

NSIR-RT BULLETIN

Welcome to the electronic bulletin of the National System for Incident Reporting - Radiation Treatment (NSIR-RT). This bulletin supports continuous learning from incident data through the presentation of data trends and case studies. It will also provide system users with information on program developments and enhancements.

NSIR-RT Minimum Data Set Updates

The NSIR-RT Minimum Data Set (MDS) is intended to provide consistent, essential information to a broad range of partners and stakeholders who have key roles in the accurate coding and reporting of radiation therapy incidents.

CIHI is systematically working through the next MDS update based on feedback from the community and the NSIR-RT Advisory Committee. These updates include enhancements to existing values of current data elements (i.e., problem type, body regions treated, ameliorating actions and treatment techniques), and include new values as well as clarification on value labels and definitions. This update to the MDS is expected to have a positive impact on data quality while minimizing impact on system changes.

Work continues on the French translation of the NSIR-RT system. User acceptance testing for the French versions of submission and communication tools were completed in summer 2021. Additional testing is required on the analytical tool prior to formal launch of the translated system.

It is anticipated that these enhancements will be released in winter 2022, timing has shifted due to CIHI's prioritization of COVID-specific releases to support jurisdictions.

THE NEW NSIR-RT ADVISORY COMMITTEE

On October 1, 2021, several aspects of the Canadian Partnership for Quality Radiotherapy's (CPQR's) work came under the purview of the Canadian Association of Provincial Cancer Agencies (CAPCA). This includes hosting the CPQR Steering Committee and the NSIR-RT Advisory Committee, management of the Radiation Treatment Program [Self-Auditing Tools](#) and production of the NSIR-RT Bulletin.

Enhancing quality is a pillar of CAPCA's work. CAPCA supports guideline development and implementation, system level data generation and analysis, and strategic roll out of new treatment options and cancer technologies. Moving forward, CAPCA will also support the critical work of CPQR.

The NSIR-RT Advisory Committee, whose membership now includes Dr. John Kildea (Chair), Dr. John Amanie (AB), Ms. Louise Bird (SK), Ms. Tracey Fisher (CIHI), Dr. Normand Frenière (QC), Ms. Alison Giddings (BC), Dr. Eshwar Kumar (NB), Mr. Brian Liszweski (ON), Ms. Kathryn Moran (NS), Dr. Christiaan Stevens (ON), and Ms. Annie Walker (CIHI). CAPCA is also pleased that the Canadian Institute of Health Information (CIHI) will continue in its role as a key committee partner and steward of NSIR-RT data.

While in a new home with CAPCA, the NSIR-RT Advisory Committee continues to play an important role to:

- oversee the operation and evolution of NSIR-RT and assure it meets current and future needs of the Canadian radiation treatment community.
- review radiation treatment incident data submitted to NSIR-RT, inform the radiation treatment community of emerging patterns and trends, and make recommendations to minimize or mitigate risk to patient safety.
- work with CIHI and CAPCA to facilitate pan-Canadian process change to improve patient safety, and with the international radiation treatment community to ensure global alignment and relevance in incident reporting and learning.

More information on CAPCA's work can be found on the [CAPCA website](#). For questions or comments on the CPQR transition please contact Gunita Mitera, CAPCA Executive Director (gmitera@capca.ca) or Staci Kentish, CAPCA Program Coordinator (skentish@capca.ca).



CPQR
Canadian Partnership for
Quality Radiotherapy
PCQR
Partenariat canadien pour
la qualité en radiothérapie

NSIR-RT Case Study

Using an audit and feedback system to improve the accuracy of events entered into the NSIR-RT

Alison Giddings, BC Cancer
with support from Annie Walker, CIHI

OVERVIEW

In April 2020, British Columbia became the first province to develop a process for direct electronic information transfer to the NSIR-RT. Radiation safety incidents entered into the local electronic reporting system, the BC Patient Safety and Learning System (BC PSLs), are now transferred directly to NSIR-RT. Prior to going live with the information transfer, an auditing system of incident entries was implemented to ensure that BC is contributing the highest quality data to the national system.

All staff at BC Cancer have the ability to report safety events to the BC PSLs. These event entries are reviewed and completed by a wide range of supervisory or managerial staff who are designated as “handlers” and who may not have a radiation therapy background.

Audits are carried out quarterly by radiation therapists familiar with CIHI’s Minimum Dataset, and one of the auditors had completed the CPQR’s Radiation Treatment Incident Investigation and Learning Course. During the audit, all fields of event entries are reviewed and corrected.

If necessary, entries are electronically flagged as ready for upload to the NSIR-RT. After each audit, feedback is provided to individual handlers with details on the corrections made to their entries. The goal of the feedback is to educate staff on how to improve entry accuracy.

FINDINGS

Several important findings emerged from analysis of the first three audits in 2020.

Figure 1 shows the number of corrections per incident of those first audits. The audit and feedback process resulted in an immediate improvement in entry accuracy but could not eliminate the need for corrections. After education on event entries was provided to handlers, the corrections were immediately reduced by over half.

Figure 2 shows the corrections made per event broken down by data field. While education and reminders produced a significant improvement for some data fields, they did not result in improvement in others.

Figure 1

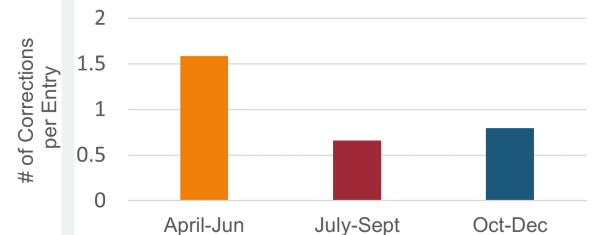
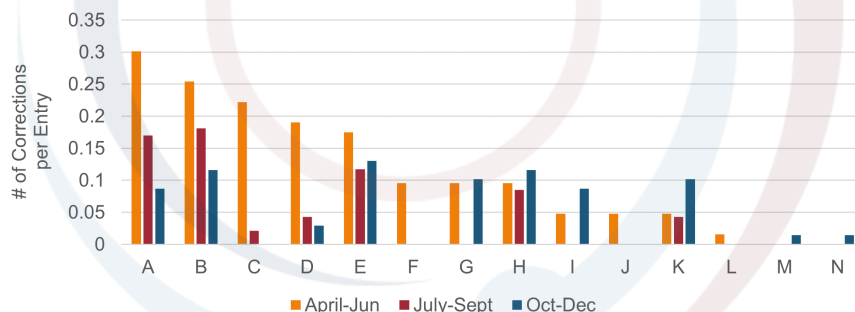


Figure 2



Corrections/Event Legend

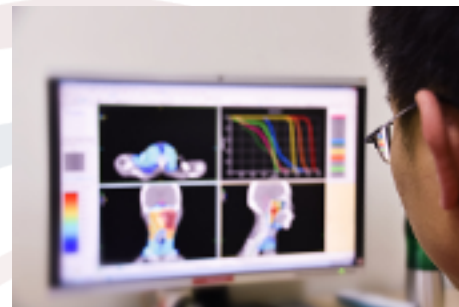
- A – Reject
- B – Total dose prescribed
- C – Event description
- D – Near miss
- E – Problem type
- F – Treatment technique
- G – Contributing factors
- H – Process step where error originated
- I – Safety barriers that failed to identify event
- J – Number of fractions delivered incorrectly
- K – Process step where error detected
- L – Safety barriers that detected event
- M – Body region treated
- N – Diagnosis relevant to treatment

NSIR-RT Case Study

FINDINGS CONTINUED

Education and reminders reduce errors in specific fields:

- Direct education and reminders to the staff who are handling events significantly reduced errors in several key areas.
- The most common correction made during the first audit was complete rejection of an entry because it was not an actual safety incident.^[1] For example, several entries captured patients who had arrived at the wrong appointment time, and given it is unlikely that this would result in harm to the patient, the auditors did not consider this type of event a safety incident.
- These events were often categorized as “Radiation therapy scheduling error”. This type of event does not comply with the definition of “Radiation therapy scheduling error” as defined by CIHI: “*Incorrect coordination of 1 or more radiation treatment tasks resulting in a treatment delay or fractionation schedule not being followed (excluding scheduling errors relating to combined modality care or resulting in excessive/insufficient/inadequate imaging).*”
- There were several other data elements for which education had a significant impact on accuracy. Providing the total dose prescribed in the correct units, removing identifiers from the event description, and correctly classifying an event as a near miss were all areas that saw immediate improvement.

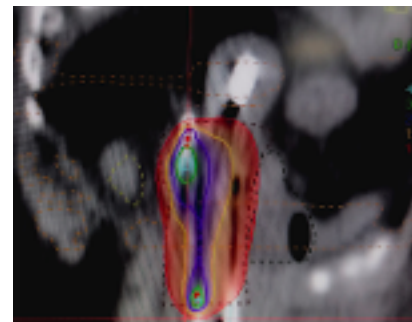


Comparison with existing NSIR-RT data

- For comparison, a sample of the last 50 incidents entered into the NSIR-RT by other provinces as problem type “Radiation therapy scheduling error” were reviewed. It was noted that 12 of the 50 incidents similarly did not comply with the definition of this problem type.
- These incidents ranged from discrepancy in appointment time to problems checking-in a patient. While there may be a desire to track these types of deviations for quality improvement purposes, they may be considered outliers in a radiation incident reporting system.

Errors persisting post audit and feedback process:

- Audit data also show that while immediate improvements were achievable, it was difficult to improve data entries in some of the data fields by simply providing feedback to a large group of handlers. There was little impact on the accuracy of problem type, for instance, or identifying the process steps where errors originated and were detected.
- For the “Problem Type” category in the NSIR-RT, the most common correction was to reclassify an incident that had been classified as “Other”. This reinforced both that it is important that individuals entering errors into the NSIR-RT be familiar with CIHI’s Minimum Dataset and consult it regularly. Incidents classified as “Other” often fit into one of the distinct problem types OR they are not true radiation incidents.



Comparison with existing NSIR-RT Data

- Again, similar examples for the NSIR-RT database were mined for comparison. Of the last 50 incidents entered as problem type “Other”, it was determined that 14 belonged in a distinct problem type. Five of these incidents related to imaging and would have fit in “Failure to perform on-treatment imaging per instructions”. Four of these were “Wrong, missing, mislabeled or damaged treatment accessories” relating to bolus and vaclocks.
- Among the 50 incidents reviewed, seven would not have been considered safety incidents. Some of these were events similar to those rejected in the BC data. For example, fields mislabeled in the planning system. While this could be considered a technical deviation and may be valuable to track, it is very unlikely that the mislabeled fields would not be delivered as planned given that all other treatment data (gantry, collimator, field size) would be correct. Interestingly, 10 of the 50 incidents reviewed in the “Other” problem type were related to quality assurance procedures not being scheduled or performed.

NSIR-RT Case Study

GOING FORWARD

In BC, our electronic reporting system for safety events is used for all types of events, not just those involving radiation treatment planning and delivery. It is important that managers and supervisors are aware of and follow up on incidents and discrepancies occurring in their clinical areas. For this reason, the structure of safety event handling in BC will remain the same; however, the auditing of radiation incidents being contributed to the NSIR-RT will continue. This will ensure that the NSIR-RT data elements are verified by individuals with expertise in radiation treatment incident classification. For those auditing events, familiarity and frequent consultation of CIHI's Minimum Data Set is necessary to ensure the highest quality data are entered into the national system.

[1]The Canadian Patient Safety Institute defines a patient safety incident as, "An event or circumstance which could have resulted, or did result, in unnecessary harm to a patient."

RO-ILS Publication on the Use of Functional Conventions to Aid the Second Check

The Radiation Oncology Incident Learning System (RO-ILS) in the United States recently published a case study highlighting how the use of standardized naming conventions may allow detection of expansion errors which would otherwise be missed.

Entitled *What's in a Name: Use of functional conventions to aid the second check*, the case study details how an incorrect target expansion was successfully caught during a physics second check as a result of standardized and functional naming conventions.

Another related case study, which was featured in the *Summer 2021 NSIR-RT Bulletin* focused on the execution of automated and semi-automated checks to proactively catch potential problems and reduce re-work. The authors concluded that automated checks were effective in identifying problems such as non-deliverable beam angles, deviations from naming conventions, non-compliance with institutional site-specific dose protocols or potential collision issues.

Peer Review in Radiation Oncology

The Key Quality Indicators (KQIs) #34-37 relating to peer review in CPQR's *Quality Assurance Guidelines for Canadian Radiation Treatment Programs* formed the basis of a Canadian Partnership Against Cancer (CPAC) project to develop guidance on radiation oncology peer review. The *CPAC-driven program* ensures that a radiation treatment plan is appropriate from both patient safety and treatment effectiveness perspectives, and is now being implemented across Canada

Recently, *RO-ILS published a themed report on Peer Review* that highlights the critical role of peer review in the provision of safe and high-quality care and in increasing efficiency. The report examines a variety of examples to illustrate effective, ineffective, and insufficient peer review, and presents five strategies for effectively implementing peer review in the process of care.



NSIR-RT BY THE NUMBERS

- ▶ Incidents submitted: 5,842
- ▶ Actual incidents: 3,784

Overall Severity:

None: 2,885	Moderate: 64
Mild: 828	Severe: 7