

NSIR-RT BULLETIN

Welcome to the electronic bulletin for 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.

The Canadian Association of Provincial Cancer Agencies (CAPCA) and the Canadian Partnership for Quality Radiotherapy (CPQR) have a shared commitment to improving cancer care for Canadians by supporting high quality, patient-centered and safe radiation treatment across the country.

CAPCA and CPQR are pleased to announce that effective October 1, 2021, CPQR will become a standing committee within CAPCA. CAPCA's new Canadian Partnership for Quality Radiotherapy Committee will serve as a pan-Canadian radiation treatment network hub and provide direct stewardship of programmatic quality guidance and national radiation treatment incident reporting. CPQR membership will continue to be multi-disciplinary, pan-Canadian and will bring forth the patient perspective.

Up to the minute information can be found online.



NSIR-RT Case Study

The importance of Equipment Integrity used in Brachytherapy Treatments

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Overview

Over the last year, several incidents have been submitted to NSIR-RT related to brachytherapy associated equipment. Equipment involved included applicators, transfer tubes and catheters. This equipment contains the brachytherapy source and keeps it away from the patient and the outside environment during treatment. Equipment integrity is essential for patient and staff safety.

A commonality across reported incidents relates to the assumed integrity of accessories including applicators and catheters that have direct contact with the patient. Reprocessing is vital to keep equipment sterile but is also hard on the equipment. Incident frequency suggests an opportunity for programs to ensure they have appropriate pre-treatment equipment quality checks in place and that they are adhered to.

Data Analysis

A search of the NSIR-RT database identified five reports related to brachytherapy associated equipment, four of which reached the patient. A request to international partners with similar incident reporting systems yielded no similar incidents.

However, a search of the MAUDE database¹, which houses medical device reports submitted to the FDA of adverse events involving medical devices, identified a single incident in the same timeframe. This incident also described a patient accessory that was found to be damaged after successful patient treatment.

As stated above, brachytherapy treatments are complex systems that involve multiple software and hardware systems used in a remote treatment delivery environment allowing significant potential for issues to propagate.

Recommendations

The Canadian Partnership for Quality Radiotherapy (CPQR) sets forth programmatic quality guidelines to support the planning and delivery of high quality and safe radiotherapy.

The guidelines recommend that all equipment be inspected on a regular schedule to ensure continued integrity and that radiation quality assurance programs maintain records of equipment integrity tests that are reviewed on a regular basis².

Test detail and suggested frequencies are outlined in the CPQR *Technical Quality Control Guideline (TQC) for Brachytherapy Remote Afterloaders (BRA)*. A *self-audit tool* is also available to help Centres review their practice to the CPQR guidelines. Equipment integrity tests should include:

- Quantitative measurements of transfer tube lengths, and other equipment
- A visual inspection after sterilization and before treatment.

CPQR TQC for BRA recommends that mechanical integrity tests are done quarterly or at time of replacement or equivalent. It is also recommended that programs follow all local procedures and

recommendations from manufacturers regarding usage. Report all incidents to the hospital incident reporting system.

The TQC suite of documents that have been developed by COMP and CPQR are live documents and are reviewed at regular intervals to ensure they reflect the current practice. That includes the review of such documents when incident reports are submitted into the NSIR-RT system.

In response to an incident alert identified by an NSIR-RT participating centre, CPQR issued a safety advisory in relation to brachytherapy associated equipment. In addition to a review of their process against tests detailed in the TQC, BRA healthcare professionals were advised to:

- Report all incidents to their hospital incident reporting program and administration as per their hospital’s policy.
- Ensure that use and handling of brachytherapy equipment complies with manufacturer guidelines, those pertaining to life expectancy, handling and sterilization.
- Report any concerns with intrauterine tube CT/MR brachytherapy tandems or other brachytherapy equipment to the manufacturer.

Case Study References

1 <https://www.accessdata.fda.gov/scripts/cdrh/cfdocs/cfMAUDE/search.CFM>

2 Quality Assurance Guidelines for Canadian Radiation Treatment Programs. Toronto, Canada: Canadian Partnership for Quality Radiotherapy, 2019. <http://www.cpqr.ca/wp-content/uploads/2020/03/ORT2019-12-04.pdf>

What's happening with our partners?

RO-ILS Safety Notice - Stereotactic Radiosurgery Program Upgrade

Clarity, a patient safety organization in the United States, works with the American Society of Radiation Oncology and the American Association of Physicists in Medicine to develop safety notices associated with the Radiation Oncology – Incident Learning System (RO-ILS). They recently issued a safety notice through RO-ILS focused on commissioning a replacement linear accelerator as part of a stereotactic radiosurgery program upgrade. [Click here](#) to learn more about the resulting incident and lessons learned.

ESTRO Quality Management Course

The European Society of Radiation Oncology is offering an online course that teaches participants how to establish a comprehensive quality management program. It includes detail regarding risk management, quality indicators, tools and methodology to help monitor and improve radiation treatment quality. [Click here](#) for more information.

NSIR-RT By the Numbers	
Incidents Submitted	5,408
Actual Incidents	3,464
Near Miss	1,572
Programmatic Hazard	372
Severity	
None	2,632
Mild	766
Moderate	59
Severe	7



ANALYZE WITH CARE: DOS AND DON'TS WITH NSIR-RT

This article has been adapted from one previously published in CIHI's Winter 2020 NSIR Bulletin

Incident data should be used to inform decision-making. With this type of data, some analytical summaries can be very informative, while others may lead to misinterpretation.

DO use broad search criteria when analyzing NSIR-RT data for specific system issues.

Incident data provides valuable information to identify weaknesses in the system. However, this information may be found in various parts of the incident report. The details you are looking for may not be where you think they are, and sometimes, key incident details will be enumerated in different parts of a report.

For example, system weakness related to scheduling can be found in 3 three data elements:

- as a process step where the incident either occurred or was detected,
- as part of inadequate coordination of combined modality care or
- RT scheduling errors in Problem.

Don't forget that incident reports may also provide additional information in the text field narrative. We recommend you take a thorough approach to reviewing cases when conducting analysis.

DO use time series analyses to review reporting frequency and explore your facility data.

Monitoring the total number of reported incidents at your facility over time is an invaluable method of summarizing the data for local risk-management activities.

Summaries of incident data over time may be helpful for your facility to measure the impact of a policy changes, a procedural change, or a newly implemented patient safety initiative (e.g., implementation of new technology).

Changes in reporting over time may help to identify where system improvements have been made or where issues have been detected/reported. However, it is important to consider whether the trend reflects changes in incident occurrence or in reporting. For example, an increase in reported incidents may simply reflect an increase in awareness for a specific system issue or education/promotional activities that encourage more reporting.

DO use NSIR-RT comparative reports to understand your data relative to what the rest of NSIR is reporting.

A comparative report helps you to validate observations in your data or to identify potential gaps in your data. Looking at your data in comparison with the totality of Canadian data helps you to interpret those patterns.

A review of your facility's data compared with "all NSIR-RT" data may identify issues that had been considered rare but may be more common when aggregated across the country or help to prioritize incidents requiring more investigation.

DO share observed patterns and trends in your data with other staff.

To truly validate and understand patterns in your facility's data, it is important to complete the feedback loop with other staff. This feedback will help develop internal action plans to improve patient safety.

DON'T use NSIR-RT data to assess incident rates or establish patient safety metrics.

NSIR-RT's system is predicated on voluntary anonymous reporting. Anonymity is used to promote a patient safety culture and to help move us past a blame-and-shame approach to addressing radiotherapy incidents. However, the data that comes from voluntary anonymous reporting is not well suited to measuring error rates over time because within a facility, not all incidents are discovered and not all discovered incidents are reported. With a voluntary system, the question "how often do radiation treatment errors occur in my facility?" cannot definitively be answered.

If you would like more information on how to analyze and interpret incident data, please [contact us](#).