

# 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

## MAKING INCIDENT SUBMISSION MORE EFFECTIVE: BC CANCER

For most users submitting an incident to NSIR-RT requires manual data entry which can be cumbersome. Due to resource constraints this often means that national reporting is limited to incidents that meet a set of pre-developed criteria established locally. A core tenet of CPQR is to encourage pan-Canadian reporting of all incidents whenever possible as there are valuable lessons to be learned from near-miss events and other non-severe incidents.

The Canadian Institute for Health Information (CIHI) has been working with BC Cancer to develop pan application program interface that eliminates the need for any human interaction or double entry. The system-to-system connection transfers data automatically from a local system to CIHI and maps the hospital incident taxonomy to the NSIR-RT minimum data set.

If you are interested in exploring this functionality within your centre or province, please reach out to CIHI.

## INCIDENT REPORTING: IMPORTANCE, CHALLENGES AND OPPORTUNITIES - PART II

In the [NSIR-RT Spring 2020](#) bulletin we discussed how incident reporting improves patient safety by preventing incident recurrence or propagation and the importance of prioritizing this exercise within your program. In Part II of this series we discuss how investigating near miss events presents programs with a unique and often overlooked perspective in cancer program procedure.

Near miss events provide a unique opportunity for learning and when considered together with events that reach a patient, can yield a great deal of data potentially limiting the resources for thorough review. Acknowledging the practical reality that there are limits to in-depth inquiry and investigation focusing a program's efforts on events (including near misses!) with the greatest potential for learning benefits both cancer programs and the Canadian cancer system.

Part I lists a number of resources available to programs looking to effectively investigate events including the CPQR [Radiation Treatment Incident Investigation and Learning course](#) and the Canadian Patient Safety Institute's [Incident Analysis Framework](#). This issue describes a second useful approach to incident analysis: A [Prioritization Framework for the Analysis of Near Misses in Radiation Oncology](#).

The term near miss implies that a harm event was avoided, but often there is a lack of evidence when establishing a link between a failure in process and the potential for harm. Rare events that are caught upstream in the planning/treatment trajectory, which if not caught would result in no harm to a patient, may not provide significant opportunity for learning. It is those recurring incidents, which are caught sporadically and have the potential to do harm, that should be evaluated to identify mitigation strategies. Near miss (and harm) events share similar characteristics with those used in the evaluation of Failure Modes Effect Analysis (FMEA) [1]. Elements such as likelihood of the failure occurring, the potential impact if it did occur, and the odds that it would go undetected can be used to describe an event.



Analytic Hierarchy Process (AHP) is a technique used to break down the measures that contribute to a decision into a number of easily comprehended sub-criteria [2]. These can be evaluated relative to one another using measurable or subjective inputs. In the case of a prioritization framework for near miss and/or harm events, AHP can be used to characterize failure modes criteria (frequency, impact and detectability) and sub-criteria (percent of total incidents, assessed potential or actual impact, and step in the planning/treatment process). Applying the AHP framework to the characteristics of an event can allow a program to assign a score reflecting incidents with the greatest potential for program learning.

Near miss events provide a unique opportunity for learning

## NSIR-RT BY THE NUMBERS

Incidents submitted: **4,612**  
 Actual incidents: **2,906**  
 Near miss: **1,350**  
 Programmatic hazard: **356**  
 Severity:  
 None (**2,212**)  
 Mild (**634**)  
 Moderate (**53**)  
 Severe (**7**)

and should be leveraged for programmatic gain. A prioritization framework that uses tools like FEMA and AHP can help programs identify steps at which potential failures can occur and incidents where the greatest opportunity for learning exist. For more information please reach out to [Brian.Liszewski@ontariohealth.ca](mailto:Brian.Liszewski@ontariohealth.ca)

### References:

1. Gillan C, Davis C-A, Moran K, French J, Liszewski B. The quest for quality: principles to guide medical radiation technology practice. *J Med Imaging Radiat Sci* 2015;46(4):427-34. <https://doi.org/10.1016/j.jmir.2015.07.005>
2. Saaty TL. How to make a decision: the analytic hierarchy process. *Interfaces* 1994;24(6):19-43. <https://doi.org/10.1287/inte.24.6.19>

## CASE STUDY: ERROR REPORTING IN A TIME OF PANDEMIC

COVID-19, has interrupted many standard processes and procedures within health care facilities including cancer centres. In radiation oncology, processes have become more complex as unprecedented deviations from routine practice are being considered for the sake of patient and staff safety.

Radiation treatment programs may be applying novel approaches to delivering care, including hypofractionated schedules of treatment, virtual appointments for consults and education, and modified staffing to increase physical distancing, all of which complicate normal patterns of delivering care. Some patients may be experiencing deviations to standard clinical protocol due to the possibility or reality of a positive COVID-19 diagnosis. Delays to treatment and altered fractionation schemes are being employed to keep other patients and staff safe from contracting COVID-19 from infected patients. CPQR has developed a tool to help programs track and monitor clinical deviations. Check out the details at [cpqr.ca](http://cpqr.ca)! In addition to the added work of navigating pandemic-imposed protocol changes, the reporting, investigation, and follow up of patient safety events takes time and energy, which may currently be in short supply. Front line workers, whom we rely upon to report errors, are facing new challenges related to living and working through a pandemic. Many are likely experiencing increased stress both at work and at home. There is a higher workload associated with treating patients as a result of

## EDUCATIONAL OPPORTUNITY

The Canadian Patient Safety Institute is hosting a webinar August 4 titled: *Reimagining healing after healthcare harm* highlighting innovative approaches to responding to healthcare harm from Canada, New Zealand and the United States. For more information and to register please visit [patientsafetyinstitute.ca](http://patientsafetyinstitute.ca)

additional infection control protocols (7, 8). Duties are performed under layers of Personal Protective Equipment, possibly adding a number of distractions. For clinical staff, reporting errors may not be a priority at this time.

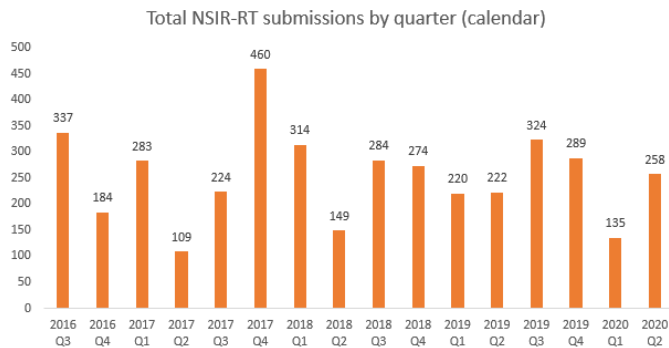


Figure 1

Members of the NSIR-RT Advisory Committee were curious about error reporting rates during the pandemic. At the macro level, the NSIR-RT has not shown a noticeable decrease in the number of incidents reported. In the most recent quarter, which includes April, May and June, there were 258 incidents entered. While this is within the normal range of variation within the system (Figure 1), it is lower than 4 out of 7 quarters over the past two years. Given the degree of variability in incidents reported quarterly to the NSIR-RT, it may take longer for noticeable trends to emerge. On an individual centre level however, trends are easier to spot. At one large centre, the number of events reported in the past quarter was lower than any preceding quarter over the past three years (Figure 2).

Incident reports by quarter - Single Centre

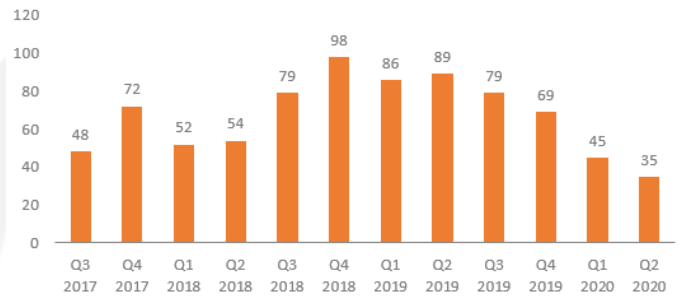


Figure 2

Stress, increased workload, fatigue and distractions, which may result in lower reporting rates, can also contribute to medical errors (1-4, 7). Moreover, it is possible that the increasing complexity of treatment planning and delivery can lead to an increase in radiation treatment errors (1,5,6). Decreased reporting rates could be masking a potential rise in medical errors, and the NSIR-RT Advisory Committee makes the following recommendations to ameliorate this potential effect:

- Actively track incident reporting rates over time
- Continue to encourage and support staff to report safety events
- Communicate widely the quality improvement initiatives resulting from reported events
- If regular meetings of the Radiation Therapy Quality Assurance Committee have been interrupted due to COVID-19, make efforts to reinstate meetings, using virtual meeting technology if necessary

References:

1. D'Souza N, Holden L, Robson S, et al. Modern palliative radiation treatment: Do complexity and workload contribute to medical errors? *Int J Radiation Oncol Biol Phys.* 2012; 84(1): e43-e48.
2. Montgomery VL. Effect of fatigue, workload and environment on patient safety in the pediatric intensive care unit. *Pediatr Crit Care Med.* 2007; 8 (2): S11-S16.
3. Mazurek Melnyk B, Orsolini L, Tan A, et al. A national study links nurses' physical and mental health to medical errors and perceived worksite wellness. *Journal of Occupational and Environmental Medicine.* 2018; 60(2): 126-131.
4. Keers RN, Placido M, Bennett K, et al. What causes medication administration errors in a mental health hospital? A qualitative study with nursing staff. *PLOS One.* 2018; <https://doi.org/10.1371/journal.pone.0206233>.
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7. Whitaker T, Kron T, et al. COVID-19 pandemic planning: considerations for radiation oncology medical physics. *Physical and Engineering Sciences in Medicine* (2020) 43:473-480.
8. Reuter-Oppermann M, Müller-Polyzou R, et al. Influence of the pandemic dissemination of COVID-19 on radiotherapy practice. *PLoS ONE* 15(5): e0233330.