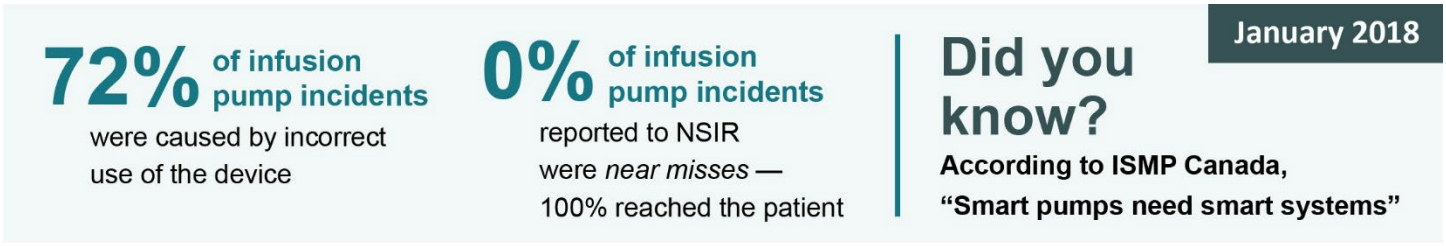

National System for Incident Reporting

NSIR

Canadian Institute for Health Information
Institut canadien d'information sur la santé

Collect. Analyze. Share. Learn.

Welcome to the electronic bulletin for the National System for Incident Reporting (NSIR). In our efforts to keep you informed, we highlight recent program developments, preview ongoing projects and feature key topics to support data quality and continuous learning from incident data.

If you are having difficulty viewing this email, please see the attached PDF version.

Inside this issue

Highlights

NSIR eBulletins now available on cihi.ca

The quarterly NSIR eBulletin will now be available on CIHI's Bulletins and Technical News page with the option for sharing (e.g., Facebook, Twitter). All eBulletins from 2017 are posted now!

We will continue to share the NSIR eBulletin with our registered users by email. If you would like to be added to the distribution list, please send a request to nsir@cihi.ca.

Analytical tool update

In response to user requests, we have added “Submitted Date” as an optional filter in the analytical tool. Use the filter to create reports that include only data submitted between specific start and stop submit dates.

ISMP Med Safety Exchange webinar series

ISMP has developed an online webinar series for sharing and learning from medication incident data analyses with the hope of increasing participants’ awareness of key findings and recommendations from incident data. This increased knowledge and awareness will inform system improvements within each health care setting. Additionally, participation in the Med Safety Exchange will validate the benefits of error reporting in optimizing patients’ medication safety, thereby promoting the reporting systems themselves.

At the Med Safety Exchange webinar on November 8, 2017, CIHI presented an overview of NSIR and reviewed incident data related to morphine and insulin. A recording of this webinar is available now.

For more information on this series, please visit ISMP Canada — Med Safety Exchange.

WHO's Global Patient Safety Challenge: Medication Without Harm

The World Health Organization (WHO) has identified Medication Without Harm as the theme for its third Global Patient Safety Challenge. The Challenge will propose solutions to address many of the obstacles the world faces today to ensure the safety of medication practices. The goal is to gain worldwide commitment and action to reduce severe, avoidable medication-related harm by 50% in the next 5 years, specifically by addressing harm resulting from errors or unsafe practices due to weaknesses in health systems. The Challenge aims to make improvements at each stage of the medication process, including prescribing, dispensing, administering, monitoring and use.

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As the Canadian coordinating body, the Canadian Patient Safety Institute will be participating in the third Global Patient Safety Challenge on medication safety. The Canadian Patient Safety Institute is a member of the WHO Patients and Public Working Group and provides expertise and support to the global medication safety challenge.

For more information on this initiative, visit WHO Patient Safety.

NSIR-RT update

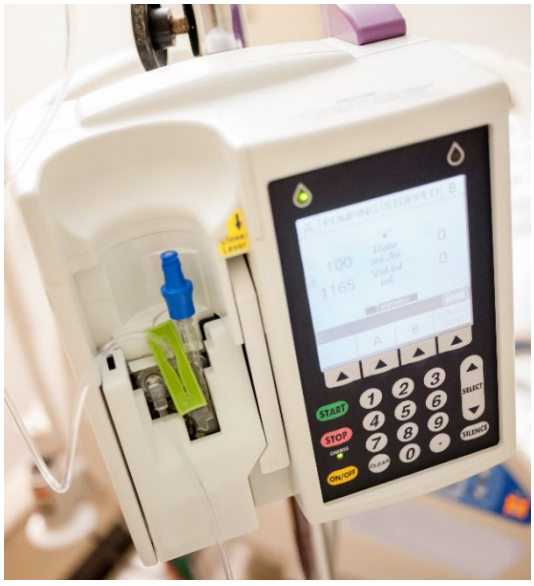
Canadian Partnership for Quality in Radiotherapy (CPQR) Learning Series: CPQR has organized a 7-part learning series on incident investigation. Registration is full for the first series of courses but it will be offered again. To find out about the next start date for this series, join the mailing list or contact Erika Brown, executive director of the CPQR.

NSIR-RT Advisory Committee: The first meeting of the National System for Incident Reporting — Radiation Treatment (NSIR-RT) Advisory Committee is scheduled for February 2018. The committee will

- Provide expert guidance on trend analysis and dissemination
- Identify taxonomy revisions and NSIR-RT system functionality needs
- Identify high-alert incidents for pan-Canadian alert distribution

Reporting and learning

Infusion pump incidents: A closer look inside NSIR data



Medication incidents involving pumps have been the focus of safety bulletins from NSIR partners. Health Canada's earlier work has focused on pump safety design, staff education and training.[i] Similarly, ISMP Canada released its recommendations on policy development for conducting independent double checks with selected high-risk processes and high-alert drugs (e.g., administration of patient-controlled analgesia [PCA]).[ii] It also provided expert advice on tools that will help encourage and facilitate double checks, and on how best to teach staff and highlight the importance of implementing human factors engineering principles in these solutions.

Recently, smart pumps have become more commonplace in acute care settings. Saskatchewan has recently implemented a provincial program to place approximately 3,000 new IV pumps in health care facilities.[iii] These smart IV pumps contain a pre-programmed standard drug library with safety dosing limits as recommended in ISMP Canada's recent critical-incident learning bulletin entitled Smart pumps need smart systems.[iv]

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i. Government of Canada. Recalls and safety alerts: Notice to hospitals about Infusion pumps. April 16, 2004.
ii. ISMP Canada. Lowering the risk of medication errors: Independent double checks. January 2005.
iii. 3sHealth. New "smart" IV pumps will improve patient safety across the province. February 2016.
iv. ISMP Canada. Smart pumps need smart systems. *Ontario Critical Incident Learning*. February 2014.

Infusion pump incidents reported to NSIR

There are a total of 830 medication incidents submitted to NSIR where infusion pump issues have been identified as a contributing factor.

The majority (72%) of incidents reported were due to a performance factor that led to the incorrect use of the infusion pump, which usually resulted in the wrong rate/frequency being delivered to the patient (51%).

Other incidents were due to an equipment-related issue that caused the infusion pump to malfunction (17%), which most often resulted in an omitted dose or the wrong quantity of drug product being administered (61%).

Also, the actual design of the infusion pump product was reported to contribute to some incidents (11%). The majority of the reporters for these incidents did not identify the specific problem type and selected *Other* (79%).

Patient harm due to infusion pump incidents

All infusion pump incidents reported to NSIR reached the patient; none were reported as *Reportable Circumstance* (i.e., hazard) or *Near Misses* (13% of NSIR incidents overall are classified as *Near Misses* and 1% are *Reportable Circumstance*). Although the majority of pump-related incidents do not cause any harm (77%), almost 1 in 10 (9%) resulted in moderate harm, severe harm or death.

Infusion pump incident drug products

Anti-infectives accounted for the largest proportion of the infusion pump incidents (25%), but these incidents rarely resulted in harm.

The drug products most often involved in harmful infusion pump–related incidents were high-alert drugs. High-alert drugs commonly involved were anticoagulants (16%) and IV solution additives such as potassium chloride (12%). Opioids (9%) and insulin (3%) were also reported, with opioids being the drug class most often involved in the critical incidents that resulted in serious harm or death.

ISMP Canada has published a bulletin alerting health care providers on the extra precautions required with high-alert drugs and infusion pump incidents.[v] The bulletin repeats ISMP Canada's recommendations for an independent double check, proper training, tool design and policy development.

Case scenarios

Incorrect use of infusion pump

A patient was administered 13 mg morphine IV for pain over 2.5 hours with minimal effect. The physician then ordered 3 mg/hr Dilaudid IV. 15 minutes after initiation of the administration of Dilaudid, the patient was rechecked. The patient was found without respiration, with no response to sternal rub stimuli and no peripheral pulse detected. A code was called. It was found that 6mg of Dilaudid was infused because the incorrect rate had been programmed into the IV infusion pump. Normal saline bolus was then initiated and a Narcan IV administered twice. The patient's respiration returned and vital signs normalized.

v. ISMP Canada. High alert drugs and infusion pumps: Extra precautions required. *ISMP Canada Safety Bulletin*. April 2004.

Infusion pump malfunction

20 mmol of potassium chloride (KCL) was ordered and administered to a patient. The IV bag was infusing peripherally on the patient's secondary line on concurrent mode with normal saline. The infusion was rechecked approximately 2 hours later. The infusion pump readout had cleared due to a technical issue with the pump, and the KCL was not infusing. The hospital staff was only able to estimate the quantity of KCL that had been infused.

Infusion pump design

An IV pump running Levophed shut off prematurely because its battery was depleted. The patient became hypotensive and suffered cardiac arrest. After several minutes of CPR, the patient recovered to baseline. After review of the incident, it was clear that the volume of the battery alarm was too low and not audible among the other equipment noises in the ICU. Also, it was not visually obvious when the Levophed was initiated that the pump was running on a low battery.

For more information on infusion pumps, check out these ISMP Canada bulletins:

- Smart pumps need smart systems
- Lowering the risk of medication errors: Independent double checks
- High alert drugs and infusion pumps: Extra precautions required
- Infusion pumps: Opportunities for improvement

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Data quality: Coding harm with omitted doses

A patient was not administered her 0930 scheduled dose of Dilaudid 2 mg. The omission was discovered at 1330, when the next scheduled dose was due. The patient reported experiencing increased pain because of the missed dose.

Did the medication omission result in harm to the patient?

The narcotic omission example above did cause harm (the patient experienced increased pain), yet there are comparable cases in NSIR that were reported as no-harm incidents. The definitions for harmful incidents (mild, moderate or severe) include the phrase "outcome is symptomatic." This is the guide to deciding whether the patient was harmed at some level. When a patient does not receive a scheduled medication, consider the effect of the omission on the patient. Omissions can affect patients negatively just as giving the wrong drug or too much of a medication can.

What if the patient does not experience any overt symptoms?

It is possible that the patient can be unaware of the affects of an incident, yet there are measures that indicate that a patient was affected. Missing a dose of insulin may result in increased blood sugar levels, and a missed anti-hypertensive can result in an elevated blood pressure. In both examples, the patient may not notice the change, yet there is still a measurable effect on the patient. Mild harm is the correct *Degree of Harm* value for these incidents.

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ISMP Canada's recent alerts and safety bulletins

- Medication incident data in Canada: A strategy for more effective sharing and learning
- Sink or swim? Helping patients and practitioners to understand opioid potencies and overdose risk
- The second victim: Sharing the journey toward healing

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Additional information

Conferences of interest

Canadian Society of Hospital Pharmacists' Professional Practice Conference (PPC) 2018
(February 3 to 7, 2018)
This annual conference offers hospital pharmacists, from across the country, learning and networking opportunities with their colleagues and corporate supporters.

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Contact us

Unless otherwise stated, NSIR findings reported in this eBulletin are based on the voluntary reporting of medication incidents at participating health care facilities across Canada from 2008 to the present.

Thank you for taking the time to read the eBulletin for the National System for Incident Reporting (NSIR). The NSIR eBulletin is distributed quarterly. If there is anything you would like to see featured in an upcoming edition, please contact us at nsir@cihi.ca.

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