



NSIR is developing
system-to-system
RT incident uploading.

Ask us about
FHIR!

Winter 2019

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 quarterly National System for Incident Reporting (NSIR) electronic bulletin. This is where you can find information on medication and radiation treatment incident reporting and analysis for sharing and learning across Canada.

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

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Highlights

Technology and patient safety

In 2010, Apple had just released its first iPad. It was described as revolutionary. Since then, technology has continued to grow exponentially in innovative ways, creating demand for more products and services we didn't know we wanted.

That same year, NSIR was launched to collect medication incidents from Canadian health care facilities. Since then, facilities have evolved their care delivery models with new technology, moving from paper-based processes to computer-based systems with customizable software applications.

The introduction of new technologies in health care facilities is happening across Canada. A recent PricewaterhouseCoopers (PwC) survey of hospital CEOs found that 86% expect that technology will reshape their industry in 5 years.¹

Technology continues to present innovative solutions to systemic patient safety issues. The computerization of existing manual systems is a key component of strategies to identify and prevent potential incidents.

The collection of better data on technology-related medication incidents is critical to understanding its impact on safe health care delivery.

Information technology devices and systems

The following devices and software systems have been designed for medication-use processes in health care facilities. They can play an important role in preventing medication incidents, but they also have the potential to cause unanticipated errors.

Smart pumps

Smart pumps are computerized infusion pumps that include dose calculation software that identifies and corrects pump-programming errors. These devices contain a library of pre-programmed standard dose concentrations and provide alerts if upper- and lower-dose limits are exceeded.²

Reduce the risk of potential incidents:³

- Perform regular updates and audits of the pump drug database
- Always attend to alerts (do not override alerts)

Automated dispensing cabinets

Automated dispensing cabinets (ADCs) are storage devices located outside pharmacies that use computerized systems to electronically dispense medications and track supplies. They are usually simple to operate and have a real-time interface with the pharmacy information system. Advanced systems may also include bar-coded technology as an additional safety barrier.⁴

Reduce the risk of potential incidents:

- Avoid the override function and ensure a pharmacist reviews
- Maintain that high-risk drugs receive required vigilance
- Require independent double-checks for restocking and administration⁵

Bar-coded technology

Bar code verification systems can be used on medical devices, supplies, room locations, patients, staff members, medication containers or individual patient doses. Bar code scanners are linked to databases that may in turn be linked to other health information systems (e.g., electronic medication administration record, order entry system, pharmacy database) and provide a confirmation signal or alert if there is not a match.⁶

Reduce the risk of potential incidents:

- Focus objectives on tracking drug products through the supply chain to the patient. Do not introduce system-imposed performance pressure (e.g., response time metrics used to evaluate poor performance) or technology-imposed, time-wasting measures (e.g., deleting orders if they are not completed within a specific time period).⁵

Computerized physician order entry

Computerized physician order entry (CPOE) systems allow for the direct entry of orders by a physician or other health care provider, thereby eliminating the need for handwritten orders. These systems are particularly useful in the prevention of incidents when combined with clinical decision-support tools.⁵

Reduce the risk of potential incidents:

- Update drug product information regularly
- Ensure order checking from pharmacy
- Integrate pharmacy and lab results⁷

Electronic medication administration record

Electronic medication administration record (eMAR) systems automate the scheduling and documentation of medication administration. These systems are effective when designed to fit with the workflow of the staff and produce printouts/displays that clearly present relevant medication details.

Reduce the risk of potential incidents:⁸

- Ensure that key information about the medication and dose are apparent and clearly presented
- Ensure that the eMAR system fits with the workflow of the facility

Collecting technology-related incidents for sharing and learning in NSIR

What information should we share when submitting technology-related incidents in NSIR?

Just like with all reporting, the NSIR minimum data set is designed to capture the who, what, where and why of the incident details using codified data elements like Problem and Process. Also, the data element Contributing Factors can help identify possible causes of the incident and be particularly informative for other users.

Examples include

- Incorrect use of infusion pump, infusion pump malfunction and infusion pump design
- Automated dispensing system
- Quality control: double/independent check processes
- Computer/fax equipment — hardware, software, network failure
- Electronic documentation — incomplete, incorrect or inaccessible
- CPOE

What other information is helpful to share?

The story is key to sharing incident data. Please provide the details of the incident in the incident description field to provide context for other NSIR users.

Here are some incident details that would be important to include in the text field description:

- The specific type of device/hardware or software system
 - Tell other NSIR users what kind of device or IT system was involved in the incident (e.g., patient bar code, computer-assisted medical transcription dictation).
- Keywords regarding contributing factors, such as
 - Inadequate human factors design
 - Inadequate maintenance
 - Inadequate technical support
 - Misuse of equipment
 - Overreliance on technology (reduced clinical judgment)
- Information about the impact of safety barriers that either prevented, or failed to prevent, the incident
- Lessons learned and recommendations that were developed at your facility
 - Include details on how new policies/procedures were implemented.

More information on technology

[Understanding Human Over-Reliance on Technology](#)

Sharing and learning

ISMP Canada's recent alerts and safety bulletins

[Design of eMAR Systems With End-Users in Mind: Learning From a Fatal Incident in Long-Term Care](#)

[Do Not Use a Syringe for a Topical Product — A Focus on Chlorhexidine Disinfectant Solutions](#)

[Electronic Prescribing in Primary Care: Effects on Medication Safety](#)

[Preventable Tragedies: Two Pediatric Deaths Due to Intravenous Administration of Concentrated Electrolytes](#)

Did you know? Your CIHI user profile can expire

To keep the system current, CIHI's Help Desk sends out a notice to users who have not logged in to their CIHI profile in 18 months. The email notice will prompt users to log in to their profile.

If you receive this email, simply log in to your CIHI profile and it will remain active! If you do not log in within 14 days, your profile will be deactivated. After 21 days, it will be deleted from the system, and if you require access in the future, you will need to create a new profile and request access to NSIR (and your other services) again.

If you have any questions about the process, please let us know at nsir@cihi.ca or help@cihi.ca.

Happy reporting!

Share the NSIR eBulletin!

The most recent year's NSIR eBulletins are available on the [NSIR web page](#). If someone in your organization or network would be interested in reading these editions, please forward your eBulletin email or send them the link above. If they want to receive our quarterly NSIR eBulletin straight to their inbox, ask them to subscribe by sending an email to nsir@cihi.ca!

The graphic features a dark grey header on the left with the text 'National System for Incident Reporting'. To its right is a large orange banner with 'NSIR' in white. On the far right is the CIHI logo and name in both English and French. Below the header, the graphic is divided into three horizontal sections. The top section, labeled 'Winter 2018', contains two statistics: '72% of infusion pump incidents were caused by incorrect use of the device' and '0% of infusion pump incidents reported to NSIR were near misses — 100% reached the patient'. It also includes a 'Did you know?' box with a quote from ISMP Canada: 'Smart pumps need smart systems'. The middle section, labeled 'Spring 2018', features a 'Thank you' message and states 'More than 50,000 medication incidents are being shared in NSIR.' The bottom section, labeled 'Fall 2018', contains a quote: 'When healthcare providers work closely with patients and their families, we can achieve great things.' A small laptop icon is visible on the left side of the graphic.

NSIR-RT

Advances in understanding brachytherapy-related incidents, from CPQR

The [Canadian Partnership for Quality Radiotherapy](#) (CPQR) publishes a quarterly bulletin. The [winter 2019 issue](#) includes information about advances in understanding brachytherapy-related incidents, a case study titled “Commissioning and Configuring Checks of Software Systems by a Second Medical Physicist” and much more!

The bulletins support continuous learning from incident data through the presentation of data trends and case studies. They also provide NSIR-RT system users with information on program developments and enhancements.

System-to-system data transfer

CIHI has recently developed capacity for direct system-to-system transfer of radiation treatment (RT) incident data using the Fast Healthcare Interoperability Resources (FHIR) standard and hopes to expand this capability to include medication incidents in the future. 3 organizations have already expressed interest or initiated work on implementation.

If your organization is interested in learning more about system-to-system data transfer using the FHIR standard, please email nsir@cihi.ca.

System updates

In November, CIHI updated the system to reflect changes to the data standard based on feedback received during the pilot. In July 2017, initial changes were made to key data elements — Process Step Where Incident Occurred, Process Step Where Incident Was Detected, Problem Type and Contributing Factors. Label changes, the addition of new values and the discontinuation of values across a number of data elements were implemented in late October. Details of these changes can be found on the [CPQR website](#).

Additional information

Upcoming conferences and learning



[Professional Practice Conference 2019](#)

February 2 to 5, 2019

The 50th Canadian Society of Hospital Pharmacists' Professional Practice Conference will be held at the Hilton Toronto (Downtown) in Toronto, Ontario. This annual conference offers hospital pharmacists from across the country the opportunity to learn and network with their colleagues and corporate supporters.

CIHI will have a booth at the conference, staffed with NSIR team members. Be sure to stop by and say hello!

[ISMP Canada Med Safety Exchange webinar series](#)

March 27, 2019

Join your colleagues across Canada for ISMP Canada's complimentary bimonthly 50-minute webinars, where they share, learn and discuss incident reports, as well as trends and emerging issues in medication safety.

To register and for more information on this series, please visit [ISMP Canada — Med Safety Exchange](#).

Recent CIHI releases

[Prescribed Drug Spending in Canada, 2018: A Focus on Public Drug Programs](#)

November 20, 2018

Take an in-depth look at prescribed drug spending in Canada and learn more about how different drug classes contribute to current trends in total public drug spending.

[Opioid-Related Harms in Canada](#)

December 12, 2018

Canada is in the midst of an opioid crisis. A new CIHI analysis shows that hospitalization rates for opioid poisoning continue to increase across Canada. Communities with populations between 50,000 and 99,999 are hardest hit, experiencing the highest per capita hospitalization rates in the country.

[Health Workforce Database metadata](#)

January 17, 2019

The Health Workforce Database contains information on 30 groups of health care professionals in Canada.

Contact us



Thank you for taking the time to read the NSIR eBulletin. Unless otherwise stated, the reported NSIR findings are based on the voluntary reporting of incidents at participating health care facilities across Canada. If there is anything you would like to see featured in an upcoming edition, please contact us at nsir@cihi.ca.

The NSIR eBulletin is distributed on a quarterly basis. Previous editions can be found on the [NSIR web page](#).

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