Medication Safety Issues During COVID-19

CACCN
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CEO
Learning Objectives

Participants will:

• Understand the role and key activities of the Institute for Safe Medication Practices Canada (ISMP Canada);

• Describe how medication errors are a significant risk to patients and 3 reasons why;

• Identify the emerging factors that can contribute to pandemic-related medication safety issues/errors;

• Understand how to take action to proactively prevent these errors; and,

• Integrate information and strategies into practice.
ISMP Canada is an independent not-for-profit organization dedicated to reducing preventable harm from medications

**Our Vision:** Zero preventable harm from medications

**Our Mission:** To identify risks in medication use systems, recommend optimal system safeguards, and advocate for safe medication practices
ISMP Canada, a key partner in the CMIRPS program together with Health Canada, Canadian Institute for Health Information, Canadian Patient Safety Institute, and Patients for Patient Safety Canada.

ISMP Canada receives funding from Health Canada to support our role in CMIRPS.
We encourage you to report medication incidents

Practitioner Reporting

www.ismp-canada.org/err_report.htm

Consumer Reporting

www.safemedicationuse.ca/
Foundational Principles – Errors in healthcare

• Errors occur at all levels of healthcare.

• Anyone, even the most experienced and dedicated professionals, can be involved in a medication error.

• Errors result from a sequence of events and tend to fall in recurrent patterns regardless of the personnel involved.
The Landmark Canadian Study: Baker-Norton 2004

- 3745 charts reviewed from 5 provinces
- 360 adverse events identified in 255 patients
- 24% of adverse events were related to medication or fluid administration
- 37% of adverse events were determined to be preventable

  - Extrapolation:
    - This study identified that 7.5% (~187,500) patients in Canadian hospitals experienced adverse events as a result of their care.
    - The deaths, as a result of medical errors, of as many as 9,250 to 23,750 people in Canadian hospitals were preventable.

April 2012 feature article: https://thewalrus.ca/the-errors-of-their-ways/
In which stage of the medication use process do you think medication errors occur most often?

1. Prescribing?
2. Order processing?
3. Dispensing?
4. Administration?
Errors During Stages in the Medication Use Process
(2 US hospitals, 1993)

Preventable ADEs
- Prescribing: 47%
- Transcribing: 2%
- Dispensing: 5%
- Administering: 46%

Intercepted Potential ADEs
- Prescribing: 69%
- Transcribing: 14%
- Dispensing: 14%
- Administering: 2%

Errors
- Prescribing: 39%
- Transcribing: 12%
- Dispensing: 11%
- Administering: 38%

Errors During Stages in the Medication Use Process
(All care settings, England 2017-2018)

Severe Harm
- Prescribing: 10.7%
- Transitioning: 0.7%
- Dispensing: 5.4%
- Administering: 4%
- Monitoring: 5%

Moderate Harm
- Prescribing: 0.5%
- Transitioning: <0.01%
- Dispensing: 0.2%
- Administering: 0.2%
- Monitoring: 1.1%

Errors
- Prescribing: 21.3%
- Transitioning: 1.4%
- Dispensing: 15.9%
- Administering: 54.4%
- Monitoring: 7%

The Pharmaceutical Journal. 2019 (Feb);302(7922).
Why do errors happen?

• Expect healthcare professional to function perfectly...but imperfect system
Risks - IV Medications
Risks – IV Medications

ISMP Canada Multi-incident Analysis
Safety Bulletin
Volume 20, Issue 7
July, 2020

Reported medication incidents from 2015 to 2018 (n = 1583) involving IV medications – frequency of reports by type of incident/problem (top four)

• Dose omission
• Incorrect dose
• Incorrect drug
• Incorrect route
Risks – IV Medications

ISMP Canada Multi-incident Analysis
Safety Bulletin
Volume 20, Issue 7
July, 2020

Table 1. Top 10 medications most frequently reported to be involved in IV medication incidents

<table>
<thead>
<tr>
<th>Medication Name (Common Name)</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>piperacillin/tazobactam</td>
<td>9.7%</td>
</tr>
<tr>
<td>vancomycin</td>
<td>8.8%</td>
</tr>
<tr>
<td>cefazolin</td>
<td>7.4%</td>
</tr>
<tr>
<td>morphine</td>
<td>6.8%</td>
</tr>
<tr>
<td>heparin</td>
<td>6.8%</td>
</tr>
<tr>
<td>ceftriaxone</td>
<td>5.5%</td>
</tr>
<tr>
<td>hydromorphone</td>
<td>5.2%</td>
</tr>
<tr>
<td>furosemide</td>
<td>3.9%</td>
</tr>
<tr>
<td>pantoprazole</td>
<td>3.2%</td>
</tr>
<tr>
<td>metronidazole</td>
<td>2.5%</td>
</tr>
</tbody>
</table>

Figure 1. Top 5 medications most frequently reported to be involved in IV medication incidents causing harm

- Morphine
- Heparin
- Hydromorphone
- Piperacillin/tazobactam
- Vancomycin
Errors in **setting up and programming dose and/or rate** of administration of medications (including high alert meds)

Errors related to **setting up and using various types of tubing and filters**, including secondary intermittent IV infusions

- ISMP Canada Analysis
- Ontario Health Technology Assessment Series (Multiple Intravenous Infusions); Vol. 14: No. 5, pp. 1–163, May 2014
IV Pump Errors

Errors in **overdosing or underdosing** related to high concentration medications diluted in a low volume (usually 100 mL or less) administered intermittently.

Errors when **dead volume in tubing not considered** for administering IV syringe doses, titrating IV medications, or monitoring/taking action when an adverse reaction occurs.

- ISMP Canada Analysis
- Ontario Health Technology Assessment Series (Multiple Intravenous Infusions); Vol. 14: No. 5, pp. 1–163, May 2014
Taking effective action to improve patient safety

COVID-19 Med Safety Issues

Learning from Practitioner Reports and Other Sources
Report
• IV push of hydromorphone
• Blood pressure

• Pushed into a line dedicated for norepinephrine
• IV pumps located outside patient room
Risks – Extended Tubing

Risks associated with moving IV pumps into hallway to reduce PPE use during COVID-19

- Incorrect patient (action - additional pt band taped to inside of glass door for scanning)
- Incorrect medication (action - all meds scanned in addition to patient band with 2 nurse independent check when initiating or adjusting high alert meds)

Relocating IV Pumps for Critically Ill Isolated Coronavirus Disease 2019 Patients From Bedside to Outside the Patient Room (nih.gov)
Risks – Extended Tubing

- Requires increase volume of drug or carrier fluid which may delay med delivery and patient response
- Possible increased waste of medications during a time of potential shortages
- IV line resistance and impact on rate accuracy
- “Alert fatigue” when infusing at high rates
- Possible delayed alarms when infusing at very low rates
- Possible increased risk of infections (tubing hanging down or inadvertently on floor)
- Risk of tripping staff

Risks – Extended Tubing

Recent reports from ECRI (US based patient safety organization) and ISMP (US)

- Decision to use extended IV sets for hallway infusion need to be carefully considered at each facility due to risks
- Either microbore or macrobore extension sets (in series and access ports protected with caps)
- ECRI tested major large-volume infusion pumps with 20 feet microbore tubing with acceptable pump performance with rates between 5 to 300 mL/hr

ECRI Report, 04/01/2020 (see also free online video)
ECRI_COVID-19_Alert_S0392.pdf

ISMP Report, 04/03/2020
Clinical Experiences Keeping Infusion Pumps Outside the Room for Patients | Institute For Safe Medication Practices (ismp.org)
Make it easier to do the right thing with IVs in clinical practice

- Ensure independent double checks are at key and high risk points of selection and administration (automate where possible)

- Minimize variability by standardizing concentrations and dose strengths to the minimum needed to provide safe care (try to obtain prepared solutions from manufacturers and/or onsite pharmacy)

- Label admixed bags with critical and useful information – in order of workflow/programming – no extra info and test with end users!

- Differentiate IV and epidural infusions...do not use multi-channel pumps for simultaneous administration of IV and epidural infusions

- Immediately stop and discard all discontinued infusions
Make it easier to do the right thing with IVs in clinical practice

- Continue to leverage technology through dose error reduction software (DERS)
- Identify and implement evidence-informed drug libraries – build consensus with clinicians to limit options to the lowest number needed for safe care – incorporate hard dosing limits, warnings, and TALLman lettering
- As capability and capacity develop – spread the use of barcoding and implement interoperability between electronic health record and IV pumps
- Mind the drip!
Critical Care – Drug shortages

Potential shortage of Propofol 1% (50mL and 100 mL)

Import of new concentration - Propofol 2% (100 mL)

Key risk – healthcare providers in Canada have never had access to Propofol 2% before

**ALERT!**
A 2-fold overdose of propofol can result in hemodynamic instability, cardiovascular collapse, and death.
Figure 1. Propofol 2% 100 mL product imported from Europe under a Health Canada Interim Order (photograph courtesy of Fresenius Kabi Canada). ISMP Canada Safety Bulletin, May 2020

Safety Considerations
(examples only, see Bulletin for complete list)

✓ Develop an interprofessional team to assess the risks and develop local strategies to address them
✓ Designate where the new concentration will be used and how (consider pt transfers)
✓ Consider and implement changes to electronic procurement and dispensing systems (such as alerts)
✓ Update order sets, protocols and policies
Critical Care – New Concentration Propofol

Safety Considerations
(examples only, see Bulletin for complete list)

✓ Update all pump libraries, including optimization of the drug error reduction software and alerts

✓ Consider adding an auxiliary warning label to the 2% product

✓ Develop an education and communication plan, including unit-based safety huddles

Figure 2.
Example of a clinical advisory alert for infusion pump library (courtesy of Sinai Health).

ISMP Canada Safety Bulletin, May 2020
Learning from Consumer Reports Related to COVID-19
Hand Sanitizers that Look Like Drinks
Consumer Alert

ISMP Canada Safety Bulletin

Volume 20 · Issue 3 · May 1, 2020

ALERT: Hand Sanitizers That Look Like Drinks

In this time of shortages across the country, many companies have taken up the call to manufacture hand sanitizers, so there is greater access to these products. There is a risk that hand sanitizer will be swallowed by accident by an adult or child when it is provided in containers that are usually used for drinks such as soda, water, and alcoholic beverages.

INCIDENT

ISMP Canada received a recent report from a concerned consumer about a hand sanitizer (Figure 1) being sold in a grocery store. He picked up a bottle thinking it contained a drink but soon realized it was hand sanitizer. The consumer shared that the product inside the bottle was a liquid, not a gel—it looked just like water. He was concerned that the product would be mistaken for water and ingested.

in their ability to create or find appropriate packaging. For example, the manufacturer of the product in Figure 1 has reported difficulty in obtaining bottles normally used for household products. Instead, the manufacturer is distributing its hand sanitizer in 2-litre bottles (as shown) and 500-mL containers commonly used for drinks like soda and water. Others are using containers that are already available in their pre-pandemic production processes, such as wine and liquor bottles (Figures 2 and 3). In some cases, the labels and branding are similar to known alcoholic beverages, possibly increasing the risk of accidental poisoning.

Another potential concern is the reduced ability for consumers to recognize that the product is not intended for drinking because of its taste. Most hand sanitizers contain alcohol that has been deliberately
How to Prepare for a Virtual Meeting with Your Health Care Provider

During the COVID-19 pandemic, many health care providers have started speaking with patients by phone or video call, instead of having in-person appointments. Even hospital staff are starting to use technology to communicate with their patients. They are doing this as a way to maintain physical distancing, because the virus can easily be spread from one person to another.

If you have an appointment for a “virtual meeting” it’s important for you to be prepared. Before the meeting, collect the following information:

• Your symptoms and what you are worried about.
• Ongoing health issues, including pre-existing conditions (for example, diabetes or heart disease).
• Allergies to medications, foods, or environmental factors.
Thank you!

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A Key Partner in the Canadian Medication Incident Reporting and Prevention System