



SAFRON

SAFety in Radiation ONcology

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A Newsletter on Patient Safety in Radiotherapy

March 2016 (Vol. 2, Issue 1)

LEARNING FROM NEAR MISSES



Near misses are opportunities to prevent harm to patients in the future

A near miss in aviation refers to two aircraft in flight narrowly missing a collision with each other. A near miss in medicine is an event that might have resulted in harm but the problem did not reach the patient because of timely intervention by healthcare providers, the patient, the family, or due to good fortune. A near miss in radiotherapy is an awareness and intervention in the treatment process that prevents an error from reaching the patient. Many times the near miss is identified when the patient is being set up for their first treatment. Near misses are free lessons and should be investigated and corrective actions put in place because the next time the near miss may result in an error.

Most of the radiotherapy near misses and events are system failures. There is a lack of or failure of policies, processes or safety infrastructure. On occasion there is an error in judgement where an event occurs because the individual made the decision to continue with the treatment without clear guidance.



“Free Lessons” Why are near misses important?

- They represent “error prone situations” and “error traps” waiting to catch other patients and providers.
- They represent potential sources of errors that may not be caught before they reach the patient.
- There is an opportunity to reward the “good catches” in support of a strong safety culture.
- No harm is done and there is “no blame” or liability concerns in the identification of near misses or good catches.

Major errors

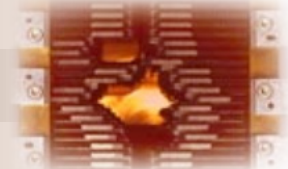
Minor errors

Incidents (near misses)

What are the Professionals saying?

“Fixing and forgetting” was the main choice that most practitioners made in situations where they faced problems that they themselves could resolve. These situations included (A) handling near misses, which were seen as unworthy of reporting since they did not result in actual harm to the patient, (B) prioritizing solving individual patients’ safety problems, which were viewed as unique or one-time events and (C) encountering re-occurring safety problems, which were framed as inevitable, routine events. In only a few instances was ‘fixing and reporting’ mentioned as a way that the providers dealt with problems that they could resolve.”

[Hewitt, TA and Chreim, S. BMJ Quality Safety: Fix and forget or fix and report: a qualitative study of tensions at the front line of incident reporting. 2015 May; 24\(5\): 303–310.](#)



Why should near misses be reported?

Reporting near misses helps to:

- reduce risks for all patients by not waiting for harm to occur;
- provide information on the weak spots in the safety system;
- alert other providers to possible vulnerabilities and gaps in training;
- contribute to prioritizing safety improvement plans in radiotherapy;
- evaluate the effectiveness of the system in reducing and mitigating errors that reach the patient.



Are you providing radiotherapy in a “high reliability” organization?

Reports from SAFRON

“High reliability organizations” view near misses as learning and improvement opportunities.



Such organizations ask: “How will the next patient be put at risk or harmed?” they value and acknowledge input, and make appropriate improvements.

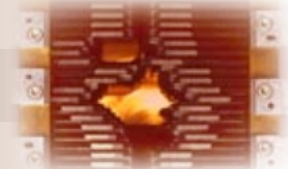
“Low reliability organizations” are falsely reassured because no harm occurs and they mistakenly conclude the system of care is safe. They wait for harm to occur.

Here is one of the examples of near misses:

Incorrect isocentre marked on the DRR sent from the TPS

Treatment modality:	External beam radiotherapy
Equipment used:	Linear Accelerator
Date of discovery:	2015-02-16
Who discovered the incident?	Radiation therapist/staff at treatment unit treating patients
How was the incident discovered?	Portal imaging
What phase in the process is the incident associated with?	2.7.2. Use of correct data
Where in the process was incident discovered?	3.3.1. On-set imaging process
Was anyone affected by the incident?	No, but someone could have been; potential incident
Was any part of the prescribed treatment delivered incorrectly?	No
First day of treatment:	Yes
How many fractions were delivered incorrectly?	
Total number of fractions prescribed:	
Prescribed dose per fraction (Gy):	
If relevant, please estimate the dose deviation from the prescribed dose per fraction:	
Clinical incident severity:	Minor incident
If the incident-cause is related to equipment (hardware or software), please specify the make, model and version number:	
Describe the incident in detail:	During pre-treatment portal imaging, the image showed a 1.2cm displacement of the isocentre. Since the displacement was out of tolerance to shift on the treatment machine as per local protocol, an investigation was made and it was discovered that an incorrect isocentre had been marked on the DRR from planning.
Describe the causes of the incident:	
Did the incident reach the patient?	Yes
What safety barrier failed to identify the incident?	
What safety barrier identified the incident?	Verification of imaging data for planning (CT scan, fusion, imaging modality, correct data set) Verification reference points
What safety barrier might have identified the incident?	
Describe contributing factors to the incident:	
Suggest preventive action(s):	Dosimetrist and Physicist to countercheck DRRs and plan isocentres for all patients as per standard QA protocols for all new patients.
Is risk assessment complete?	No

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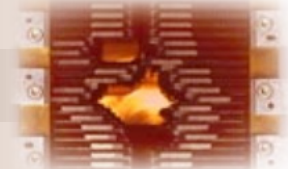
Creating Safety Reports

SAFRON is an incident learning system that can support radiotherapy facilities in reducing errors. The SAFRON system is currently supported by participating radiotherapy centres and regulatory authorities. It is a voluntary, anonymized learning system that allows individual centers to monitor and measure the number of near misses and errors. Near-miss events represent an opportunity to identify and correct radiotherapy errors that may jeopardize patient outcomes and safety.

In October 2015, SAFRON added new capabilities for users to be able to perform statistical analysis and convert their events into downloadable spreadsheets for more complex analysis. This can be used for both near misses as well as events that reach the patient.

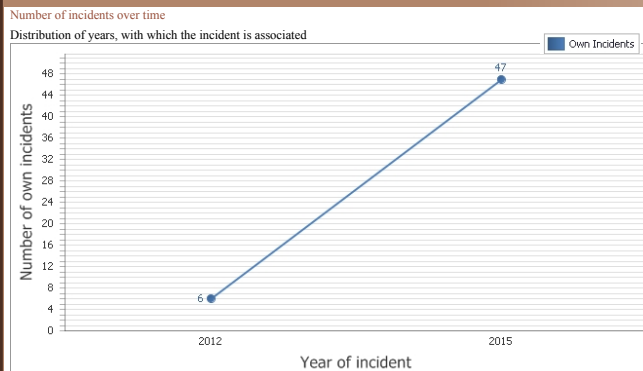
SAFRON provides the small or large radiotherapy facilities with increased information to justify changes in the delivery of radiotherapy. By using the SAFRON learning system the reports can be compiled in a database that will automatically provide participants with graphs and charts to review activities in the radiotherapy facility.

The statistical information can be used in training and education, for the purposes of prioritizing safety improvement and to validate the need for additional safety equipment and additional resources. Quarterly or annually these reports can demonstrate the effectiveness of changes in the safety system. It is possible to also indicate changes that were not effective if the number and type of events continue after changes were made.



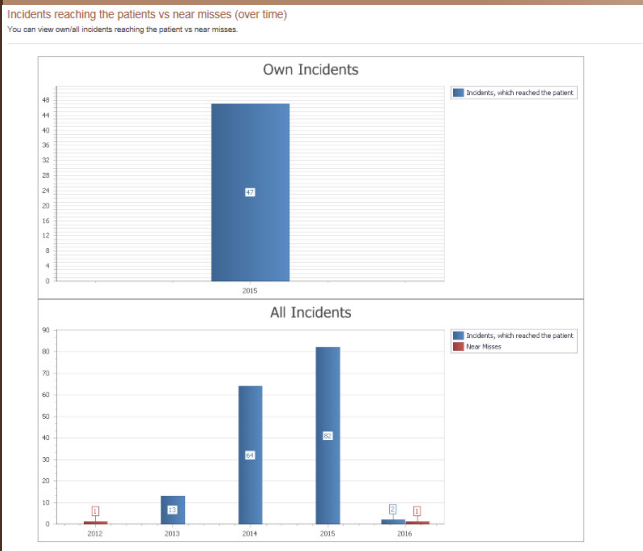
Creating Safety Reports

Some of the types of analysis that could be included in the report are the number of events during a particular time. A radiotherapy facility may like to see how many events have been reported.



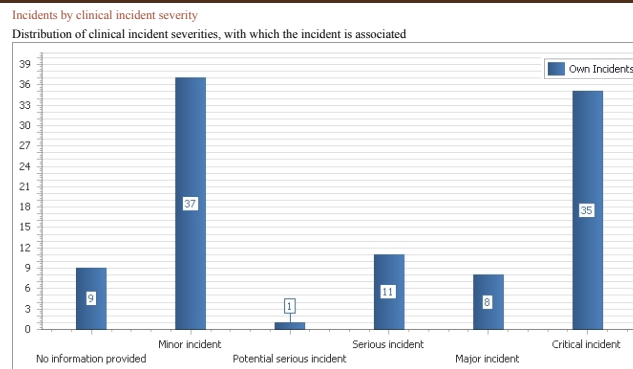
It looks like this facility started a reporting system in 2012 but really began reporting events in 2015.

Another tool is to identify the number of events that reached the patient. In this graph, the individual facility can compare to all reports in SAFRON. It may be of interest to this facility to also include the near misses. This may provide information on safety barriers that could be in place to prevent the error from reaching the patient.

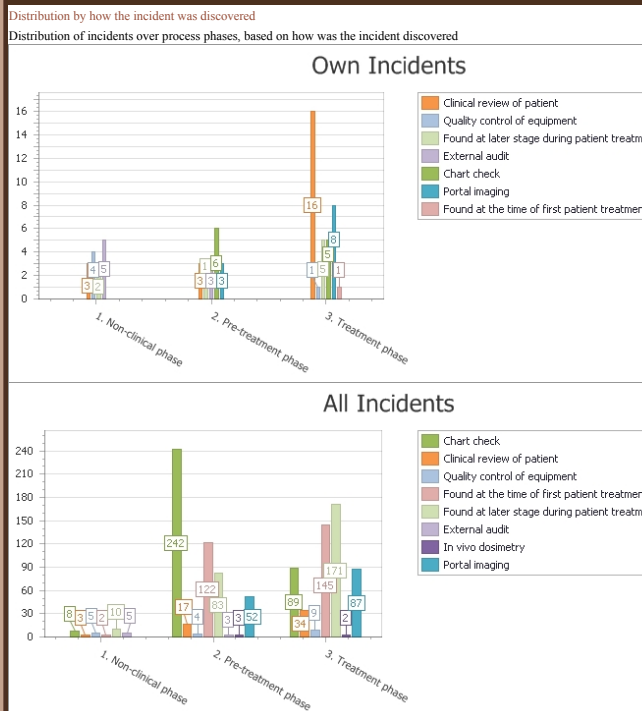


SAFRON safety reports represent a useful tool, which can be used by High Reliability Organizations to improve radiotherapy safety & quality.

Another chart is the severity of the incident. This facility is reporting events that reached the patient but maybe not reporting any near misses.



Another metric that may be of interest is the determination of how the incident was discovered. This graph gives facilities additional information as well as information on all incidents.



Clinical review of patient, quality control of equipment and chart checks appear to be useful reviews in preventing the continuation of an error, but maybe not as successful to prevent the error from ever reaching the patient. If this facility reported near misses the detection of the incident may indicate other methods of discovery. These can be exported to a PDF for inclusion into a safety report.