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

SUMMER 2025

NSIR-RT BULLETIN

Welcome to the electronic bulletin of the National System for Incident Reporting – Radiation Treatment (NSIR-RT). This bulletin promotes continuous learning through sharing incident data trends and case studies, and provides system users with information on program developments and enhancements.

ABOUT

The NSIR-RT Bulletin has been published since 2016 by the Canadian Partnership for Quality Radiotherapy's (CPQR's) NSIR-RT Advisory Committee, with support from the Canadian Institute for Health Information (CIHI), and since 2021, from the Canadian Association of Provincial Cancer Agencies (CAPCA). Earlier editions of the NSIR-RT Bulletin are available on the CAPCA website at www.capca.ca.

We welcome your ideas for future case studies, as well as patient testimonials related to radiation treatment safety. Please contact Kristi MacKenzie, CAPCA Executive Director at info@capca.ca with content ideas and testimonials.

CIHI

CAPCA Canadian Association of Provincial Cancer Agencies

CAPCA brings together cancer programs from all provinces to work together to improve cancer control across Canada. CAPCA champions a sustainable pan-Canadian cancer control system that enhances access and quality, fosters research and innovation, and improves cancer outcomes.

A REVITALIZED CPQR

The Canadian Partnership for Quality Radiotherapy (CPQR) is entering a revitalized phase of work. Now functioning as a standing committee within the Canadian Association of Provincial Cancer Agencies (CAPCA), CPQR is well-positioned to continue advancing the quality and safety of radiation treatment across Canada.

Co-Chaired by Dr. Teri Stuckless (CAPCA representative; Senior Medical Director, Newfoundland and Labrador Health Services) and Dr. Jean-Pierre Bissonette (Associate Head for Professional and Academic Affairs for the Department of Medical Physics at the Princess Margaret Cancer Centre), CPQR remains committed to fostering a national culture of quality, including stewardship of Accreditation Canada's radiation treatment standards and the NSIR-RT.

The NSIR-RT advisory committee, a sub-committee of CPQR, is co-chaired by Dr. Eshwar Kumar (CAPCA representative; Co-CEO, New Brunswick Cancer Network) and Brian Liszewski (Advisor, Radiation Therapy and Infrastructure Planning, Ontario Health (Cancer Care Ontario)). NSIR-RT is advancing efforts in incident reporting and shared learning, with a focus on:

- Assessing and updating incident reporting standards, including a review of the minimum data set and an assessment of how "other" is being used as an incident category. Further breakdowns by incident and problem type are also being explored to better understand the radiotherapy incidents occurring in Canadian radiotherapy centres to inform quality improvement opportunities.
- The re-introduction of this newsletter, last published in Fall 2022, to share data trends, lessons learned and emerging insights within the broader radiation treatment community.

Learn more about CPQR's strategic directions for 2025-2027 on page 2.

LOOKING AHEAD: CPQR'S STRATEGIC DIRECTIONS

As part of its renewed vision, CPQR and its partners will explore emerging tools and approaches that have the potential to transform cancer care—ensuring that all patients, no matter where they live, have access to high-quality treatment.

Since its creation in 2010, CPQR has made meaningful progress in advancing quality and safety in radiotherapy across Canada. Through close collaboration with provincial cancer agencies and programs, CPQR has developed national guidelines, supported quality improvement efforts, and helped build a shared culture of excellence—even through the disruptions of a global pandemic.

Now, CPQR is looking to the future with its 2025–2027 Strategic Work Plan. Informed by partners across the country, the plan sets a clear course for the next phase of work. It focuses on strengthening collaboration and leadership, advancing person-centered care, and leveraging innovation and technology to improve radiotherapy delivery and safety.

As part of this strategic direction, several key initiatives are already underway:

- A **pan-Canadian radiotherapy emergency preparedness and cybersecurity framework** to establish best-practice guidelines for emergency preparedness and response in the event of cyber incidents, unplanned extended downtimes, or critical infrastructure failures. An advisory group is advancing the work, with input being gathered from radiation treatment centres across the country.

- An **enhanced technical quality control (TQC) self-assessment tool** that will be fully web-enabled. By providing real-time performance scoring and links to referenced resources, radiotherapy centres will be supported to identify corrective action that will improve their guideline compliance.

- **Pan-Canadian data modernization**, in collaboration with system partners including the Canadian Partnership Against Cancer (CPAC), the Canadian Artificial Intelligence and Data in Radiotherapy Alliance (CADRA), and Nova Scotia Health and Ontario Health (Cancer Care Ontario). This work will modernize and harmonize pan-Canadian radiation treatment data.

A NEW ONLINE HOME FOR CPQR

Following CPQR's transition to a standing committee of CAPCA, all CPQR content is now available at CAPCA.ca. The original CPQR website will be archived by the end of 2025.

Visit CAPCA.ca to access CPQR resources, including technical quality control guidelines and other guidance documents, now housed in **CAPCA's Resource Centre**.

Past editions of the NSIR-RT Bulletin are also available on CAPCA's website, in the **News & Updates section**.

CASE STUDY:
BRITISH COLUMBIA'S ONGOING CONTRIBUTION TO NSIR-RT

By Alison Giddings, BC Cancer

The electronic transfer agreement with NSIR-RT, along with BC's commitment to quality assurance through documentation and tools, has significantly strengthened the reliability of its safety event reporting in radiation treatment.

Since 2020, British Columbia has been electronically transferring radiation treatment safety event data to NSIR-RT following the implementation of a formal data-sharing agreement between CIHI and the BC Patient Safety and Learning System (BCPSLS).

The Fall 2021 issue of the NSIR-RT Newsletter outlined findings from quarterly audits conducted in 2020 to verify the accuracy and quality of the data being transferred.

Since then, radiation treatment centres in BC have continued to report safety event data to NSIR-RT on a quarterly basis. Prior to upload to the NSIR-RT, all events are audited for accuracy and clarity, then marked as "Ready for Upload," which triggers a transfer of the data to CIHI. Audits are conducted by radiation therapists at each centre, supported by their regional quality and safety leads.

To support accurate data entry, BC has developed several procedural resources including a guidance tree for handling events within the BCPSLS. **Find the guidance tree in the Resources section at capca.ca, or email agiddings@bccancer.bc.ca to request a copy.**

When this guidance tree, coupled with feedback to incident handlers, was first introduced in BC in 2020, the number of corrections required to safety event reports prior to upload to the NSIR-RT was reduced by 50%.

The biggest improvement in data quality was in determining whether the safety event should be contributed to the NSIR-RT in the first place. Prior to auditing and education, many events categorized as "Radiation Treatment" events were, in fact, not radiation treatment events at all. These incidents were either not true patient safety events, or were safety events that would not have resulted in incorrect radiation treatment. These were erroneously categorized as "radiation treatment" events simply because they had occurred in a radiation therapy department.

Due to the ability to share data electronically, BC radiation therapists have continued to comply with provincial guidelines by reporting patient safety events through the BCPSLS, while contributing to the NSIR-RT with minimal additional time and effort. The audits conducted prior to upload to the national system are very efficient, requiring one to two hours per quarter. These are usually carried out by two radiation therapists.

By strengthening the quality of the data contributed to the NSIR-RT and finding efficiencies to do so, BC's experience provides an example for other jurisdictions with electronic systems in place to contribute to the national incident reporting system.

SAFETY IN RADIOTHERAPY
Learning from events to enhance patient care

Radiation therapy is considered a safe and effective treatment modality for patients diagnosed with cancer. In 2024, it is projected that approximately 250,000 new cancer cases will be diagnosed in Canada,[1] and it is estimated that about 50% of those patients will require radiation therapy at some point in their care continuum.[2]

Of this substantial volume of patients, only a small proportion experience significant adverse events: CIHI data indicate that less than 0.1% of patients experienced significant adverse events in 2024. This highlights the strong safety record of radiation therapy, driven by ongoing quality improvement efforts like incident reporting and learning from events.[3] That commitment helps ensure radiation therapy remains a trusted part of cancer care.

A patient receives radiotherapy treatment. Photo courtesy of Newfoundland and Labrador Health Services / Paul Daly Photography

NSIR-RT BY THE NUMBERS

Tracking and reporting safety events in radiation treatment is an important part of delivering high-quality care. Seeing a number of reported incidents doesn't mean care is unsafe — in fact, it shows that teams are paying close attention, learning from every event, and working to prevent future issues.

Incidents very rarely reach the patient, and valuable lessons can be learned from understanding both near-misses and potential harm. A strong safety culture encourages reporting, which helps improve care for all patients.

Number of submitting sites, 2020-2025

2020	2021	2022	2023	2024	2025
22	26	24	22	18	21

Total submissions: Overall Incident type, 2020-2024

Incident Type	2020		2021		2022		2023		2024	
Actual incident	634	69%	732	72%	603	79%	585	80%	752	80%
Near Miss	264	29%	250	25%	145	19%	112	16%	163	17%
Programmatic Hazard	16	2%	30	3%	18	2%	32	4%	23	3%
TOTAL	**914**	**100%**	**1,012**	**100%**	**766**	**100%**	**729**	**100%**	**938**	**100%**

Definitions

- **Programmatic hazard:** A hazard related to the radiation treatment program that does not involve a patient but has the potential to affect patients if not corrected.
- **Near miss:** A patient safety event that is caught by chance or by 1 or more safety barriers before reaching the patient.
- **Actual incident:** A patient safety event that is detected after reaching the patient.

Parts of this material are based on data and information compiled and provided by CIHI. However, the analyses, conclusions, opinions and statements expressed herein are those of the author, and not necessarily those of CIHI.
National System for Incident Reporting, Canadian Institute for Health Information (August 1, 2025)

[1] https://cancerstats.ca/
[2] https://www.cpqr.ca/for-patients/
[3] https://www.cpqr.ca/programs/national-incidents-reporting