

ISMP Canada Safety Bulletin

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Change Management in Response to Preventable Tragedies

In January 2019, ISMP Canada published a [safety bulletin](#) about 2 pediatric deaths related to the use of concentrated electrolyte solutions.¹ One incident involved the inadvertent use of concentrated potassium phosphate solution to flush an intravenous line; the other involved a preparation error that resulted in the patient receiving 10 times the required amount of potassium chloride intravenously. Intravenous administration of a concentrated potassium solution (≥ 2 mmol/mL) is considered to be a pharmaceutical “never event”. “Never events” are defined as “patient safety incidents that result in serious patient harm or death, and that can be prevented by using organizational checks and balances.”¹ The internal analysis that followed these incidents led to several key changes at the hospital involved. The current bulletin not only outlines key strategies that were used to effect this change, but also describes *how* those strategies were successfully implemented.

BACKGROUND

The risk of serious patient harm due to the inadvertent use of concentrated electrolyte solutions was recognized by ISMP Canada in 2002,² and safeguards were incorporated into Accreditation Canada’s standards and Required Organizational Practices by 2008.³ In the hospital where the incidents occurred, concentrated electrolytes had been removed from ward stock in most patient care

areas by 2010, and safeguards were put in place for situations in which concentrated electrolytes were needed. Over the years since then, prescribers individualized electrolyte dosing for specific patient populations, which led to an increased use of concentrated electrolyte solutions for dose preparation in patient care areas.

The 2 tragic deaths, which occurred in a context of increased use of concentrated electrolytes, prompted creation of an internal multidisciplinary team to analyze the incidents, identify potential contributing factors, and review previous safety work in this area. A key factor was found to be the prescribing of electrolyte solutions in concentrations that were not commercially available, which in turn necessitated custom extemporaneous compounding in patient care areas. Implementation of an approach to prevent recurrence of similar incidents is described below in the context of change management.

CHANGE MANAGEMENT

Change management can be defined as a strategic and systematic approach that supports people and their organizations in the successful adoption of planned change.^{4,5} There are many popular approaches to and models of change management, most of which incorporate similar key concepts. The decision to use one approach over another is specific to each organization and its particular needs.⁶

Lewin's theory of planned change, developed in the 1940s, uses the simple analogy of changing the shape of a block of ice in 3 steps: unfreeze (understand that change is needed), change (initiate the process of change), and refreeze (establish a new status quo).^{7,8} Newer models of change management, such as Kotter's 8-step change model,⁹ the ADKAR model,¹⁰ and the transtheoretical model,¹¹ set out additional considerations for change.

The hospital took the following steps in response to the 2 preventable tragedies:

Recognized the need for change

It is important to raise awareness among staff members that change is needed.^{8,10} At this hospital, the 2 pediatric deaths related to use of concentrated potassium solutions generated a sense of urgency that system-level changes were needed to prevent recurrence.

Built a multidisciplinary team to guide change

*A coalition of personnel representing different points of view should be convened to develop a clear vision for the change initiative.*⁸⁻¹⁰ At this hospital, the Pharmacy and Therapeutics Committee, consisting of representatives from multiple health care professions, became the guiding coalition that developed strategies to improve patient safety in the context of intravenous potassium solutions.

Developed strategies to reinforce change

*The vision for change must be made clear to everyone to enable the development and reinforcement of strategies for change.*⁶ At this hospital, one of the key goals was to reduce individualized prescriptions for intravenous electrolyte solutions (which were necessitating the use of concentrated electrolyte solutions). Strategies developed to support this goal included targeting different aspects of the medication-use process and engaging multiple health care providers. For example, preprinted

and computerized order sets were modified to support the safe prescribing of electrolytes by including alternatives to intravenous electrolytes for certain clinical situations.

Communicated strategies to promote buy-in

The involvement of direct care providers, as well as managers and administrators, contributes to staff empowerment and promotes buy-in for the change.^{6,9} Change strategies should include appropriate education and training for all those involved, to provide knowledge about new skills and processes and to foster staff members' ability to implement them. At this hospital, the list of available standardized electrolyte solutions was distributed to prescribers.

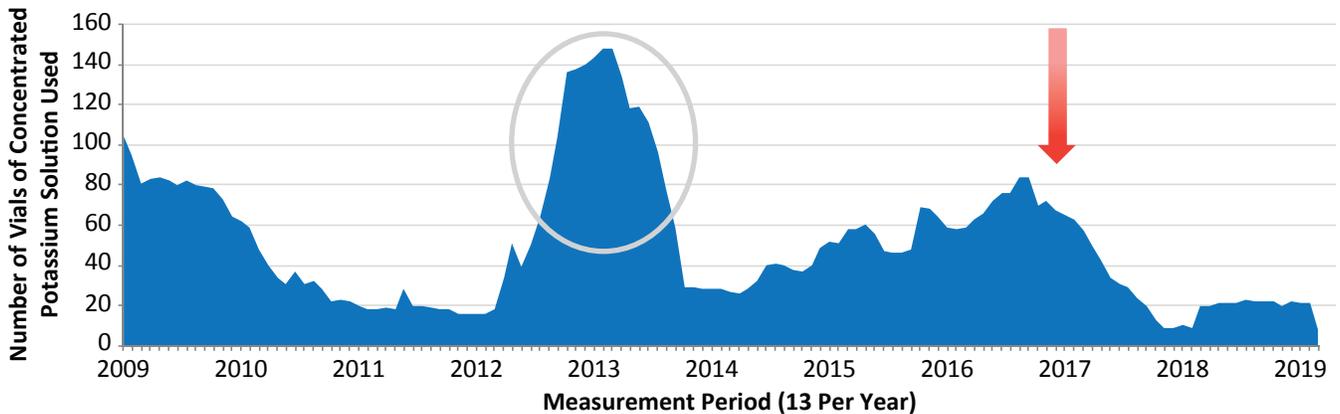
Anchored the change in organizational policies and procedures

Change must be anchored within the organizational culture,⁸ and the new standard of practice must be sustained through regular reinforcement,⁶ which may include celebration of each successful step in the process of change. At this hospital, the anchor was the development and implementation of comprehensive policies and procedures to guide the appropriate prescribing, handling, and administration of electrolyte solutions.

Incorporated continuous monitoring and assessment

*Continuous monitoring ensures that the change is maintained and continues to be beneficial.*⁶ At this hospital, there is continuous evaluation, both as part of an audit program and by including an indicator on the hospital administration's management dashboard. The Pharmacy and Therapeutics Committee has incorporated monitoring tools during its annual review of policies relating to the storage, prescription, preparation, and administration of electrolyte solutions. An example is a reduction in the use of vials of concentrated potassium solutions (Figure 1).

Figure 1. Quantity of vials of concentrated potassium solution used by a single institution over a 10-year period, following Accreditation Canada’s introduction of an official Required Organizational Practice regarding concentrated electrolyte solutions in 2008. The grey oval highlights anomalous high usage due to a shortage of an alternative potassium product. The red arrow represents the point when the 2 pediatric deaths related to use of concentrated potassium solutions¹ prompted internal analysis and action.



CONCLUSION

The development of strategies and recommendations following analysis of an incident is an important step to decrease the risk of recurrence. The subsequent step of implementing recommended actions—change management—can be challenging because it often requires changes in practice and engagement from all those affected. Change management models can help organizational leaders to effectively manage and guide their staff members through these processes.

At the hospital where these incidents occurred, multiple strategies were undertaken to reduce the risk of patient harm from inadvertent administration of concentrated electrolytes. In addition to continuing to comply with Accreditation Canada’s Required Organizational Practices, this hospital recognized the importance of understanding the risks specific to their practice and developing strategies to address those risks. These strategies included, but were not limited to, removing concentrated electrolyte solutions from patient care areas and providing supports for the prescribing of available standardized electrolyte products. The hospital succeeded in implementing changes in practice through effective leadership, a common vision, and practical strategies.

Organizations must recognize that change is an ongoing process and that continuous evaluation and reinforcement of new strategies are required to sustain any change over the long term. ISMP Canada, with support from the Canadian Patient Safety Institute (CPSI) has developed a [Medication Safety Self-Assessment \(MSSA\)](#) specific to “never events” that can help hospitals identify and assess their gaps in safety and the opportunities for improvement and change.

ACKNOWLEDGEMENTS

ISMP Canada extends appreciation to the Centre Hospitalier Universitaire Sainte-Justine (CHUSJ) for allowing details of the organizational actions that followed 2 tragic medication incidents to be shared, with the goal of preventing harm to others.

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Educational Support for Mandatory Reporting of Serious ADRs and MDIs by Hospitals

Effective December 16, 2019, it will be mandatory for hospitals to report serious adverse drug reactions (serious ADRs) and medical device incidents (MDIs) to Health Canada.

Four PowerPoint modules have been developed for use (as entire modules or selected content) by hospitals, health care professionals, and educators, to explain, describe, or promote the reporting of serious ADRs and MDIs. Patients for Patient Safety Canada has created an *additional PowerPoint module* to help patients and other members of the public to understand and promote the reporting of serious ADRs and MDIs.

- A total of 116 (91%) of 128 respondents participating in 2 national webinars indicated that they plan to use the modules to prepare for mandatory reporting of serious ADRs and MDIs.
- The findings from 30 respondents to the more detailed online survey include the following:
 - ✓ Respondents stated that the modules were easy to access (97%) and provided helpful information (86%).
 - ✓ Respondents indicated that the modules contributed to self-reported understanding of the requirements for mandatory reporting (93%).
 - ✓ Respondents expressed their intention to use the modules, both for self-directed learning and for presentations to others (90%).
 - ✓ Respondents reported that they would recommend the modules to colleagues (97%).

We would like to thank all those who responded to the post-webinar question and online survey.



July 2019 - Newsletter:

Mistaken Identity – A Recurring Problem

SafeMedicationUse.ca continues to receive reports about patients accidentally receiving another person's medication. In one example, a patient went to the pharmacy to pick up her medication. But the medication had mistakenly been given to someone else with the same name. The person who received the medication by mistake now had the patient's information, such as her prescription history.

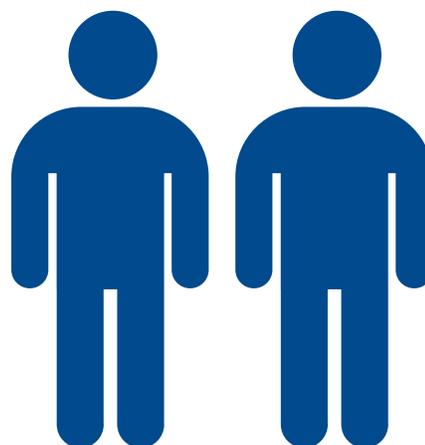
Patients were reminded to always identify themselves in a health care setting using their full name and at least one other piece of information (e.g., date of birth, home address, or health card number) to minimize the risk of a mix-up.

Tips for Practitioners

- Ensure your practice site has a standard process in place for accurate identification of patients. Mistaken identity may lead to serious patient harm and also breaches privacy laws.
- Minimize the risk of mistaken identity by verifying each patient's identity using at least 2 unique identifiers. One of the identifiers should be the patient's first name and last name. The other identifier could be any one of the following: date of birth, home address, or health card number.
- Even if you ask for 2 unique identifiers, twins and other multiples can still be confused with one another. In such instances, making a notation in the chart or profile to alert others of the risk of confusion can be helpful.
- Whenever you are unsure of a patient's identity, ask for government-issued photo identification. A driver's licence or health card can be used for this purpose.

For more information, read the full consumer newsletter:

<https://safemedicationuse.ca/newsletter/mistaken-identity.html>



**Consumers Can Help Prevent
Harmful Medication Incidents**

SafeMedicationUse.ca



Med Safety Exchange – Webinar Series

Wednesday, January 15, 2019

Join your colleagues across Canada for complimentary bi-monthly 50 minute webinars to share, learn and discuss incident reports, trends and emerging issues in medication safety!

For more information, visit
www.ismp-canada.org/MedSafetyExchange/



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

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/

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

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