Key Findings from the ISMP Canada Safety Bulletins

Drugs: Oversight, Safety and Supply

OHA Educational Event
November 20, 2015
Toronto, ON

David U
President & CEO ISMP Canada
Ontario Critical Incident Reporting

- ECFAA, 2010: requiring hospitals to report critical incidents related to medications and IV fluids
- ISMP Canada supports the implementation of the critical incident reporting
- Analysis of critical incidents
- Disseminating findings
What Have We Learned

• From critical incident reports to the National System for Incident Reporting (NSIR)

• From non-critical incidents reported through NSIR and ISMP Canada databases
What is a Critical Incident?

Severe harm incident is:

- symptomatic, requiring life-saving intervention or
- major surgical/medical intervention, or
- shortening life expectancy or
- causing major permanent, long-term harm or loss of function.

Death incident is:

- selected if on the balance of probabilities, the incident was considered to have played a role in the patient’s/resident’s death
Critical Incident?

Case:*  
- Naloxone given to patient experiencing morphine overdose  
- Patient recovered, no longer monitored  
- Patient experienced another opioid overdose

Severe harm outcome is:  
- symptomatic, requiring life-saving intervention or
- major surgical/medical intervention, or
- shortening life expectancy or
- causing major permanent, long-term harm or loss of function.
Insulin

- High-alert drug, risk for hypoglycemia requiring intervention
- No critical incident reports in 2014
Ontario Critical Incident Learning

www.ismp-canada.org/ocil

- Multidisciplinary team analyzes Ontario critical incidents related to medication and IV fluids
  - Safety bulletins
  - Annual analysis reports
  - Webinars
  - KT projects
Designing Effective Recommendations

- Identify higher leverage strategies
- System-based
- More effective
- Often used in combination with lower leverage strategies (e.g., education)
Opioid Overdoses

• #1 from 2012-14
  • Opioids (class)
  • HYDROMORPHOMINE (drug)
  • High-alert medications
  • Represents opportunities for better management of opioid overdoses

Naloxone Saves Lives

Opioids constitute a class of high-alert medications whose toxic effects can cause sedation, confusion, and respiratory compromise and can lead to death. Fortunately, an effective and life-saving reversal agent — naloxone — is available. Naloxone temporarily replaces the opioid at the site of action of the drug, countering the toxic effects. With appropriate monitoring, patients known or suspected to be experiencing toxicity can be identified and rescued from the effects of opioid overdose with timely administration of naloxone and the initiation of other medical interventions.

Naloxone has a shorter duration of effect than some opioids, and once it has been metabolized by the body, there is a risk that the pharmacological effects of the opioid will re-emerge, causing harm to occur. Therefore, patients receiving naloxone must be monitored closely for a prolonged period to ensure that any re-emergence of toxic effects is immediately addressed. Further administration of naloxone along with a higher level of care and medical intervention may be required.

Naloxone also antagonizes the opioid’s analgesic effects, potentially inciting severe pain or withdrawal effects. Health care providers must be aware of these attributes and must manage these variables to safely mitigate the toxicity of opioids while maintaining their desired effects. Predefined naloxone protocols can help practitioners to balance conflicting clinical priorities and address the potential for unresponsiveness to appropriate dosing of naloxone because of interpatient use. Such protocols are an important tool for safe opioid management.

Call to Action for Hospitals

Make medication safety a strategic priority:
• Review the availability of specific, naloxone, and rescue agents within the facility generally and in each clinical area.
• Ensure that naloxone, along with appropriate medical directives and protocols for its use, are available to practitioners in all care areas.

Make evidence-based changes to enhance safety:
• Ensure that opioid-related protocols have appropriate monitoring parameters to enhance the identification of opioid toxic effects and include medical directives for the immediate use of naloxone by all front-line practitioners that administer opioids.
• Create specific protocols for the use of naloxone in cases of opioid overdose or toxicity. These rescue protocols should take into account the pharmacological properties of different opioids and the relatively shorter duration of effect of naloxone.

Sustain high-quality practice:
• Conduct mock overdose scenarios to test the use of naloxone protocols.
• Solicit feedback from users of the medical directives and protocols.
• Analyze each episode of naloxone use to evaluate the opioid use that led to the incident.
Learning from Analysis

Include in pain protocols/order sets:

- Patients at risk
- Monitoring
  - Respiratory rate
  - Sedation
- Parameters for triggering naloxone use
Learning from Analysis

Develop and implement a naloxone protocol / rescue directive.

Include:

- Monitoring parameters
- Monitoring duration
- Need to reinstitute naloxone
Fluid Management

Most patients who are receiving inpatient care require fluid and electrolyte management, a process that is often thought of as simple and routine. However, evaluation of fluid status and replacement of fluids are complex activities, and there can be profound clinical consequences for patients if these tasks are not well managed. Fluidal disturbances and pulmonary edema are but a few of the potential adverse sequelae that may develop while managing a patient’s illnesses, concomitant conditions, and requirements for hydration.

Determining an optimal regimen for replacing fluids and electrolytes involves clinical assessment of fluid volume status and measurements of fluid input and fluid loss. Appropriate imaging and laboratory measurement of electrolytes and organ function are also required.

The safe use of replacement fluids and electrolytes requires a respect for the unique needs of each patient. It also demands a systematic approach to assessment, monitoring, and correction of any deficits.

Call to Action for Hospitals

Make fluid-related safety a priority:
- Recognize that the complexity of the processes associated with fluid and electrolyte management is undervalued.
- Ensure that laboratory infrastructure supports timely collection and transportation of samples, and measurement and reporting of electrolytes and other indicators of fluid status.

Make systems-based changes to enhance safety:
- Anticipate procedures or clinical conditions that may require enhanced observation of fluid status, and create standardized protocols and processes to support this heightened awareness.
- Create protocols and order sets for fluid and electrolyte management, ensuring that they include appropriate laboratory testing and monitoring.

Sustain high-quality practice:
- Make the assessment of fluid status a regular part of clinical practice and vitalsign monitoring.
- Ensure that organizations have a robust process that monitors staff competence and compliance in executing protocols/order sets consistently.
**Fluid Management Case**

**Actions**

- Surgery
- Post-surgical bloodwork
- IV fluids stopped
- Repeat bloodwork a few hours later = rapid sodium
- Desmopressin ordered
- Repeat lab results a few hours later = hypernatremia
- Aggressive hydration + desmopressin
- Vomiting, tingling of face and scalp, then confusion and seizures resulting in cerebral edema

**Signs and Symptoms**
Learning from Analysis

- Anticipate procedures or clinical conditions that may require enhanced patient observation
- Develop order sets for fluid and electrolyte management (including monitoring parameters)
Learning from Analysis

Laboratory Infrastructure
• Timely
  • collection and transportation of samples
  • analysis and measurement
  • reporting of all abnormal results back to care team

Education
• Signs and symptoms
• Recognizing seriousness of hyponatremia
• Understanding of rationale behind management
Amphotericin B

Bulletin to be distributed Nov 16 or 17 – picture to come
Amphotericin B

- Amphotericin B (liposomal) 5 mg/kg/day ordered
- Incorrect selection at order entry for regular Amphotericin B at 5 mg/kg/day
- MAR transcription did not include “liposomal”

Chills
- Treatment stopped
- Medications given
- Infusion restarted

Deterioration
- Infusion completed
- ICU admission

Transfer
- Transferred to another facility
- Plasmaphoresis required
Learning from Analysis

- Consider carrying 1 formulation, if clinically appropriate
- Restrict the dispensing of all Amphotericin B products to pharmacy (i.e., no night cupboard, ADCs) with pharmacist check
If 2 Formulations Needed

- Create standardized order sets with the descriptor of the formulation (e.g., liposomal) in front of “Amphotericin B”
- Program infusion pump libraries with hard stops for dose limits
- Evaluate ability of order entry systems to
  - incorporate generic names, preceded by descriptors, and trade names
  - Institute hard stops for does of each formulation
### Critical Incidents by Degree of Harm

<table>
<thead>
<tr>
<th>Year</th>
<th>Deaths</th>
<th>Severe harm</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>4</td>
<td>23</td>
</tr>
<tr>
<td>2013</td>
<td>6</td>
<td>23</td>
</tr>
<tr>
<td>2012</td>
<td>8*</td>
<td>21*</td>
</tr>
</tbody>
</table>

*Proportional contribution from Year 2012*
2014 Analysis Report

- Administration → 12
- Transcribing → 5 (verification and documentation)
- Prescribing → 3
- Preparation/Dispensing → 3
- Monitoring → 2
2014 Analysis Report

- Emergency department ➔ 9
- Surgical area ➔ 4
- Intensive Care Unit ➔ 3
- Medical/Surgical Ward ➔ 3
- Oncology area ➔ 2
- Mental Health area ➔ 2
• Opioids ➔ 9
• Anti-neoplastic ➔ 4
• Anti-coagulant ➔ 2
• Thrombolytic ➔ 2
• Insulin ➔ 0
Systematic approaches to monitoring can detect a patient at risk of opioid toxicity and trigger an appropriate response.

Allergies, weight, co-morbidities, co-prescribed drugs, diet all influence how a drug behaves in a patient. This information needs to influence how we manage drugs in a patient.

The standardization of medication products to ensure consistency and simplification is supported. The use of independent double checks for high-alert medications is recommended.
Webinars

Supporting Medication System Safety and Preparing for Accreditation

Applying New Tools for Home and Community Care and Acute Care

June 23, 2015

Presented with support from Ontario

Demystifying the Critical Incident Reporting Process

October 21, 2015
Increasing Awareness on Social Media

Follow us on Twitter

• @ismanpcanada
• @safemeduse
• @canmedmedrec

Like our Facebook pages

• Medication Reconciliation Network
• SafeMedicationUse.ca
Like us on Facebook

SafeMedicationUse.ca
Help Prevent Harmful Medication Incidents

SafeMedicationUse.ca
Non-Governmental Organization (NGO)

Medication Reconciliation Network Community
OCIL Bulletins and Newsletter

Ontario CRITICAL Incident Learning

Improving quality in patient safety

Safe Pain Control in the Emergency Department

Issue 8
April 2014

 Distributed to:
Chief executive officers
Chief of staff
Board chairs
Quality/patient safety leaders
Directors of pharmacy
Directors of nursing

Suggested action items:
• Refer bulletin to pharmacy and therapeutics committee with a recommendation to examine pain order sets used in the emergency department
• Refer bulletin to nursing leadership committees
• Refer bulletin to chief of staff and medical staff for review of safe prescribing practices
• Circulate bulletin to physicians and other front-line staff
• Use bulletin as an educational resource in your hospital’s safety huddles or rounds

Sharing Insulin Pens is a High-Risk Practice

Insulin pens are injection devices that are designed to help patients administer their own insulin with greater ease, convenience, and accuracy relative to the traditional insulin vial, needle, and syringe. These advantages have led to a rise in the popularity of insulin pens in facilities, which has been paralleled by an increase in concerns about the high-risk practice of sharing insulin pens between different patients. Since insulin cartridges and reservoirs can be contaminated with blood and other biological material after their first use, sharing insulin pens carries the potential for transmission of blood borne pathogen(s) such as HIV, hepatitis A, B, hepatitis C.

ISMP Canada, with support from the Ontario Ministry of Health and Long-Term Care, led a knowledge translation project to develop evidence-based interventions and measures promoting the safe use of these devices. A key recommendation developed is the “Safe Use of Insulin Pens” learning module. The module is intended to help healthcare providers recognize the advantages and disadvantages of insulin pens, understand the risks associated with the use of these devices, and develop best practice administration techniques while learning to use insulin pens safely.

Call to Action for Hospitals

Make system-based changes to ensure insulin pens are used safely:
- Prohibit the sharing of insulin pens between patients
- Dispense insulin pens with cartridges already inserted
- Label insulin pens with pharmacy-issued, patient-specific labels for single patients only.
- Place patient-specific labels on the barrel of the insulin pen, not on the cap
- Use insulin cartridges only with an insulin pen. Do not use a needle and syringe to withdraw insulin from a cartridge.
- Use educational tools such as the ISMP Canada e-learning module, along with hands-on training to educate health care providers on the potential risks associated with using these devices, as well as best practice techniques.

Sustain high-quality practices:
- Ensure that staff members have access to relevant information about best practice techniques and potential risks of insulin pens at all points of care.
- Reinforce safe insulin practices by providing education on an ongoing basis.
- Perform regular audits to assess compliance with best practice administration techniques and recommended labelling practices and provide feedback to staff by sharing audit results.
- Actively seek feedback from insulin pen users as part of continuous quality assessment.
- Report medication incidents related to insulin pens internally to patient safety organizations (e.g., ISMP Canada).
- Develop a long-term medication safety plan that uses high leverage risk reduction strategies to ensure that insulin products are not shared amongst multiple patients.

Ontario CRITICAL Incident Learning

Improving quality in patient safety

Naloxone Saves Lives

Issue 10
September 2014

 Distributed to:
Chief executive officers
Chief of staff
Board chairs
Quality/patient safety leaders
Directors of pharmacy
Directors of nursing

Suggested action items:
• Refer bulletin to pharmacy and therapeutics committee with a recommendation to evaluate naloxone availability and usage as well as expanding naloxone protocols
• Refer bulletin to nursing leadership and practice committees suggesting review of in-patient monitoring practices to ensure that appropriate triggers are identified for naloxone use
• Refer bulletin to interdisciplinary safety committee with a recommendation to review the frequency of incidents where naloxone was used
• Use bulletin as an educational resource in your hospital’s safety huddles or rounds

Ontario CRITICAL Incident Learning

Improving quality in patient safety

Multiple IV Infusions: Risks and Recommendations

Despite growing awareness of the factors that lead to errors in programming a single intravenous (IV) infusion, internal research that has been conducted into the errors that can result from administering multiple IV infusions to a single patient (Figure 1). The use of multiple IV infusions is common and, with the complexity of the processes involved in managing these infusions, contributes to the risk for medication errors. The Ontario Critical Incident Learning program recognizes the challenges that front-line practitioners face in managing multiple IV infusions and is presenting these issues.

Over the coming years, improvements in the design of infusion pumps are necessary for practitioners involved in administering multiple infusions to individual patients. However, once the current barriers to successful administration of targeted strategies can be overcome, patients would benefit from reduced risk. The following is based on a report by Namprasert et al. titled “Managing multiple IV infusions: emerging strategies to reduce errors.”

Identifying IV Infusions:
A nurse receives an injection pump administering an IV solution, requests it to review administering a patient’s medication, and asks for the patient’s IV access line to check for the medication before administering it. The patient in question, however, received an insulin infusion on the correct patient’s IV access line to check for the medication before administer it. The patient in question, however, received an insulin infusion on the correct patient’s IV access line.

ISMP Canada, with support from the Ontario Ministry of Health and Long-Term Care, led a knowledge translation project to develop evidence-based interventions and measures promoting the safe use of insulin pens. A key recommendation developed is the “Safe Use of Insulin Pens” learning module. The module is intended to help healthcare providers recognize the advantages and disadvantages of insulin pens, understand the risks associated with the use of these devices, and develop best practice administration techniques while learning to use insulin pens safely.

Call to Action for Hospitals

Make system-based changes to ensure insulin pens are used safely:
- Prohibit the sharing of insulin pens between patients
- Dispense insulin pens with cartridges already inserted
- Label insulin pens with pharmacy-issued, patient-specific labels for single patients only.
- Place patient-specific labels on the barrel of the insulin pen, not on the cap
- Use insulin cartridges only with an insulin pen. Do not use a needle and syringe to withdraw insulin from a cartridge.
- Use educational tools such as the ISMP Canada e-learning module, along with hands-on training to educate health care providers on the potential risks associated with using these devices, as well as best practice techniques.

Sustain high-quality practices:
- Ensure that staff members have access to relevant information about best practice techniques and potential risks of insulin pens at all points of care.
- Reinforce safe insulin practices by providing education on an ongoing basis.
- Perform regular audits to assess compliance with best practice administration techniques and recommended labelling practices and provide feedback to staff by sharing audit results.
- Actively seek feedback from insulin pen users as part of continuous quality assessment.
- Report medication incidents related to insulin pens internally to patient safety organizations (e.g., ISMP Canada).
- Develop a long-term medication safety plan that uses high leverage risk reduction strategies to ensure that insulin products are not shared amongst multiple patients.

ISMP Institute for Safe Medication Practices Canada
www.ismp.ca
1-866-541-5787
info@ismp.ca

©2015 Institute for Safe Medication Practices Canada (ISMP Canada)
You can advance medication safety in Ontario...

by encouraging reporting and analysis.