient role in medication management. This multi-incident analysis showed opportunities for continuous quality improvement of MedRec processes at all transition points. These findings underscore the importance of trained professionals following a systematic process when reconciling home medications. In particular, when obtaining the BPMH, the interviewer should ask the patient or caregiver standardized questions and should also use multiple, reliable sources of information about the patient’s medication use. All discrepancies should be clarified as soon as possible to avoid a delay in the patient receiving essential medications. Practitioners can use sector-specific resources, such as the Safer Health Care Now! Getting Started Kits and audit tools, to help design high-quality, systematic MedRec processes.

**Conclusion**

Care transitions are steps in a patient’s journey through the healthcare system where a person is particularly vulnerable. Delays in administering doses of certain medications after a transition can lead to harm. This multi-incident analysis identified several themes that serve to challenge all practitioners and organizations to continuously improve their MedRec processes, to consider the feasibility of communicating information about medications by electronic means, to standardize handoff encounters, and to re-examine the patient-centeredness of procedures involving medication-related information at transitions.
Reports of medication incidents were extracted from methodology conducted to identify factors contributing to delayed administration of medications. A multi-incident analysis of medication incidents was carried out to examine the potential harm of such delays.

Analysis Framework

Quantitative Findings

- Orders based (manual) transcription and order entry processes can aid in preventing these types of errors.
- Legibility can lead to medication omission or errors. Electronic order entry and electronic MAR processes can aid in preventing these types of errors.
- Confirmation of a patient's own medication to be used as medications that require monitoring or follow-up.
- Handoff involves communicating essential patient-specific information, including medication-related instructions on symptoms that require attention, and particularly vulnerable. Delays in administering doses can consequently miss treatment for two days.

Incident Example

A patient did not have the medications in hospital and consequently missed treatment for two days. The patient was discharged from hospital with ensuing gaps in care transition, especially if they are returning from transplant, were to be continued "as at home". The discharge list with the patient's current medication as medications that require monitoring or follow-up. Administration of medications was delayed due to the patient forgetting to administer his insulin. Contact the patient daily had not been a priority. The patient did not receive any of the medications used to manage the renal condition because they were not on the medication list from the home's medication order sheet. A consulting pharmacist compared the hospital discharge list with the patient's current medication and by 40% of patients at discharge.

Theme: Incomplete Handoffs Between Caregivers

Creating opportunities for the patient and/or family caregiver to be involved when communicating handoff involves communicating essential patient-specific information, including medication-related instructions on symptoms that require attention, and particularly vulnerable. Delays in administering doses can consequently miss treatment for two days.

Theme: Gaps in Quality of Medication Reconciliation

Hospital to Home: Facilitating Medication Safety at Transition

References


Safe Labelling of Compounded Products

The label on a health product communicates key information and is an important aid in product identification, selection and administration. The ability to perform these activities safely is dependent on the end user being able to read and understand the information on the label.

Guidance is available from a variety of sources including Health Canada regulatory requirements, defined standards (e.g., National Association of Pharmacy Regulatory Authorities, United States Pharmacopeia) and guidelines (e.g., Canadian Society of Hospital Pharmacists). Opportunities exist to provide additional support for safe label design.

ISMP Canada has previously created a safety checklist for epidural product labels. We are currently exploring the development of a similar checklist for safe labelling of other compounded products—specifically parenteral solutions and oral liquids. We are seeking your input to assist in the identification of compounded drug products that might be priorities for improved labelling.

For the purpose of this survey, a compounded product refers to a product (e.g., opioid infusion, chemotherapy infusor, irrigation solution, oral liquid) created by combining two or more ingredients to produce a final product in an appropriate form for administration.

Complete the survey (https://www.surveymonkey.com/r/VPVRNJL).

Your response by Friday, October 21, 2016 is appreciated.
September 2016 - Newsletter:

**5 Questions to Ask about Your Medications**

Consumers may not know what questions to ask about their medications. Knowing which medications, if any, have changed and how to take all their medications properly can help avoid serious problems.

SafeMedicationUse.ca received a report highlighting the importance of asking healthcare providers the right questions about their medications. A consumer was prescribed corticosteroid and antibiotic eye drops pre-cataract surgery. Following the procedure, she mistakenly continued taking her corticosteroid eye drops and stopped taking the antibiotic eye drops—the reverse of the instructions provided. This misunderstanding occurred because the instructions were provided at an appointment 3 months before the operation, and following surgery, the consumer’s reduced vision prevented her from reading the new instructions. Although serious harm did not occur, she did experience eye irritation and require multiple visits to her doctor—all which could have been prevented by a discussion with her provider.

**Tips for Practitioners:**

- Follow a structured process during each appointment, and allocate sufficient time to address any questions raised.
- Post the “5 Questions to Ask about Your Medications” poster in the office to remind yourself, and the patient, of key points for discussion. This poster can be found on the ISMP Canada website in multiple languages.
- Explain the answers to the 5 questions clearly and concisely, using show-and-tell or teach-back techniques as needed and as appropriate for optimal understanding.
- Assist patients in updating their medication lists any time a medication is added, stopped, or changed, and explain the rationale.

**Tips to Share with Consumers:**

These 5 questions should be asked at each appointment with a healthcare provider, including picking up a prescription at a pharmacy, to ensure safe medication use.

1. **Changes?** Have any medications been added, stopped or changed, and why?
2. **Continue?** What medications do I need to keep taking, and why?
3. **Proper Use?** How do I take my medications, and for how long?
4. **Monitor?** How will I know if my medication is working, and what side effects do I watch for?
5. **Follow-up?** Do I need any tests, and when do I book my next visit?

Watch this video to learn more, or download the “5 Questions to Ask about Your Medications” poster. (www.ismp-canada.org/medrec/Squestions.htm)
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](http://www.ismp-canada.org/err_index.htm)

**Phone:** 1-866-544-7672

ISMP Canada strives to ensure confidentiality and security of information received, and respects the wishes of the reporter as to the level of detail to be included in publications. Medication Safety bulletins contribute to Global Patient Safety Alerts.

**Stay Informed**

To receive ISMP Canada Safety Bulletins and Newsletters visit:

[www.ismp-canada.org/stayinformed/](http://www.ismp-canada.org/stayinformed/)

This bulletin shares information about safe medication practices, is noncommercial, and is therefore exempt from Canadian anti-spam legislation.

**Contact Us**

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